

SmartCool™ One Downflow  
Dedicated Chilled Water



Technical Manual

Original Instructions



FM00542

EMS52086

**Special Precautions**

The guidance in this manual must be followed to provide safe, efficient and trouble-free operation. In addition, particular care must be exercised regarding the special precautions listed below. Failure to properly address these critical areas could result in property damage or loss, personal injury or death. These instructions are subject to any additional restrictive local or national codes.

**Hazard Intensity Levels**

1. **DANGER:** Indicates an imminently hazardous situation which, if not avoided, **WILL** result in death or serious injury.
2. **WARNING:** Indicates a potentially hazardous situation which, if not avoided, **COULD** result in death or serious injury.
3. **CAUTION:** Indicates a potentially hazardous situation which, if not avoided, **MAY** result in minor or moderate injury.
4. **IMPORTANT:** Indicates a situation which, if not avoided, **MAY** result in a potential safety concern.
5. **NOTE:** Indicates information that is not a safety concern but may invalidate warranty if not adhered to.

**⚠ WARNING**

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.

Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death, and could cause exposure to substances which have been determined by various state agencies to cause cancer, birth defects or other reproductive harm. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment.

If a unit is fitted with the Ultracap backup option, allow 5 minutes discharge time following mains isolation.

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

The unit must maintain power once the waterside has been commissioned to allow the pressure transducer to operate correctly. This is to mitigate the scenario of an increase in water pressure exceeding the valve close off pressure or causing catastrophic failure of the water circuit.

If power cannot be maintained after commissioning, the waterside system must always be checked before isolating to ensure the valve is open to avoid issues with liquid lock and the internal water temperature should not be allowed to raise significantly.

The equipment contains live electrical and moving parts, ISOLATE prior to maintenance or repair work. Ensure electrical lock-off procedures are carried out.

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

The equipment contains live electrical and moving parts, ISOLATE prior to maintenance or repair work. Ensure electrical lock-off procedures are carried out.

**⚠ CAUTION**

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

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

Any electrically conductive attachment devices used must not touch the stainless steel sensing element within the water detection PVC twisted rope. The maximum length of detector loop, including wire and detection rope is 30 metres, and 10 to 25 metres per zone is generally used. If the water detection rope is to be attached to or covered by a metallic or conductive surface, care should be taken not to short the conductors.

When installing the rope sensor to any surface, be careful not to short circuit or ground out the stainless steel sensing element (such as over/under conduit or sharp edges of cable trays etc.). This also applies to any covering which may be applied over the rope. Before installing the rope, be sure to inspect areas where the rope sensor is to be applied for presence of chemical materials that could create problems. If in doubt, it is recommended to clean the floor with a mild detergent.

**⚠ IMPORTANT**

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 Limited.

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

Check the unit is as ordered. Discrepancies or transit damage should be reported to Airedale immediately. Airedale will accept no responsibility for mishandling during the positioning of the equipment.

On A-frame unit designs where the coil drain tube passes through the fan deck, the drain tube must be disconnected to allow the fan module to be removed. Ensure the drain tube is reconnected when replacing the fan module.

**NOTE**

Please specify preferred 4 digit Display Screen PIN at time of order.

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

The plugged unit-to-unit network termination ensures that the connections are made simultaneously. Failure to attach the cables in this way may cause damage to the controller.

The sound data quoted is based on the unit having a ducted return air, ducted (or underfloor) discharge air and standard backward curved fan and EC motors fitted.

Please ensure all documents have been completed correctly and return to Airedale Technical Support immediately to validate warranty.

**Customer Services****Warranty, Commissioning & Maintenance**

As standard, Airedale guarantees all non consumable parts only for a period of 12 months, variations tailored to suit product and application are also available; please contact Airedale for full terms and details.

To further protect your investment in Airedale products, Airedale can provide full commissioning services, comprehensive maintenance packages and service cover 24 hours a day, 365 days a year (UK mainland only; international cover may vary). For a free quotation or more information please contact Airedale or your local Sales Engineer.

All Airedale products are designed in accordance with EU Directives regarding prevention of build up of water, associated with the risk of contaminants such as legionella. For effective prevention of such risk it is necessary that the equipment is maintained in accordance with Airedale recommendations.

**SafeCool™**

In addition to commissioning, a 24 hour, 7 days a week on-call service is available throughout the year to UK mainland sites. International cover may vary; please contact Airedale for more information. 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.

**IMPORTANT**

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 Limited.

**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](mailto:enquiries@airedale.com) or telephone:

|                         |                       |                                                                          |
|-------------------------|-----------------------|--------------------------------------------------------------------------|
| UK Sales Enquiries      | + 44 (0) 113 239 1000 | <a href="mailto:connect@airedale.com">connect@airedale.com</a>           |
| International Enquiries | + 44 (0) 113 239 1000 | <a href="mailto:connect@airedale.com">connect@airedale.com</a>           |
| Spares Hot Line         | + 44 (0) 113 238 7878 | <a href="mailto:spares@airedale.com">spares@airedale.com</a>             |
| Airedale Service        | + 44 (0) 113 239 1000 | <a href="mailto:service@airedale.com">service@airedale.com</a>           |
| Technical Support       | + 44 (0) 113 239 1000 | <a href="mailto:tech.support@airedale.com">tech.support@airedale.com</a> |
| Training Enquiries      | + 44 (0) 113 239 1000 | <a href="mailto:training@airedale.com">training@airedale.com</a>         |

For information, visit us at our website: [www.airedale.com](http://www.airedale.com)

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**Health and Safety**

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.

|                  |                                                                                                                                                                                             |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>⚠ WARNING</b> | 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. |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                  |                                                                                                                                                                                                                                                                                                                |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>⚠ CAUTION</b> | Ensure that there are no other power feeds to the unit such as fire alarm circuits, BMS circuits etc.<br>Electrical installation commissioning and maintenance work on this equipment must be undertaken by competent and trained personnel in accordance with local relevant standards and codes of practice. |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

A full hazard data sheet, in accordance with COSHH regulations and OSHA Regulation and Local and State Codes, is available should this be required.

**Personal Protective Equipment**

|                    |                                                                                                                                        |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| <b>⚠ IMPORTANT</b> | Airedale recommends that appropriate personal protective equipment is used whilst installing, maintaining and commissioning equipment. |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------|

**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.

**Pressure Equipment Directive (2014/68/EU) (UL 1995)****Minimum and Maximum Operation Temperature (Ts) and Pressure (Ps)****Waterside**

Allowable Temperature Range (Ts), Ts = Min 1°C\* to Max 45°C\*\* (Min 33.8 °F to Max 113 °F)

Maximum Allowable Pressure (Ps) Ps = 10 Barg (145psi)

\*Based on the water temperature in the unit off state in the lowest permitted ambient temperature.

\*\* Based on the maximum allowable ambient temperature in the unit off state.

|                  |                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>⚠ WARNING</b> | Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death, and could cause exposure to substances which have been determined by various state agencies to cause cancer, birth defects or other reproductive harm. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment. |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Please note that all gallon measurements in this manual are quoted in US gallons.

Environmental Considerations

**Units with supply water temperatures below +5°C (41°F)**

- Glycol is recommended when a supply water temperature of +5°C (41°F) or below is required or when static water can be exposed to freezing temperatures.

**Unit pipework subject to ambient temperatures lower than 0°C (32°F)**

- Glycol of an appropriate concentration <sup>(1)</sup> must be used within the system to ensure adequate freeze protection. Please ensure that the concentration is capable of protection to at least 3°C (5.4°F) lower than ambient.
- Water / glycol solution should be 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 (5.4°F) of the solution freeze point <sup>(1)</sup> (i.e. if the solution freezes at 0°C (32°F), the pump must be operating at 3°C (37.4°F) ambient).
- Additional trace heating is provided for interconnecting pipework.

<sup>(1)</sup> Refer 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

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

|                                               |                               |
|-----------------------------------------------|-------------------------------|
| Electromagnetic Compatibility Directive (EMC) | 2014/30/EU                    |
| Machinery Directive (MD)                      | 89/392/EEC version 2006/42/EC |
| Pressure Equipment Directive (PED)            | 2014/68/EU                    |
| Ecodesign                                     | 2009/125/EC                   |
| UL 1995                                       |                               |

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

This system has been designed to be connected to a TN type distribution system. For alternate distribution type systems, contact Airedale.

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## Nomenclature

Example:

|                |                                  | S                                                      | O | 09 | D | 003 | C | L | C | S | L | - | 0 |
|----------------|----------------------------------|--------------------------------------------------------|---|----|---|-----|---|---|---|---|---|---|---|
| <b>S</b>       | Product Name                     | SmartCool                                              |   |    |   |     |   |   |   |   |   |   |   |
| <b>O</b>       | Product Variant                  | One - Dedicated Chilled Water                          |   |    |   |     |   |   |   |   |   |   |   |
| <b>09</b>      | Case Width                       | 900mm / 35.4 in                                        |   |    |   |     |   |   |   |   |   |   |   |
| <b>12</b>      |                                  | 1200mm / 47.2 in                                       |   |    |   |     |   |   |   |   |   |   |   |
| <b>15</b>      |                                  | 1500mm / 59.1 in                                       |   |    |   |     |   |   |   |   |   |   |   |
| <b>18</b>      |                                  | 1800mm / 70.9 in                                       |   |    |   |     |   |   |   |   |   |   |   |
| <b>22</b>      |                                  | 2200mm / 86.6 in                                       |   |    |   |     |   |   |   |   |   |   |   |
| <b>25</b>      |                                  | 2500mm / 98.4 in                                       |   |    |   |     |   |   |   |   |   |   |   |
| <b>31</b>      |                                  | 3100mm / 122.0 in                                      |   |    |   |     |   |   |   |   |   |   |   |
| <b>35</b>      |                                  | 3500mm / 137.8 in                                      |   |    |   |     |   |   |   |   |   |   |   |
| <b>30</b>      |                                  | 3000mm / 118.1 in                                      |   |    |   |     |   |   |   |   |   |   |   |
| <b>40</b>      |                                  | 4000mm / 157.5 in                                      |   |    |   |     |   |   |   |   |   |   |   |
| <b>50</b>      |                                  | 5000mm / 196.9 in                                      |   |    |   |     |   |   |   |   |   |   |   |
| <b>60</b>      |                                  | 6000mm / 236.2 in                                      |   |    |   |     |   |   |   |   |   |   |   |
| <b>D</b>       | Flow Configuration               | Downflow                                               |   |    |   |     |   |   |   |   |   |   |   |
| <b>003-100</b> | Nominal Cooling Capacity (kW/10) |                                                        |   |    |   |     |   |   |   |   |   |   |   |
| <b>C</b>       | Circuit One                      | Chilled Water Circuit                                  |   |    |   |     |   |   |   |   |   |   |   |
| <b>L</b>       | Coil type                        | Low Flow Coil suitable for $\Delta T$ s from 9K to 12K |   |    |   |     |   |   |   |   |   |   |   |
| <b>H</b>       |                                  | High Flow Coil suitable for $\Delta T$ s from 6K to 9K |   |    |   |     |   |   |   |   |   |   |   |
| <b>B</b>       | Coil Code                        |                                                        |   |    |   |     |   |   |   |   |   |   |   |
| <b>C</b>       |                                  |                                                        |   |    |   |     |   |   |   |   |   |   |   |
| <b>D</b>       |                                  |                                                        |   |    |   |     |   |   |   |   |   |   |   |
| <b>S</b>       | Case Height                      | Standard Height                                        |   |    |   |     |   |   |   |   |   |   |   |
| <b>X</b>       |                                  | Extended Height                                        |   |    |   |     |   |   |   |   |   |   |   |
| <b>L</b>       | Pipe Terminations                | Left Hand Side                                         |   |    |   |     |   |   |   |   |   |   |   |
| <b>R</b>       |                                  | Right Hand Side                                        |   |    |   |     |   |   |   |   |   |   |   |
| <b>-</b>       | Separator                        |                                                        |   |    |   |     |   |   |   |   |   |   |   |
| <b>0</b>       | Power Supply                     | 400V / 3Ph + N / 50Hz                                  |   |    |   |     |   |   |   |   |   |   |   |
| <b>3</b>       |                                  | 460V / 3Ph / 60Hz                                      |   |    |   |     |   |   |   |   |   |   |   |
| <b>A</b>       |                                  | 380V / 3Ph + N / 50Hz                                  |   |    |   |     |   |   |   |   |   |   |   |

## Introduction

Designed specifically for high sensible applications such as Hyperscale & Colocation data centre applications, the SmartCool One provides temperature and filtration control. The modular design of the SmartCool allows grouping of differing model types and capacities to be installed side by side. The flexibility of this type of installation provides for multi-circuit functionality.

## Precision Air Conditioning System

The air conditioning equipment is designed specifically for precision temperature control and humidity monitoring applications. It automatically monitors and controls cooling and filtering functions for the conditioned space. The system is built to the highest quality engineering and manufacturing standards and is subject to a functional test prior to leaving the factory.

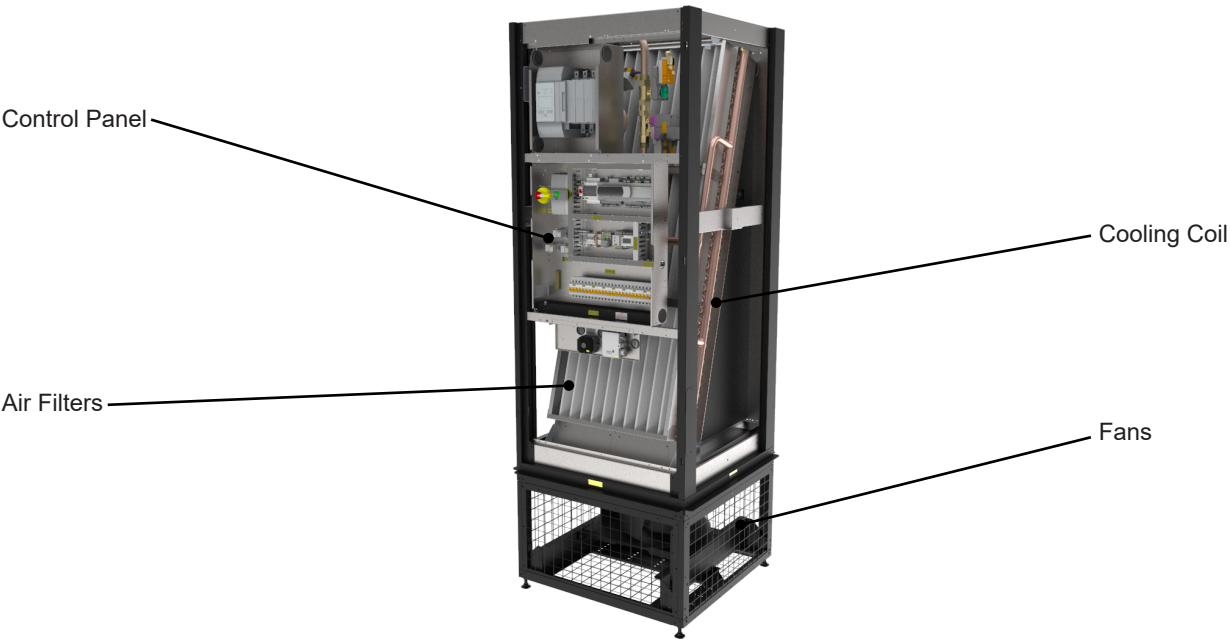
## Construction

The cabinet is manufactured using steel frame. Panels are completely removable to gain unequalled access during installation as required. The galvanised sheet steel panels are coated with an epoxy baked powder paint to provide a durable finish. Standard unit colour is Black Grey to RAL 7021. Cabinets are lined internally with various thickness of fire resistant foam for thermal and acoustic insulation. The insulation density shall be no less than 75 kg/m<sup>3</sup>.

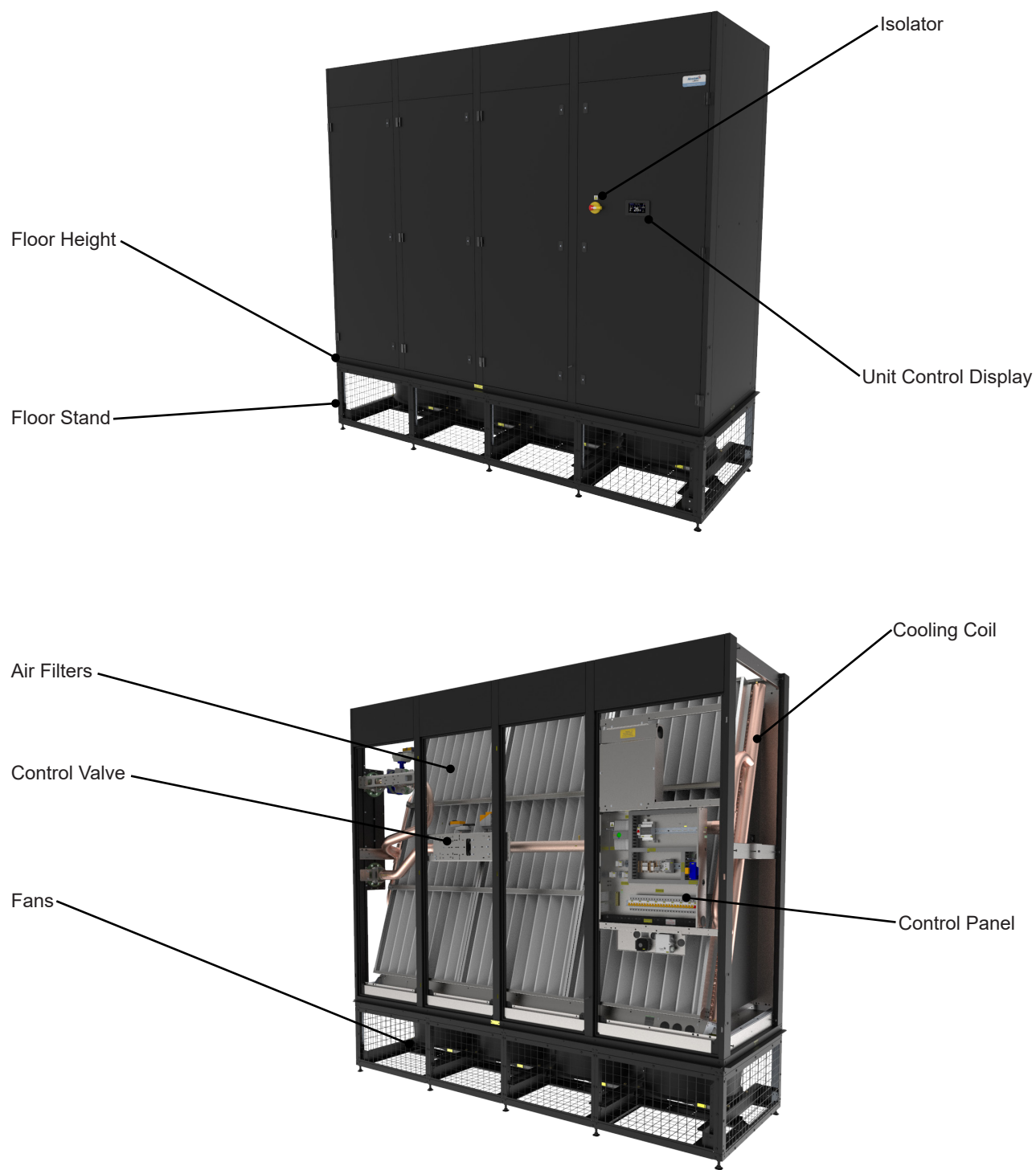
The cabinet doors are full height, hinged and key lock secured. The hinge arrangement allows flexible door opening and removal for improved access. The unit design incorporates a series of M6 fixings to the top and bottom face to ease customer ductwork connection and reduce installation time.

System Configurations

Introduction



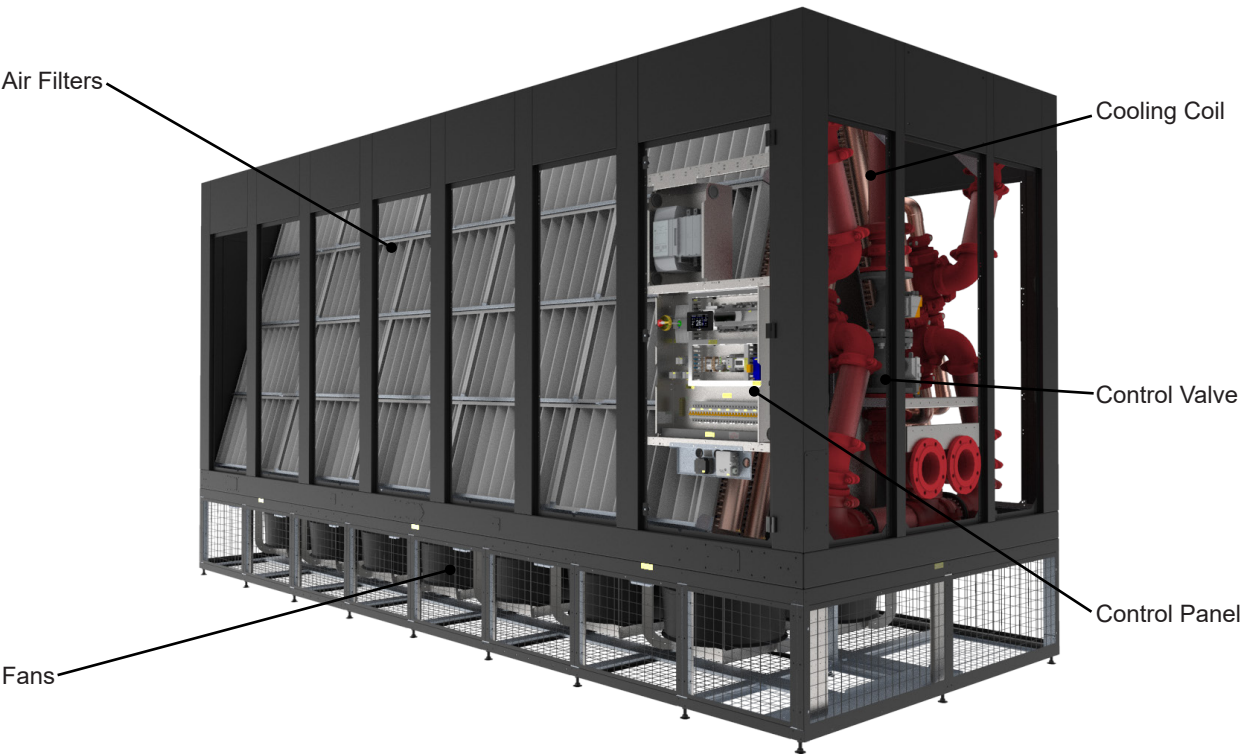
Example shown is SO09 with open floor stand and Vu™ touch screen display.



Example shown is SO31 with open floor stand and Vu™ touch screen display.

System Configurations

Introduction



Example shown is SO60 with open floor stand and Vu™ touch screen display.

## Chilled Water

| Features                                                                                            | System Configuration |      |      |      |      |      |      |      |      |      |      |      |
|-----------------------------------------------------------------------------------------------------|----------------------|------|------|------|------|------|------|------|------|------|------|------|
|                                                                                                     | SO09                 | SO12 | SO15 | SO18 | SO22 | SO25 | SO31 | SO35 | SO30 | SO40 | SO50 | SO60 |
| <b>Chilled Water</b>                                                                                |                      |      |      |      |      |      |      |      |      |      |      |      |
| RTPF Chilled Water Coil                                                                             | ●                    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    |
| Low Flow Coil (9-12K / 16.2-21.6°F)                                                                 | ○                    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
| High Flow Coil (6-9K / 10.8-16.2°F)                                                                 | ○                    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
| 2 Port Chilled Water Regulating Valve (0-10V) No Bypass                                             | ●                    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    |
| 2 x 2 Port Chilled Water Regulating Valves (0-10V) with Bypass and Differential Pressure Transducer | ○                    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
| PIC Valve                                                                                           | ○                    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
| Energy Valve                                                                                        | ○                    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
| Actuated Shut Off Valve (Isolation)                                                                 | ○                    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
| Liquid Lock Prevention                                                                              | ●                    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    |
| Inlet & Outlet Water Temperature Sensors                                                            | ●                    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    |
| Water Detection Rope and Probe                                                                      | ●                    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    |
| Unit Level Drip Tray                                                                                | Ø                    | Ø    | Ø    | Ø    | Ø    | Ø    | Ø    | Ø    | Ø    | Ø    | Ø    | Ø    |
| Coil Drip Tray Level Sensor                                                                         | ○                    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
| LHS Flanged Terminations                                                                            | ○                    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
| RHS Flanged Terminations                                                                            | ○                    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |

● Standard Feature    ○ Optional Feature    Ø Optional Feature (default selected)    — Not Available

**RTPF Chilled Water Coil**

Chilled water coils are ideally positioned to optimise airflow and heat transfer. They are manufactured from plain copper tubes with mechanically bonded aluminium fins. The cooling coil is mounted over a full width stainless steel condensate tray with a 22mm (7/8") condensate drain hose connection. There are various valve options available for temperature and water flow control. Flanged pipe connections are used as standard. The factory test pressure is to no less than 20 Barg (290.1psi) and the maximum operating pressure is no less than 10 Barg (145.0psi).

**Low flow coil**

Typically 9-12K (16.2-21.6°F) waterside ΔT cooling.

**High flow coil**

Typically 6-9K (10.8-16.2°F) waterside ΔT cooling.

**0-10 Volts DC 2 Port Chilled Water Regulating Valve**

For systems with variable speed pumps and water flow, a 2-port control valve can be fitted. The 2-port valve has a close-off pressure of 14.0 Barg (200psi) up to and including valve sizes of DN50, with a close-off pressure of 6.9 Barg (175psi) for valve sizes of DN65 and above.

**0-10 Volts DC 2 Port Chilled Water Regulating Valve with Bypass and Differential Pressure Transducer**

The 2-port control valve can be fitted to systems with variable speed pumps and water flow as detailed above. A bypass leg can also be fitted with a further 2 port valve which enables auto commissioning.

The auto commissioning is enabled by using a differential pressure transducer to maintain balanced water flow through the bypass. The controller maintains the same pressure drop through the coil and the bypass. A fixed flow rate is required for this initial commissioning to occur.

**Pressure Independent Control Valve (PICV)**

Pressure Independent Control Valves (PICV) fitted to the SmartCool ensure that constant water flow is achieved. The PICV maintains the design flow rate based upon the valve setup.

**Energy Valve**

The Belimo Energy Valve offers the same functionality of a traditional PICV by using a flow meter and ball valve in series as opposed to a mechanical diaphragm in a traditional PICV. The actuated ball valve regulates to changes in flow measured in the flow meter. The Energy Valve has additional features such as remote hydraulic balancing as well as power and energy monitoring, and parameters from the valve can be monitored and fed back to a central monitoring location.

**Actuated Shut Off Valve (Isolation)**

The shut off valve allows for easier servicing and maintenance of the coil without affecting the rest of the system. The shut off and control valve can be closed to isolate the cooling coil from the system in order to carry out necessary maintenance required. The shut off valve also closes on detection of a leak with the flood detection feature.

**Liquid Lock Prevention**

The unit is fitted with a pressure transducer that measures the pressure upstream of the control valve. When trapped water of a fixed volume increases in temperature, the pressure can increase dramatically, possibly preventing the control valve from opening and resulting in a potential hazard and catastrophic failure of the water circuit. The pressure transducer monitors the pressure of the trapped liquid and opens the control valve once a setpoint is reached to relieve any built up pressure. Once the pressure has returned to a safe level the control valve closes again.

**Inlet & Outlet Water Temperature Sensors**

NTC type probes are provided to monitor the chilled water inlet and outlet temperatures.

**Water Detection Rope and Probe**

Monitored by a sensing relay, the water detection sensor will provide an alarm when in contact with several drops of conductive liquid. High humidity should normally not cause an alarm unless it results in condensation dripping on the rope surface or condensation present on the surface to which the rope is applied.

**Unit Level Drip Tray**

The unit level drip tray option is selected as default but can be deselected. It supplies the unit with a painted sheet metal tray for the unit and floor stand to be positioned in. This is to collect any liquid resulting from a leak local to the unit, preventing the leak from spreading away from the unit. When used in conjunction with the flood detection option, the rope and probe sensor shall signal an alarm when a liquid is detected in the drip tray.

**LHS/RHS Flanged Terminations**

Flanged connections are included as standard on either the left or right hand side of the unit.

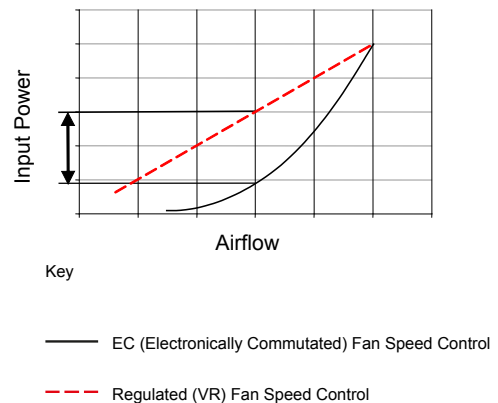
## Airflow

| Features | System Configuration                                  |      |      |      |      |      |      |      |      |      |      |      |
|----------|-------------------------------------------------------|------|------|------|------|------|------|------|------|------|------|------|
|          | SO09                                                  | SO12 | SO15 | SO18 | SO22 | SO25 | SO31 | SO35 | SO30 | SO40 | SO50 | SO60 |
| Airflow  | EC Backward Curved Fans in Floor Stand                | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    |
|          | ISO-C-80 Filtration (G4 equivalent)                   | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
|          | ISO-C-90 Filtration (F5 equivalent)                   | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
|          | MERV 8 Filtration                                     | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
|          | MERV 11 Filtration                                    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
|          | No Filtration                                         | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    |
|          | Return Air Temperature Sensor                         | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    |
|          | Supply Air Temperature Sensor                         | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    |
|          | Supply/Return Air Temperature and Humidity Monitoring | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |

● Standard Feature    ○ Optional Feature    — Not Available

### EC Backward Curved Fans in Floor Stand Electronically Commutated (EC) Fan Motor

EC motors incorporate integrated electronics to convert AC power to DC for efficient and accurate speed control and are adjustable via the touch screen display. The fans offer maximum air flow performance while keeping sound levels to a minimum. It 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 an equivalent AC fan at modulated fan speeds. The in built EC fan control module allows for fan speed modulation from 20-100%. A standard AC fan's modulating range is typically 40 -100% of full fan speed. Standard voltage regulated (VR) fan speed controllers offer a linear response. The illustration on the right shows a comparison of the typical power input required by each method.



### ISO-C-80 Filtration (G4 equivalent)

Vertical pleated disposable panel filters in a rigid frame conforming to ISO-C-80 are available as an option. If these are selected, the controller will provide an alarm following a pre set run time limit being exceeded. Access and removal are from the front of the unit.

### Higher Grade ISO-C-90 Filtration (F5 equivalent)

Pleated disposable panel filters conforming to filtration class of ISO-C-90 are available for those applications which require a higher level of filtration.

### MERV Filtration

MERV rated filters have been sized for US applications where MERV rated filtration is required. The ISO Coarse 80% and ISO Coarse 90% have equivalent MERV rated filters of MERV 8 and 11 respectively.

### No Filtration

The no filtration standard configuration offers increased unit efficiency with lower air side pressure drop and allows higher maximum air volumes. The no filtration configuration also removes maintenance requirements to change the filters providing the data hall has pre-conditioned air that has already been filtered.

### Supply/Return Air Temperature and Humidity Monitoring

The option of supply and return temperature monitoring replaces the standard temperature sensors with temperature and humidity sensors, allowing the customer to also monitor the level of humidity at the unit. The humidity level reading can be used with an external room level humidifier.

## Electrical

| Features   | System Configuration                               |      |      |      |      |      |      |      |      |      |      |      |
|------------|----------------------------------------------------|------|------|------|------|------|------|------|------|------|------|------|
|            | SO09                                               | SO12 | SO15 | SO18 | SO22 | SO25 | SO31 | SO35 | SO30 | SO40 | SO50 | SO60 |
| Electrical | 400V / 50Hz / 3Ph (-0)                             | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    |
|            | 460-480V / 3Ph / 60Hz (-3)                         | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
|            | 380V / 3Ph / 50Hz (-A)                             | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
|            | Single Power Supply                                | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    |
|            | Dual Power Supply (ATS)                            | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
|            | Dual Power Supply (ATS) Disconnect Switches (60Hz) | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
|            | Up-rated SCCR (65kA) (60Hz)                        | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
|            | Energy Manager                                     | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
|            | Ultracaps                                          | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |

● Standard Feature    ○ Optional Feature    — Not Available

The electrical control panel is situated within the cabinet and has front access for essential maintenance of the unit. This contains major components such as:

- Mains isolator
- Circuit breakers/ fuses for protection of major unit components
- Power monitoring (based on unit selection)
- 24V transformer and controllers
- Mains and inter-connecting terminals (this includes volt-free contacts for common alarm).

The panel is wired to the latest standards and codes of practice for the relevant market.

The SmartCool One is available in the following supply voltage options:

- **400V / 3Ph + N / 50Hz (-0)** - Three phase and neutral star connection electrical supply configuration at 50Hz frequency. Nominal L-L voltage is 400V and nominal L-N voltage is 230V.
- **460V / 3Ph / 60Hz (-3)** - Three phase delta connection electrical supply at 60Hz. Nominal L-L voltage is 480V and utilisation L-L voltage is 460V.
- **380V / 3Ph + N / 50Hz (-A)** - Three phase and neutral star connection electrical supply configuration at 50Hz frequency. Nominal L-L voltage is 380V and nominal L-N voltage is 220V.

### Single Power Supply

Single power supply is a standard feature on the SmartCool One. -0 and -A supply voltage units have a door interlocked mains isolator as standard. Door interlocked mains isolator is an optional feature for -3 supply voltage units.

### Dual Power Supply (ATS)

Dual power supply automatic transfer switch (ATS) is designed for use in power systems to safely transfer a load supply automatically between a normal and alternate source. In the event of a power failure, the supply can be switched from utility to an alternative power supply (such as second utility or generator). For the automatic transfer feature to operate effectively, the two incoming power supplies must have the same voltage and frequency. During changeover of power there is a short break of power and the Ultracap backup module is used to maintain power to the unit controls, allowing for immediate reinstatement of cooling following changeover.

The automatic transfer switch offers switch position status and supply priority set, both of which are configurable via the unit's display, and is used to set which of the two power supplies power will be drawn from when both power supplies are active. Switch position status indicates to the end user which position the switch is currently in, i.e. A or B and is shown via the unit's display. When the automatic transfer switch option is fitted, the Ultracap backup is fitted as standard to reduce unit downtime and keep loss of cooling to a minimum.



Socomec ATyS t M (-0 and -A supply voltage)



ABB TruONE ATS (-3 supply voltage)

Dual Power Supply (ATS) Disconnect Switches (60Hz)

Disconnect switches (also known as isolator switches, safety switches, and load break switches) are used to isolate electrical circuits by disconnecting supply voltages and interrupting the flow of electrical current. By quickly stopping the flow of power, disconnect switches allow for emergency shutdowns, switching to alternate power sources and maintenance. This option is only available for -3 supply voltage units and will offer a disconnect switch for both the Primary and Secondary power supplies allowing the customer the flexibility of isolating each power supply individually. Both of these disconnect switches will be interlocked with the control panel door.

Upated SCCR (65kA)

Short Circuit Current Rating (SCCR) is a rating on components and assemblies representing the maximum level of short-circuit current that a component or assembly can withstand. This rating is used to determine compliance with NEC 110.10 in North America. This option is only available for -3 supply voltage units and offers an uprated SCCR value of 65kA resulting in a more robust control panel design that can withstand an increased level of maximum fault current without causing damage to any of the electrical components. This eliminates unit downtime and increases user safety.

Energy Manager

Analysis of system energy consumption can be monitored via a dedicated LCD display. Unit power information can be monitored via the controller, allowing key information, such as real power, voltage, current and power factor to be reviewed, as well as providing additional alarm functionality, such as phase loss.



Energy Manager (-0 and -A supply voltage)



Energy Manager (-3 supply voltage)

Ultracap Backup

The Ultracap backup is an optional uninterrupted power supply module for backup in the event of mains power failures. When the automatic transfer switch option is selected on the SmartCool One range, the Ultracap backup is fitted as standard. The module provides temporary power to the controller for approximately 1 minute, allowing enough time to keep the controller running during a power outage or when switching power supplies for rapid restarts. Additional backup time available on request.

The module is made using Ultracap storage capacitors (EDLC = Electric Double Layer Capacitor), which are recharged independently by the module. These ensure reliability in terms of much longer component life than a module made with lead batteries: the calculated life of the Ultracap module is at least 10 years. In addition, eliminating the use of lead batteries means there are no special precautions required regarding safety or environmental concerns.



**⚠ WARNING**

If a unit is fitted with the Ultracap backup option, allow 5 minutes discharge time following mains isolation.

## Controls

| Features                              | System Configuration |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------------------|----------------------|------|------|------|------|------|------|------|------|------|------|------|
|                                       | SO09                 | SO12 | SO15 | SO18 | SO22 | SO25 | SO31 | SO35 | SO30 | SO40 | SO50 | SO60 |
| c.pCO Microprocessor                  | ●                    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    |
| pGD1 Display                          | ●                    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    |
| Vu™ Touch Screen Display              | ○                    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
| Filter Change Switch                  | ○                    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
| Temperature Control                   | ●                    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    |
| BMS and SNMP Compatibility            | ○                    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
| Constant Air Volume                   | ○                    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
| Constant Pressure Control             | ○                    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
| Supply & Return Temp & Hum Monitoring | ○                    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
| Supply Air Temp Control               | ●                    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    |
| Return Air Temperature Control        | ○                    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
| Fixed Fan Speed Control               | ●                    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    |

● Standard Feature    ○ Optional Feature    — Not Available

**PGD1**

The units shall be supplied with a European ROHS Directive 2002/95/EC compatible microprocessor controller connected to an 8 x 22 back-lit LCD keypad display (not compatible with LEDs). 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 SmartCool One products feature a 32 bit microprocessor, offering significant calculation power and operation processing speed. A visual alarm is also featured, and the facility to adjust and display control settings by local operator for information and control.

**Display / Keypad**

The display keypad features a simple array of keys to navigate through the in-built menus. With an 8 x 22 character (132 x 64 pixel) screen size, back lit in white for improved contrast, the larger screen shall provide for user friendly viewing and easy status recognition by displaying a combination of text and icons. The default screen shall show the unit status and room condition (°C/RH %) without the need for interrogation and an easy to navigate menu structure for further interrogation and adjustment shall be provided.



Fan Operating



Cooling - Variable



Heating - Various Stages  
 SN - 2 Stages  
 SR - 3 Stages  
 SD - 4 Stages



De-humidification



Humidification - Variable

**Vu™**

The units can be supplied with a European ROHS Directive 2002/95/EC compatible microprocessor controller connected to a 4.3" colour resistive TFT LCD touch screen display. 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. All the SmartCool products feature a 32 bit microprocessor, offering significant calculation power and operation processing speed. Also featured is the facility to adjust and display control settings by local operator, for information and control.

**Display / Keypad**

The 4.3" touch screen Vu™ display provides important unit status and allows page navigation with a swipe. The default screen shows the unit status and room condition. Further screens offer adjustment to parameters, fine-tuning of setpoints (via a rotating control wheel) and scrollable data tables. Trends of system information can be analysed and managed via the Vu™ allowing for easy system optimisation. The operating status of the unit can also be easily be determined "at a glance" with a colour coded LED bar.



|  |                                    |  |             |
|--|------------------------------------|--|-------------|
|  | Home                               |  | Temperature |
|  | Main Menu                          |  | Humidity    |
|  | Current Alarms (and no. of alarms) |  | Setpoint    |
|  | Help Screen                        |  | Fan         |
|  | Unit Status                        |  | Cooling     |
|  | Network Address                    |  | Heating     |

**Password Protection**

The control system integrity shall be maintained by restricting access with a password PIN number.

**NOTE**

Please specify preferred 4 digit Display Screen PIN at time of order.

**Remote On/Off**

Screened cable should be used for the Remote ON/OFF to prevent negative effects to EMC levels. Terminals for interlocking are provided.

**Fire Shut Down**

Terminals for interlocking are provided to shut down the unit in the event of fire.

**Fan Hours Run Log & Reset**

This allows the user to monitor the running times of the fans and reset after maintenance. An hours run log or visual service indicator shall be provided.

**Fan Speed Control**

Fan speed control is set easily via the display keypad and can be incrementally increased or decreased to meet on site airflow and external static pressure requirements.

**Filter Change Alarm**

Filter change is managed by the software, and is based on fan(s) hours run with an alarm being generated when the pre-set run time limit has been exceeded. The set-point value shall be adjusted to suit each application and is factory set to 4000 hours.

**Filter Change Switch**

A filter change switch is available as an option. It is a differential pressure switch across the filter; if the differential pressure is greater than the adjustable setpoint while the fan is running then the switch will trip and an alarm will be displayed.

**Waterside Differential Pressure Transducer**

Due to the fact that the valves on the waterside are configured in parallel, the flow is split between the cooling coil and the bypass leg. The bypass valve controls to unit pressure drop in order to maintain a constant pressure drop across the unit. The pressure drop across the unit shall be measured between the inlet and outlet sides of the unit respectively. If the system flow changes, the SmartCool unit would not be aware of the change and would continue to try and control to the target unit pressure drop set during commissioning.

**Networking**

ModBus can be used to connect up to 8 units to offer intercommunication and Run / Standby control. For further details, please contact Airedale Controls.

**NOTE**

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

**Run/Standby Operation**

The controller enables units to operate in run/standby mode, with up to 8 units networked together, without the need for additional hardware or controllers. Standby units are configured to start when the run unit has a critical alarm.

**Temperature Control**

A temperature sensor shall be mounted in the return air side of the unit to sense the return dry bulb condition. The temperature sensor shall be an NTC type thermistor with an accuracy of not less than  $\pm 5\%$  at  $25^{\circ}\text{C}$  ( $77^{\circ}\text{F}$ ) at the sensor. The microprocessor shall sense the return air conditions and maintain the return air temperature.

The microprocessor shall monitor and display the following values as a minimum:

- Supply/Return Air Temperature
- Supply/Return Air Humidity
- Fan Run Hours

The maintenance of key components such as air filters shall be monitored via a service indicator which visually demonstrates the status relative to the component service intervals.

**Alarm Log**

The controller shall log and allow viewing of not less than the last 200 conditions recorded in descending chronological order through the keypad display. The standard display keypad shall visually display operating alarms, however, as an optional extra, a display keypad with audible alarms is available.

**Duty Rotation**

Networked units are configured to duty rotate, providing equal hours run of fans.

**BMS Interface Card**

It is possible to integrate the unit control system into a BMS. Communication protocols must be specified at the time of order. Serial protocols options include Modbus RTU and BACnet MSTP. Ethernet IP protocols include BACnet/IP and Modbus TCP. Configuration for all protocols should occur as part of the installation.

**Constant Air Volume**

Constant air volume is a method of automatically adjusting the unit fan speed to deliver a specific air volume. When faced with a change in system resistance, the fan speed modulates to obtain the air volume set point. Constant air volume monitors the air pressure differential between two points. These two pressure points, positive and negative, are routed back to an air differential pressure sensor inside the unit.

**Fixed Fan Speed Control**

Fixed supply fan speed control allows the user to dial a 0 – 10 volt supply voltage directly into the fans. This method of fan speed control allows for a constant fan speed due to the constant 0 – 10 volt source to the fan via the controller.

**Modbus Fans**

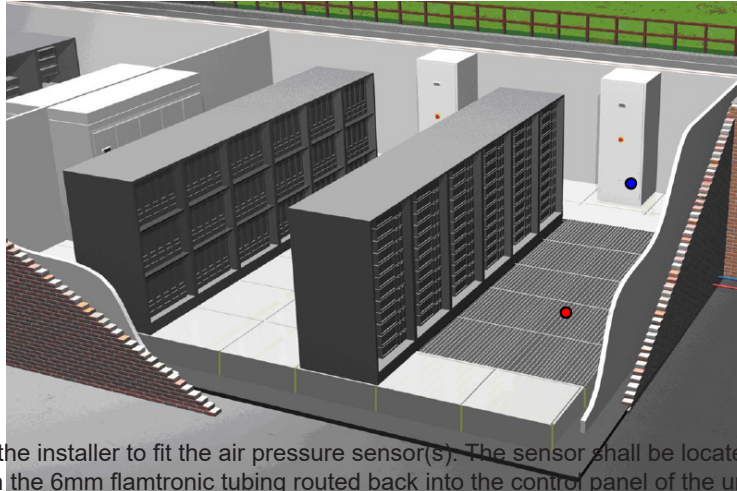
Modbus fans provide individual fan feedback of speed, temperature and alarm status. Fans are controlled via a 0 – 10 volt output.

**Constant Pressure Control**

Constant pressure control is a method of controlling air pressure within a space, such as a floor void or a duct. The air pressure is controlled using a variable speed fan that is modulated to maintain a given set point. Constant pressure

control monitors the air pressure differential between two points. In a typical application (shown below) the pressure under the raised floor (red) is compared to the room pressure (blue).

The two pressure points, positive and negative, are routed back to an air differential pressure sensor inside the CRAH unit. The value from the air pressure sensor is compared to the set point and a fan speed demand is generated, to maintain the required pressure differential.



It is the responsibility of the installer to fit the air pressure sensor(s). The sensor shall be located under the false floor or in the return air duct with the 6mm flamtronic tubing routed back into the control panel of the unit. The tubing must not be obstructed or damaged to ensure accurate pressure control. The constant pressure system can only be commissioned by Airedale once tubing has been routed from the pressure diffuser to the unit. A maximum of 8m/s air velocity is allowed at the diffuser so consideration must be made when locating the diffuser.

## General

| Features | System Configuration                                   |      |      |      |      |      |      |      |      |      |      |      |
|----------|--------------------------------------------------------|------|------|------|------|------|------|------|------|------|------|------|
|          | SO09                                                   | SO12 | SO15 | SO18 | SO22 | SO25 | SO31 | SO35 | SO30 | SO40 | SO50 | SO60 |
| General  | Open Discharge Floor Stand                             | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    | ●    |
|          | Rear Discharge Floor Stand                             | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
|          | Front Discharge Floor Stand                            | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
|          | Base Discharge Floor Stand                             | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
|          | Above Floor Void Floor Stand with Lowered Door Display | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
|          | Floor Stand Extended Legs                              | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
|          | Plinth / Seismic Plinth                                | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
|          | Actuated Non Return Dampers                            | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
|          | Ceiling Duct Extension                                 | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |

● Standard Feature    ○ Optional Feature    — Not Available

### Floor Stand Options

The open discharge floor stand configuration is offered as standard, complete with adjustable feet and floor tile lip. Rear, front or base discharge floor stands are available as options. Please specify the height of the floor stand at order.

The unit and floor stand has been designed to allow for both above and below floor void installations. The floor stand has options for open, front or rear air discharge for both above or below floor void installations, whilst the base discharge option is only available on above floor void applications.

The standard floor stand design can allow up to a total height of 1m by extending the legs when specified at the time of placing an order. In some instances, it may be preferred to maintain a standard floor stand height and install the unit and floor stand onto a plinth located in the floor void.

### Plinths

The SmartCool One range has a standard range of welded steel plinths, as well as seismic plinths with increased structural support for seismic applications. Please contact Airedale to discuss the range of options available.

### Actuated Non-Return Dampers

The unit actuated non-return damper option prevents recirculated air in the data centre when the unit is off, by closing the non-return dampers. The option has been designed to mount directly to the top of the unit case. If it is required that a custom damper is to be fit upstream and controlled by the unit, then this is possible providing that the actuator of the damper meets the same requirements as the standard offering. The actuated non-return damper may effect maximum unit performance and efficiency. Please contact Airedale for more information if this is required.

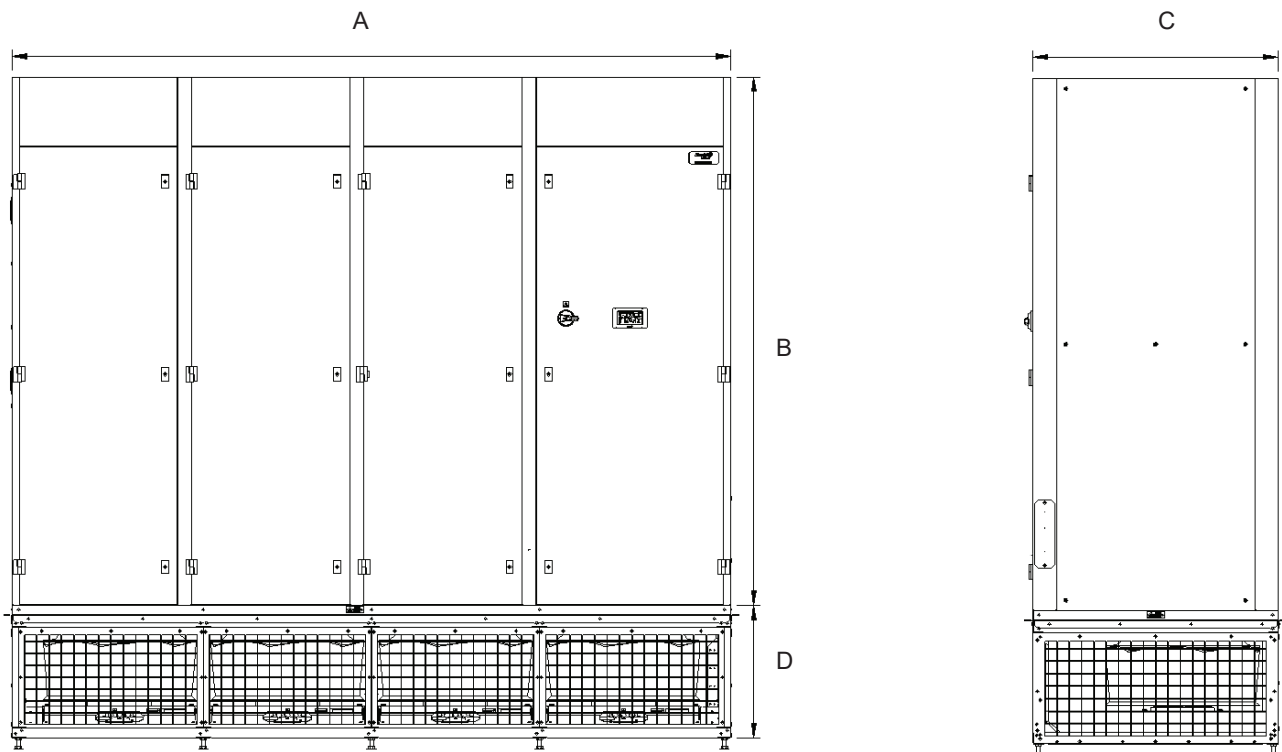
### Ceiling Duct Extension

Straight and 'L' shaped duct extensions up to a height of 1350mm (53.2"), constructed and finished to match the unit, are available. Please specify the required height at order, and for extensions greater than 1350mm (53.2") please contact Airedale for more information.

## Installation Data

## Dimensions

## SO09-35



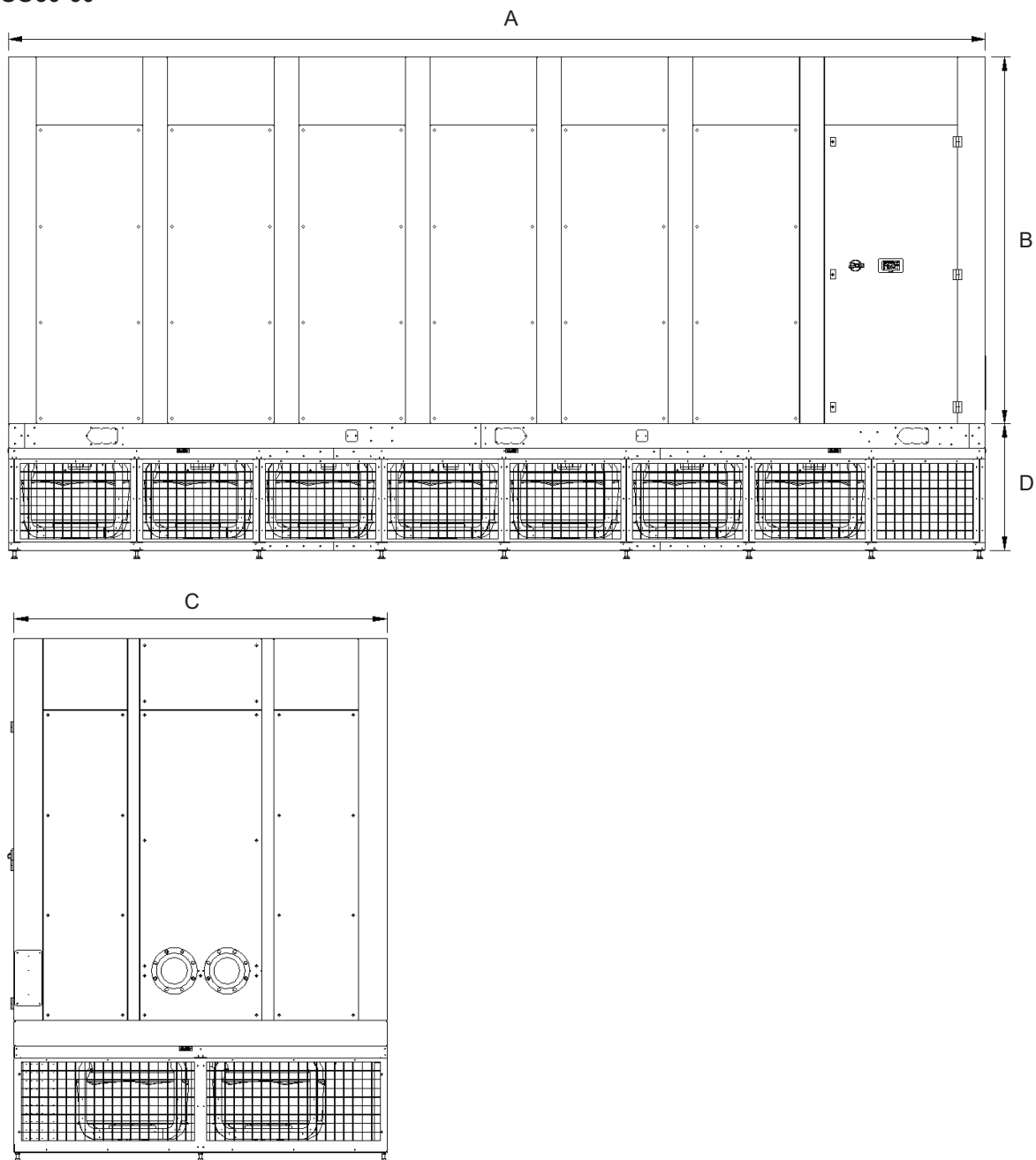
|      | Units | Case Width<br>A | Case Height - B |          | Case Depth<br>C | Floor Stand*<br>D | Door<br>Quantity |
|------|-------|-----------------|-----------------|----------|-----------------|-------------------|------------------|
|      |       |                 | Standard        | Extended |                 |                   |                  |
| SO09 | mm    | 900             | 1980            | 2280     | 890             | 571               | 1                |
|      | in    | 35.4            | 78.0            | 89.8     | 35.0            | 23.5              |                  |
| SO12 | mm    | 1200            | 1980            | 2280     | 890             | 571               | 2                |
|      | in    | 47.2            | 78.0            | 89.8     | 35.0            | 23.5              |                  |
| SO15 | mm    | 1500            | 1980            | 2280     | 890             | 571               | 2                |
|      | in    | 59.1            | 78.0            | 89.8     | 35.0            | 23.5              |                  |
| SO18 | mm    | 1800            | 1980            | 2280     | 890             | 571               | 2                |
|      | in    | 70.9            | 78.0            | 89.8     | 35.0            | 23.5              |                  |
| SO22 | mm    | 2200            | 1980            | 2280     | 890             | 571               | 3                |
|      | in    | 86.6            | 78.0            | 89.8     | 35.0            | 23.5              |                  |
| SO25 | mm    | 2500            | 1980            | 2280     | 890             | 571               | 3                |
|      | in    | 98.4            | 78.0            | 89.8     | 35.0            | 23.5              |                  |
| SO31 | mm    | 3100            | 1980            | 2280     | 890             | 571               | 4                |
|      | in    | 122.1           | 78.0            | 89.8     | 35.0            | 23.5              |                  |
| SO35 | mm    | 3500            | 1980            | 2280     | 890             | 571               | 4                |
|      | in    | 137.1           | 78.0            | 89.8     | 35.0            | 23.5              |                  |

\*Adjustable foot (+/- 25mm (1")) not included.

Unit specific general arrangement drawings are available upon request. Please contact Airedale for more details.

Dimensions  
SO30-60

Installation



|      | Units | Case Width | Case Height | Case Depth | Floor Stand* | Door Quantity |
|------|-------|------------|-------------|------------|--------------|---------------|
|      |       | A          | B           | C          | D            |               |
| SO30 | mm    | 3000       | 2400        | 2200       | 627          | 1             |
|      | in    | 118.5      | 94.5        | 86.6       | 24.7         |               |
| SO40 | mm    | 4000       | 2400        | 2200       | 627          | 1             |
|      | in    | 157.5      | 94.5        | 86.6       | 24.7         |               |
| SO50 | mm    | 5000       | 2400        | 2200       | 627          | 1             |
|      | in    | 196.9      | 94.5        | 86.6       | 24.7         |               |
| SO60 | mm    | 6000       | 2400        | 2200       | 627          | 1             |
|      | in    | 236.2      | 94.5        | 86.6       | 24.7         |               |

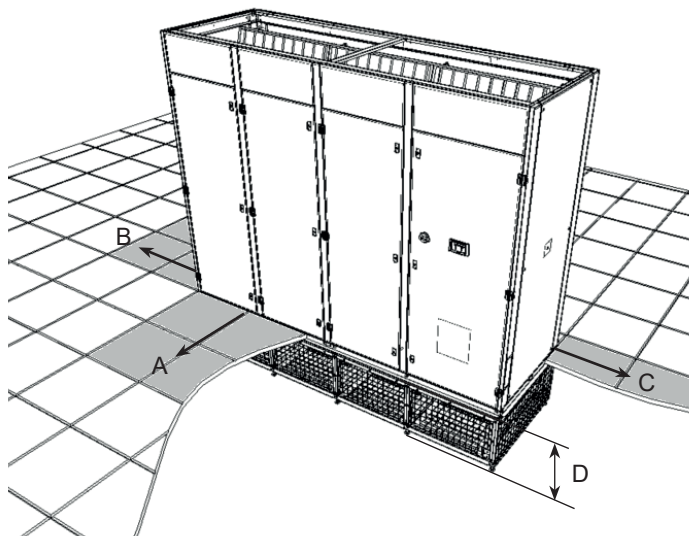
\*Adjustable foot (+/- 25mm (1")) not included.

Unit specific general arrangement drawings are available upon request. Please contact Airedale for more details.

## Minimum Unit Clearances For Maintenance

The minimum clearance requirements must be maintained around the units. This is to ensure filters can be maintained from the front or side\* of the unit and that fans can be maintained from the front of the unit. For below floor floor stand installations, floor tile support posts must be removable to allow access to the fans.

\* SO09 and SO12 require side access for filter removal; filters cannot be removed from the front of these units.



|      | Units | A    | B <sup>(1)</sup> | C <sup>(2)</sup> | D <sup>(3)</sup>                                                                                                               |
|------|-------|------|------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------|
| SO09 | mm    | 900  | 640              | 600              | Min. 600mm - Max. 1000mm<br>(+ 50mm feet adjustable +/- 25mm)<br><br>Min. 23.6" - Max. 39.3"<br>(+2.0" feet adjustable +/- 1") |
|      | in    | 35.4 | 25.2             | 23.6             |                                                                                                                                |
| SO12 | mm    | 900  | 940              | 600              |                                                                                                                                |
|      | in    | 35.4 | 37.0             | 23.6             |                                                                                                                                |
| SO15 | mm    | 900  | 600              | 600              |                                                                                                                                |
|      | in    | 35.4 | 23.6             | 23.6             |                                                                                                                                |
| SO18 | mm    | 900  | 600              | 600              |                                                                                                                                |
|      | in    | 35.4 | 23.6             | 23.6             |                                                                                                                                |
| SO22 | mm    | 900  | 600              | 600              | Min. 650mm - Max. 1000mm<br>(+ 50mm feet adjustable +/- 25mm)<br><br>Min. 25.6" - Max. 39.3"<br>(+2.0" feet adjustable +/- 1") |
|      | in    | 35.4 | 23.6             | 23.6             |                                                                                                                                |
| SO25 | mm    | 900  | 600              | 600              |                                                                                                                                |
|      | in    | 35.4 | 23.6             | 23.6             |                                                                                                                                |
| SO31 | mm    | 900  | 600              | 600              |                                                                                                                                |
|      | in    | 35.4 | 23.6             | 23.6             |                                                                                                                                |
| SO35 | mm    | 900  | 600              | 600              |                                                                                                                                |
|      | in    | 35.4 | 23.6             | 23.6             |                                                                                                                                |
| SO30 | mm    | 1200 | 600              | 600              |                                                                                                                                |
|      | in    | 47.2 | 23.6             | 23.6             |                                                                                                                                |
| SO40 | mm    | 1200 | 600              | 600              |                                                                                                                                |
|      | in    | 47.2 | 23.6             | 23.6             |                                                                                                                                |
| SO50 | mm    | 1200 | 600              | 600              |                                                                                                                                |
|      | in    | 47.2 | 23.6             | 23.6             |                                                                                                                                |
| SO60 | mm    | 1200 | 600              | 600              |                                                                                                                                |
|      | in    | 47.2 | 23.6             | 23.6             |                                                                                                                                |

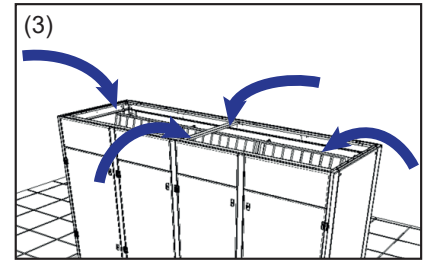
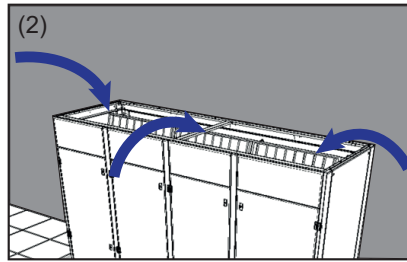
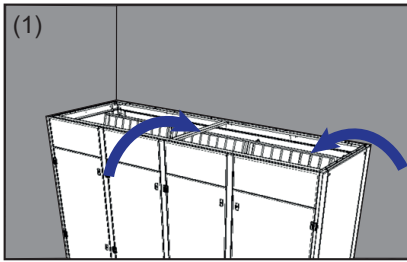
(1) Pipe termination side.

(2) Opposite side to pipe terminations, including when electrical connections are present.

(3) Below floor option shown. Please contact Airedale for detailed clearance requirements for floor stand options.

**Minimum Unit Ceiling Clearances For Airflow**

The minimum unit ceiling clearances shown below correspond to the installation environment of the unit in relation to adjacent walls, units, ceilings and other obstructions. These clearances are the minimum required to ensure adequate unit return airflow is maintained during operation.

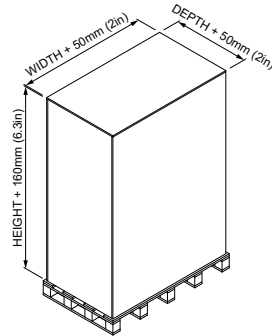


| <b>Minimum Unit Ceiling Clearances For Airflow</b> |       |                    |                     |           |
|----------------------------------------------------|-------|--------------------|---------------------|-----------|
|                                                    | Units | Forward and 1 Side | Forward and 2 Sides | All Faces |
|                                                    |       | (1)                | (2)                 | (3)       |
| SO09 Standard Height                               | mm    | 300                | 200                 | 150       |
|                                                    | in    | 11.8               | 7.9                 | 5.9       |
| SO12 Standard Height                               | mm    | 380                | 270                 | 190       |
|                                                    | in    | 15.0               | 10.6                | 7.5       |
| SO15 Standard Height                               | mm    | 440                | 330                 | 220       |
|                                                    | in    | 17.3               | 13.0                | 8.7       |
| SO18 Standard Height                               | mm    | 470                | 350                 | 240       |
|                                                    | in    | 18.5               | 13.8                | 9.4       |
| SO22 Standard Height                               | mm    | 520                | 410                 | 260       |
|                                                    | in    | 20.5               | 16.1                | 10.2      |
| SO25 Standard Height                               | mm    | 550                | 440                 | 280       |
|                                                    | in    | 21.7               | 17.3                | 11.0      |
| SO31 Standard Height                               | mm    | 600                | 490                 | 300       |
|                                                    | in    | 23.6               | 19.3                | 11.8      |
| SO35 Standard Height                               | mm    | 630                | 520                 | 320       |
|                                                    | in    | 24.8               | 20.5                | 12.6      |
| SO09 Extended Height                               | mm    | 350                | 230                 | 180       |
|                                                    | in    | 13.8               | 9.1                 | 7.1       |
| SO12 Extended Height                               | mm    | 450                | 310                 | 230       |
|                                                    | in    | 17.7               | 12.2                | 9.1       |
| SO15 Extended Height                               | mm    | 520                | 380                 | 260       |
|                                                    | in    | 20.5               | 15.0                | 10.2      |
| SO18 Extended Height                               | mm    | 550                | 410                 | 280       |
|                                                    | in    | 21.7               | 16.1                | 11.0      |
| SO22 Extended Height                               | mm    | 610                | 480                 | 310       |
|                                                    | in    | 24.0               | 18.9                | 12.2      |
| SO25 Extended Height                               | mm    | 650                | 520                 | 330       |
|                                                    | in    | 25.6               | 20.5                | 13.0      |
| SO31 Extended Height                               | mm    | 710                | 580                 | 360       |
|                                                    | in    | 28.0               | 22.8                | 14.2      |
| SO35 Extended Height                               | mm    | 740                | 610                 | 370       |
|                                                    | in    | 29.1               | 24.0                | 14.6      |
| SO30                                               | mm    | 880                | 620                 | 440       |
|                                                    | in    | 34.6               | 24.4                | 17.3      |
| SO40                                               | mm    | 1010               | 750                 | 510       |
|                                                    | in    | 39.8               | 29.5                | 20.1      |
| SO50                                               | mm    | 1090               | 830                 | 550       |
|                                                    | in    | 42.9               | 32.7                | 21.7      |
| SO60                                               | mm    | 1260               | 990                 | 630       |
|                                                    | in    | 49.6               | 39.0                | 24.8      |

## Installation Data

### Packed Dimensions

Single slab units may be shipped mounted on a wooden pallet and covered with polythene. The pallet shall be mechanically fixed to the unit for transportation only. The packaging adds 50mm (2") to the length and width of the unit and 160mm (6.3") to its height. Please contact Airedale for this option.



### Unpacking

The unit is to be carefully unpacked, inspected and any damage reported to Airedale immediately.



All packaging is to be recycled accordingly.

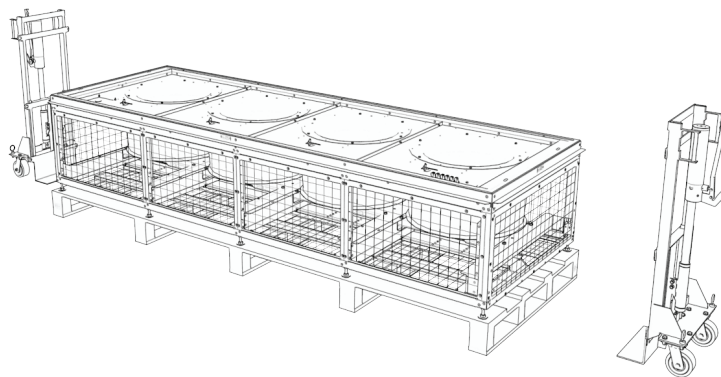
### Lifting

Whenever the unit is lifted, it should be from the base and, where possible, with all packing and protection in position. If any type of slinging is used, due care should be taken to ensure that the slings do not crush the casework.

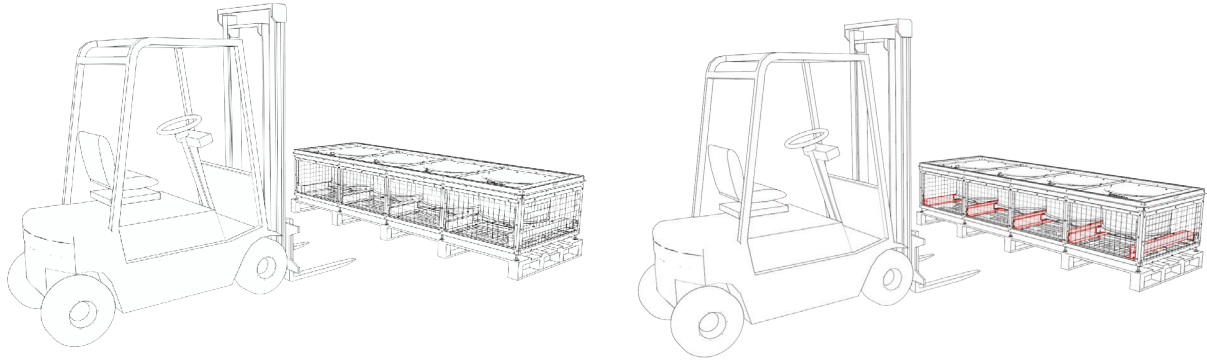
- Employ lifting specialists.
- Local codes and regulations relating to the lifting of this type of equipment should be observed.
- Use the lifting eye bolts provided.
- Attach lifting chains to the lifting eye bolts provided. Half the number of lifting points must be capable of lifting the whole unit.
- Use the appropriate spreader bars/lifting slings with the holes provided.
- Lift the unit slowly and evenly.
- If the unit is dropped, it should immediately be checked for damage.

### Positioning and Installation

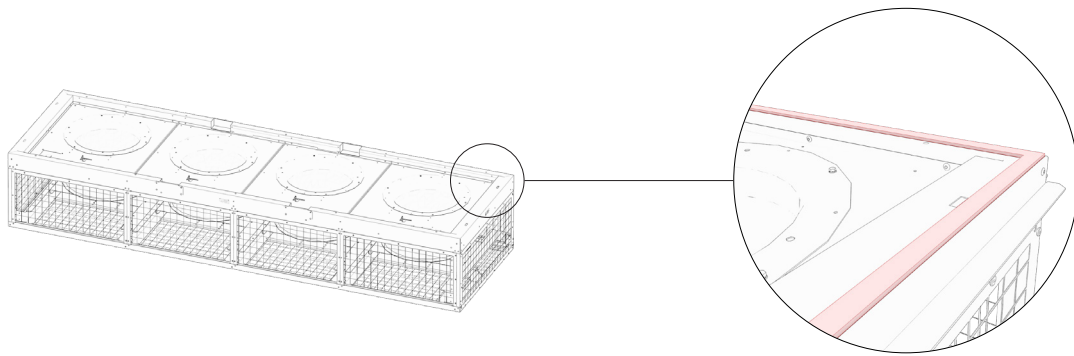
1. The floor stand shall be lifted off the shipping pallet using appropriate lifting equipment such as skoots, under the external side rails.



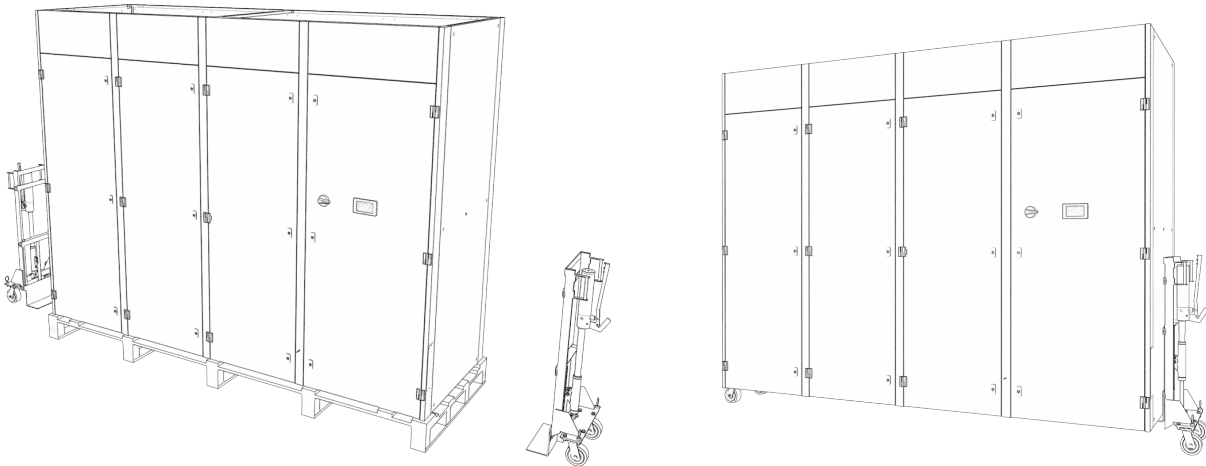
2. It is possible to lift from the front or rear, close to the floor stand legs if a forklift is to be used.



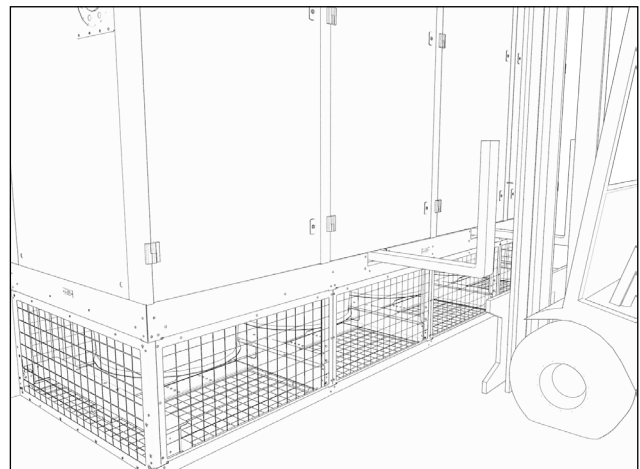
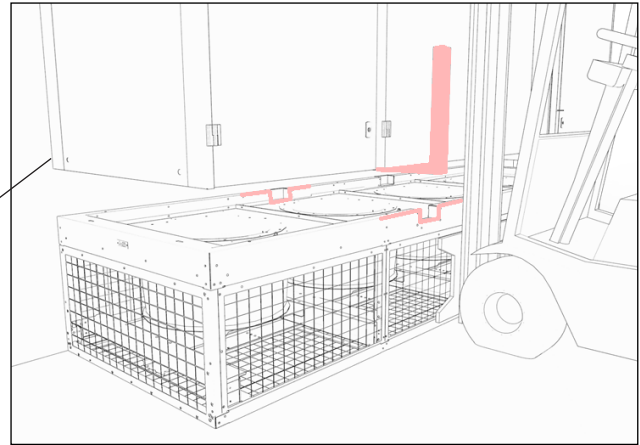
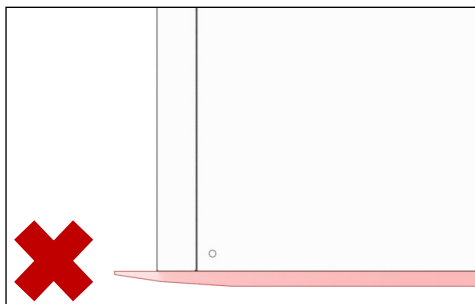
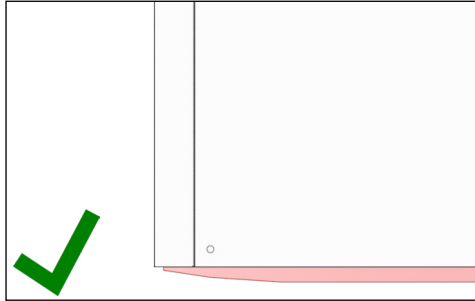
3. The floor stand shall be provided with a roll of compressible foam tape to prevent air bypass during operation. The tape shall be applied to the top face of the floor stand to sufficiently prevent air bypass once the unit has been installed on top of the floor stand.



4. The unit shall be lifted off the shipping pallet using appropriate lifting equipment, such as skoots and lowered onto the floor stand in it's final position. For above floor stand applications or when using a forklift to manoeuvre the unit, skoots should be used to lift the unit off the pallet, the pallet removed and then the skoots can lower the unit onto the forks. In some cases the floor stand gland plate may need to be removed during this step to avoid clashing with the lifting forks.



When using a forklift to position the unit, the forks must pass through the slots as shown. Forks must not exceed the depth of the unit to ensure the forks do not clash against the rear gland plate when against a wall. When not against a wall, all gland plates can be removed so the above does not apply.



Gland plates can be applied once forks are removed.

5. The unit and floor stand shall be fastened together using M6 fixings, this is most important in seismic applications.
6. The metal body of the floor stand should be bonded back to the main unit ground by means of a ground wire and lug connection local to the floor stand gland plate. This is specific to the 60Hz units only.
7. Check that external panel fixings are tightened to a torque of 1Nm.
8. Torque settings for ATS, isolator and MCBs are:

#### -0 and -A Supply Units

ATS = 5Nm

SO09 to SO40 Isolator = 3.5Nm min to 3.85Nm max

SO50 and SO60 Isolator = 4Nm min to 4.4Nm max

MCB = 2Nm

#### -3 Supply Units

Please contact Airedale for details.

Check and re-tighten all electrical connections on the unit after several hours of operation.

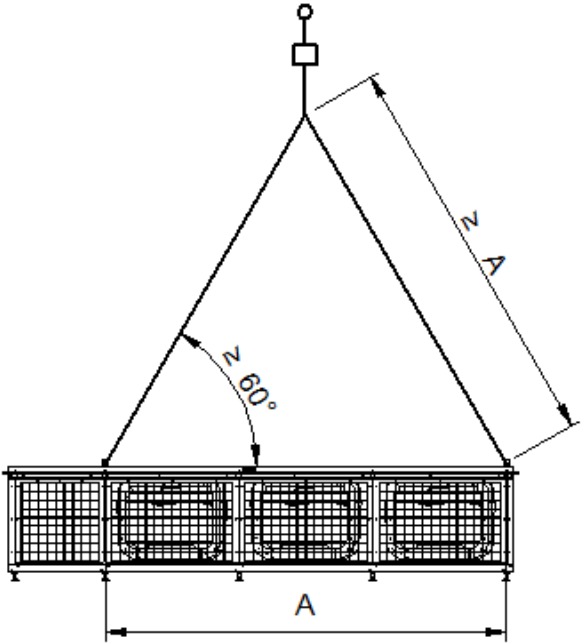
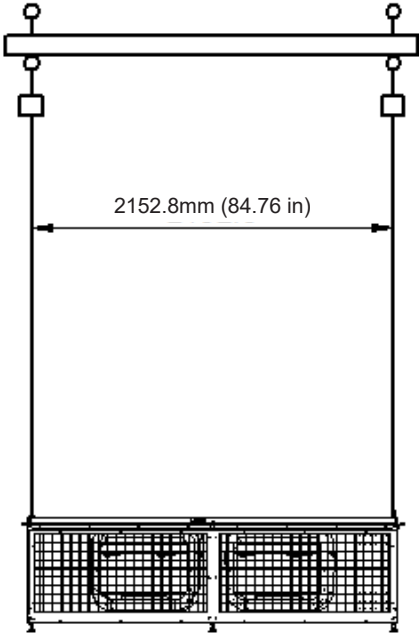
### **⚠️IMPORTANT**

Check the unit is as ordered. Discrepancies or transit damage should be reported to Airedale immediately.  
Airedale will accept no responsibility for mishandling during the positioning of the equipment.

4 Point Lifting - Floor Stand

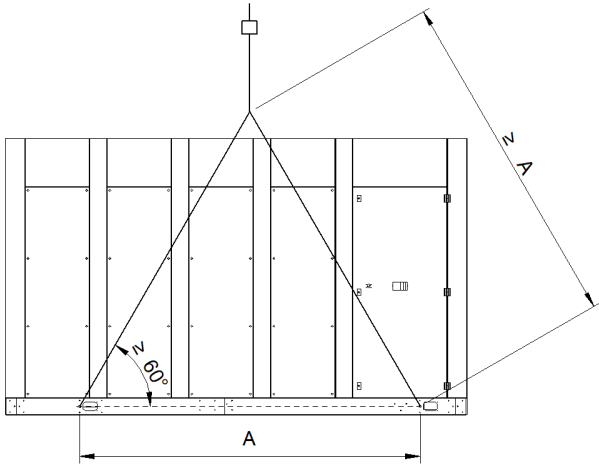
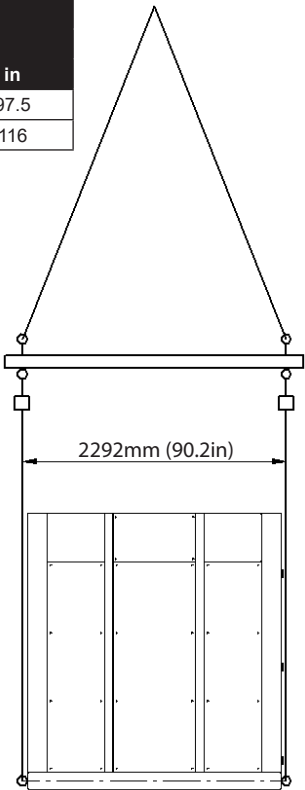
| Unit | 4 Point Lift |       |
|------|--------------|-------|
|      | A            |       |
|      | mm           | in    |
| SO30 | 2389         | 94.1  |
| SO40 | 3389         | 133.4 |

Installation



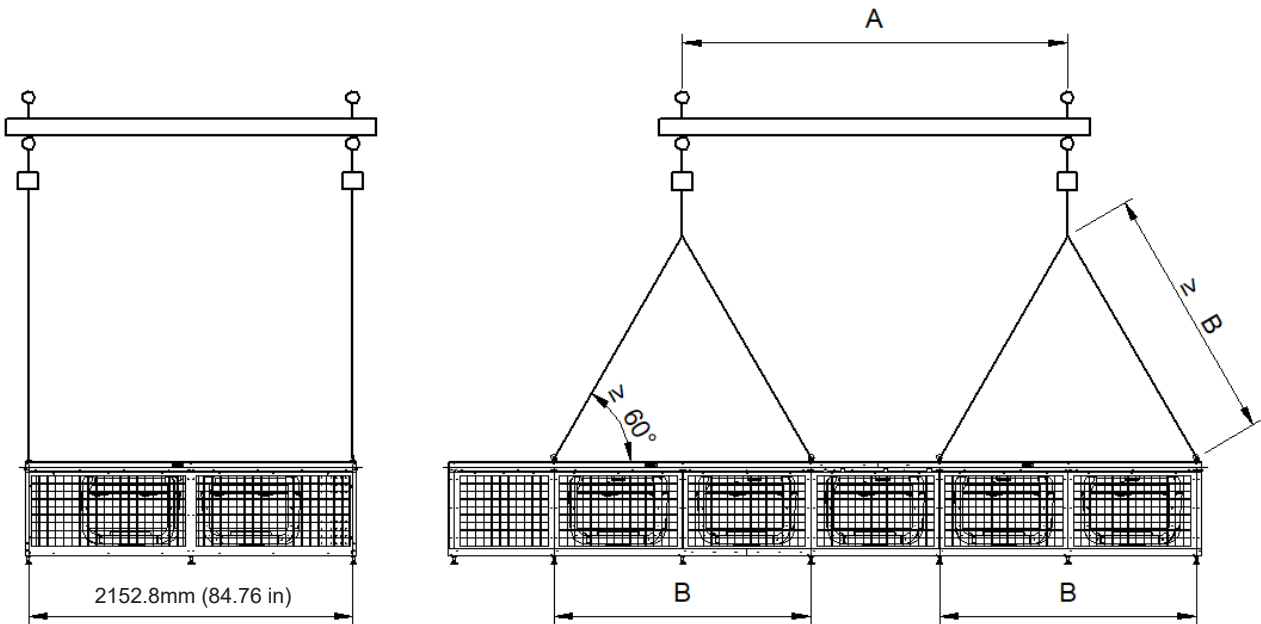
4 Point Lifting - Unit

| Unit | 4 Point Lift |      |
|------|--------------|------|
|      | A            |      |
|      | mm           | in   |
| SO30 | 2477         | 97.5 |
| SO40 | 2950         | 116  |



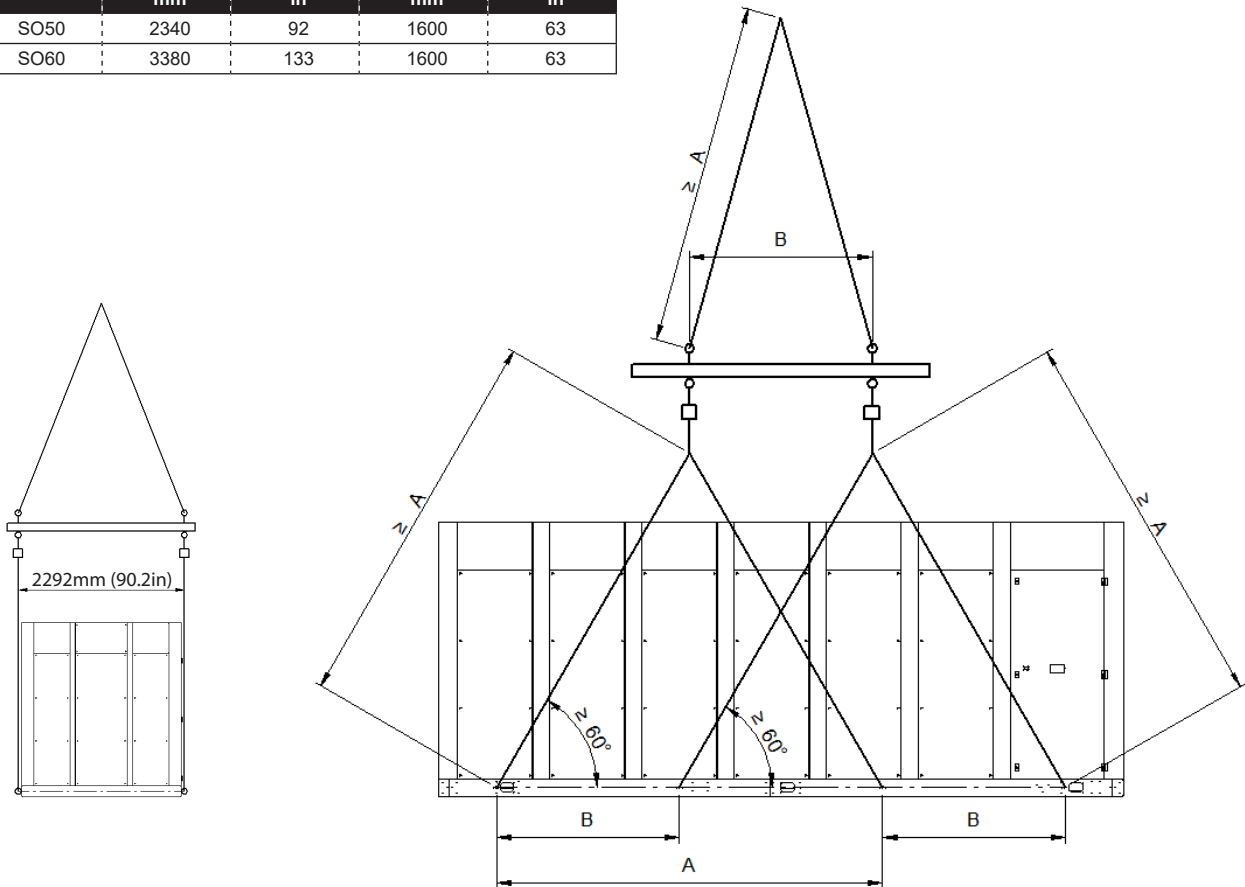
8 Point Lifting - Floor Stand

| Unit | 8 Point Lift |       |      |      |
|------|--------------|-------|------|------|
|      | mm           | A     | in   | B    |
| SO50 | 2557         | 100.7 | 1705 | 67.1 |
| SO60 | 3007         | 118.4 | 2256 | 88.8 |



8 Point Lifting - Unit

| Unit | 8 Point Lift |     |      |    |
|------|--------------|-----|------|----|
|      | mm           | A   | in   | B  |
| SO50 | 2340         | 92  | 1600 | 63 |
| SO60 | 3380         | 133 | 1600 | 63 |



Installation

Plinth Installation

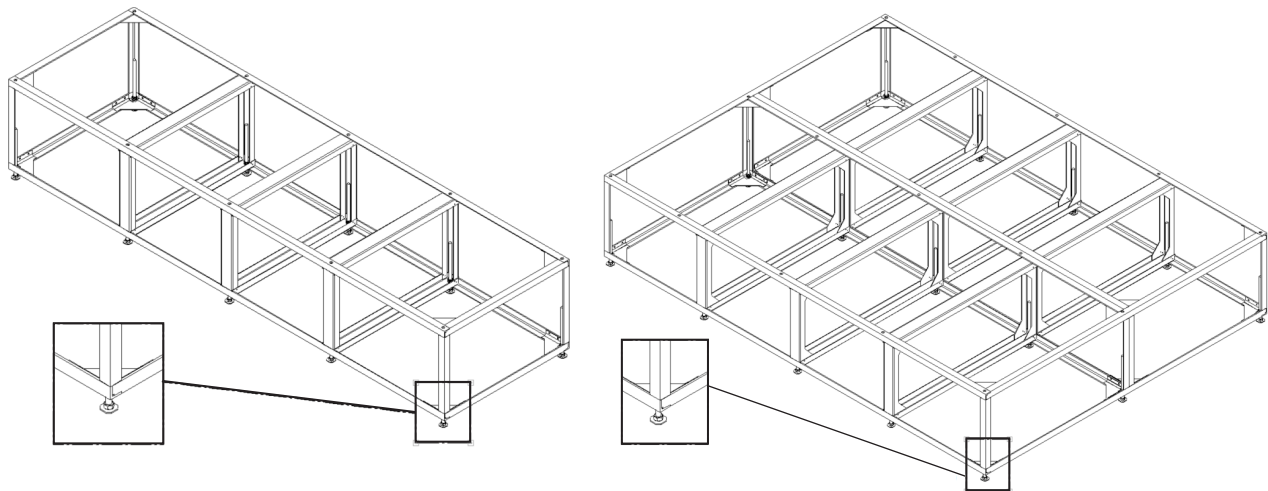


Image for illustration purposes only, showing standard foot design. Please contact Airedale for specific details.

Seismic Applications

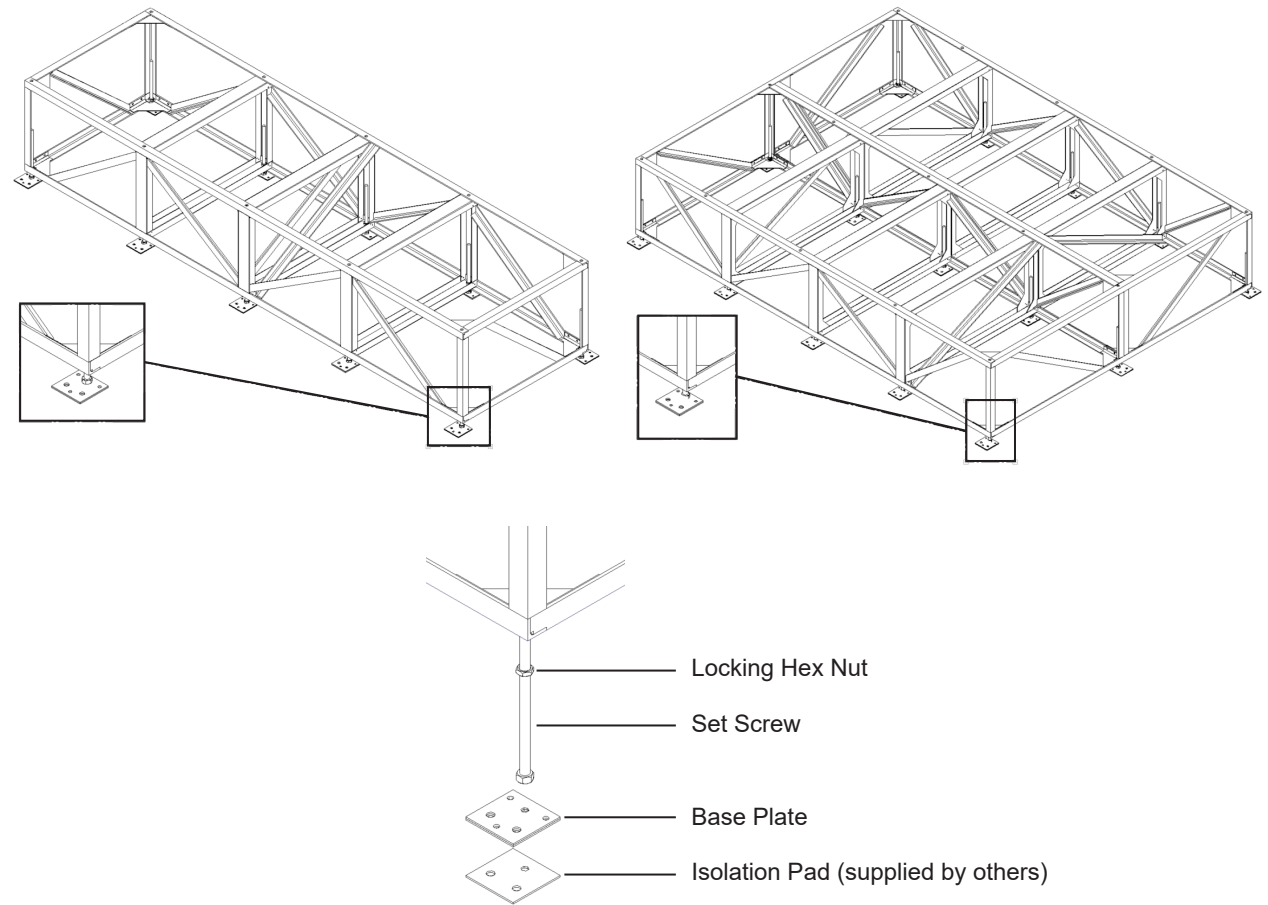
In seismic applications the safety of persons and equipment is of the highest importance. The following considerations must be taken into account when installing the equipment in areas with a risk of seismic activity:

Anchorage Requirements

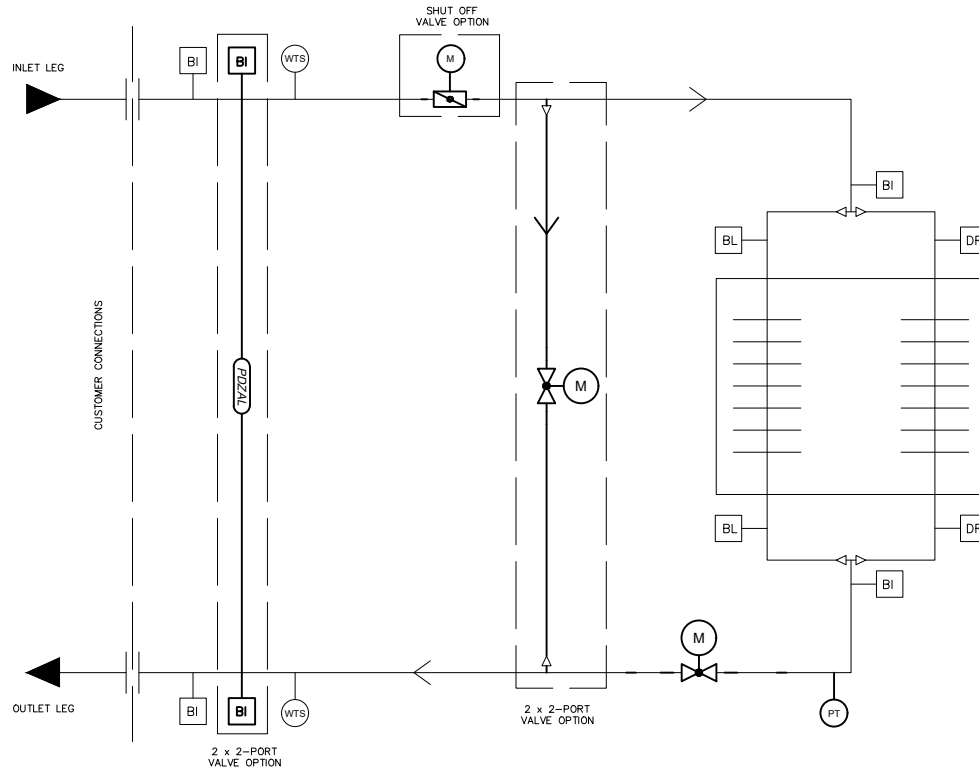
Anchorage and mounting requirements must be inspected approved by a registered Structural Engineer assigned to the project. The requirements shall include (but are not limited to) type, embedment depth, edge spacing, anchor spacing, concrete strength and wall bracing.

The Structural Engineer must also approve that the floors and concrete pads are seismically designed to withstand the anchor loads of the equipment.

Unit connections for wiring, ductwork and pipework should be considered where applicable and approved by the Structural Engineer.



## Pipework Schematics S009-35

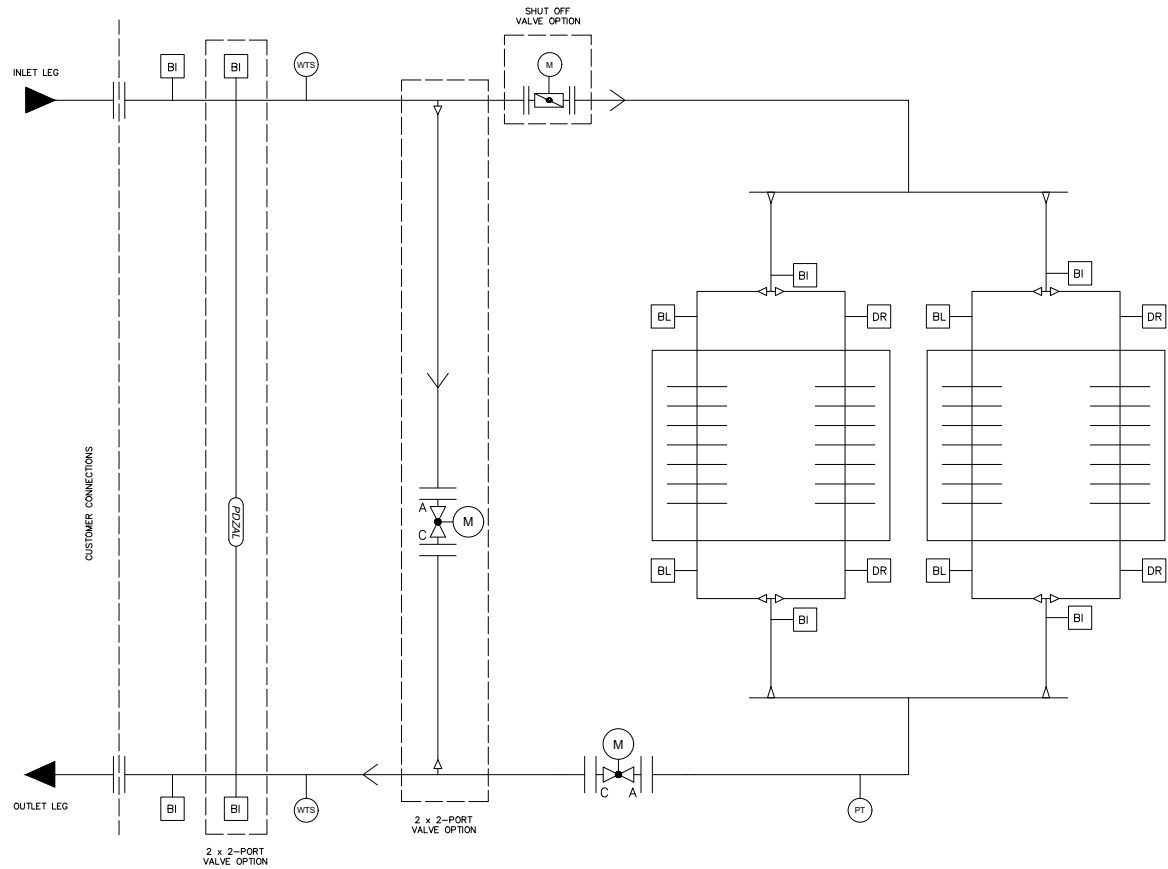


### Key

- |                                                                                     |                                                                |                                                                                     |                                                   |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------|
|  | Water Temperature Sensor                                       |  | Reducer                                           |
|  | Bleed Valve                                                    |  | Flanged Connection                                |
|  | Drain Valve                                                    |  | Shut Off Valve (Motor Driven Actuator Controlled) |
|  | Binder Point                                                   |  | Water Pressure Transducer                         |
|  | Differential Pressure Transducer                               |                                                                                     |                                                   |
|  | 2-Way Regulating Ball Valve (Motor Driven Actuator Controlled) |                                                                                     |                                                   |

Pipework Schematics  
SO30-60

Installation



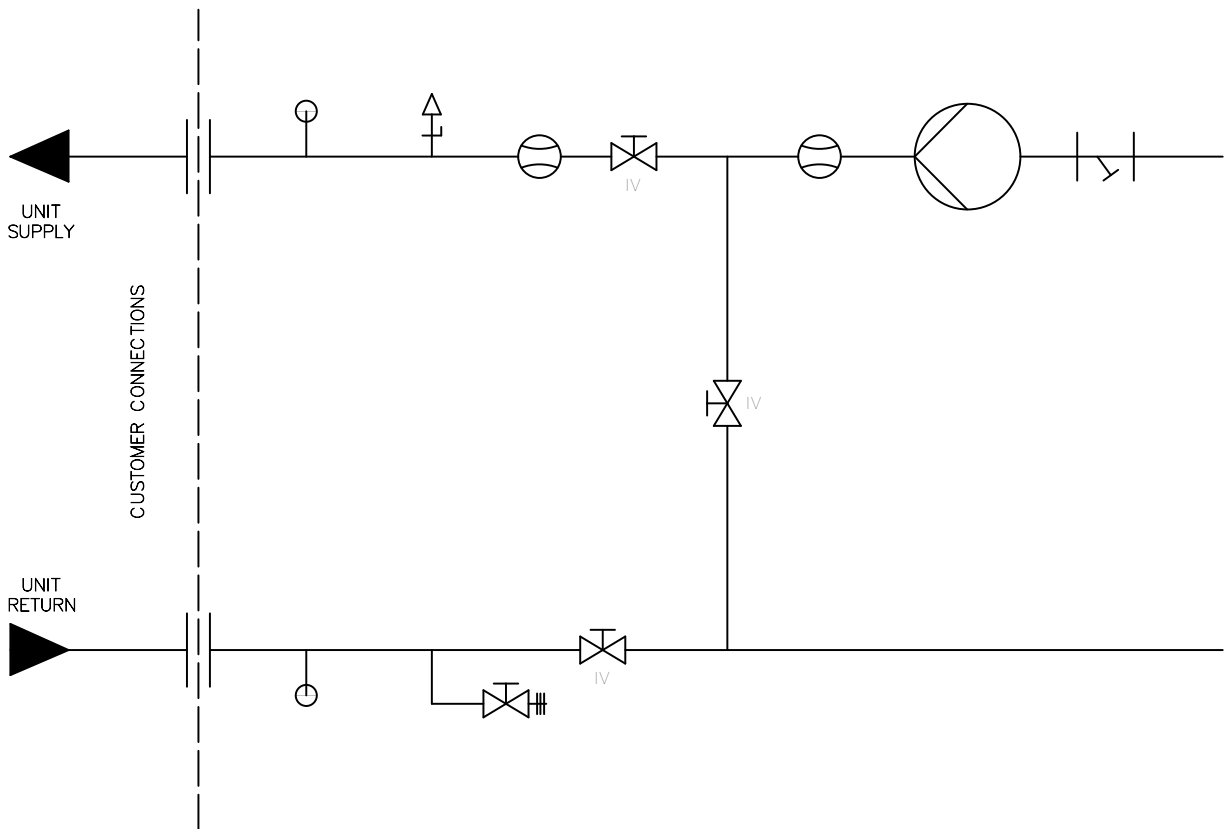
Key

- |                                                                                                                                                    |                                                                                                                                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
|  Water Temperature Sensor                                       |  Reducer                                           |
|  Bleed Valve                                                    |  Flanged Connection                                |
|  Drain Valve                                                    |  Shut Off Valve (Motor Driven Actuator Controlled) |
|  Binder Point                                                   |  Water Pressure Transducer                         |
|  Differential Pressure Transducer                               |                                                                                                                                       |
|  2-Way Regulating Ball Valve (Motor Driven Actuator Controlled) |                                                                                                                                       |

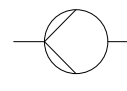
Recommended Pipework (External to Unit)

The following diagram shows the recommended pipework and auxiliary components that should be installed external to the SmartCool One unit.

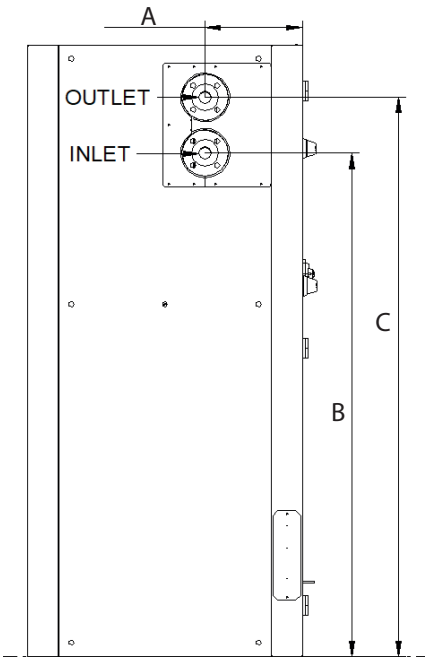
Do not use a differential pressure control valve and a PICV in the same system. These two components will work against each other and will affect performance.



Key

|                                                                                     |                      |                                                                                     |                       |
|-------------------------------------------------------------------------------------|----------------------|-------------------------------------------------------------------------------------|-----------------------|
|  | Pressure Test Point  |  | Flow Measuring Device |
|  | Automatic Air Vent   |  | Flanged Connections   |
|  | Drain Off Cock Valve |  | Pump                  |
|  | Isolating Valve      |  | Strainer              |

Incoming Services  
SO09-12



SO15-35

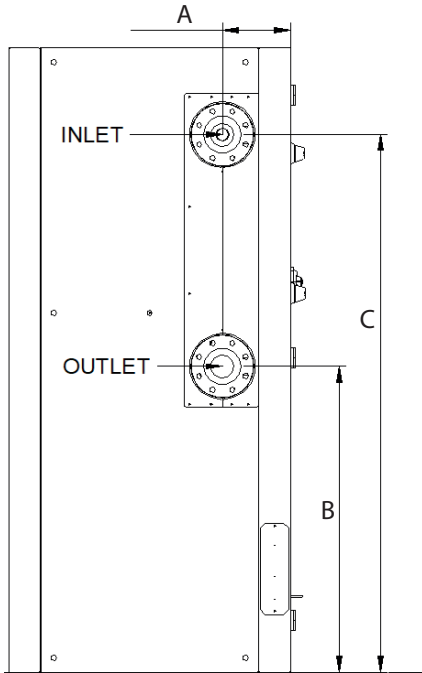


Image shows LHS terminations; RHS terminations are mirrored.

|         | A   |      | B    |      | C    |      |
|---------|-----|------|------|------|------|------|
|         | mm  | in   | mm   | in   | mm   | in   |
| SO09-12 | 315 | 12.4 | 1630 | 64.2 | 1810 | 71.3 |
| SO15-35 | 215 | 8.5  | 970  | 38.2 | 1705 | 67.1 |

Incoming Services  
SO30-50

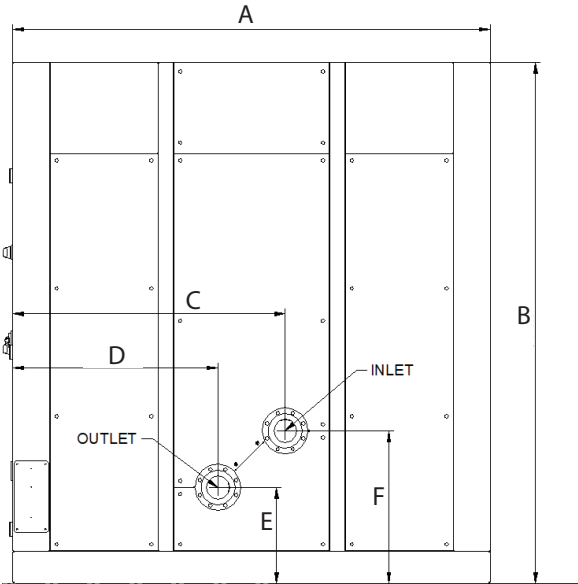
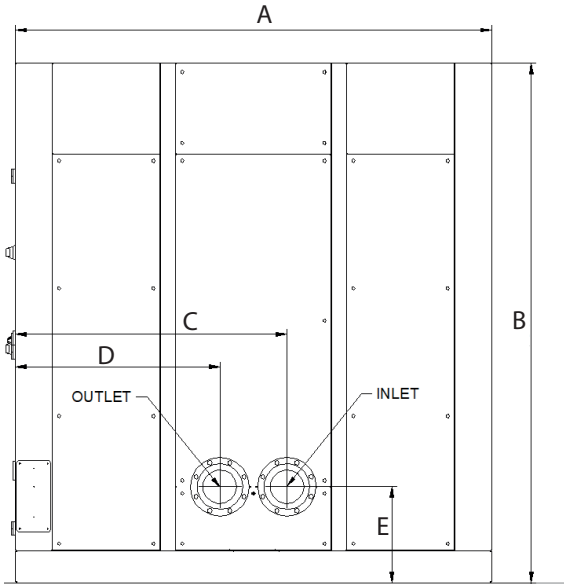


Image shows RHS terminations; LHS terminations are mirrored.

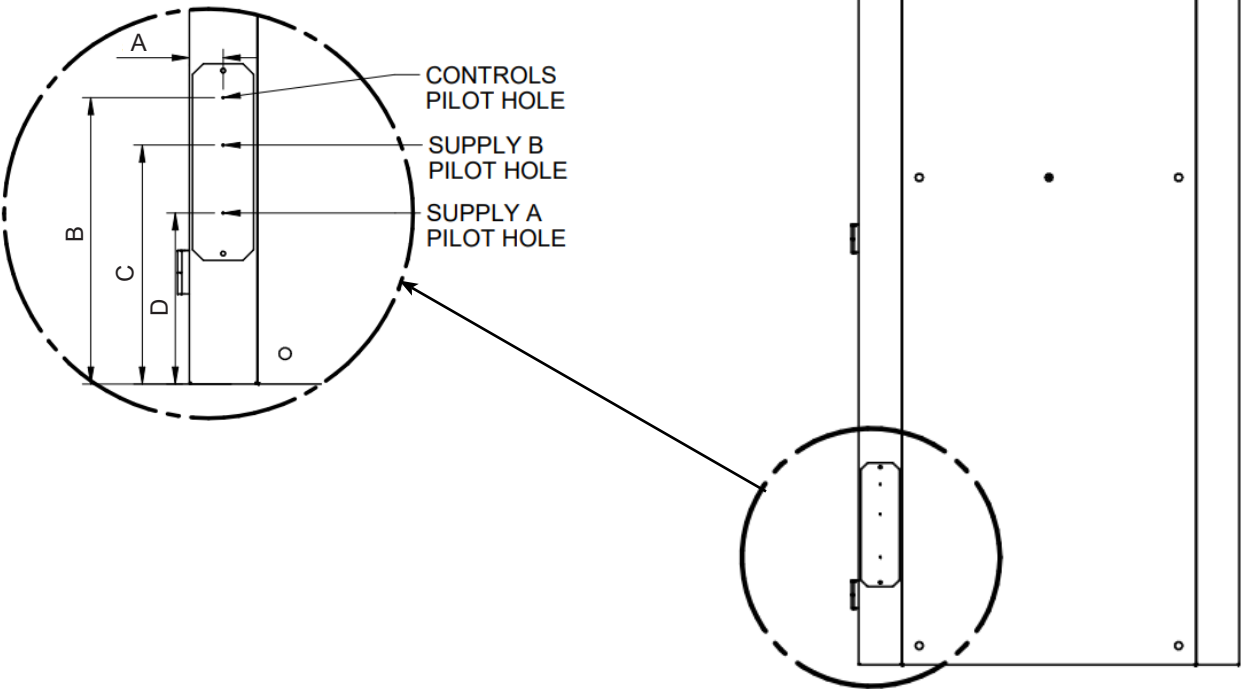
|         | A    |      | B    |      | C    |      | D   |      | E     |      | F     |      |
|---------|------|------|------|------|------|------|-----|------|-------|------|-------|------|
|         | mm   | in   | mm   | in   | mm   | in   | mm  | in   | mm    | in   | mm    | in   |
| SO30-50 | 2200 | 86.6 | 2400 | 94.5 | 1255 | 49.4 | 945 | 37.2 | 443   | 17.4 | 703.5 | 27.7 |
| SO60    | 2200 | 86.6 | 2400 | 94.5 | 1255 | 49.4 | 945 | 37.2 | 444.9 | 17.5 | -     | -    |

SO60



Electrical Connections  
SO09-35

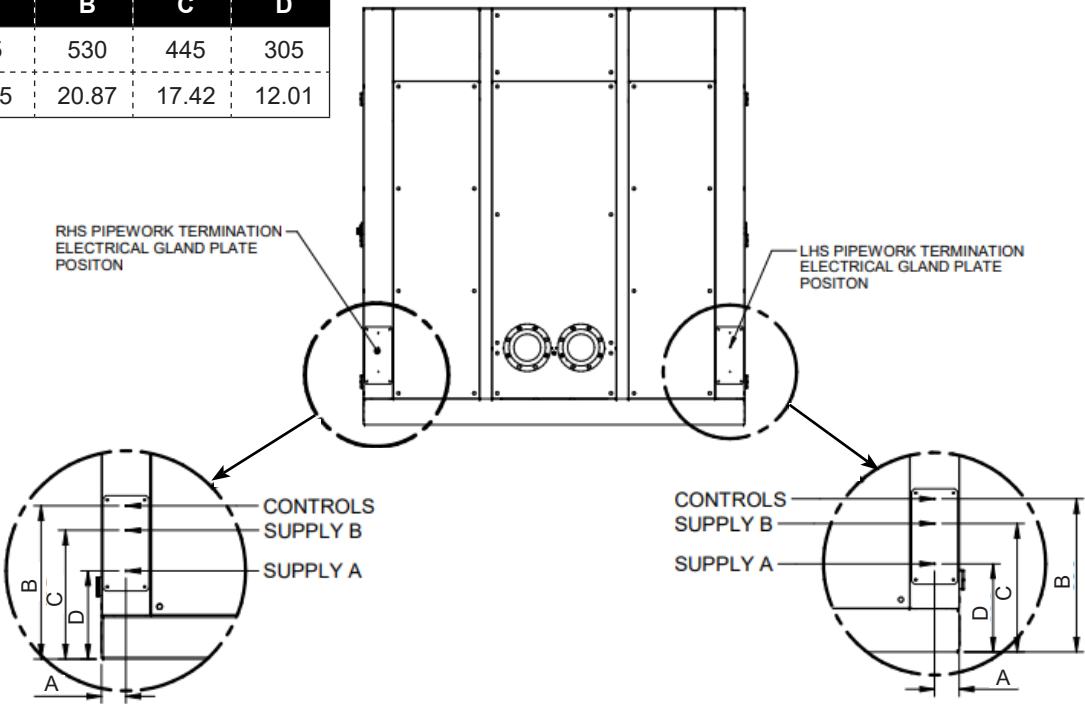
|    | A    | B     | C     | D     |
|----|------|-------|-------|-------|
| mm | 50   | 422.6 | 352.6 | 252.6 |
| in | 1.97 | 16.64 | 13.88 | 9.94  |



Electrical incoming positions are the same on both LHS/RHS for both standard and extended height units. SO09-35 allows electrical terminations to be on the same or opposite side as the pipe terminations.

Electrical Connections  
SO30-60

|    | A    | B     | C     | D     |
|----|------|-------|-------|-------|
| mm | 85   | 530   | 445   | 305   |
| in | 3.35 | 20.87 | 17.42 | 12.01 |



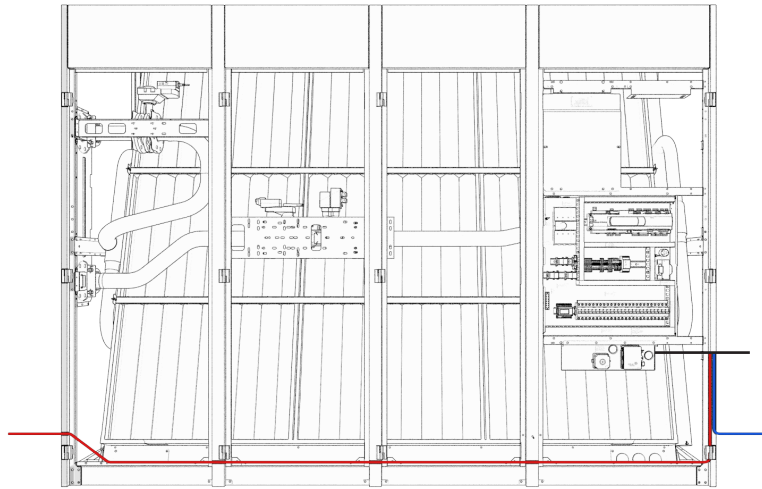
Installation

**Wire Flow Guide - 50Hz**  
**Cable Routing General Wire Path Only**

**LHS Pipe Termination**

Red: LHS Electrical Cable Route

Blue: RHS Electrical Cable Route

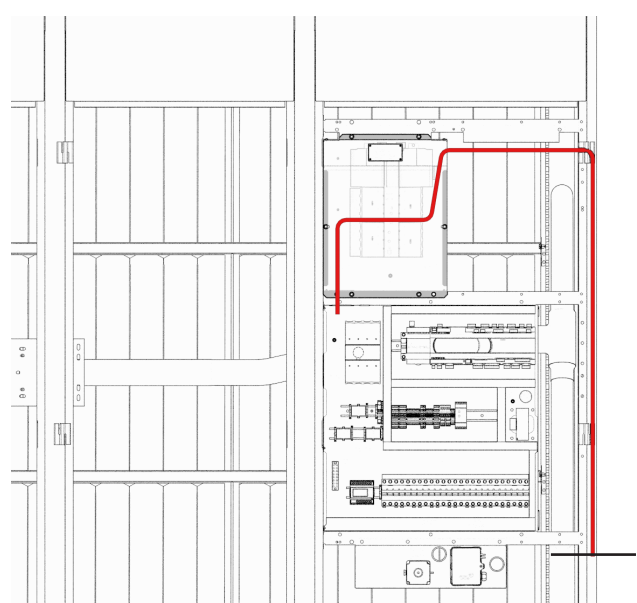


Both left and right hand side wiring entry is available on units with LHS pipework termination.

**LHS Pipe Termination Single Power Supply**



**LHS Pipe Termination Dual Power Supply**

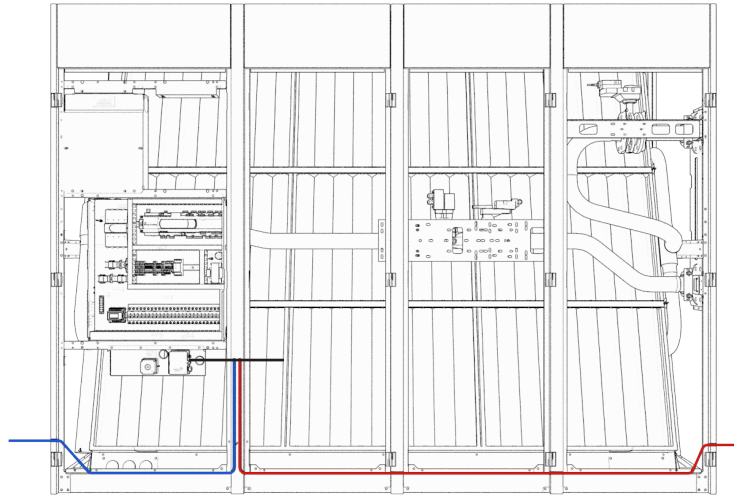


General wire path shown only. The wire should be securely fastened to the frame with the use of cable ties, or other means of fixing appropriate to the application. For unit specific wire paths please contact Airedale.

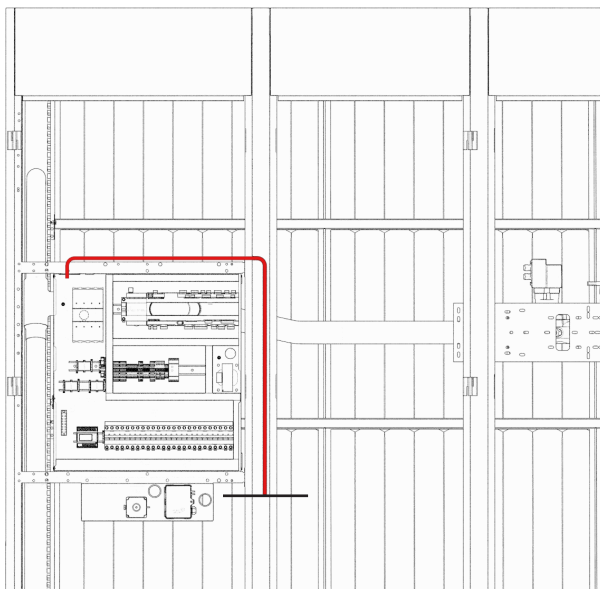
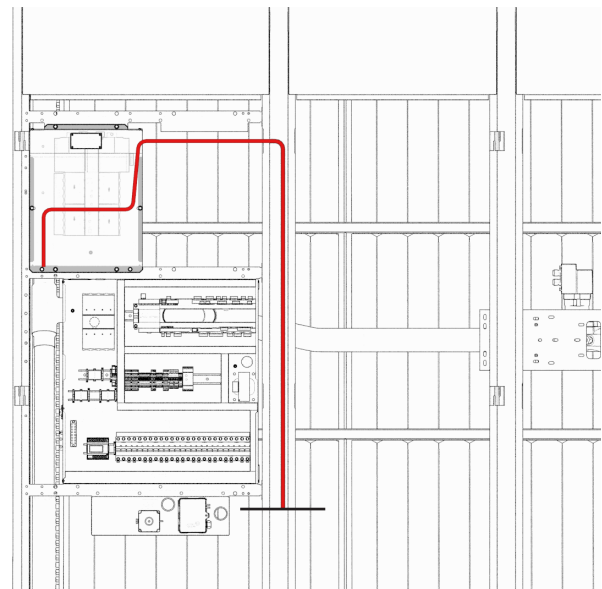
**RHS Pipe Termination**

Blue: LHS Electrical Cable Route

Red: RHS Electrical Cable Route



Both left and right hand side wiring entry is available on units with RHS pipework termination.

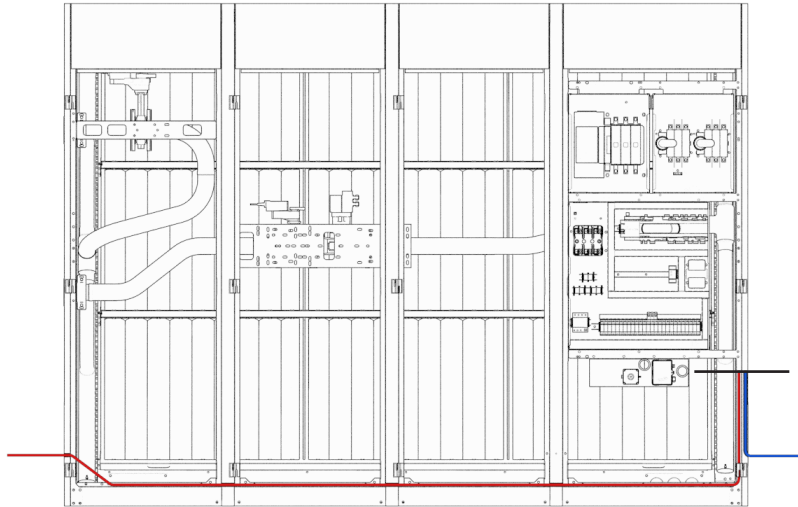
**RHS Pipe Termination Single Power Supply****RHS Pipe Termination Dual Power Supply**

General wire path shown only. The wire should be securely fastened to the frame with the use of cable ties, or other means of fixing appropriate to the application. For unit specific wire paths please contact Airedale.

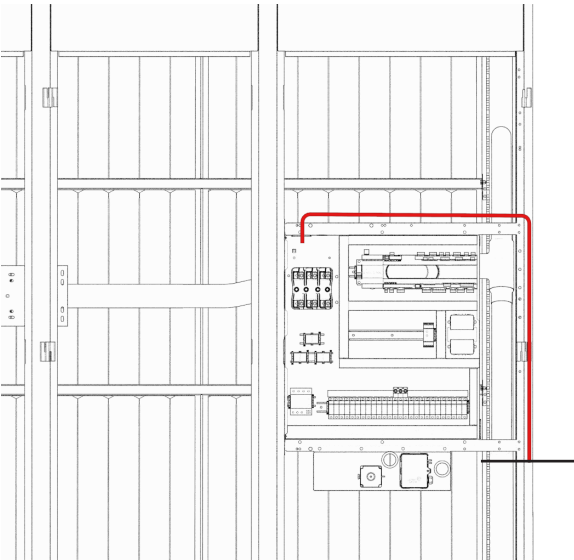
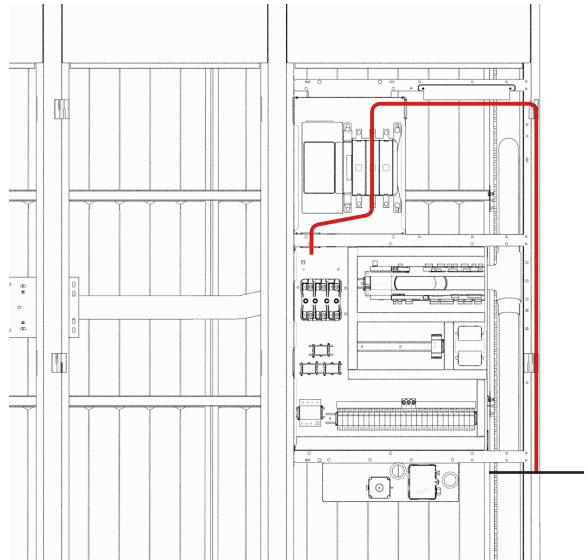
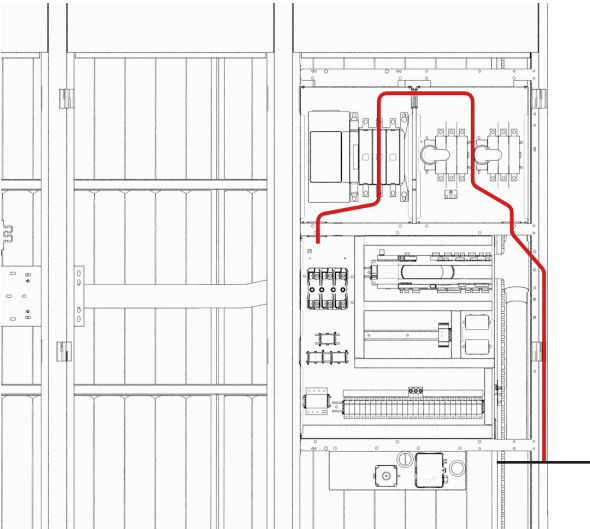
**Wire Flow Guide - 60Hz****Cable Routing General Wire Path Only****LHS Pipe Termination**

Red: LHS Electrical Cable Route

Blue: RHS Electrical Cable Route



Both left and right hand side wiring entry is available on units with LHS pipework termination.

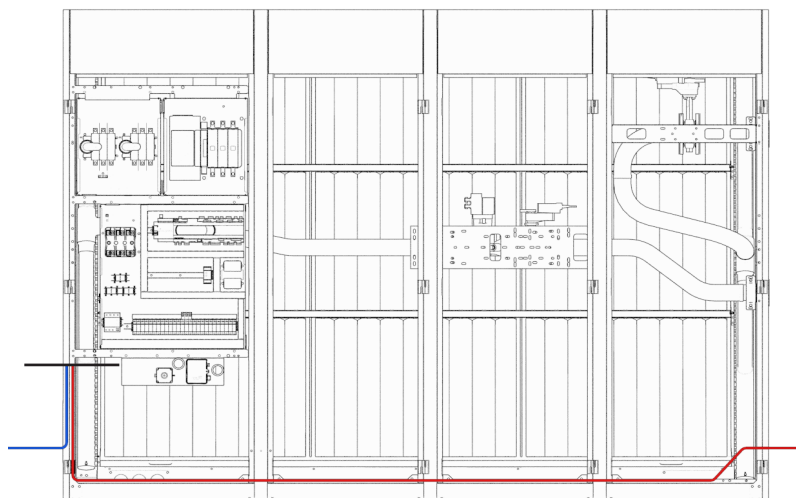
**LHS Pipe Termination Single Power Supply****LHS Pipe Termination Dual Power Supply****LHS Pipe Termination Dual Power Supply + Disconnect Switches**

General wire path shown only. The wire should be securely fastened to the frame with the use of cable ties, or other means of fixing appropriate to the application. For unit specific wire paths please contact Airedale.

## RHS Pipe Termination

Blue: LHS Electrical Cable Route

Red: RHS Electrical Cable Route

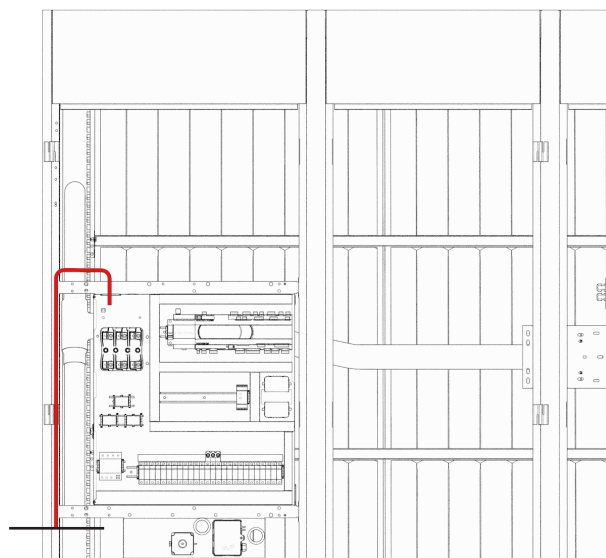


Both left and right hand side wiring entry is available on units with RHS pipework termination.

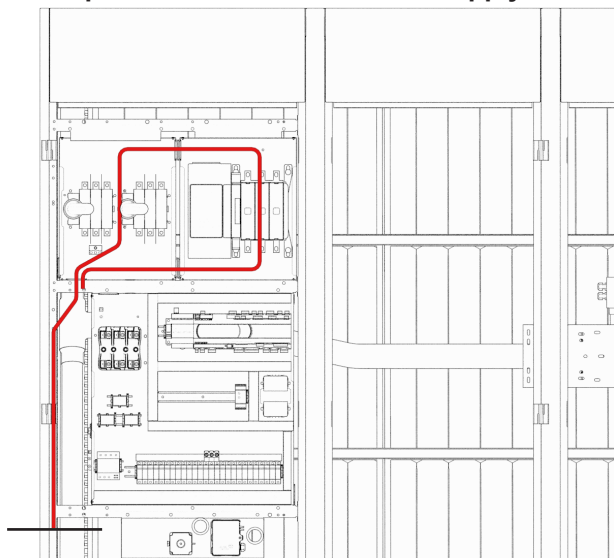
## RHS Pipe Termination Single Power Supply



## RHS Pipe Termination Dual Power Supply



## RHS Pipe Termination Dual Power Supply + Disconnect Switches



General wire path shown only. The wire should be securely fastened to the frame with the use of cable ties, or other means of fixing appropriate to the application. For unit specific wire paths please contact Airedale.

## Flood Detection

SmartCool One has three methods of flood detection:

1. Probe sensor (solid state), supplied loose for remote mounting when the SmartCool One unit is provided with a single unit level drip tray.
2. Rope sensor, supplied loose with self-adhesive clips for remote mounting on site, standard on all SmartCool One units.
3. Condensate drain tray level sensor, optional feature which is factory fitted to the SmartCool One unit.

The probe and condensate drain tray level sensor detect high liquid level at localised points whereas the rope sensor detects leaks across a larger area when in contact with several drops of a conductive liquid. Monitored by a sensing relay, on liquid detection an alarm will generate and disable the SmartCool One unit. The user is required to manually reset the unit after removing the presence of water. High humidity should normally not cause an alarm unless it results in condensation dripping on the rope sensor or condensation present on the surface to which the rope sensor is applied.

- The accompanying Loose Part Instruction should be followed for on-site installation of probe and rope sensor.
- When applying to a surface such as the unit level drip tray, it is recommended to use the supplied self-adhesive clips. When properly clipped, the rope lies flat on the surface avoiding "bridging" (where the detector lifts off the floor allowing water to run under the detector without detection) and damage to the detector.
- When applying the rope sensor directly to the piping, the rope is simply strapped to the pipe.
- Care should be taken to prevent the stainless steel sensing element in the rope from coming into contact with any electrically conductive material causing a "fault" condition. Anything used in applying the rope sensor other than the supplied self-adhesive clips may interfere with the flood detection capability or adversely affect the designed function.
- The rope sensor should not be installed under piping or equipment that can condense liquid as the condensation could drip on the rope causing an alarm.
- In the sub-floor of a computer room the rope should be installed after the raised floor conduit and piping are installed and the sub-floor cleaned and sealed.

|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>⚠ CAUTION</b></p> | <p>Any electrically conductive attachment devices used must not touch the stainless steel sensing element within the water detection PVC twisted rope. The maximum length of detector loop, including wire and detection rope is 30 metres (98.4 ft). Where the rope is concealed or not easily accessible, rope runs should be limited to no more than 30 metres (98.4 ft) and 10 to 25 metres (32.8 - 82.0 ft) per zone is generally used. If the water detection rope is to be attached to or covered by a metallic or conductive surface, care should be taken not to short the conductors.</p> <p>When installing the rope sensor to any surface, be careful not to short circuit or ground out the stainless steel sensing element (such as over/under conduit or sharp edges of cable trays etc.). This also applies to any covering which may be applied over the rope. Before installing the rope, be sure to inspect areas where the rope sensor is to be applied for presence of chemical materials that could create problems. If in doubt, it is recommended to clean the floor with a mild detergent.</p> |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

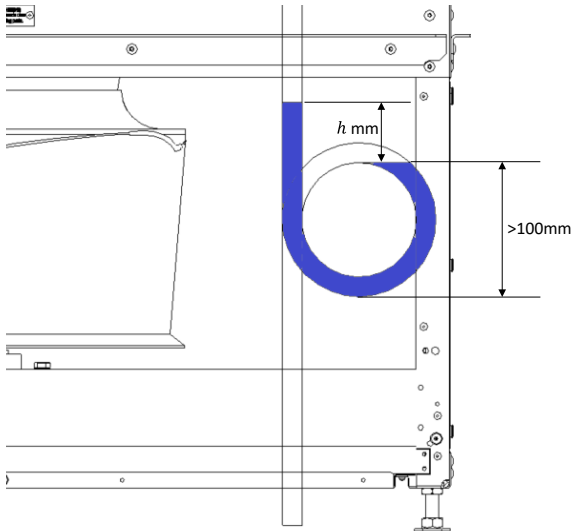
For further information, please refer to Airedale's Technical Bulletin and Loose Part Instruction Manual.

## Positioning of Pressure Sensor Diffuser for Constant Pressure Control

Constant pressure control is supplied with a loose pressure diffuser and sensor which should be positioned either in the supply floor void or return air ductwork away from the unit and out of direct turbulent airflow in order to measure static pressure. The diffuser and sensor should not be positioned close to any floor grilles.

## Drip Tray Drain P-Trap

A P-Trap must be included when connecting the drain to the coil drip tray. This allows water to drain properly while the unit is running and prevents any air from bypassing the chilled water coil through the drain tube. The P-Trap should be filled with a column of water during the commissioning phase.



$$h = \frac{p}{(\rho \times g)} \times 1000$$

$h$  = height difference (mm)

$p$  = static pressure in the suction side of the fan inlet (Pa)

$\rho$  = density of water condensate (kg/m<sup>3</sup>)

$g$  = acceleration due to gravity (m/s<sup>2</sup>)

Example with static pressure of 450 Pa and 100% water condensate:

$$h = \frac{450}{(997 \times 9.81)} \times 1000$$

$$h = \frac{450}{9780.57} \times 1000$$

$$h = 0.046 \times 1000$$

$$h = 46\text{mm}$$

When connecting the condensate drain to the coil drip tray, ensure a p-trap is included as detailed in the provided image with a column of water. A minimum height difference  $h$  must be ensured and can be calculated as shown.

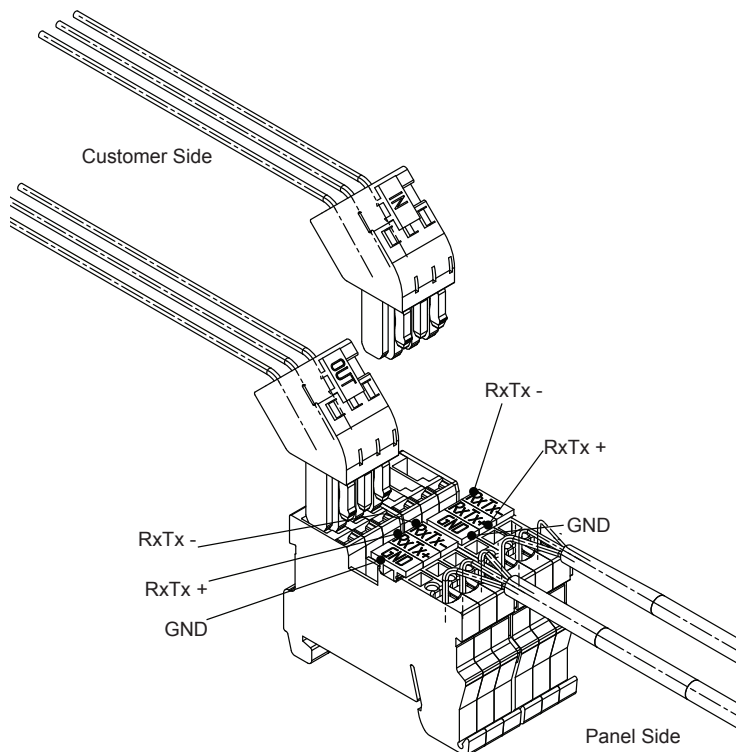
The purpose of this is to prevent air bypassing the chilled water coil through the drain tube and to allow condensate to drain properly while the unit is running.

The p-trap should be checked during service and maintenance visits and topped up to ensure the minimum height difference  $h$  is present.

## Unit to Unit Network Termination

### NOTE

The plugged unit to unit network termination ensures that the connections are made simultaneously. Failure to attach the cables in this way may cause damage to the controller.



## Remote ON/OFF

For the use of Remote ON/OFF, 2 core screened cable 1mm<sup>2</sup> should be used to comply with electromagnetic compatibility (EMC). Maximum cable length <30m (98.4 ft).

## Glycol

Specific Heat Capacity (C<sub>p</sub>) - kJ/kg.K (Btu/lb.°F)

| Water/Glycol<br>Temperature<br><br>°C (°F) | Ethylene Glycol (Volume) / Freezing Point °C |                        |                        |                      |                         |
|--------------------------------------------|----------------------------------------------|------------------------|------------------------|----------------------|-------------------------|
|                                            | 0% /<br>0°C (32°F)                           | 10% /<br>-4°C (24.8°F) | 20% /<br>-9°C (15.8°F) | 30% /<br>-15°C (5°F) | 40% /<br>-23°C (-9.4°F) |
|                                            | C <sub>p</sub>                               | C <sub>p</sub>         | C <sub>p</sub>         | C <sub>p</sub>       | C <sub>p</sub>          |
| 20 (68)                                    | 4.183 (0.999)                                | 3.972 (0.949)          | 3.815 (0.911)          | 3.645 (0.871)        | 3.468 (0.828)           |
| 25 (77)                                    | 4.181 (0.999)                                | 3.981 (0.951)          | 3.826 (0.914)          | 3.66 (0.874)         | 3.485 (0.832)           |
| 30 (86)                                    | 4.179 (0.998)                                | 3.989 (0.953)          | 3.838 (0.917)          | 3.674 (0.878)        | 3.502 (0.836)           |
| 35 (95)                                    | 4.178 (0.998)                                | 3.998 (0.955)          | 3.849 (0.919)          | 3.688 (0.881)        | 3.518 (0.840)           |
| 40 (104)                                   | 4.179 (0.998)                                | 4.007 (0.957)          | 3.861 (0.922)          | 3.702 (0.884)        | 3.535 (0.844)           |
| 45 (113)                                   | 4.181 (0.999)                                | 4.015 (0.959)          | 3.872 (0.925)          | 3.716 (0.888)        | 3.552 (0.848)           |

## Density (ρ) - kg/m³ (lb/ft³)

| Water/Glycol<br>Temperature<br><br>°C | Ethylene Glycol (Volume) / Freezing Point |                        |                        |                      |                         |
|---------------------------------------|-------------------------------------------|------------------------|------------------------|----------------------|-------------------------|
|                                       | 0% /<br>0°C (32°F)                        | 10% /<br>-4°C (24.8°F) | 20% /<br>-9°C (15.8°F) | 30% /<br>-15°C (5°F) | 40% /<br>-23°C (-9.4°F) |
|                                       | ρ                                         | ρ                      | ρ                      | ρ                    | ρ                       |
| 20 (68)                               | 998 (62.3)                                | 1013 (63.2)            | 1030 (64.3)            | 1045 (65.2)          | 1060 (66.2)             |
| 25 (77)                               | 997 (62.2)                                | 1012 (63.2)            | 1028 (64.2)            | 1043 (65.1)          | 1058 (66.0)             |
| 30 (86)                               | 996 (62.2)                                | 1010 (63.1)            | 1026 (64.1)            | 1041 (65.0)          | 1055 (65.9)             |
| 35 (95)                               | 994 (62.1)                                | 1008 (62.9)            | 1024 (63.9)            | 1039 (64.9)          | 1053 (65.7)             |
| 40 (104)                              | 992 (61.9)                                | 1006 (62.8)            | 1022 (63.8)            | 1036 (64.7)          | 1050 (65.5)             |
| 45 (113)                              | 990 (61.8)                                | 1003 (62.6)            | 1020 (63.7)            | 1035 (64.6)          | 1048 (65.4)             |

Pressure Drop Correction Factor (P<sub>x</sub>)

| Water/Glycol<br>Temperature<br><br>°C | Ethylene Glycol (Volume) |                |                |                |                |
|---------------------------------------|--------------------------|----------------|----------------|----------------|----------------|
|                                       | 0%                       | 10%            | 20%            | 30%            | 40%            |
|                                       | P <sub>x</sub>           | P <sub>x</sub> | P <sub>x</sub> | P <sub>x</sub> | P <sub>x</sub> |
| 20 (68)                               | 0.9830                   | 1.0125         | 1.0540         | 1.0958         | 1.1500         |

(1) All data based upon ASHRAE fundamentals 2001.

**Technical Data****Interconnected Wiring****Mains Incoming**

|          |    |   |   |                                                                              |
|----------|----|---|---|------------------------------------------------------------------------------|
| Standard | L1 | ○ | ← | Mains Incoming Supply - Primary<br>380V/400V 50Hz 3PH + N<br>460V 60Hz 3PH   |
|          | L2 | ○ | ← |                                                                              |
|          | L3 | ○ | ← |                                                                              |
|          | N  | ○ | ← |                                                                              |
|          | PE | ○ | ← |                                                                              |
| Option   | L1 | ○ | ← | Mains Incoming Supply - Secondary<br>380V/400V 50Hz 3PH + N<br>460V 60Hz 3PH |
|          | L2 | ○ | ← |                                                                              |
|          | L3 | ○ | ← |                                                                              |
|          | N  | ○ | ← |                                                                              |
|          | PE | ○ | ← |                                                                              |

**Floor Stand to Unit Connectors**

|          |     |   |   |                                                    |
|----------|-----|---|---|----------------------------------------------------|
| Standard | 831 | ○ | ← | Unit to Floor Stand Fan Control<br>(Connector X34) |
|          | 500 | ○ | ← |                                                    |
|          | SCR | ○ | ← |                                                    |

|          |        |   |   |                                               |
|----------|--------|---|---|-----------------------------------------------|
| Standard | GND    | ○ | ← | Unit to Floor Stand Modbus<br>(Connector X40) |
|          | Tx/Rx+ | ○ | ← |                                               |
|          | Tx/Rx- | ○ | ← |                                               |

|                                        |     |   |   |                                                     |
|----------------------------------------|-----|---|---|-----------------------------------------------------|
| Fan 1<br>SO09-SO60                     | 220 | ○ | ← | Unit to Floor Stand Fan 1 Power<br>(Connector X20)  |
|                                        | 221 | ○ | ← |                                                     |
|                                        | 222 | ○ | ← |                                                     |
|                                        | PE  | ○ | ← |                                                     |
| Fan 2<br>SO15-SO60                     | 223 | ○ | ← | Unit to Floor Stand Fan 2 Power<br>(Connector X21)  |
|                                        | 224 | ○ | ← |                                                     |
|                                        | 225 | ○ | ← |                                                     |
|                                        | PE  | ○ | ← |                                                     |
| Fan 3<br>SO22-SO60                     | 226 | ○ | ← | Unit to Floor Stand Fan 3 Power<br>(Connector X22)  |
|                                        | 227 | ○ | ← |                                                     |
|                                        | 228 | ○ | ← |                                                     |
|                                        | PE  | ○ | ← |                                                     |
| Fan 4<br>SO30 - SO60                   | 229 | ○ | ← | Unit to Floor Stand Fan 4 Power<br>(Connector X23)  |
|                                        | 230 | ○ | ← |                                                     |
|                                        | 231 | ○ | ← |                                                     |
|                                        | PE  | ○ | ← |                                                     |
| Fan 5<br>SO30 - SO60<br>(A-Frame Only) | 232 | ○ | ← | Unit to Floor Stand Fan 5 Power<br>(Connector X24)  |
|                                        | 233 | ○ | ← |                                                     |
|                                        | 234 | ○ | ← |                                                     |
|                                        | PE  | ○ | ← |                                                     |
| Fan 6<br>SO30 - SO60<br>(A-Frame Only) | 235 | ○ | ← | Unit to Floor Stand Fan 6 Power<br>(Connector X25)  |
|                                        | 236 | ○ | ← |                                                     |
|                                        | 237 | ○ | ← |                                                     |
|                                        | PE  | ○ | ← |                                                     |
| Fan 7<br>SO40 - SO60                   | 238 | ○ | ← | Unit to Floor Stand Fan 7 Power<br>(Connector X26)  |
|                                        | 239 | ○ | ← |                                                     |
|                                        | 240 | ○ | ← |                                                     |
|                                        | PE  | ○ | ← |                                                     |
| Fan 8<br>SO40 - SO60                   | 241 | ○ | ← | Unit to Floor Stand Fan 8 Power<br>(Connector X27)  |
|                                        | 242 | ○ | ← |                                                     |
|                                        | 243 | ○ | ← |                                                     |
|                                        | PE  | ○ | ← |                                                     |
| Fan 9<br>SO50 - SO60                   | 244 | ○ | ← | Unit to Floor Stand Fan 9 Power<br>(Connector X28)  |
|                                        | 245 | ○ | ← |                                                     |
|                                        | 246 | ○ | ← |                                                     |
|                                        | PE  | ○ | ← |                                                     |
| Fan10<br>SO50 - SO60                   | 247 | ○ | ← | Unit to Floor Stand Fan 10 Power<br>(Connector X29) |
|                                        | 248 | ○ | ← |                                                     |
|                                        | 249 | ○ | ← |                                                     |
|                                        | PE  | ○ | ← |                                                     |

## Interconnected Wiring

|                |     |   |   |                                                     |
|----------------|-----|---|---|-----------------------------------------------------|
| Fan 11<br>SO60 | 250 | ○ | ← | Unit to Floor Stand Fan 11 Power<br>(Connector X30) |
|                | 251 | ○ | ← |                                                     |
|                | 252 | ○ | ← |                                                     |
|                | PE  | ○ | ← |                                                     |
| Fan 12<br>SO60 | 253 | ○ | ← | Unit to Floor Stand Fan 12 Power<br>(Connector X31) |
|                | 254 | ○ | ← |                                                     |
|                | 255 | ○ | ← |                                                     |
|                | PE  | ○ | ← |                                                     |
| Fan 13<br>SO60 | 256 | ○ | ← | Unit to Floor Stand Fan 13 Power<br>(Connector X32) |
|                | 257 | ○ | ← |                                                     |
|                | 258 | ○ | ← |                                                     |
|                | PE  | ○ | ← |                                                     |
| Fan 14<br>SO60 | 259 | ○ | ← | Unit to Floor Stand Fan 14 Power<br>(Connector X33) |
|                | 260 | ○ | ← |                                                     |
|                | 261 | ○ | ← |                                                     |
|                | PE  | ○ | ← |                                                     |

|                                 |                |   |   |                                                        |
|---------------------------------|----------------|---|---|--------------------------------------------------------|
| Flood Detection Probe /<br>Tape | NOT USED / 609 | ○ | ← | Unit to Floor Stand Flood Detection<br>(Connector X46) |
|                                 | NOT USED / 610 | ○ | ← |                                                        |
|                                 | NOT USED / 610 | ○ | ← |                                                        |
|                                 | NOT USED / 609 | ○ | ← |                                                        |

|                                      |                |   |   |                                                                             |
|--------------------------------------|----------------|---|---|-----------------------------------------------------------------------------|
| Supply Air Temperature /<br>Humidity | 812            | ○ | ← | Unit to Floor Stand Supply Air<br>Temperature / Humidity (Connector<br>X45) |
|                                      | NOT USED / SCR | ○ | ← |                                                                             |
|                                      | NOT USED / 502 | ○ | ← |                                                                             |
|                                      | 854 / 500      | ○ | ← |                                                                             |
|                                      | NOT USED / 813 | ○ | ← |                                                                             |

## Interconnecting Wiring

|          |         |   |   |                     |
|----------|---------|---|---|---------------------|
| Standard | Rx-/Tx- | ○ | ← | Network In (FBUS2)  |
|          | Rx+/Tx+ | ○ | ← |                     |
|          | GND     | ○ | ← |                     |
| Standard | Rx-/Tx- | ○ | → | Network Out (FBUS2) |
|          | Rx+/Tx+ | ○ | → |                     |
|          | GND     | ○ | → |                     |

|          |     |   |   |               |
|----------|-----|---|---|---------------|
| Standard | 502 | ○ | → | Remote On/Off |
|          | 522 | ○ | ← |               |

|          |     |   |   |                           |
|----------|-----|---|---|---------------------------|
| Standard | 560 | ○ | → | Non-Critical Alarm N/O    |
|          | 561 | ○ | ← | Non-Critical Alarm Common |

|          |     |   |   |                       |
|----------|-----|---|---|-----------------------|
| Standard | 560 | ○ | → | Critical Alarm N/O    |
|          | 561 | ○ | ← | Critical Alarm Common |
|          | 562 | ○ | → | Critical Alarm N/C    |

|          |     |   |   |                   |
|----------|-----|---|---|-------------------|
| Standard | 502 | ○ | → | Fire/Smoke Detect |
|          | 583 | ○ | ← |                   |

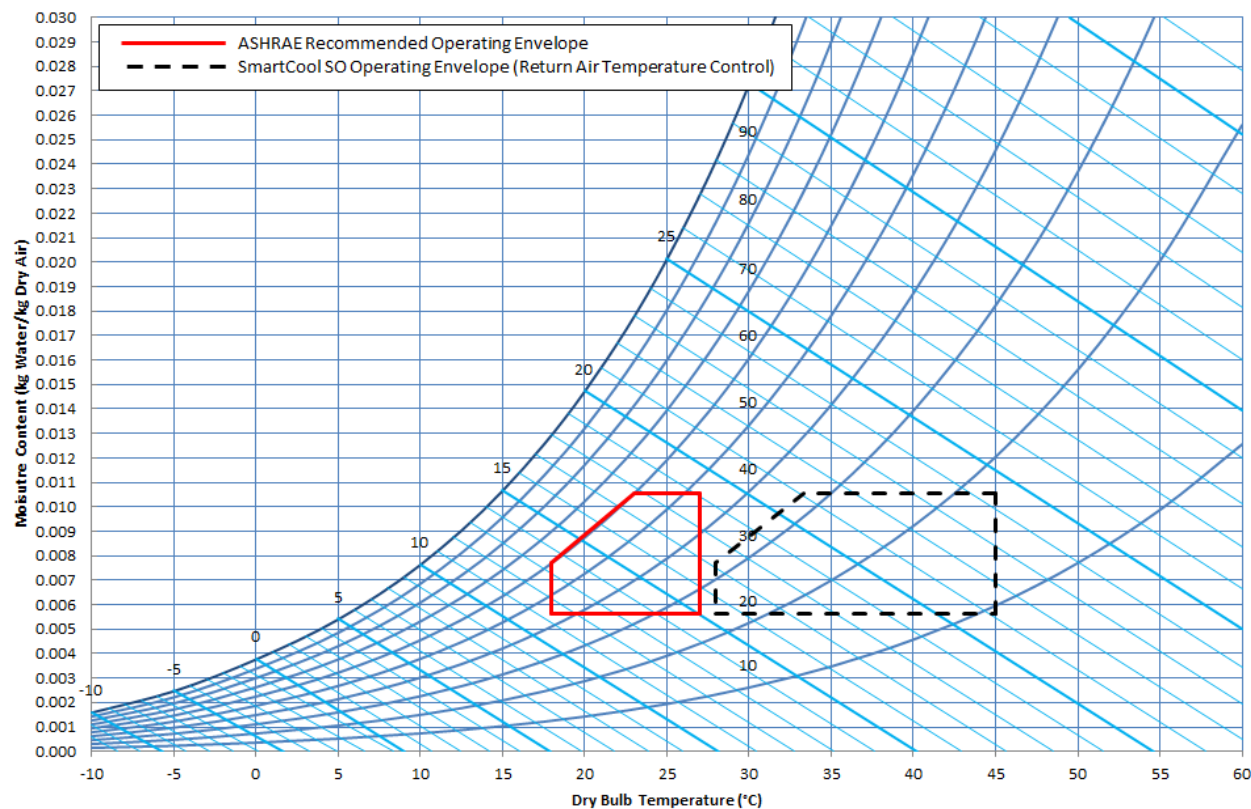
|          |     |   |   |                              |
|----------|-----|---|---|------------------------------|
| Standard | 609 | ○ | → | Flood Detection Tape / Probe |
|          | 610 | ○ | ← |                              |

Interconnected Wiring

|          |              |   |     |                                               |
|----------|--------------|---|-----|-----------------------------------------------|
| Standard | 812          | ○ | →   | Supply Air Temperature                        |
|          | 854          | ○ | ←   |                                               |
| Option   | 500          | ○ | →   | Supply Air Temperature / Humidity             |
|          | 502          | ○ | →   |                                               |
|          | 812          | ○ | ←   |                                               |
|          | 813          | ○ | ←   |                                               |
|          | SCR          | ○ | ←   |                                               |
| Option   | 500          | ○ | →   | Shut-Off Valve 6" Actuator<br>(SO50 and SO60) |
|          | 502          | ○ | →   |                                               |
|          | 568          | ○ | →   |                                               |
|          | PE           | ○ | →   |                                               |
| Option   | BMS Ethernet | ○ | ← → | BMS Interface (pCOWeb Ethernet)               |

Technical Data  
Operating Temperature Limits

|                                  | Minimum                  |        | Design |        | Maximum |        |
|----------------------------------|--------------------------|--------|--------|--------|---------|--------|
|                                  | °C                       | °F     | °C     | °F     | °C      | °F     |
| Return Air Temperature           | 28                       | 82.4   | 36     | 75.2   | 45      | 113.0  |
| Return Air Relative Humidity (%) | 9.4%                     |        | 22.6%  |        | 32.7%   |        |
| Inlet Water Temperature          | 20                       | 68     | 28     | 82.4   | 36      | 96.8   |
| Temperature Difference (K / °R)  | 6K                       | 10.8°R | 8K     | 14.4°R | 12K     | 21.6°R |
| Storage Temperature              | Please contact Airedale. |        |        |        |         |        |



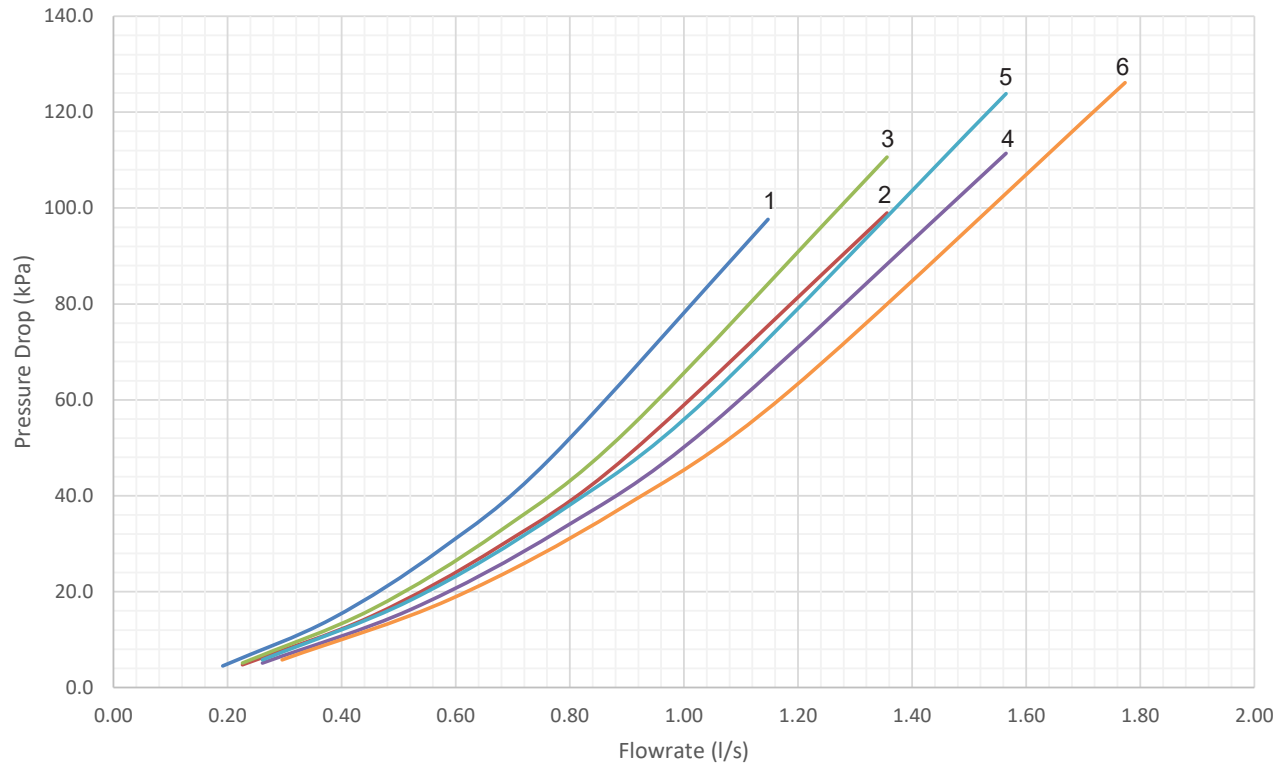
The unit does not offer humidity control and therefore the humidity levels for the unit environment must be controlled by the customer to ensure a non-latent application.

Waterside Pressure Drop  
Coil only

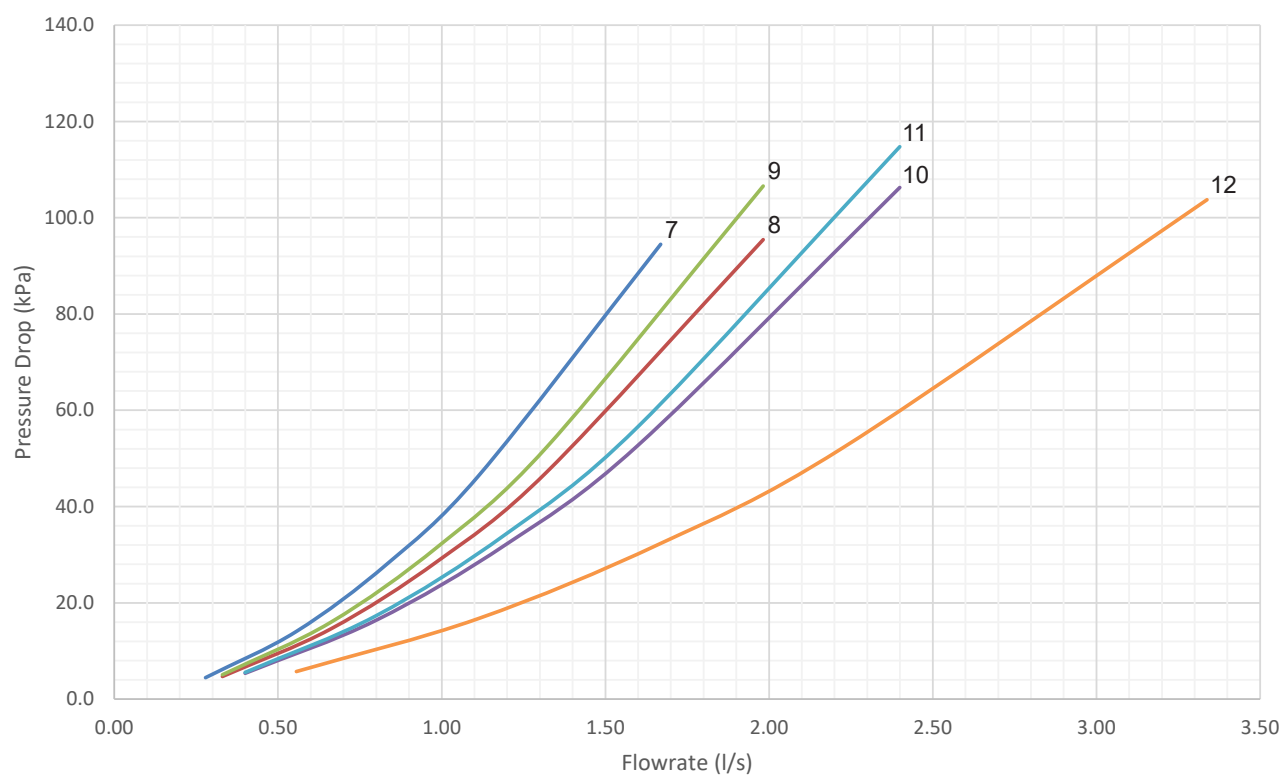
|   |                    |
|---|--------------------|
| 1 | SO09D004CLBSx-0/-A |
| 2 | SO09D004CLBXx-0/-A |
| 3 | SO09D004CLCSx-0/-A |
| 4 | SO09D005CLCXx-0/-A |
| 5 | SO09D005CLDSx-0/-A |
| 6 | SO09D005CLDXx-0/-A |

|    |                    |
|----|--------------------|
| 7  | SO12D006CLBSx-0/-A |
| 8  | SO12D006CLBXx-0/-A |
| 9  | SO12D006CLCSx-0/-A |
| 10 | SO12D007CLCXx-0/-A |
| 11 | SO12D007CLDSx-0/-A |
| 12 | SO12D008CLDXx-0/-A |

SO09 Low Flow 50Hz



SO12 Low Flow 50Hz



Technical

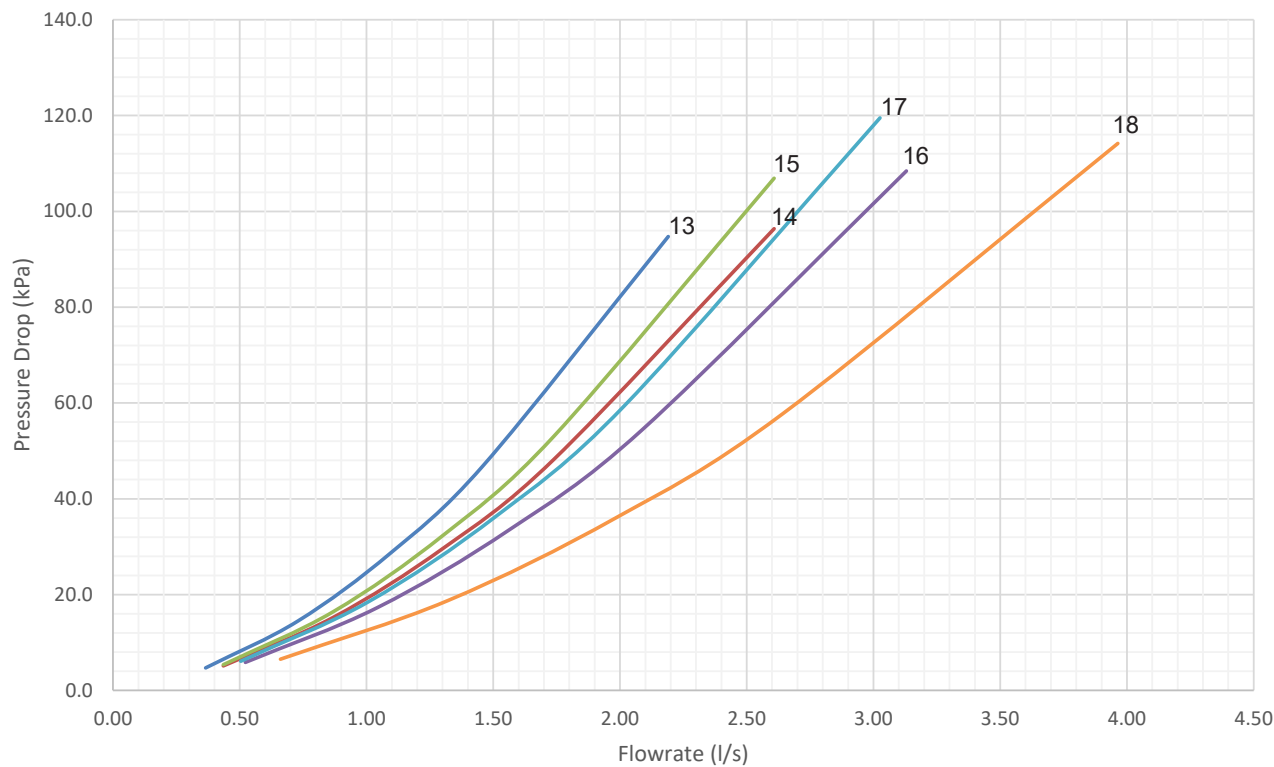
Waterside Pressure Drop

Coil only

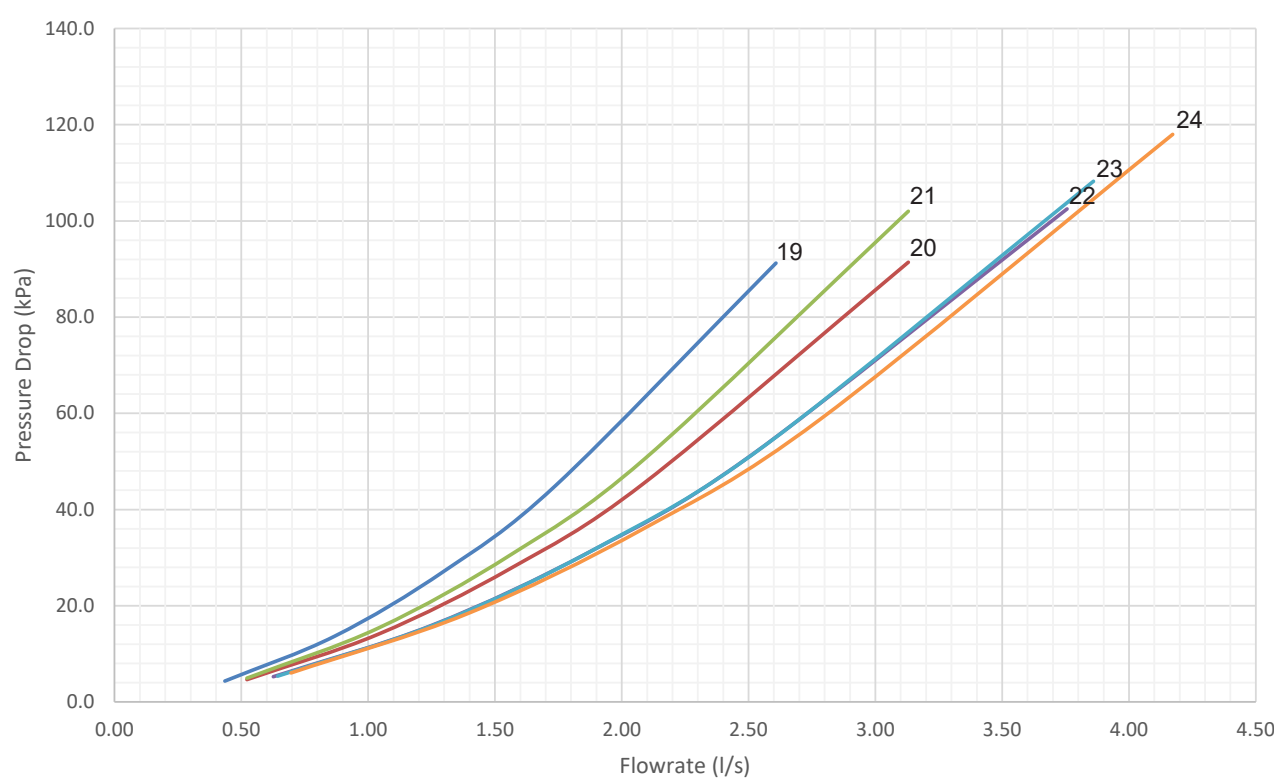
|    |                    |
|----|--------------------|
| 13 | SO15D007CLBSx-0/-A |
| 14 | SO15D009CLBXx-0/-A |
| 15 | SO15D008CLCSx-0/-A |
| 16 | SO15D010CLCXx-0/-A |
| 17 | SO15D009CLDSx-0/-A |
| 18 | SO15D010CLDXx-0/-A |

|    |                    |
|----|--------------------|
| 19 | SO18D009CLBSx-0/-A |
| 20 | SO18D010CLBXx-0/-A |
| 21 | SO18D010CLCSx-0/-A |
| 22 | SO18D011CLCXx-0/-A |
| 23 | SO18D011CLDSx-0/-A |
| 24 | SO18D013CLDXx-0/-A |

SO15 Low Flow 50Hz



SO18 Low Flow 50Hz

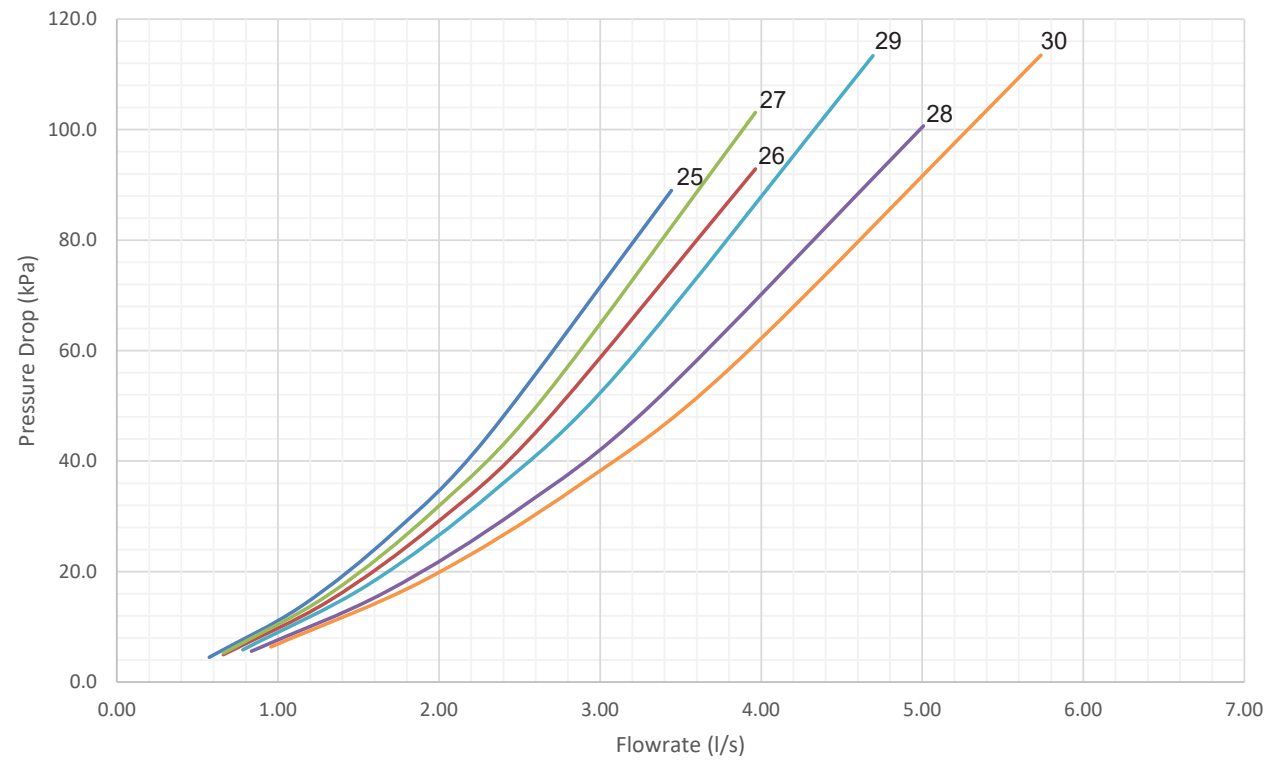


Waterside Pressure Drop  
Coil only

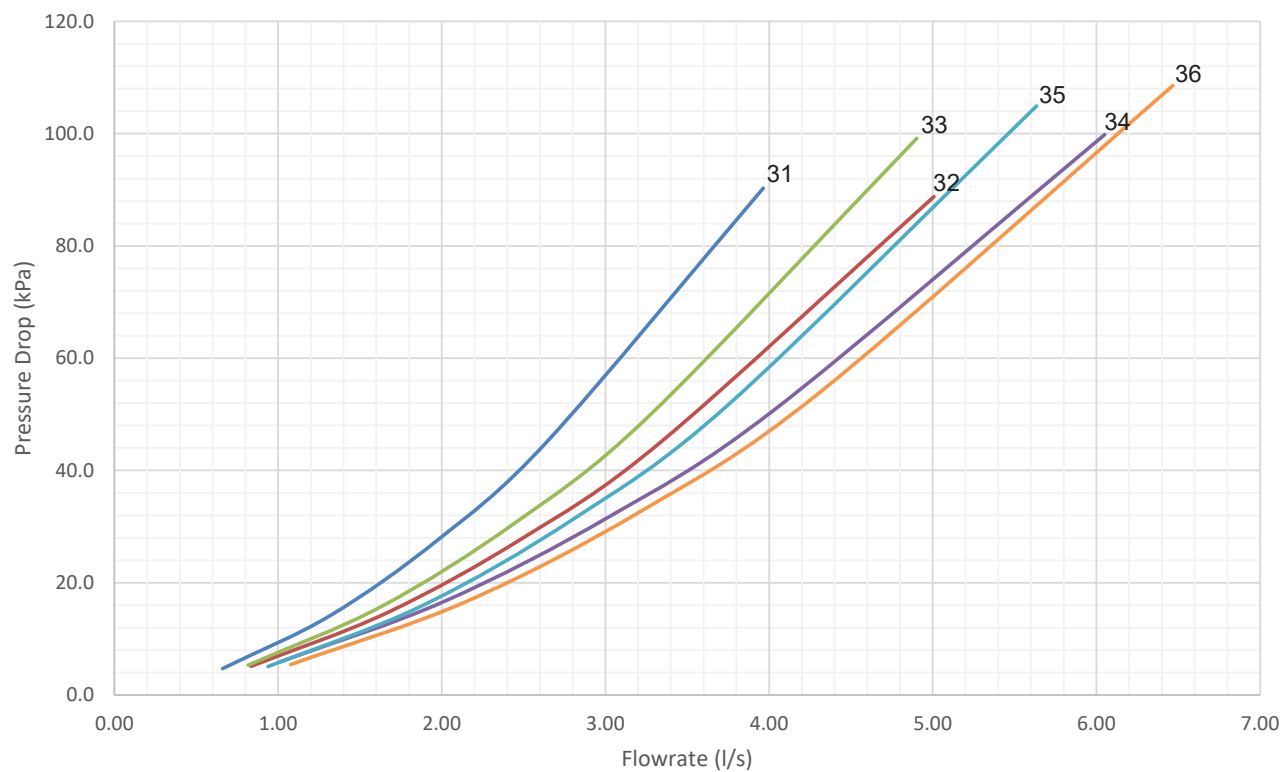
|    |                    |
|----|--------------------|
| 25 | SO22D011CLBSx-0/-A |
| 26 | SO22D013CLBXx-0/-A |
| 27 | SO22D013CLCSx-0/-A |
| 28 | SO22D015CLCXx-0/-A |
| 29 | SO22D014CLDSx-0/-A |
| 30 | SO22D016CLDXx-0/-A |

|    |                    |
|----|--------------------|
| 31 | SO25D013CLBSx-0/-A |
| 32 | SO25D015CLBXx-0/-A |
| 33 | SO25D015CLCSx-0/-A |
| 34 | SO25D017CLCXx-0/-A |
| 35 | SO25D016CLDSx-0/-A |
| 36 | SO25D019CLDXx-0/-A |

SO22 Low Flow 50Hz



SO25 Low Flow 50Hz



Technical

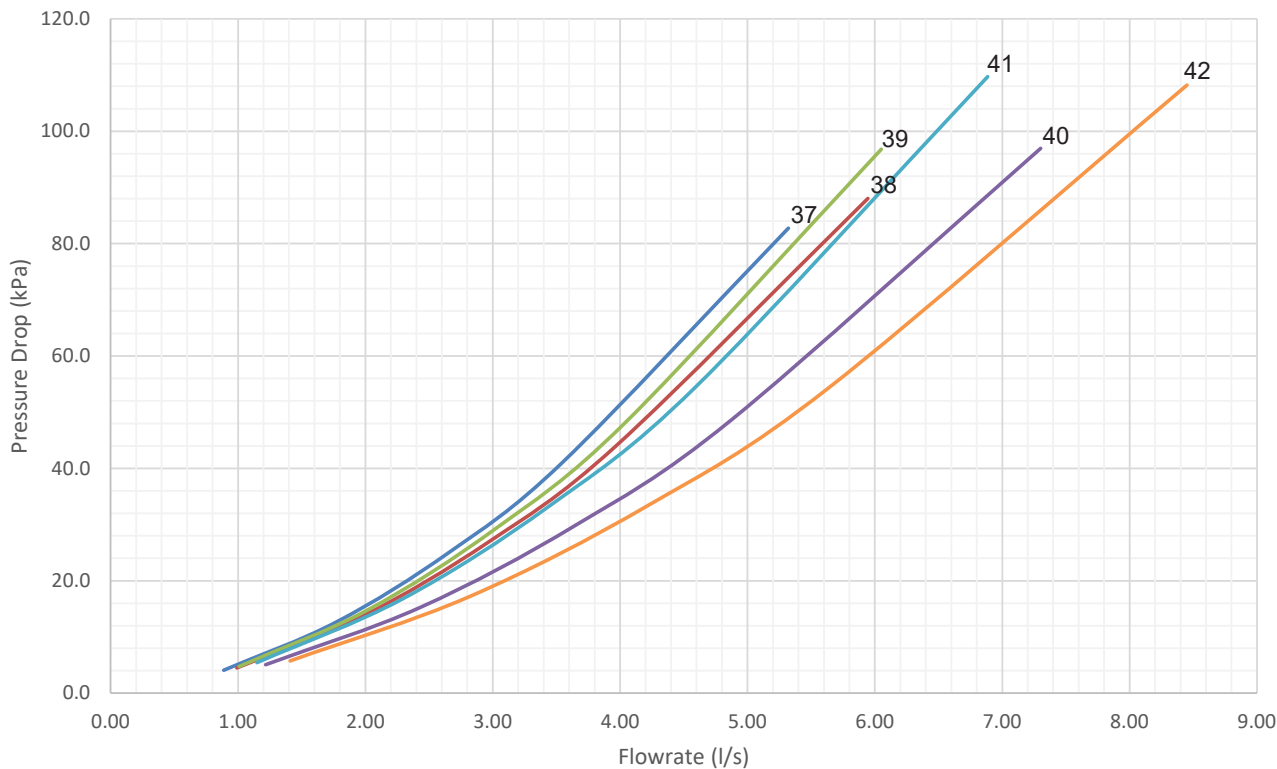
Waterside Pressure Drop

Coil only

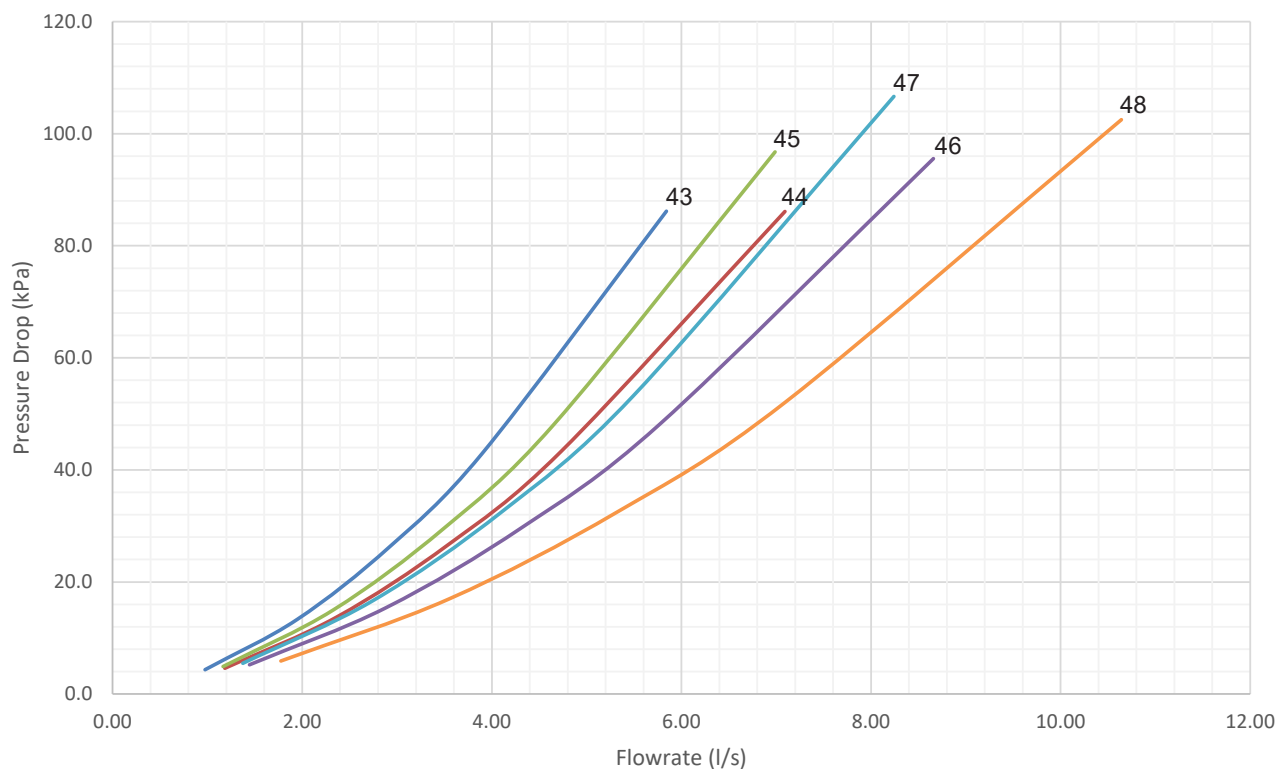
|    |                    |
|----|--------------------|
| 37 | SO31D017CLBSx-0/-A |
| 38 | SO31D020CLBXx-0/-A |
| 39 | SO31D019CLCSx-0/-A |
| 40 | SO31D022CLCXx-0/-A |
| 41 | SO31D020CLDSx-0/-A |
| 42 | SO31D024CLDXx-0/-A |

|    |                    |
|----|--------------------|
| 43 | SO35D019CLBSx-0/-A |
| 44 | SO35D022CLBXx-0/-A |
| 45 | SO35D021CLCSx-0/-A |
| 46 | SO35D025CLCXx-0/-A |
| 47 | SO35D023CLDSx-0/-A |
| 48 | SO35D027CLDXx-0/-A |

SO31 Low Flow 50Hz



SO35 Low Flow 50Hz

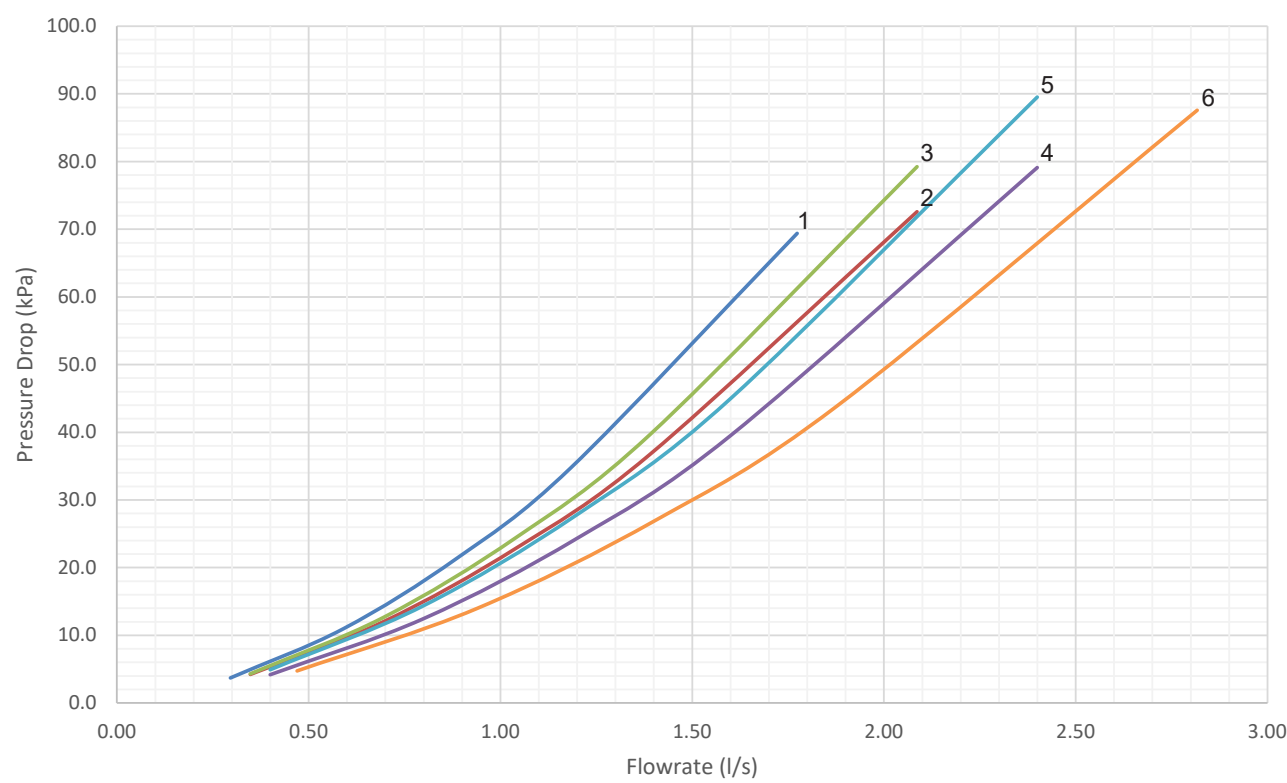


Waterside Pressure Drop  
Coil only

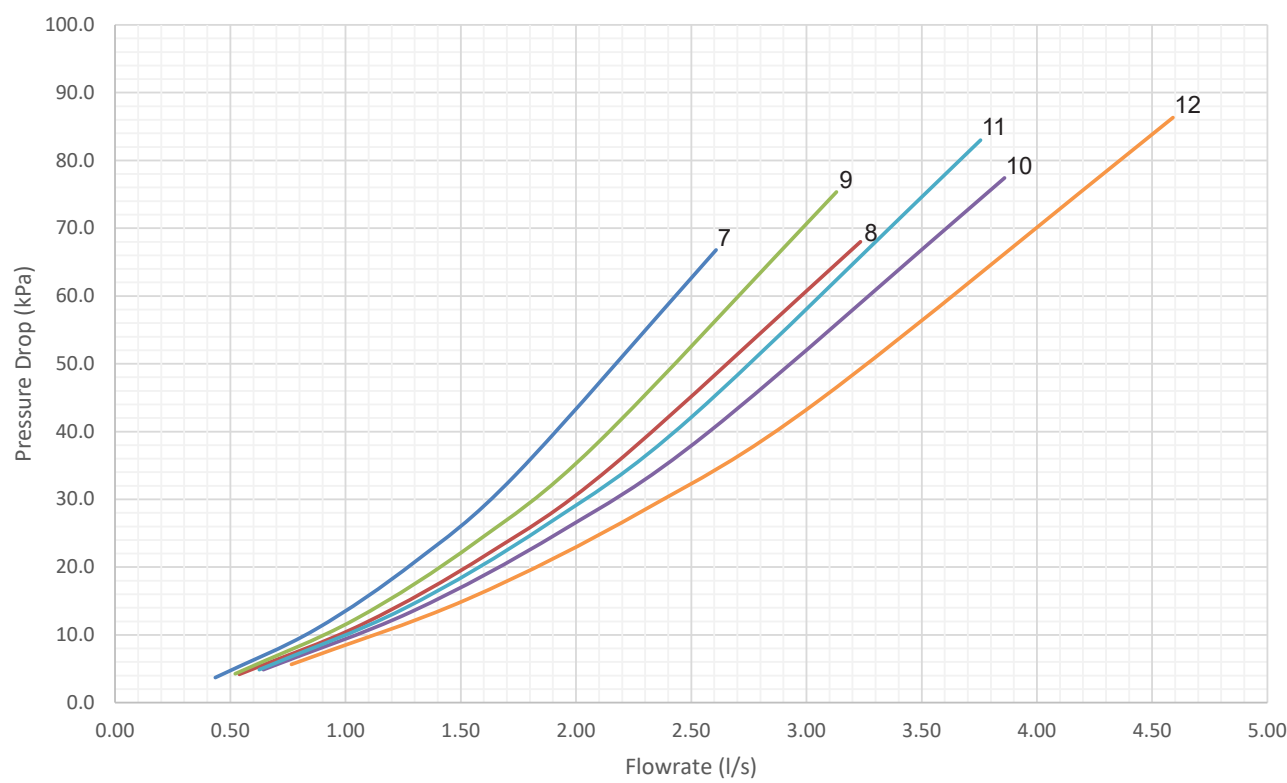
|   |                    |
|---|--------------------|
| 1 | SO09D004CHBSx-0/-A |
| 2 | SO09D005CHBXx-0/-A |
| 3 | SO09D004CHCSx-0/-A |
| 4 | SO09D005CHCXx-0/-A |
| 5 | SO09D005CHDSx-0/-A |
| 6 | SO09D005CHDXx-0/-A |

|    |                    |
|----|--------------------|
| 7  | SO12D006CHBSx-0/-A |
| 8  | SO12D007CHBXx-0/-A |
| 9  | SO12D006CHCSx-0/-A |
| 10 | SO12D008CHCXx-0/-A |
| 11 | SO12D007CHDSx-0/-A |
| 12 | SO12D008CHDXx-0/-A |

SO09 High Flow 50Hz



SO12 High Flow 50Hz



Technical

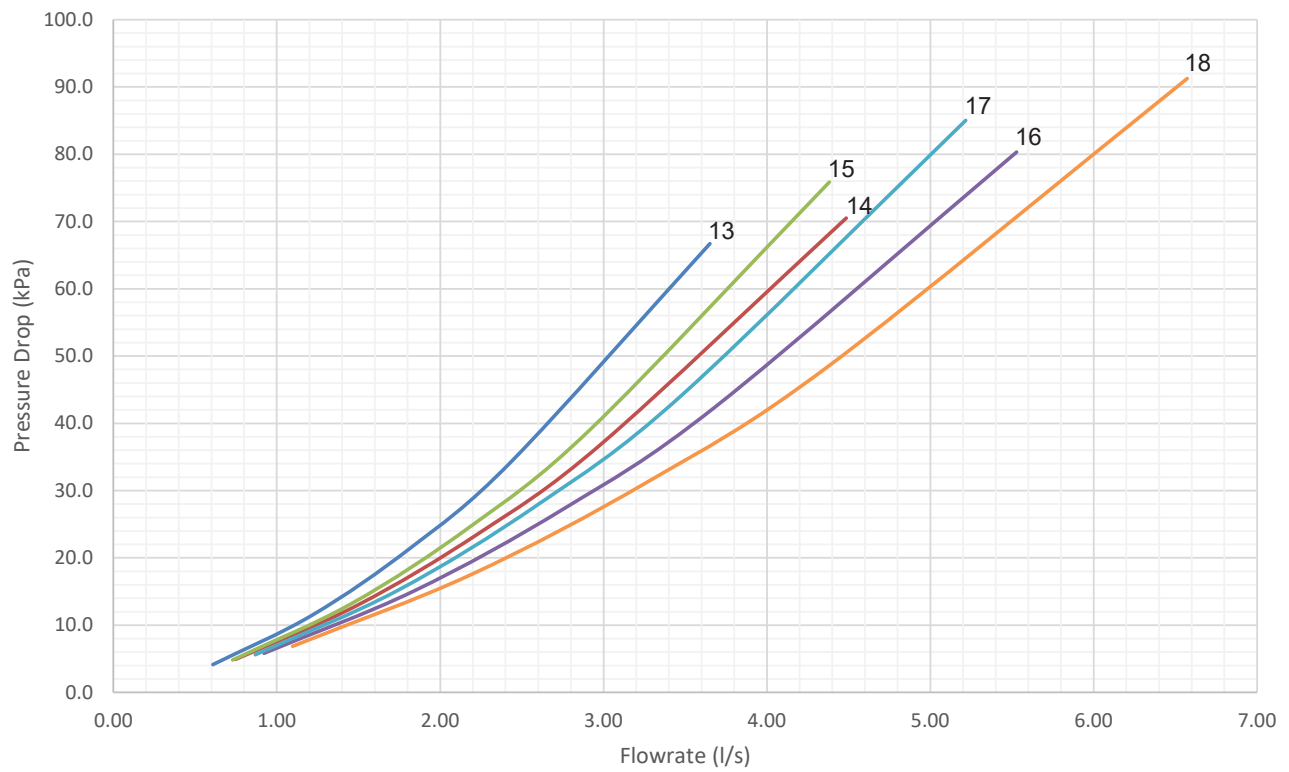
Waterside Pressure Drop

Coil only

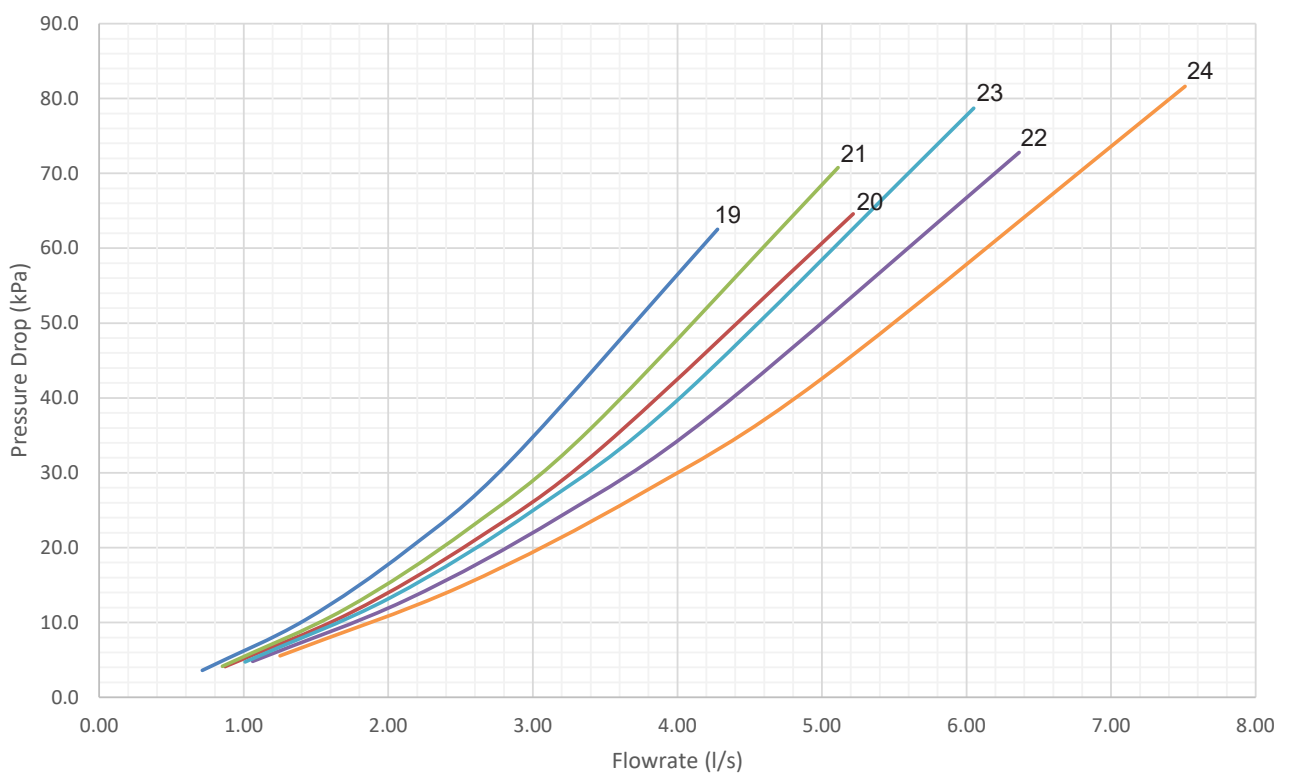
|    |                    |
|----|--------------------|
| 13 | SO15D008CHBSx-0/-A |
| 14 | SO15D009CHBXx-0/-A |
| 15 | SO15D009CHCSx-0/-A |
| 16 | SO15D010CHCXx-0/-A |
| 17 | SO15D009CHDSx-0/-A |
| 18 | SO15D011CHDXx-0/-A |

|    |                    |
|----|--------------------|
| 19 | SO18D009CHBSx-0/-A |
| 20 | SO18D011CHBXx-0/-A |
| 21 | SO18D010CHCSx-0/-A |
| 22 | SO18D012CHCXx-0/-A |
| 23 | SO18D011CHDSx-0/-A |
| 24 | SO18D013CHDXx-0/-A |

SO15 High Flow 50Hz



SO18 High Flow 50Hz

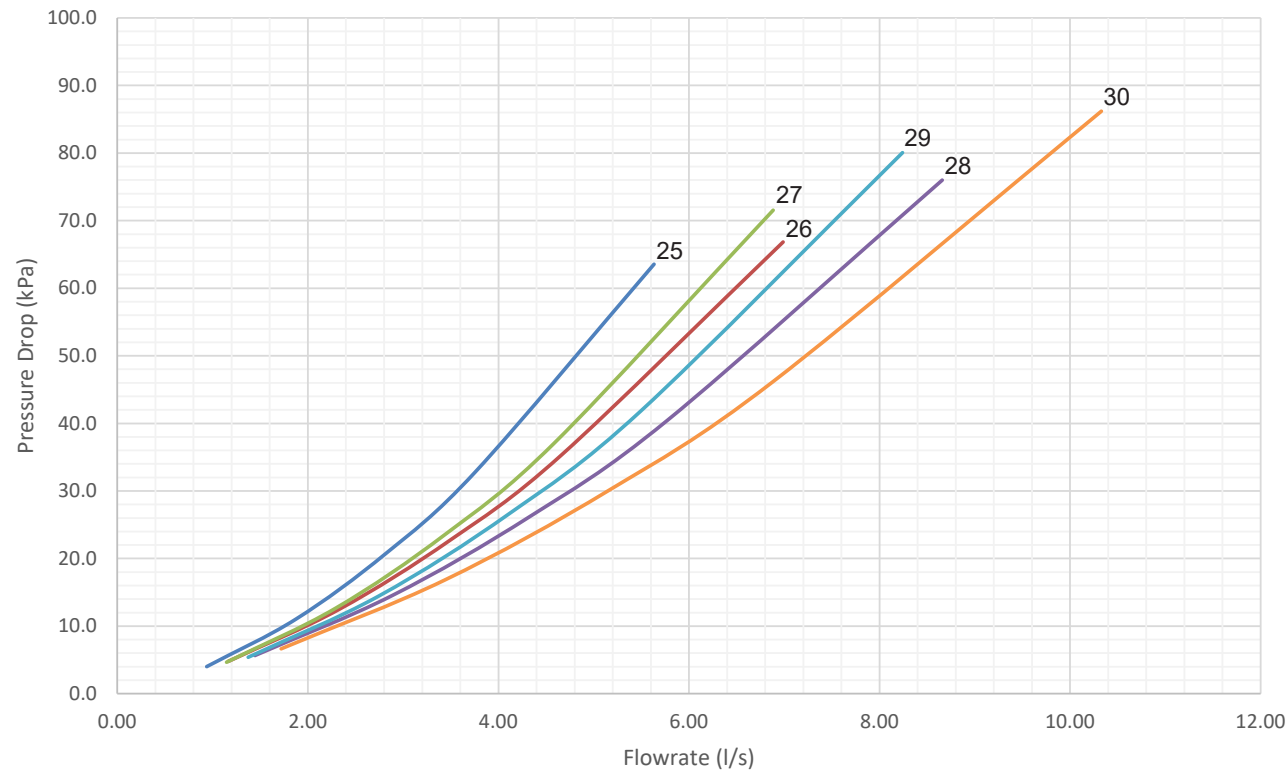


Waterside Pressure Drop  
Coil only

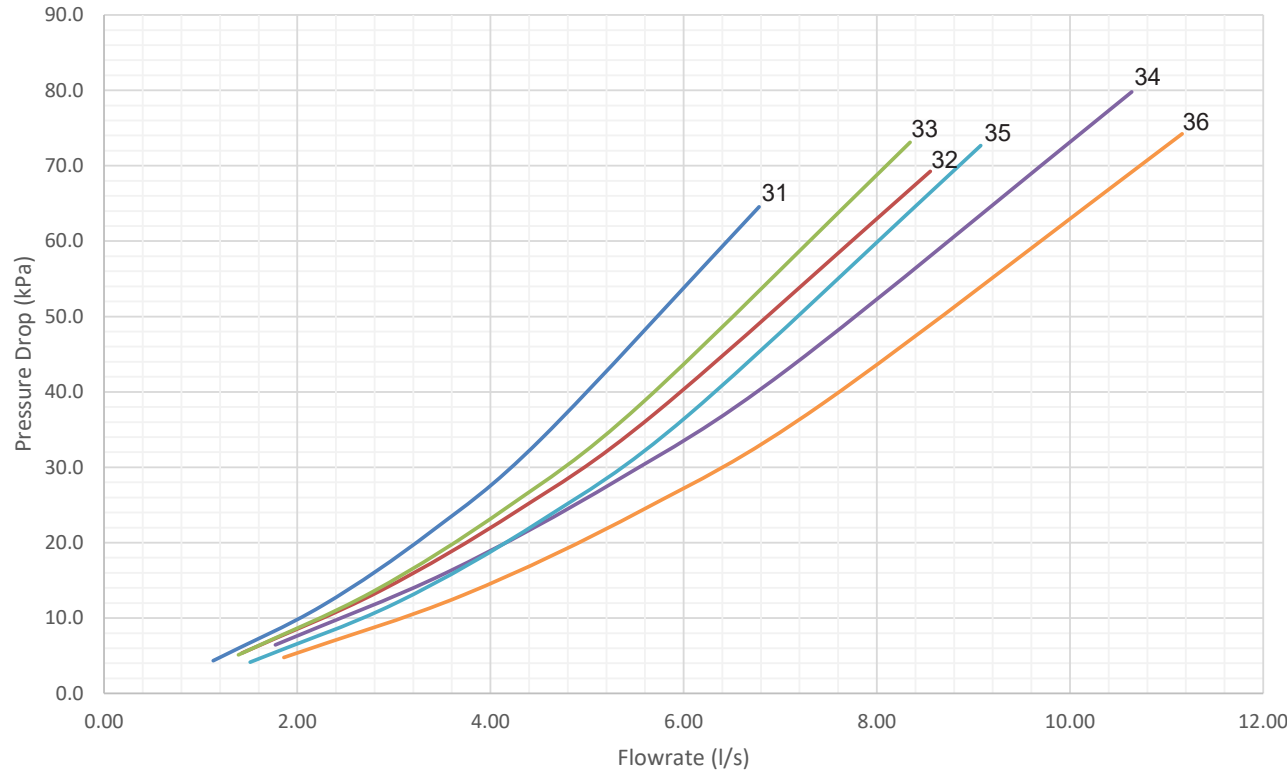
|    |                    |
|----|--------------------|
| 25 | SO22D012CHBSx-0/-A |
| 26 | SO22D014CHBXx-0/-A |
| 27 | SO22D013CHCSx-0/-A |
| 28 | SO22D015CHCXx-0/-A |
| 29 | SO22D014CHDSx-0/-A |
| 30 | SO22D016CHDXx-0/-A |

|    |                    |
|----|--------------------|
| 31 | SO25D014CHBSx-0/-A |
| 32 | SO25D016CHBXx-0/-A |
| 33 | SO25D015CHCSx-0/-A |
| 34 | SO25D018CHCXx-0/-A |
| 35 | SO25D016CHDSx-0/-A |
| 36 | SO25D019CHDXx-0/-A |

SO22 High Flow 50Hz



SO25 High Flow 50Hz



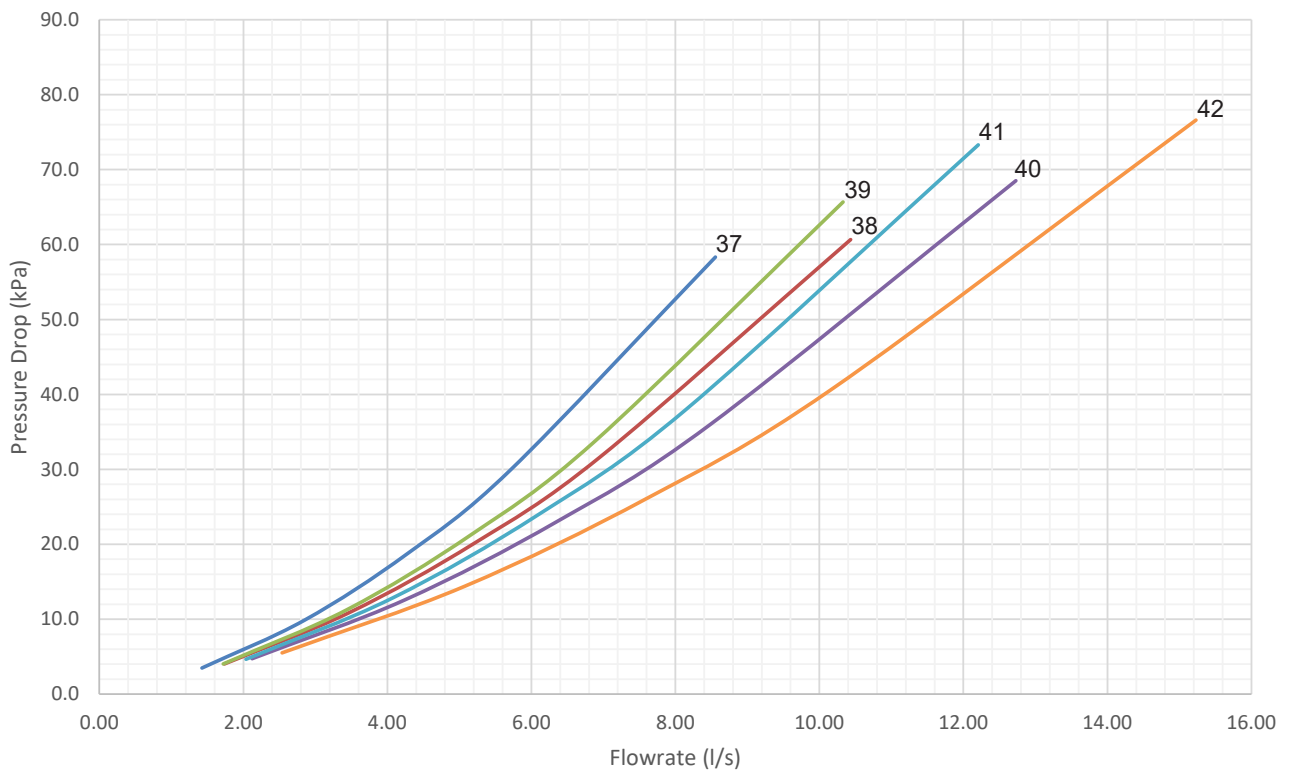
Technical

Waterside Pressure Drop  
Coil only

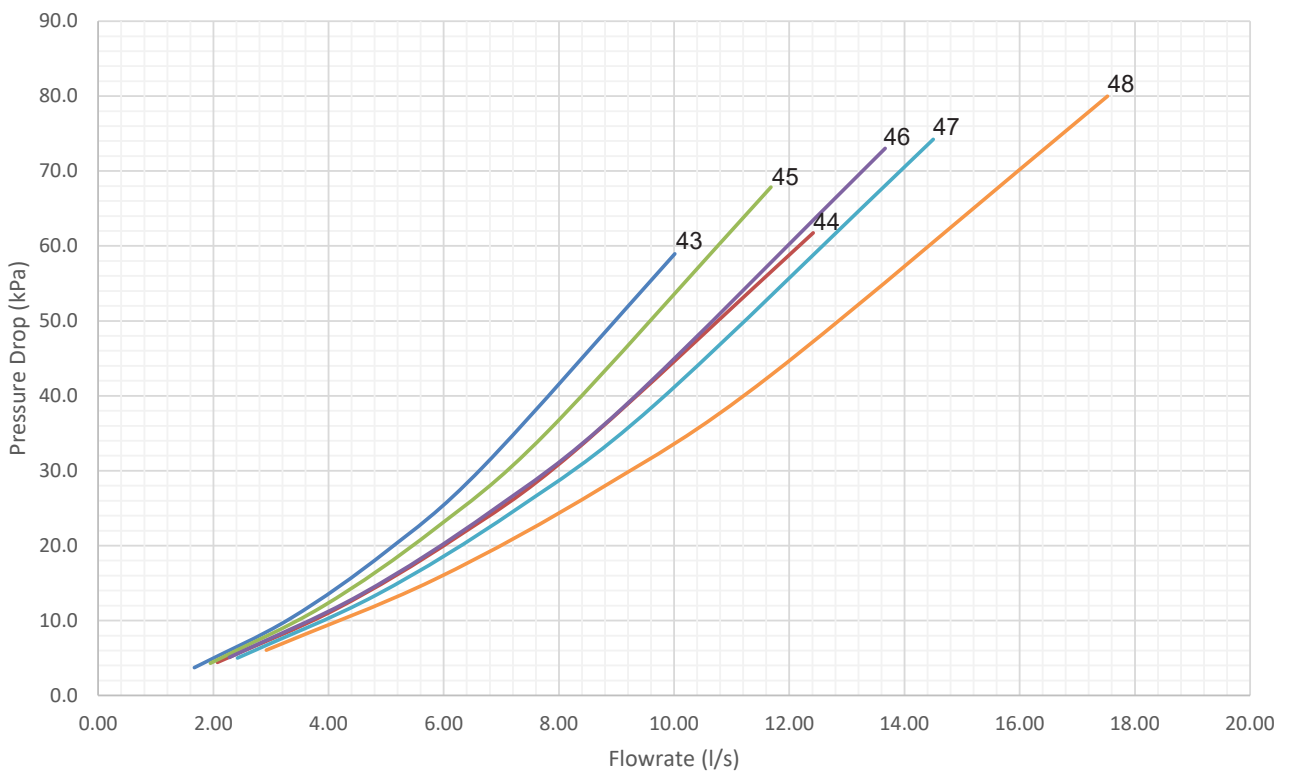
|    |                    |
|----|--------------------|
| 37 | SO31D018CHBSx-0/-A |
| 38 | SO31D021CHBXx-0/-A |
| 39 | SO31D019CHCSx-0/-A |
| 40 | SO31D023CHCXx-0/-A |
| 41 | SO31D021CHDSx-0/-A |
| 42 | SO31D025CHDXx-0/-A |

|    |                    |
|----|--------------------|
| 43 | SO35D020CHBSx-0/-A |
| 44 | SO35D024CHBXx-0/-A |
| 45 | SO35D022CHCSx-0/-A |
| 46 | SO35D026CHCXx-0/-A |
| 47 | SO35D024CHDSx-0/-A |
| 48 | SO35D028CHDXx-0/-A |

SO31 High Flow 50Hz



SO35 High Flow 50Hz

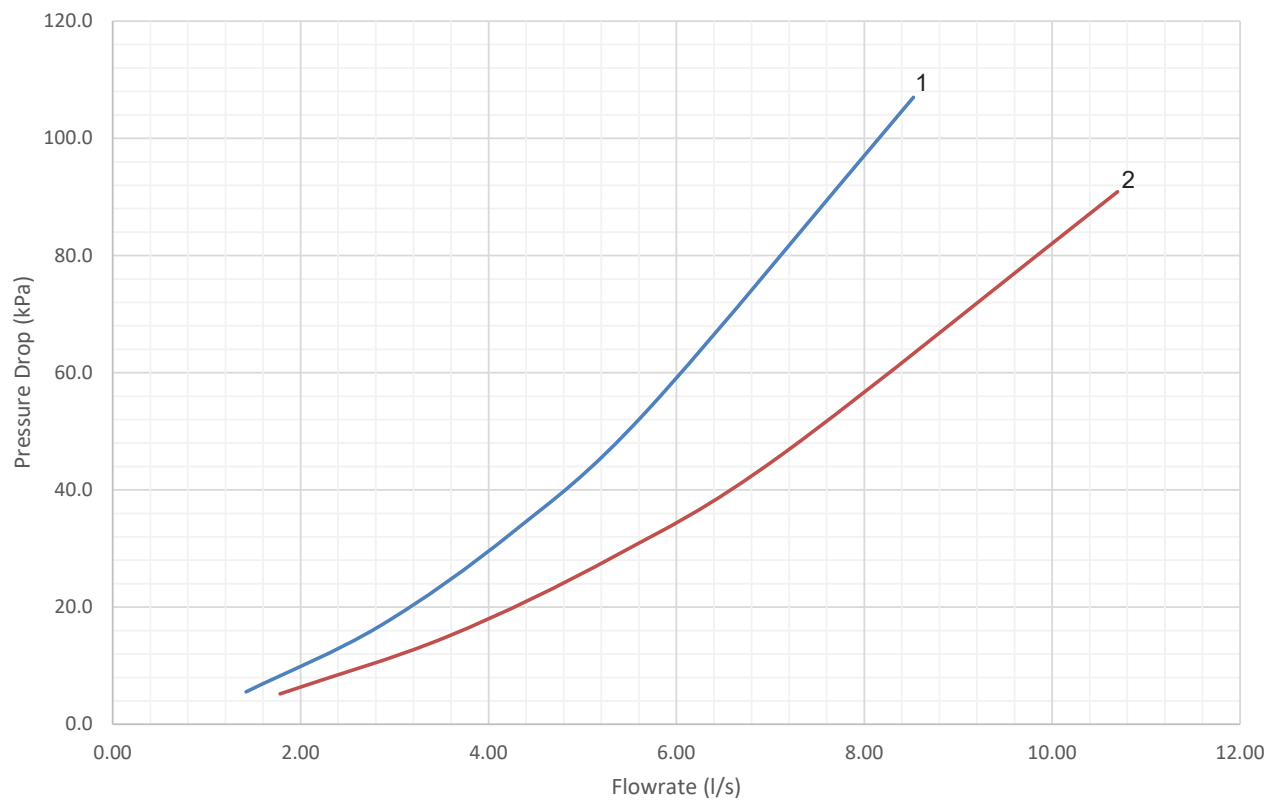


Waterside Pressure Drop  
Coil only

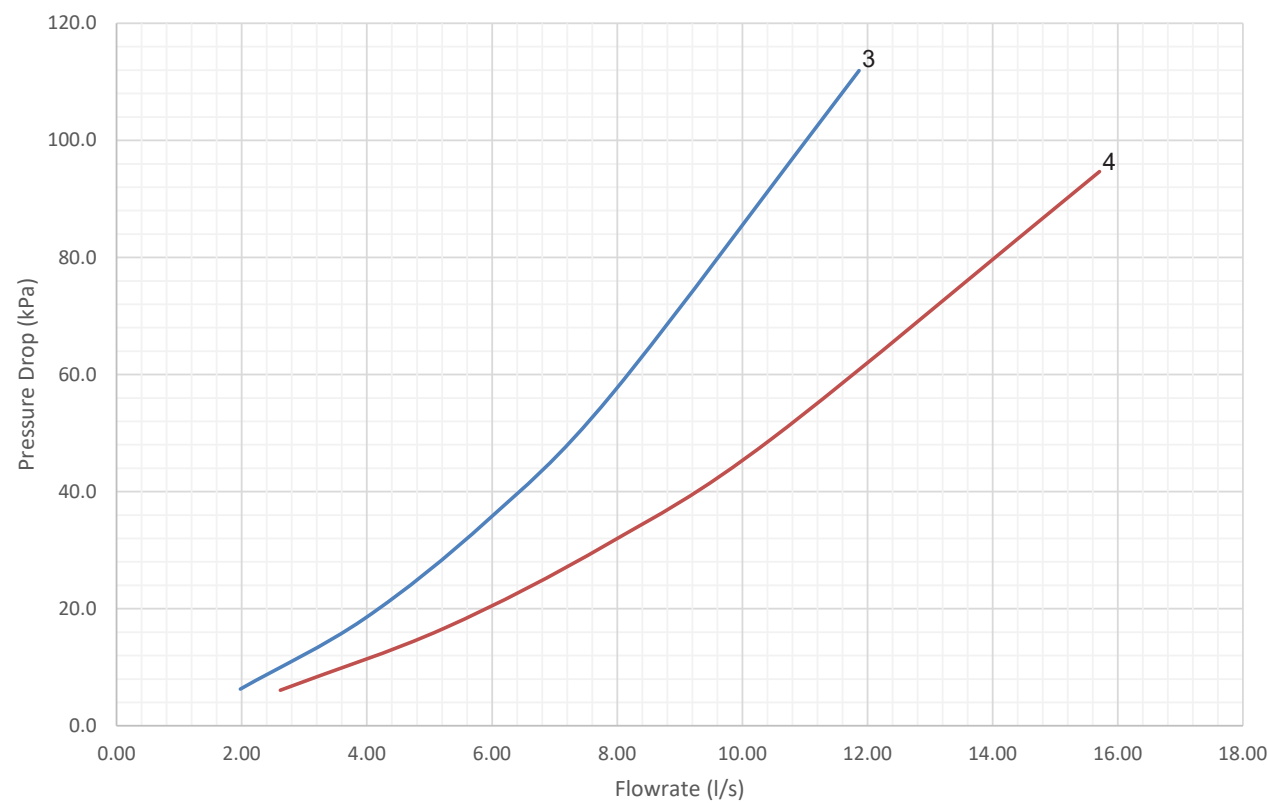
|   |                    |
|---|--------------------|
| 1 | SO30D043CLDSx-0/-A |
| 2 | SO30D045CHDXx-0/-A |

|   |                    |
|---|--------------------|
| 3 | SO40D059CLDSx-0/-A |
| 4 | SO40D061CHDXx-0/-A |

SO30 50Hz



SO40 50Hz



Technical

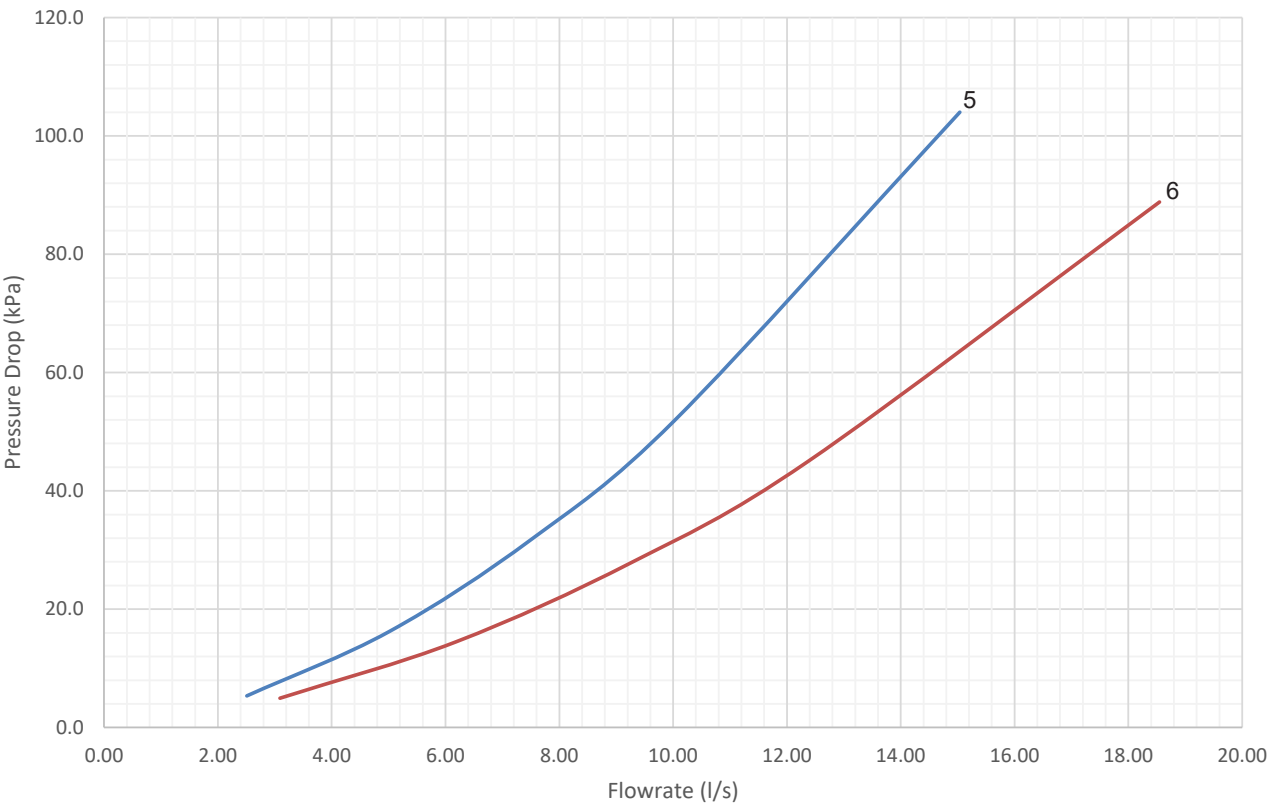
Waterside Pressure Drop

Coil only

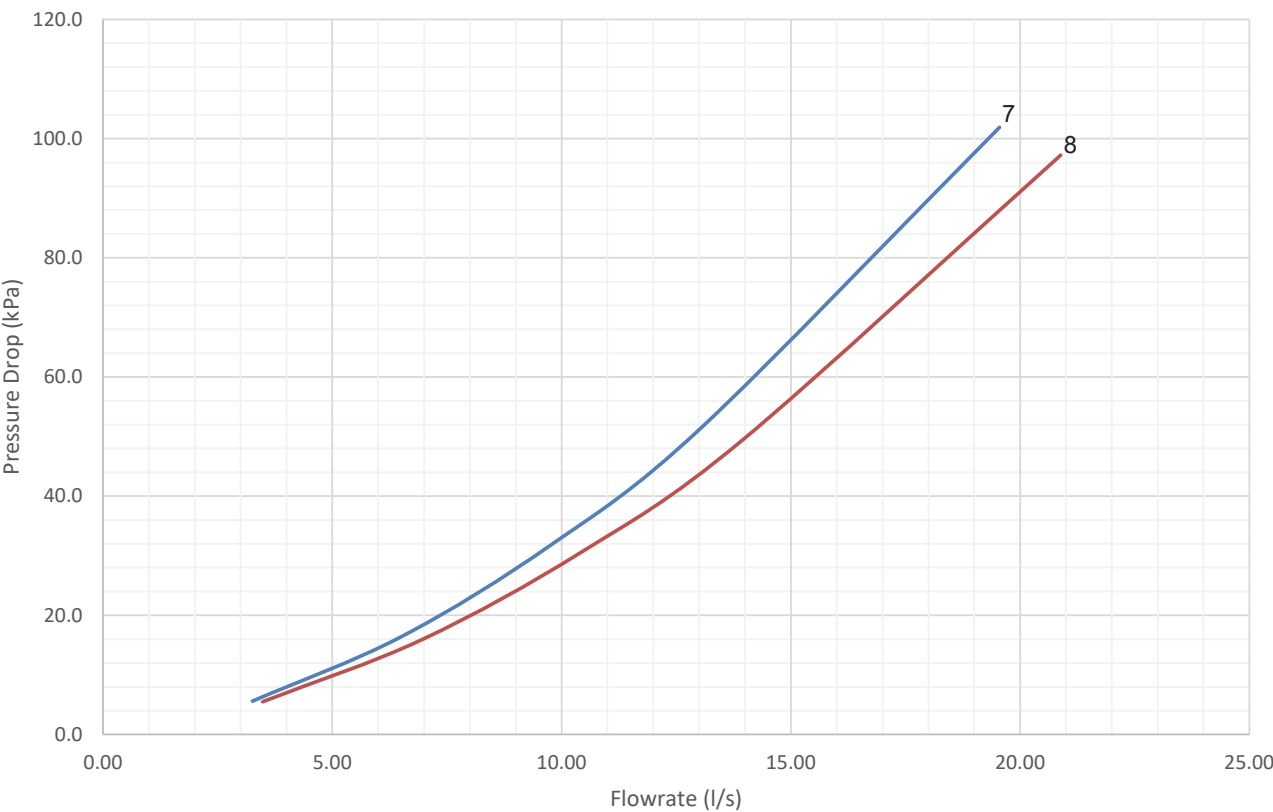
|   |                    |
|---|--------------------|
| 5 | SO50D074CLDSx-0/-A |
| 6 | SO50D077CHDXx-0/-A |

|   |                    |
|---|--------------------|
| 7 | SO60D097CLDSx-0/-A |
| 8 | SO60D101CHDXx-0/-A |

SO50 50Hz



SO60 50Hz

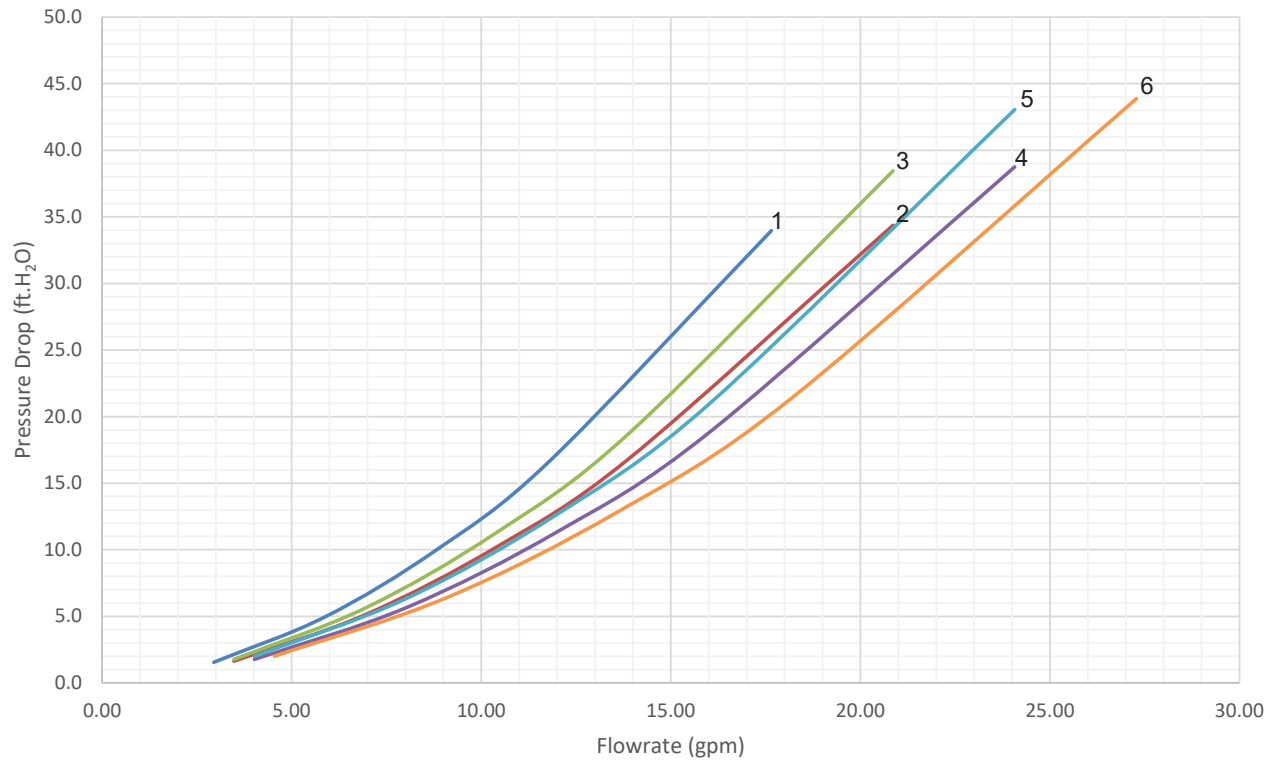


Waterside Pressure Drop  
Coil only

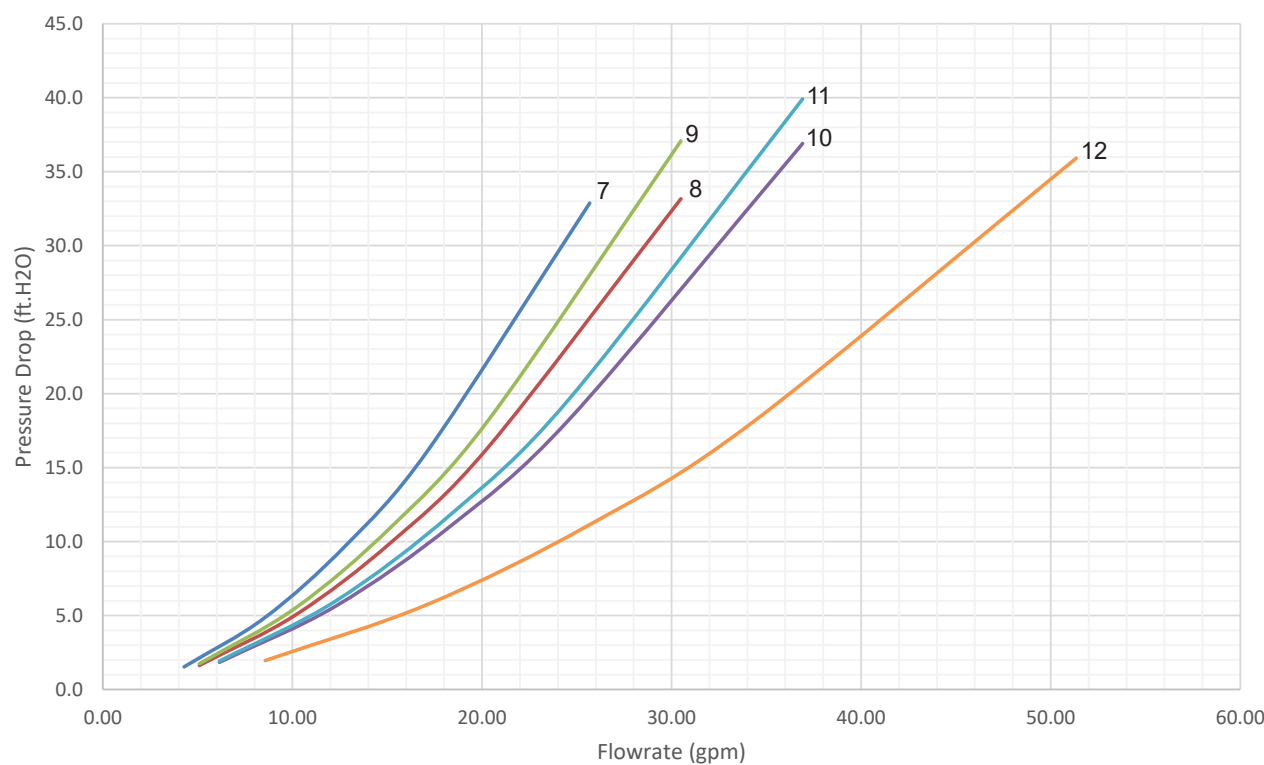
|   |                 |
|---|-----------------|
| 1 | SO09D004CLBSx-3 |
| 2 | SO09D005CLBXx-3 |
| 3 | SO09D004CLCSx-3 |
| 4 | SO09D005CLCXx-3 |
| 5 | SO09D005CLDSx-3 |
| 6 | SO09D006CLDXx-3 |

|    |                 |
|----|-----------------|
| 7  | SO12D006CLBSx-3 |
| 8  | SO12D007CLBXx-3 |
| 9  | SO12D007CLCSx-3 |
| 10 | SO12D008CLCXx-3 |
| 11 | SO12D007CLDSx-3 |
| 12 | SO12D007CLDXx-3 |

SO09 Low Flow 60Hz



SO12 Low Flow 60Hz



Technical

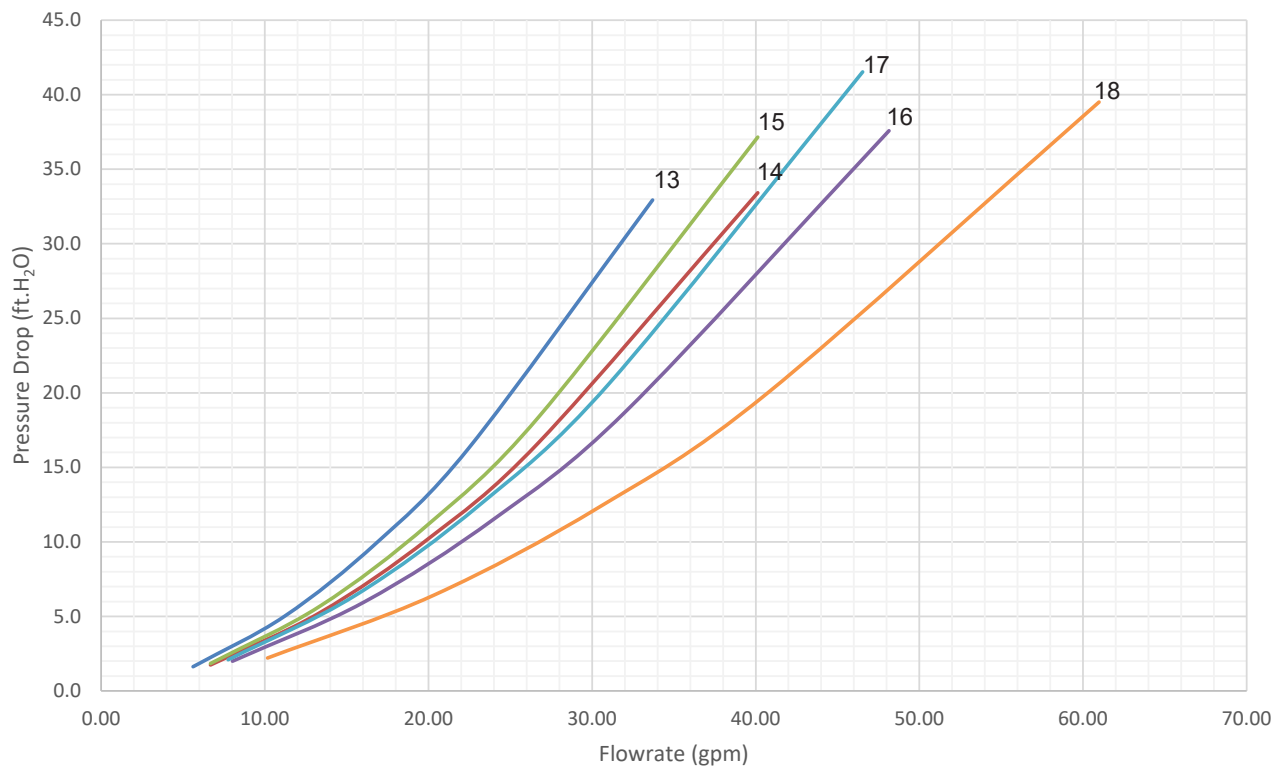
Waterside Pressure Drop

Coil only

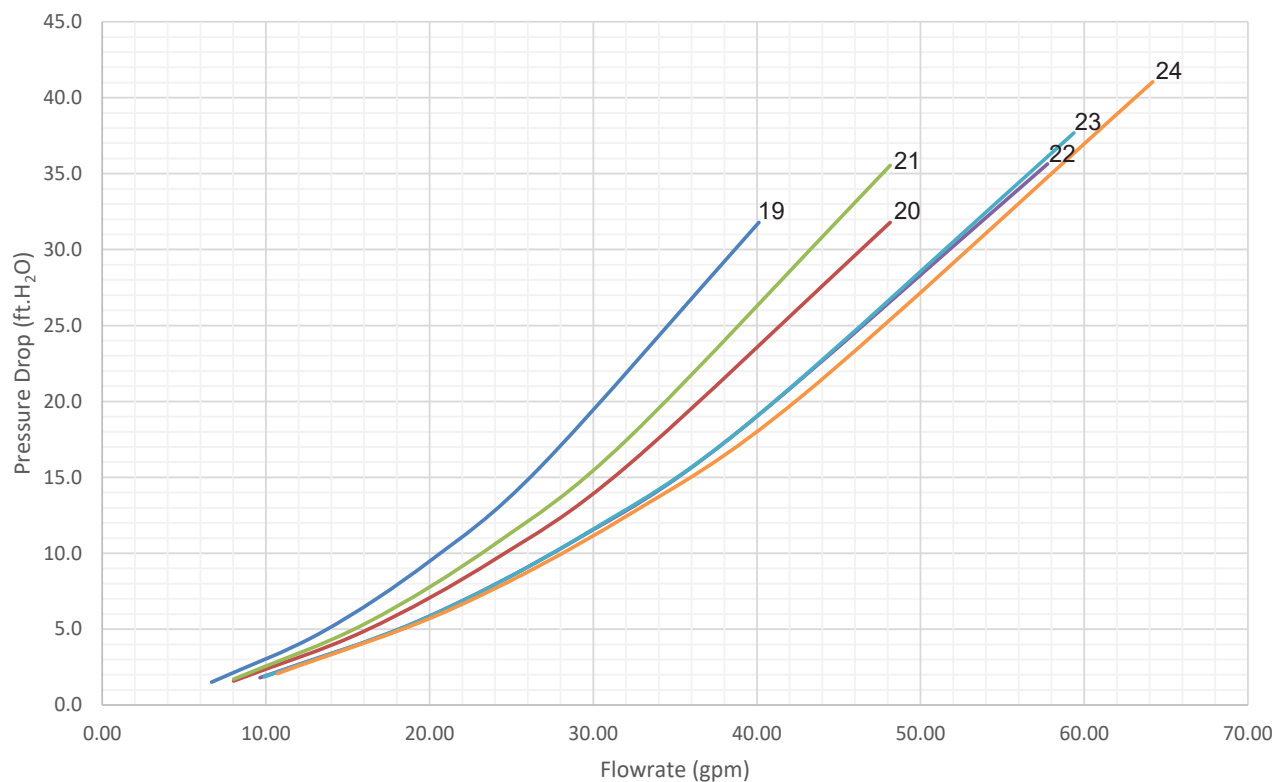
|    |                 |
|----|-----------------|
| 13 | SO15D008CLBSx-3 |
| 14 | SO15D009CLBXx-3 |
| 15 | SO15D009CLCSx-3 |
| 16 | SO15D010CLCXx-3 |
| 17 | SO15D009CLDSx-3 |
| 18 | SO15D011CLDXx-3 |

|    |                 |
|----|-----------------|
| 19 | SO18D010CLBSx-3 |
| 20 | SO18D011CLBXx-3 |
| 21 | SO18D010CLCSx-3 |
| 22 | SO18D012CLCXx-3 |
| 23 | SO18D011CLDSx-3 |
| 24 | SO18D013CLDXx-3 |

SO15 Low Flow 60Hz



SO18 Low Flow 60Hz

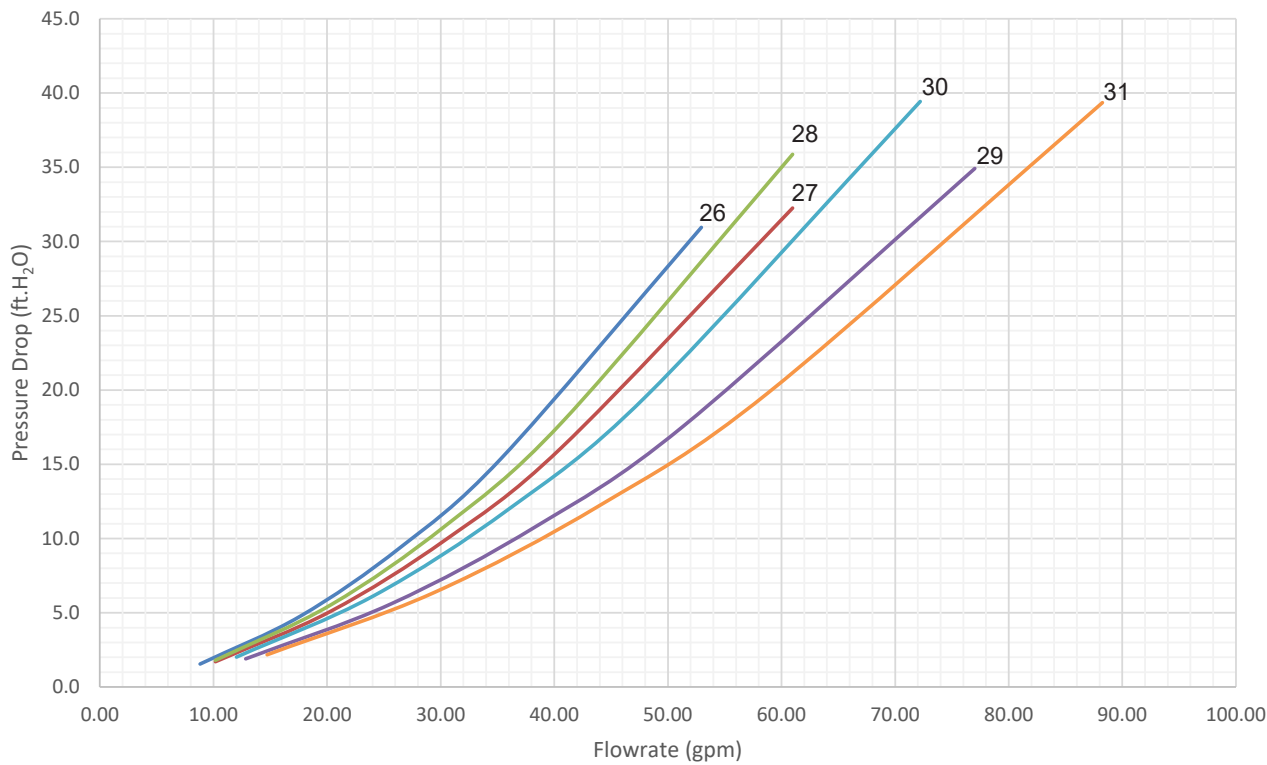


Waterside Pressure Drop  
Coil only

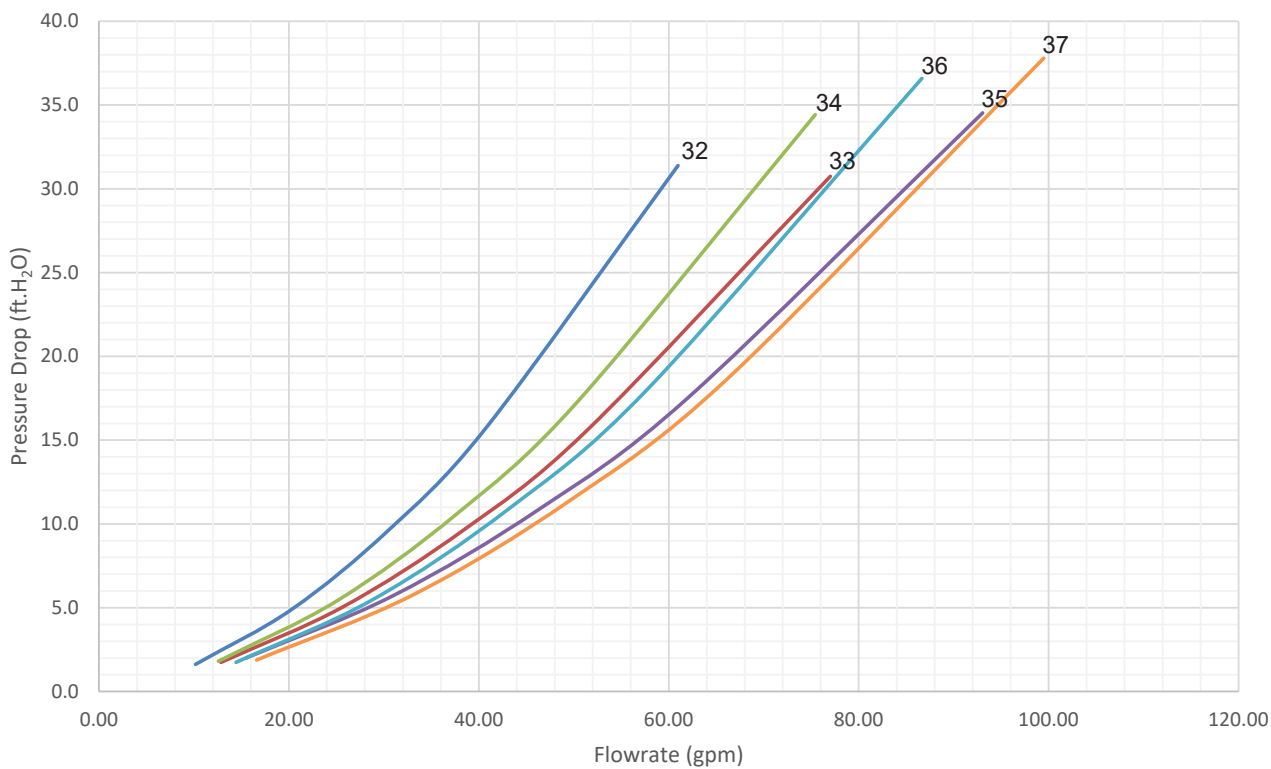
|    |                 |
|----|-----------------|
| 26 | SO22D012CLBSx-3 |
| 27 | SO22D014CLBXx-3 |
| 28 | SO22D013CLCSx-3 |
| 29 | SO22D016CLCXx-3 |
| 30 | SO22D014CLDSx-3 |
| 31 | SO22D017CLDXx-3 |

|    |                 |
|----|-----------------|
| 32 | SO25D014CLBSx-3 |
| 33 | SO25D017CLBXx-3 |
| 34 | SO25D016CLCSx-3 |
| 35 | SO25D018CLCXx-3 |
| 36 | SO25D017CLDSx-3 |
| 37 | SO25D020CLDXx-3 |

SO22 Low Flow 60Hz



SO25 Low Flow 60Hz



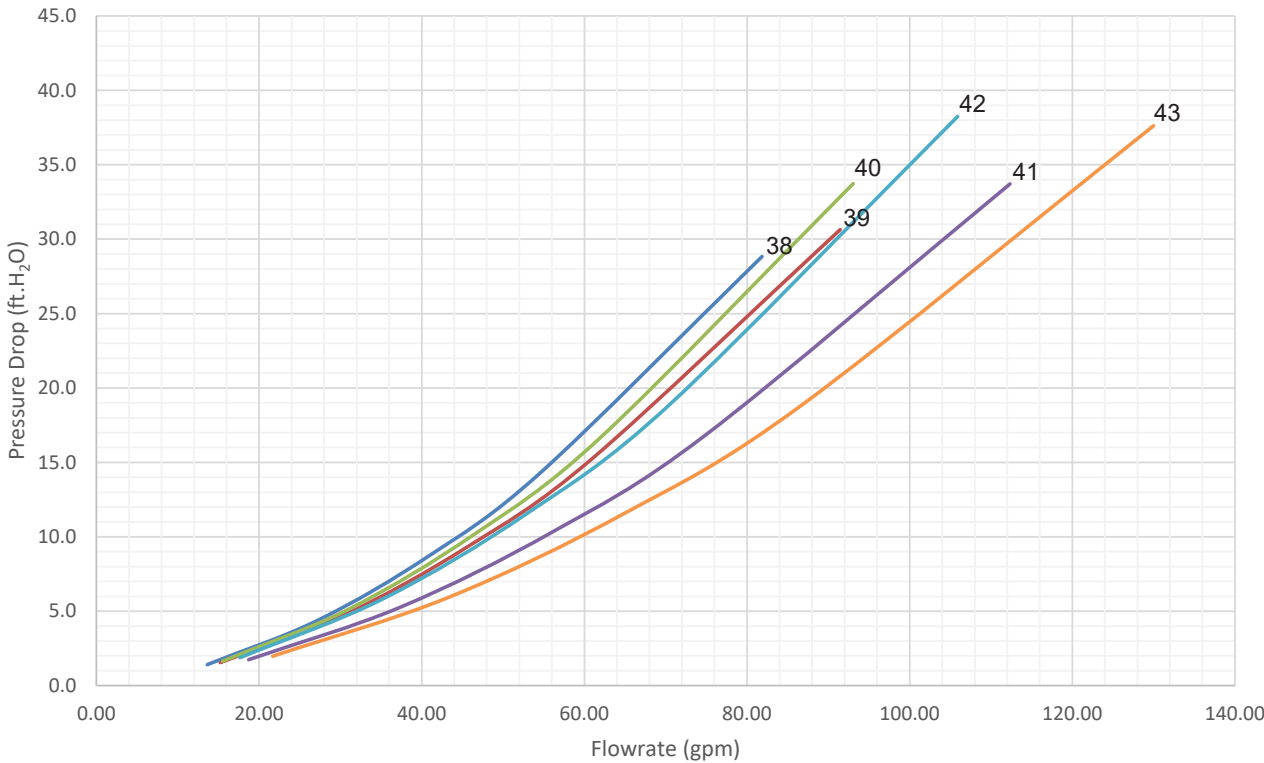
Technical

Waterside Pressure Drop  
Coil only

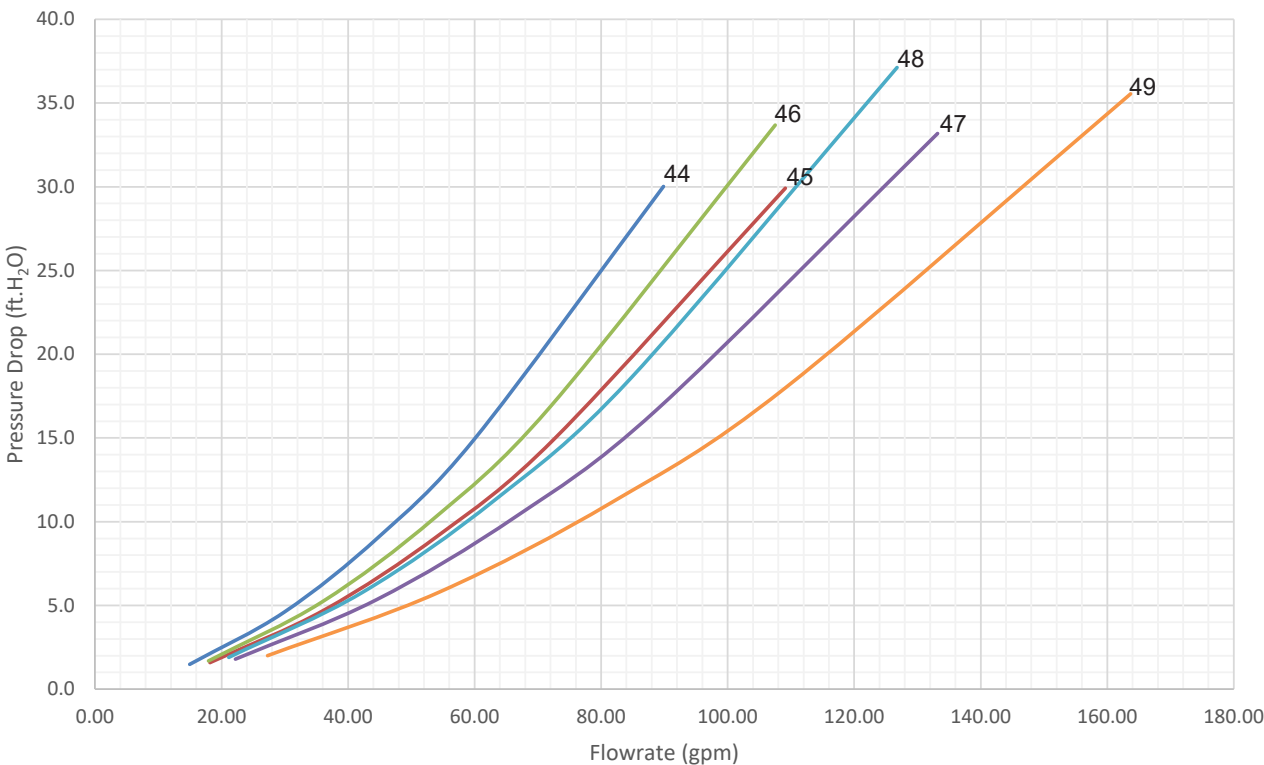
|    |                 |
|----|-----------------|
| 38 | SO31D018CLBSx-3 |
| 39 | SO31D021CLBXx-3 |
| 40 | SO31D020CLCSx-3 |
| 41 | SO31D023CLCXx-3 |
| 42 | SO31D022CLDSx-3 |
| 43 | SO31D025CLDXx-3 |

|    |                 |
|----|-----------------|
| 44 | SO35D021CLBSx-3 |
| 45 | SO35D024CLBXx-3 |
| 46 | SO35D023CLCSx-3 |
| 47 | SO35D027CLCXx-3 |
| 48 | SO35D025CLDSx-3 |
| 49 | SO35D029CLDXx-3 |

SO31 Low Flow 60Hz



SO35 Low Flow 60Hz

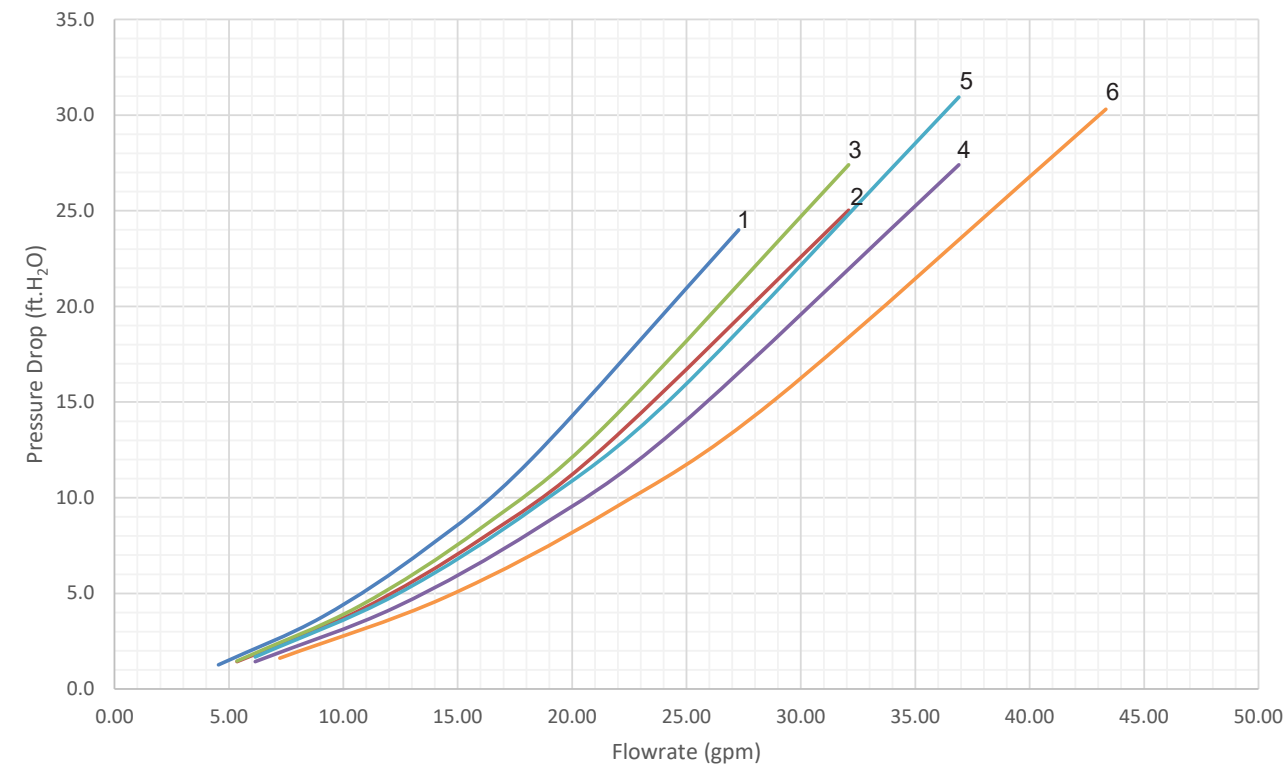


Waterside Pressure Drop  
Coil only

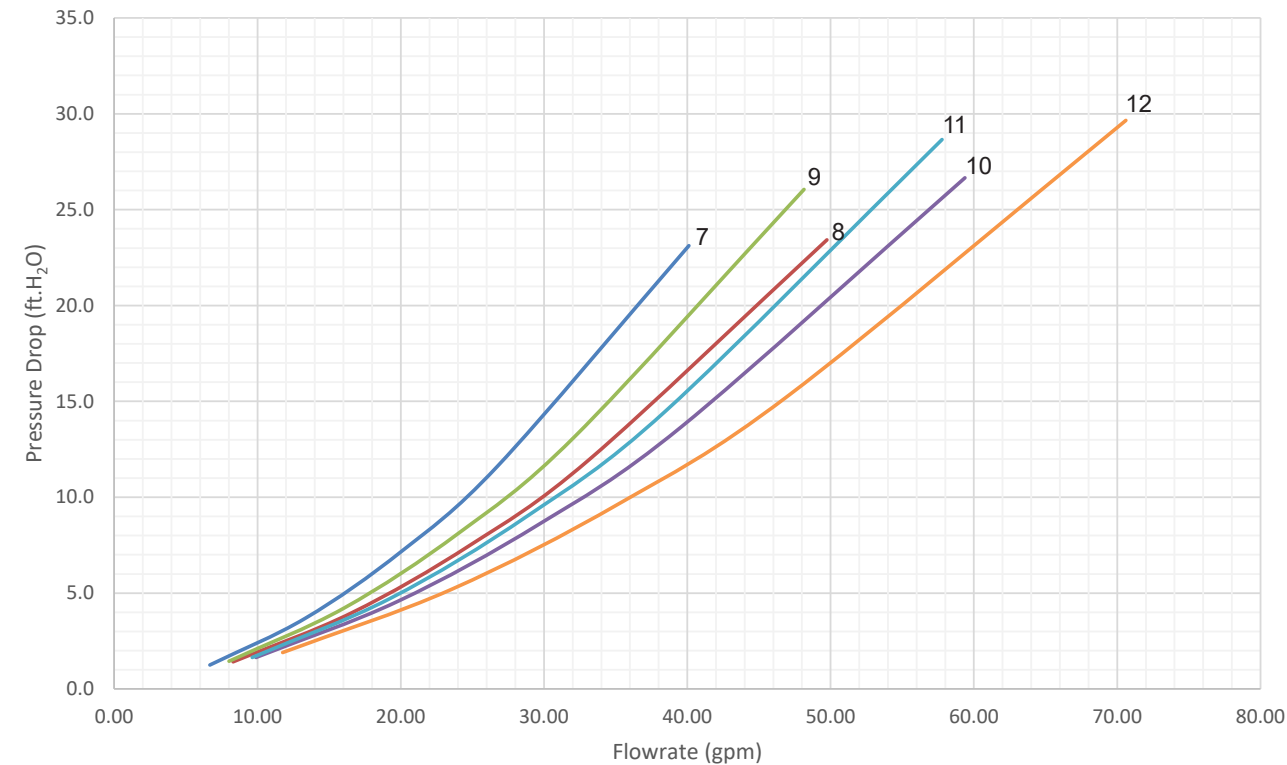
|   |                 |
|---|-----------------|
| 1 | SO09D004CHBSx-3 |
| 2 | SO09D005CHBXx-3 |
| 3 | SO09D005CHCSx-3 |
| 4 | SO09D005CHCXx-3 |
| 5 | SO09D005CHDSx-3 |
| 6 | SO09D006CHDXx-3 |

|    |                 |
|----|-----------------|
| 7  | SO12D006CHBSx-3 |
| 8  | SO12D007CHBXx-3 |
| 9  | SO12D007CHCSx-3 |
| 10 | SO12D008CHCXx-3 |
| 11 | SO12D007CHDSx-3 |
| 12 | SO12D008CHDXx-3 |

SO09 High Flow 60Hz



SO12 High Flow 60Hz



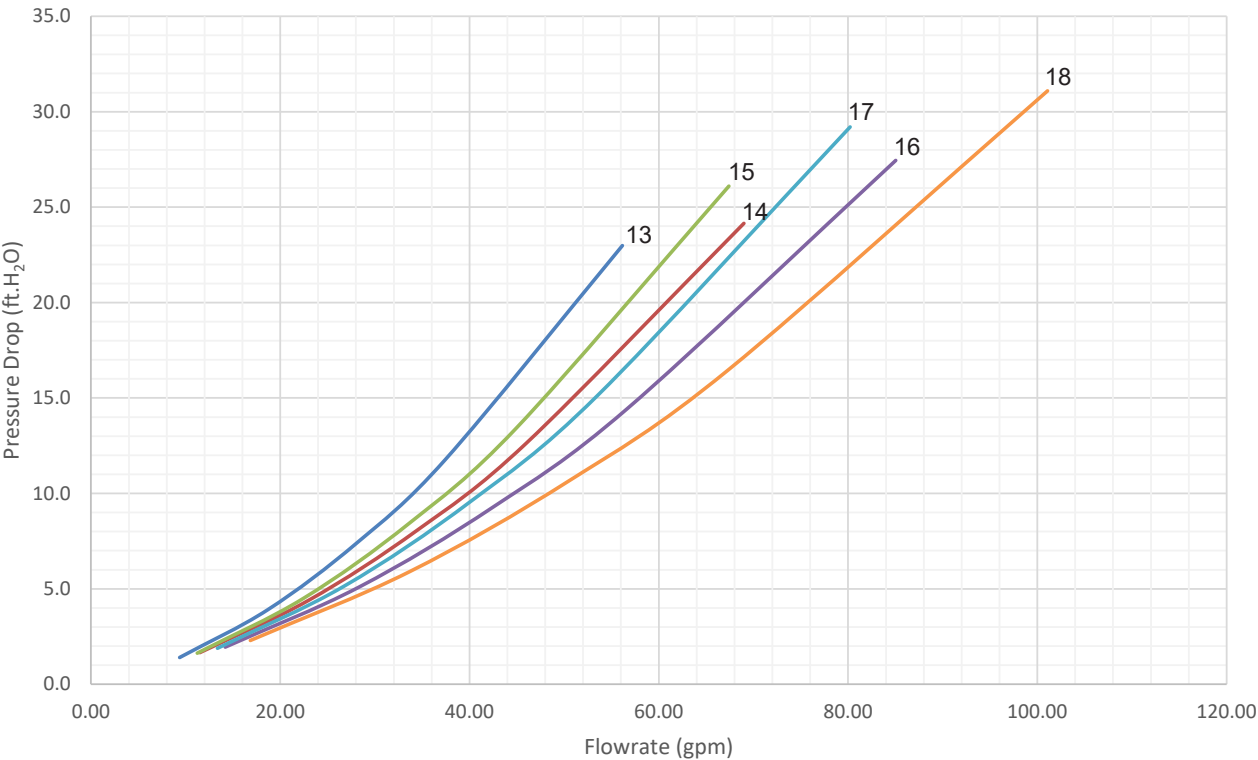
Technical

Waterside Pressure Drop  
Coil only

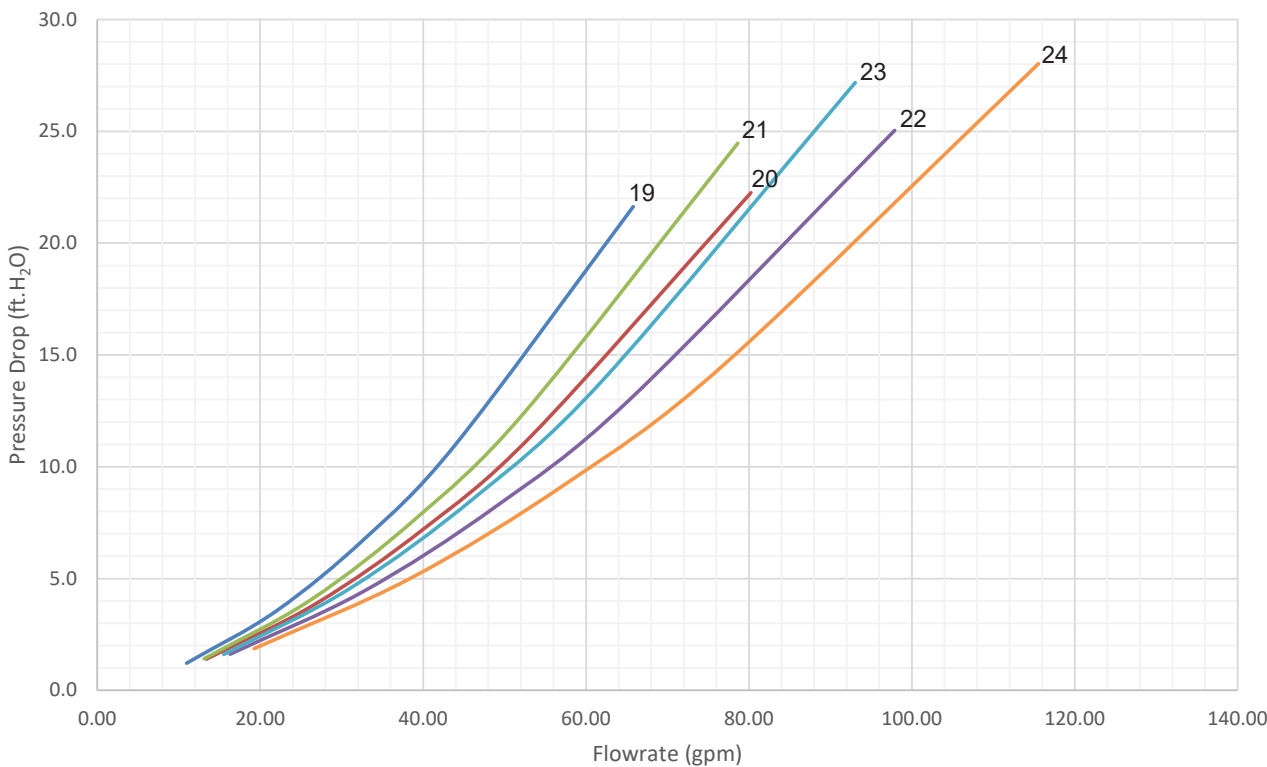
|    |                 |
|----|-----------------|
| 13 | SO15D008CHBSx-3 |
| 14 | SO15D010CHBXx-3 |
| 15 | SO15D009CHCSx-3 |
| 16 | SO15D011CHCXx-3 |
| 17 | SO15D010CHDSx-3 |
| 18 | SO15D011CHDXx-3 |

|    |                 |
|----|-----------------|
| 19 | SO18D010CHBSx-3 |
| 20 | SO18D012CHBXx-3 |
| 21 | SO18D011CHCSx-3 |
| 22 | SO18D013CHCXx-3 |
| 23 | SO18D012CHDSx-3 |
| 24 | SO18D014CHDXx-3 |

SO15 High Flow 60Hz



SO18 High Flow 60Hz

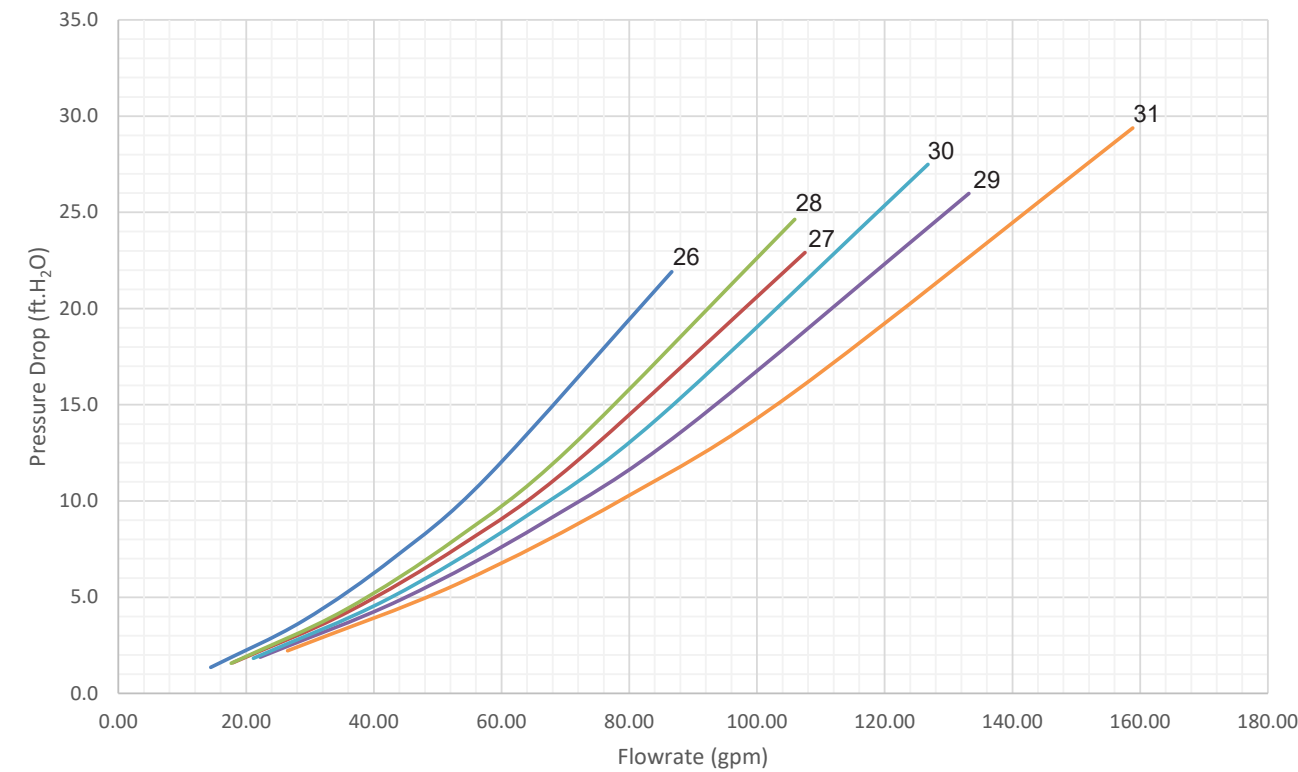


Waterside Pressure Drop  
Coil only

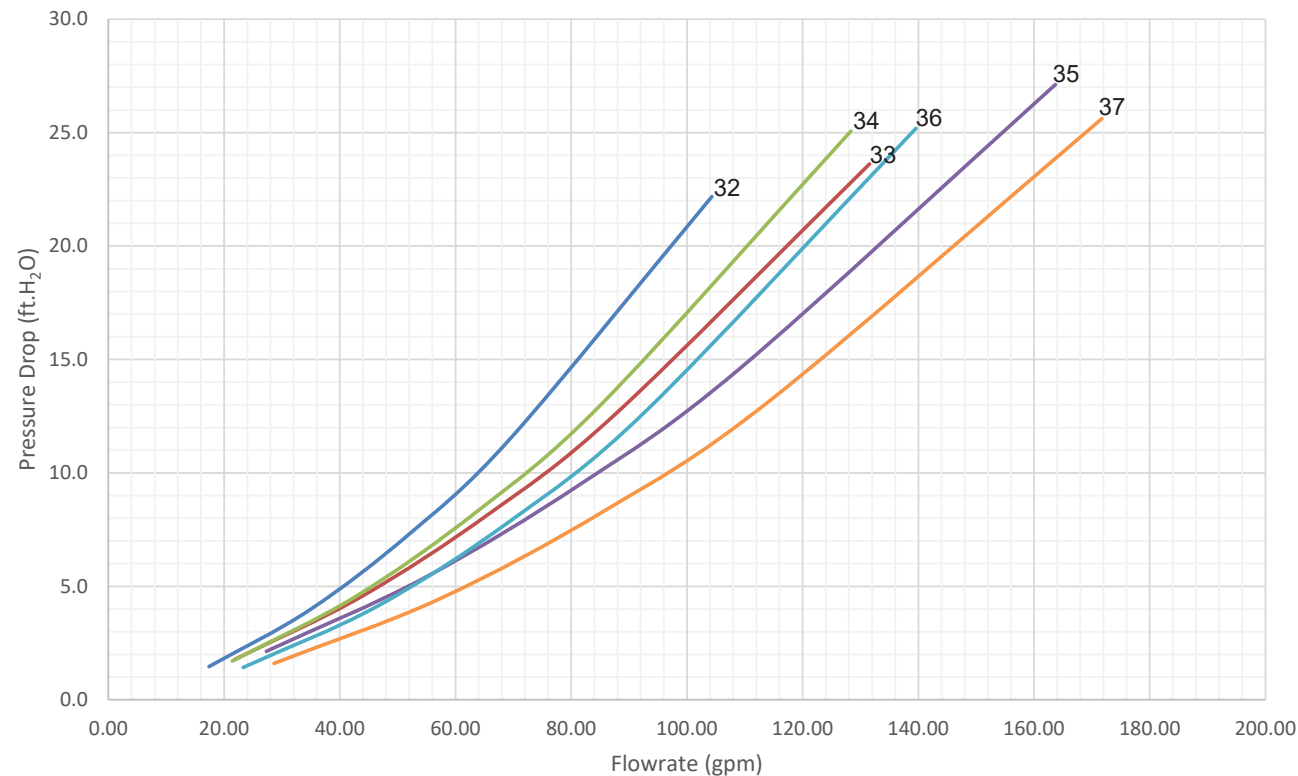
|    |                 |
|----|-----------------|
| 26 | SO22D013CHBSx-3 |
| 27 | SO22D015CHBXx-3 |
| 28 | SO22D014CHCSx-3 |
| 29 | SO22D016CHCXx-3 |
| 30 | SO22D015CHDSx-3 |
| 31 | SO22D017CHDXx-3 |

|    |                 |
|----|-----------------|
| 32 | SO25D015CHBSx-3 |
| 33 | SO25D017CHBXx-3 |
| 34 | SO25D016CHCSx-3 |
| 35 | SO25D019CHCXx-3 |
| 36 | SO25D017CHDSx-3 |
| 37 | SO25D020CHDXx-3 |

SO22 High Flow 60Hz



SO25 High Flow 60Hz



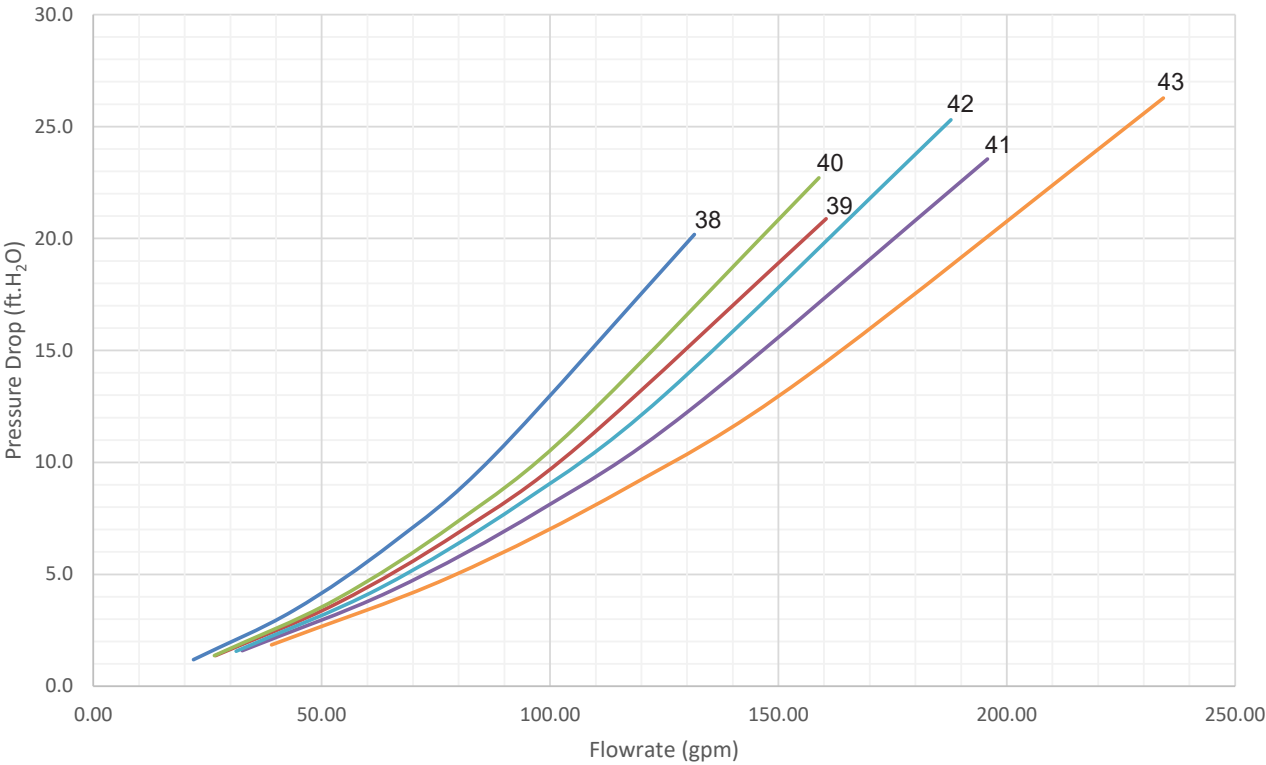
Technical

Waterside Pressure Drop  
Coil only

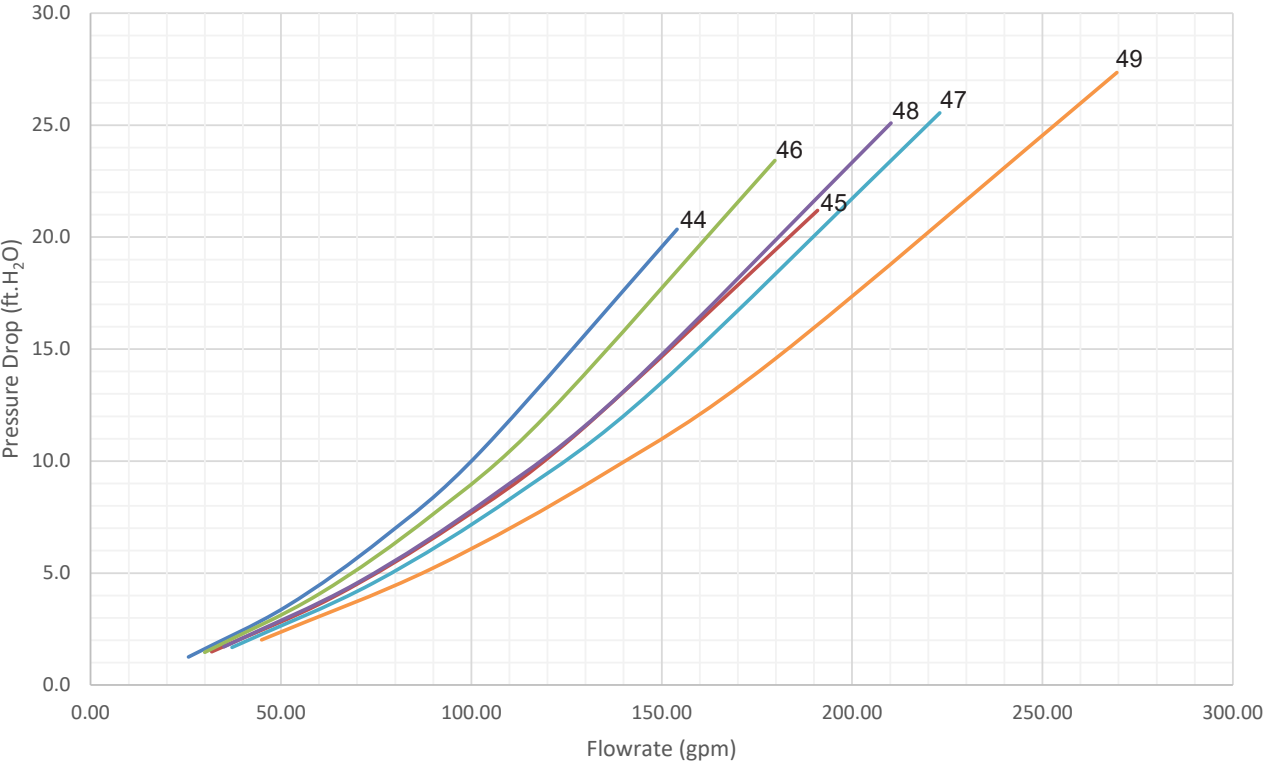
|    |                 |
|----|-----------------|
| 38 | SO31D019CHBSx-3 |
| 39 | SO31D022CHBXx-3 |
| 40 | SO31D021CHCSx-3 |
| 41 | SO31D024CHCXx-3 |
| 42 | SO31D022CHDSx-3 |
| 43 | SO31D026CHDXx-3 |

|    |                 |
|----|-----------------|
| 44 | SO35D022CHBSx-3 |
| 45 | SO35D025CHBXx-3 |
| 46 | SO35D024CHCSx-3 |
| 47 | SO35D028CHCXx-3 |
| 48 | SO35D025CHDSx-3 |
| 49 | SO35D029CHDXx-3 |

SO31 High Flow 60Hz



SO35 High Flow 60Hz

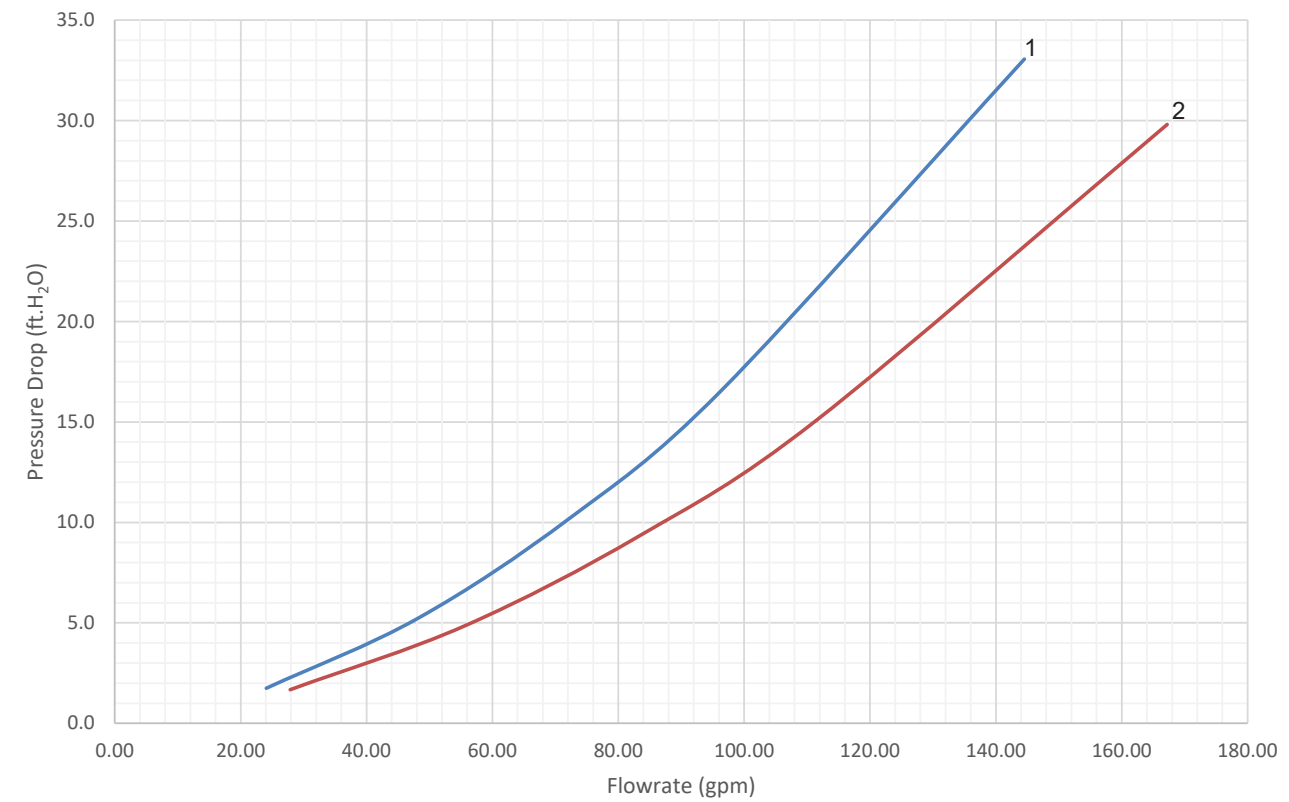


Waterside Pressure Drop  
Coil only

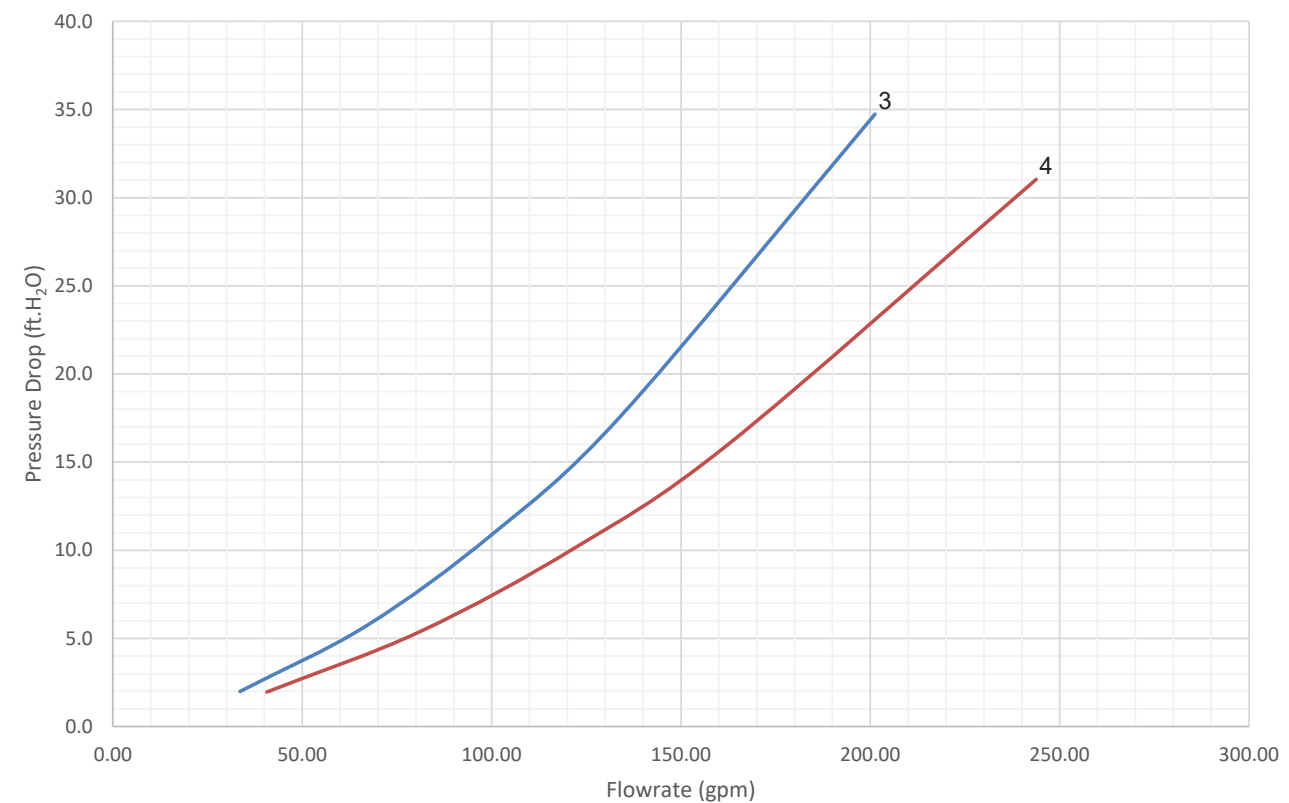
|   |                 |
|---|-----------------|
| 1 | SO30D043CLDSx-3 |
| 2 | SO30D044CHDXx-3 |

|   |                 |
|---|-----------------|
| 3 | SO40D059CLDSx-3 |
| 4 | SO40D061CHDXx-3 |

SO30 60Hz



SO40 60Hz



Technical

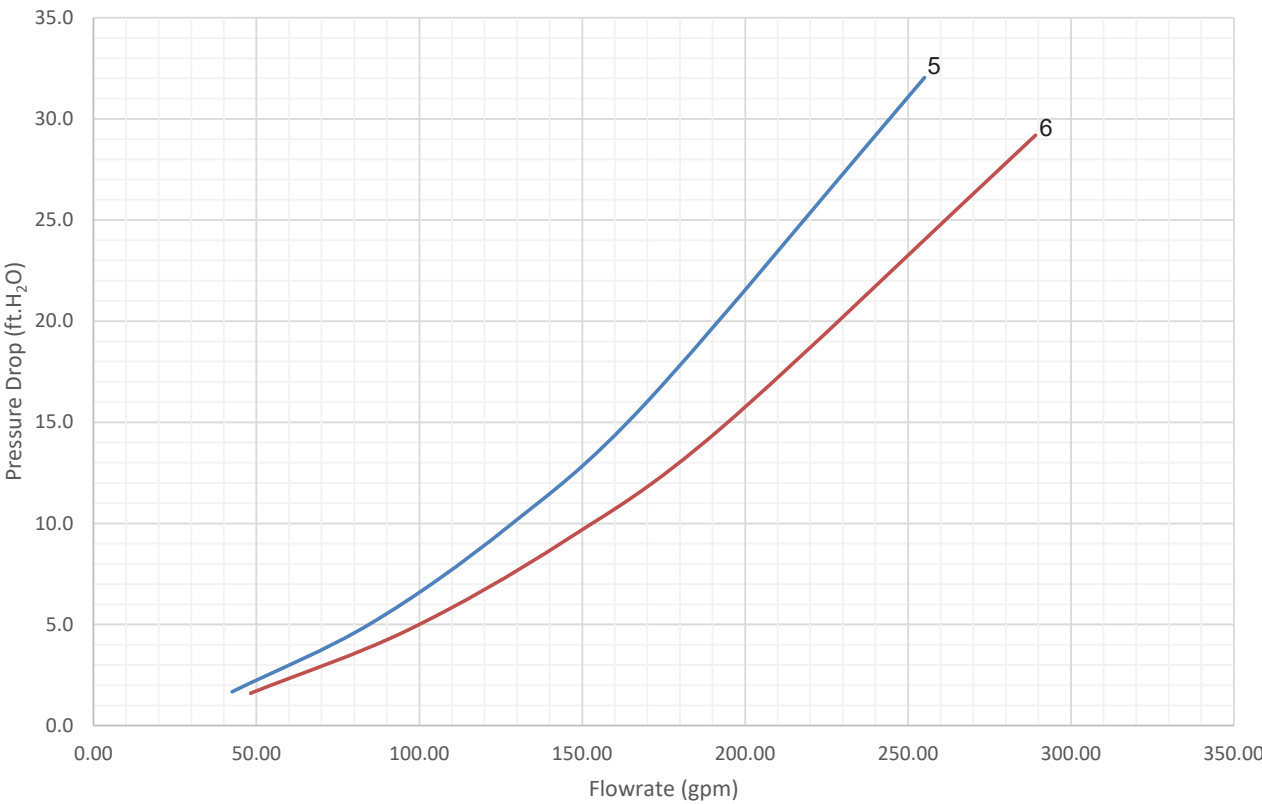
Waterside Pressure Drop

Coil only

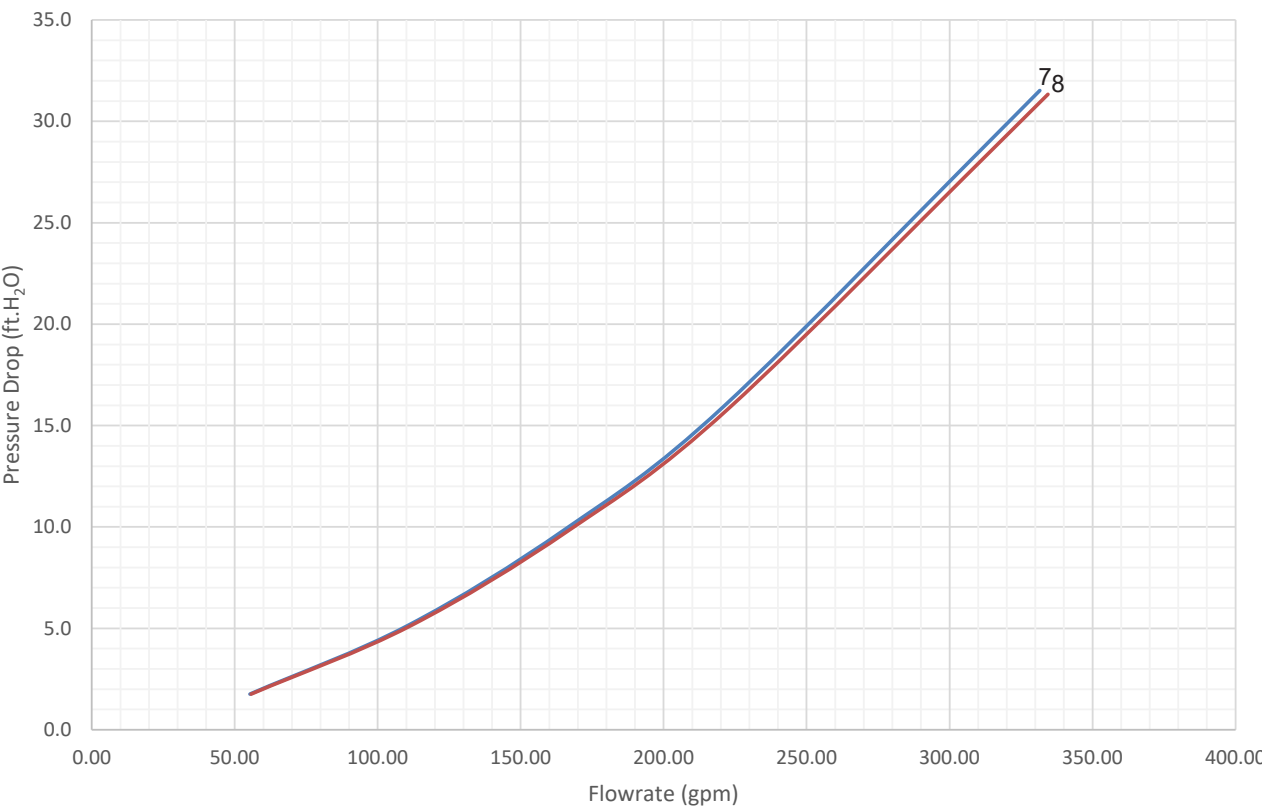
|   |                 |
|---|-----------------|
| 5 | SO50D074CLDSx-3 |
| 6 | SO50D076CHDXx-3 |

|   |                 |
|---|-----------------|
| 7 | SO60D096CLDSx-3 |
| 8 | SO60D100CHDXx-3 |

SO50 60Hz



SO60 60Hz



Sound Measurement Method  
Measurement Of Sound Power

All sound data quoted has been measured in the third-octave band limited values, using a Real Time Analyser calibrated sound pressure meter in accordance with BS EN ISO 3746:2010.

All Sound Power Levels quoted are calculated from measured sound intensity according to BS EN ISO 3746:2010.

Semi Hemispherical

Sound Pressure Levels are calculated from sound power using the semi-hemispherical method where the noise source is in junction with 2 boundaries i.e. the floor and 1 wall.

Free Field

For comparison, the semi hemispherical figures can typically be reduced by 3dB to provide free field conditions.

 **NOTE**

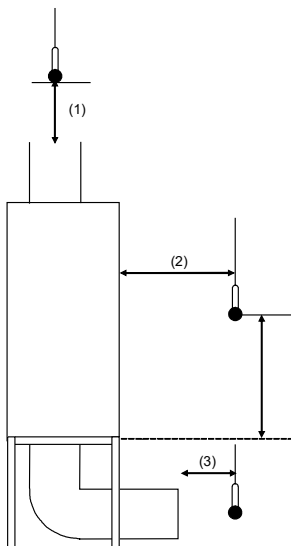
The sound data quoted is based on the unit having a ducted return air, ducted (or underfloor) discharge air and standard backward curved fan and EC motors fitted, refer to illustration below.

Case breakout sound data is therefore independent of the discharge air and return air sound data.

For non-ducted return air applications, the overall case breakout sound levels may increase, due to the return air sound being predominant.

Within the conditioned space, sound from in-room ducted discharge air grilles and other equipment will contribute to the overall sound level and should therefore be considered as part of sound calculations.

Specialist acoustic advice is recommended for noise critical applications.



- (1) Return Air
- (2) Case Breakout
- (3) Discharge Air

Technical

## Technical Data

## Sound Data - 50Hz

| Sound Measurement |                             | Overall<br>dB(A) | Frequency (Hz) dB |     |     |     |      |      |      |      |
|-------------------|-----------------------------|------------------|-------------------|-----|-----|-----|------|------|------|------|
|                   |                             |                  | 63                | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| SO09xxxCxBSx-0/A  | Discharge Air               | 84               | 81                | 82  | 80  | 80  | 81   | 75   | 74   | 58   |
|                   | Return Air                  | 70               | 75                | 80  | 70  | 66  | 63   | 60   | 59   | 39   |
|                   | Case Breakout               | 71               | 71                | 74  | 68  | 68  | 67   | 62   | 58   | 47   |
|                   | Sound Pressure @ 3m (9.8ft) | 53               | 54                | 57  | 51  | 50  | 50   | 44   | 41   | 29   |
| SO12xxxCxBSx-0/A  | Discharge Air               | 88               | 87                | 94  | 89  | 84  | 82   | 78   | 72   | 63   |
|                   | Return Air                  | 78               | 81                | 93  | 78  | 70  | 65   | 64   | 57   | 45   |
|                   | Case Breakout               | 76               | 78                | 87  | 77  | 72  | 69   | 65   | 56   | 52   |
|                   | Sound Pressure @ 3m (9.8ft) | 58               | 60                | 69  | 59  | 55  | 51   | 48   | 39   | 35   |
| SO15xxxCxBSx-0/A  | Discharge Air               | 87               | 84                | 85  | 84  | 83  | 84   | 78   | 77   | 62   |
|                   | Return Air                  | 74               | 78                | 84  | 73  | 69  | 67   | 64   | 63   | 43   |
|                   | Case Breakout               | 74               | 75                | 78  | 72  | 71  | 71   | 65   | 62   | 51   |
|                   | Sound Pressure @ 3m (9.8ft) | 57               | 57                | 60  | 54  | 54  | 53   | 48   | 44   | 33   |
| SO18xxxCxBSx-0/A  | Discharge Air               | 87               | 87                | 95  | 88  | 84  | 82   | 76   | 70   | 61   |
|                   | Return Air                  | 79               | 81                | 94  | 77  | 70  | 65   | 61   | 55   | 43   |
|                   | Case Breakout               | 76               | 77                | 88  | 76  | 72  | 69   | 63   | 54   | 50   |
|                   | Sound Pressure @ 3m (9.8ft) | 58               | 60                | 70  | 58  | 55  | 51   | 45   | 37   | 33   |
| SO22xxxCxBSx-0/A  | Discharge Air               | 91               | 87                | 89  | 87  | 87  | 87   | 81   | 82   | 65   |
|                   | Return Air                  | 77               | 81                | 87  | 76  | 73  | 70   | 67   | 67   | 47   |
|                   | Case Breakout               | 78               | 78                | 81  | 75  | 75  | 74   | 68   | 66   | 54   |
|                   | Sound Pressure @ 3m (9.8ft) | 60               | 60                | 63  | 57  | 57  | 56   | 51   | 49   | 37   |
| SO25xxxCxBSx-0/A  | Discharge Air               | 89               | 88                | 97  | 90  | 86  | 84   | 78   | 72   | 63   |
|                   | Return Air                  | 81               | 82                | 96  | 79  | 72  | 66   | 63   | 57   | 45   |
|                   | Case Breakout               | 78               | 79                | 90  | 78  | 74  | 70   | 65   | 56   | 52   |
|                   | Sound Pressure @ 3m (9.8ft) | 60               | 61                | 72  | 60  | 56  | 53   | 47   | 39   | 35   |
| SO31xxxCxBSx-0/A  | Discharge Air               | 90               | 89                | 98  | 90  | 87  | 85   | 78   | 72   | 64   |
|                   | Return Air                  | 81               | 83                | 96  | 80  | 73  | 67   | 64   | 58   | 45   |
|                   | Case Breakout               | 78               | 80                | 90  | 78  | 75  | 71   | 65   | 57   | 53   |
|                   | Sound Pressure @ 3m (9.8ft) | 61               | 62                | 73  | 61  | 57  | 54   | 48   | 39   | 35   |
| SO35xxxCxBSx-0/A  | Discharge Air               | 92               | 91                | 99  | 93  | 89  | 87   | 81   | 75   | 67   |
|                   | Return Air                  | 83               | 85                | 98  | 82  | 75  | 69   | 67   | 61   | 48   |
|                   | Case Breakout               | 80               | 82                | 92  | 81  | 77  | 73   | 68   | 60   | 56   |
|                   | Sound Pressure @ 3m (9.8ft) | 63               | 64                | 74  | 63  | 59  | 56   | 51   | 42   | 38   |
| SO09xxxCxBXx-0/A  | Discharge Air               | 88               | 84                | 85  | 83  | 84  | 84   | 78   | 80   | 63   |
|                   | Return Air                  | 74               | 78                | 84  | 73  | 70  | 67   | 63   | 65   | 44   |
|                   | Case Breakout               | 75               | 74                | 78  | 71  | 72  | 71   | 65   | 64   | 52   |
|                   | Sound Pressure @ 3m (9.8ft) | 57               | 57                | 60  | 54  | 54  | 53   | 47   | 47   | 34   |
| SO12xxxCxBXx-0/A  | Discharge Air               | 91               | 90                | 96  | 92  | 87  | 85   | 83   | 77   | 68   |
|                   | Return Air                  | 81               | 84                | 95  | 82  | 73  | 67   | 68   | 62   | 49   |
|                   | Case Breakout               | 79               | 81                | 89  | 80  | 75  | 71   | 70   | 61   | 57   |
|                   | Sound Pressure @ 3m (9.8ft) | 61               | 63                | 71  | 63  | 58  | 54   | 52   | 44   | 39   |
| SO15xxxCxBXx-0/A  | Discharge Air               | 91               | 87                | 89  | 87  | 87  | 88   | 81   | 83   | 66   |
|                   | Return Air                  | 77               | 81                | 87  | 76  | 73  | 70   | 67   | 69   | 48   |
|                   | Case Breakout               | 78               | 78                | 81  | 75  | 75  | 74   | 68   | 68   | 55   |
|                   | Sound Pressure @ 3m (9.8ft) | 61               | 60                | 64  | 57  | 58  | 57   | 51   | 50   | 38   |
| SO18xxxCxBXx-0/A  | Discharge Air               | 90               | 89                | 98  | 91  | 87  | 85   | 80   | 74   | 66   |
|                   | Return Air                  | 81               | 83                | 96  | 81  | 73  | 67   | 65   | 59   | 47   |
|                   | Case Breakout               | 79               | 80                | 90  | 79  | 75  | 71   | 67   | 58   | 55   |
|                   | Sound Pressure @ 3m (9.8ft) | 61               | 62                | 73  | 62  | 58  | 54   | 49   | 41   | 37   |
| SO22xxxCxBXx-0/A  | Discharge Air               | 95               | 90                | 92  | 90  | 91  | 91   | 85   | 88   | 70   |
|                   | Return Air                  | 81               | 84                | 91  | 80  | 77  | 73   | 70   | 73   | 52   |
|                   | Case Breakout               | 82               | 81                | 85  | 78  | 79  | 77   | 72   | 72   | 59   |
|                   | Sound Pressure @ 3m (9.8ft) | 64               | 63                | 67  | 61  | 61  | 60   | 54   | 55   | 42   |
| SO25xxxCxBXx-0/A  | Discharge Air               | 92               | 91                | 99  | 93  | 89  | 87   | 82   | 76   | 68   |
|                   | Return Air                  | 83               | 85                | 98  | 83  | 75  | 69   | 67   | 61   | 49   |
|                   | Case Breakout               | 81               | 82                | 92  | 81  | 77  | 73   | 69   | 60   | 57   |
|                   | Sound Pressure @ 3m (9.8ft) | 63               | 64                | 74  | 64  | 60  | 56   | 51   | 43   | 39   |
| SO31xxxCxBXx-0/A  | Discharge Air               | 93               | 92                | 100 | 94  | 90  | 88   | 82   | 76   | 68   |
|                   | Return Air                  | 84               | 86                | 99  | 83  | 76  | 70   | 68   | 62   | 50   |
|                   | Case Breakout               | 81               | 82                | 93  | 82  | 78  | 74   | 69   | 61   | 57   |
|                   | Sound Pressure @ 3m (9.8ft) | 64               | 65                | 75  | 64  | 60  | 57   | 52   | 43   | 40   |
| SO35xxxCxBXx-0/A  | Discharge Air               | 95               | 94                | 102 | 96  | 92  | 89   | 86   | 79   | 71   |
|                   | Return Air                  | 86               | 88                | 100 | 86  | 78  | 72   | 71   | 65   | 53   |
|                   | Case Breakout               | 83               | 85                | 94  | 84  | 80  | 76   | 73   | 64   | 60   |
|                   | Sound Pressure @ 3m (9.8ft) | 66               | 67                | 77  | 67  | 62  | 58   | 55   | 46   | 43   |
| SO09xxxCxCSx-0/A  | Discharge Air               | 84               | 81                | 82  | 81  | 79  | 80   | 75   | 72   | 59   |
|                   | Return Air                  | 70               | 75                | 80  | 70  | 65  | 63   | 61   | 58   | 40   |
|                   | Case Breakout               | 71               | 71                | 74  | 69  | 67  | 67   | 62   | 57   | 48   |
|                   | Sound Pressure @ 3m (9.8ft) | 53               | 54                | 57  | 51  | 50  | 49   | 45   | 39   | 30   |

(1) dB(A) is the overall sound level, measured on the A scale

(2) All sound data measured at nominal conditions, Discharge Air, Return air and case breakout is sound power.

Sound measurements taken at design air volume, 25Pa (0.1inH<sub>2</sub>O) ESP.

## Technical Data

## Sound Data - 50Hz

| Sound Measurement |                             | Overall<br>dB(A) | Frequency (Hz) dB |     |     |     |      |      |      |      |
|-------------------|-----------------------------|------------------|-------------------|-----|-----|-----|------|------|------|------|
|                   |                             |                  | 63                | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| SO12xxxCxCSx-0/A  | Discharge Air               | 88               | 87                | 95  | 89  | 85  | 83   | 78   | 72   | 64   |
|                   | Return Air                  | 79               | 81                | 94  | 79  | 71  | 65   | 63   | 57   | 46   |
|                   | Case Breakout               | 77               | 77                | 88  | 77  | 73  | 69   | 65   | 56   | 53   |
|                   | Sound Pressure @ 3m (9.8ft) | 59               | 60                | 70  | 60  | 56  | 52   | 47   | 39   | 35   |
|                   |                             |                  |                   |     |     |     |      |      |      |      |
| SO15xxxCxCSx-0/A  | Discharge Air               | 87               | 84                | 85  | 84  | 83  | 84   | 79   | 76   | 62   |
|                   | Return Air                  | 74               | 78                | 84  | 73  | 69  | 66   | 64   | 61   | 44   |
|                   | Case Breakout               | 74               | 75                | 78  | 72  | 71  | 70   | 66   | 60   | 51   |
|                   | Sound Pressure @ 3m (9.8ft) | 57               | 57                | 60  | 54  | 53  | 53   | 48   | 43   | 34   |
|                   |                             |                  |                   |     |     |     |      |      |      |      |
| SO18xxxCxCSx-0/A  | Discharge Air               | 87               | 87                | 96  | 88  | 84  | 83   | 75   | 71   | 62   |
|                   | Return Air                  | 79               | 81                | 94  | 77  | 70  | 65   | 61   | 56   | 44   |
|                   | Case Breakout               | 76               | 78                | 88  | 76  | 72  | 69   | 62   | 55   | 51   |
|                   | Sound Pressure @ 3m (9.8ft) | 59               | 60                | 71  | 58  | 55  | 52   | 45   | 38   | 34   |
|                   |                             |                  |                   |     |     |     |      |      |      |      |
| SO22xxxCxCSx-0/A  | Discharge Air               | 91               | 87                | 88  | 87  | 86  | 87   | 82   | 80   | 66   |
|                   | Return Air                  | 77               | 81                | 87  | 77  | 72  | 70   | 67   | 66   | 47   |
|                   | Case Breakout               | 78               | 78                | 81  | 75  | 74  | 74   | 69   | 65   | 55   |
|                   | Sound Pressure @ 3m (9.8ft) | 60               | 60                | 63  | 58  | 57  | 56   | 51   | 47   | 37   |
|                   |                             |                  |                   |     |     |     |      |      |      |      |
| SO25xxxCxCSx-0/A  | Discharge Air               | 89               | 89                | 98  | 90  | 86  | 85   | 77   | 73   | 64   |
|                   | Return Air                  | 81               | 83                | 96  | 79  | 72  | 67   | 63   | 58   | 46   |
|                   | Case Breakout               | 78               | 79                | 90  | 78  | 74  | 71   | 64   | 57   | 53   |
|                   | Sound Pressure @ 3m (9.8ft) | 61               | 62                | 72  | 60  | 57  | 54   | 47   | 39   | 35   |
|                   |                             |                  |                   |     |     |     |      |      |      |      |
| SO31xxxCxCSx-0/A  | Discharge Air               | 90               | 90                | 98  | 90  | 87  | 86   | 78   | 73   | 65   |
|                   | Return Air                  | 82               | 84                | 97  | 80  | 73  | 68   | 64   | 59   | 46   |
|                   | Case Breakout               | 79               | 81                | 91  | 78  | 75  | 72   | 65   | 58   | 54   |
|                   | Sound Pressure @ 3m (9.8ft) | 61               | 63                | 73  | 61  | 58  | 55   | 47   | 40   | 36   |
|                   |                             |                  |                   |     |     |     |      |      |      |      |
| SO35xxxCxCSx-0/A  | Discharge Air               | 92               | 91                | 100 | 93  | 89  | 87   | 81   | 76   | 68   |
|                   | Return Air                  | 84               | 85                | 99  | 82  | 75  | 70   | 66   | 61   | 49   |
|                   | Case Breakout               | 81               | 82                | 93  | 81  | 77  | 74   | 68   | 60   | 57   |
|                   | Sound Pressure @ 3m (9.8ft) | 63               | 64                | 75  | 63  | 60  | 56   | 50   | 43   | 39   |
|                   |                             |                  |                   |     |     |     |      |      |      |      |
| SO09xxxCxCXx-0/A  | Discharge Air               | 88               | 84                | 85  | 84  | 83  | 84   | 78   | 78   | 63   |
|                   | Return Air                  | 74               | 78                | 83  | 73  | 69  | 67   | 64   | 64   | 45   |
|                   | Case Breakout               | 75               | 74                | 77  | 72  | 71  | 71   | 65   | 63   | 52   |
|                   | Sound Pressure @ 3m (9.8ft) | 57               | 57                | 60  | 54  | 54  | 53   | 48   | 45   | 35   |
|                   |                             |                  |                   |     |     |     |      |      |      |      |
| SO12xxxCxCXx-0/A  | Discharge Air               | 91               | 90                | 97  | 93  | 88  | 86   | 82   | 76   | 68   |
|                   | Return Air                  | 82               | 84                | 96  | 82  | 74  | 68   | 68   | 62   | 50   |
|                   | Case Breakout               | 79               | 80                | 90  | 81  | 76  | 72   | 69   | 61   | 57   |
|                   | Sound Pressure @ 3m (9.8ft) | 62               | 63                | 72  | 63  | 58  | 54   | 52   | 43   | 40   |
|                   |                             |                  |                   |     |     |     |      |      |      |      |
| SO15xxxCxCXx-0/A  | Discharge Air               | 91               | 87                | 88  | 87  | 87  | 88   | 82   | 82   | 67   |
|                   | Return Air                  | 77               | 81                | 87  | 77  | 73  | 70   | 68   | 67   | 48   |
|                   | Case Breakout               | 78               | 78                | 81  | 75  | 75  | 74   | 69   | 66   | 56   |
|                   | Sound Pressure @ 3m (9.8ft) | 61               | 60                | 63  | 58  | 57  | 57   | 51   | 49   | 38   |
|                   |                             |                  |                   |     |     |     |      |      |      |      |
| SO18xxxCxCXx-0/A  | Discharge Air               | 91               | 89                | 98  | 91  | 88  | 86   | 79   | 74   | 66   |
|                   | Return Air                  | 82               | 83                | 97  | 81  | 74  | 68   | 65   | 60   | 48   |
|                   | Case Breakout               | 79               | 80                | 91  | 79  | 76  | 72   | 66   | 59   | 55   |
|                   | Sound Pressure @ 3m (9.8ft) | 62               | 62                | 73  | 62  | 58  | 55   | 49   | 41   | 38   |
|                   |                             |                  |                   |     |     |     |      |      |      |      |
| SO22xxxCxCXx-0/A  | Discharge Air               | 95               | 90                | 92  | 90  | 90  | 91   | 85   | 86   | 71   |
|                   | Return Air                  | 81               | 84                | 90  | 80  | 76  | 73   | 71   | 72   | 52   |
|                   | Case Breakout               | 82               | 81                | 84  | 78  | 78  | 77   | 72   | 71   | 60   |
|                   | Sound Pressure @ 3m (9.8ft) | 64               | 63                | 67  | 61  | 61  | 60   | 54   | 53   | 42   |
|                   |                             |                  |                   |     |     |     |      |      |      |      |
| SO25xxxCxCXx-0/A  | Discharge Air               | 93               | 91                | 100 | 93  | 90  | 87   | 81   | 76   | 68   |
|                   | Return Air                  | 84               | 85                | 99  | 83  | 76  | 70   | 67   | 62   | 50   |
|                   | Case Breakout               | 81               | 82                | 93  | 81  | 78  | 74   | 68   | 61   | 57   |
|                   | Sound Pressure @ 3m (9.8ft) | 64               | 64                | 75  | 64  | 60  | 56   | 51   | 43   | 40   |
|                   |                             |                  |                   |     |     |     |      |      |      |      |
| SO31xxxCxCXx-0/A  | Discharge Air               | 93               | 92                | 101 | 94  | 90  | 88   | 82   | 77   | 69   |
|                   | Return Air                  | 85               | 86                | 100 | 83  | 76  | 71   | 67   | 62   | 51   |
|                   | Case Breakout               | 82               | 83                | 94  | 82  | 78  | 75   | 69   | 61   | 58   |
|                   | Sound Pressure @ 3m (9.8ft) | 64               | 65                | 76  | 64  | 61  | 57   | 51   | 44   | 40   |
|                   |                             |                  |                   |     |     |     |      |      |      |      |
| SO35xxxCxCXx-0/A  | Discharge Air               | 95               | 94                | 103 | 97  | 93  | 90   | 85   | 80   | 72   |
|                   | Return Air                  | 87               | 88                | 101 | 86  | 79  | 73   | 71   | 65   | 54   |
|                   | Case Breakout               | 84               | 84                | 95  | 85  | 81  | 77   | 72   | 64   | 61   |
|                   | Sound Pressure @ 3m (9.8ft) | 66               | 67                | 78  | 67  | 63  | 59   | 55   | 46   | 43   |
|                   |                             |                  |                   |     |     |     |      |      |      |      |
| SO09xxxCxDSx-0/A  | Discharge Air               | 84               | 81                | 83  | 81  | 80  | 81   | 76   | 72   | 60   |
|                   | Return Air                  | 71               | 75                | 81  | 71  | 66  | 63   | 62   | 58   | 42   |
|                   | Case Breakout               | 71               | 72                | 75  | 69  | 68  | 67   | 63   | 57   | 49   |
|                   | Sound Pressure @ 3m (9.8ft) | 54               | 54                | 58  | 52  | 50  | 50   | 46   | 39   | 32   |
|                   |                             |                  |                   |     |     |     |      |      |      |      |
| SO12xxxCxDSx-0/A  | Discharge Air               | 89               | 87                | 96  | 90  | 86  | 84   | 78   | 72   | 65   |
|                   | Return Air                  | 80               | 81                | 95  | 79  | 72  | 66   | 63   | 58   | 46   |
|                   | Case Breakout               | 77               | 78                | 89  | 78  | 74  | 70   | 65   | 57   | 54   |
|                   | Sound Pressure @ 3m (9.8ft) | 60               | 60                | 71  | 60  | 56  | 52   | 47   | 39   | 36   |
|                   |                             |                  |                   |     |     |     |      |      |      |      |

(1) dB(A) is the overall sound level, measured on the A scale

(2) All sound data measured at nominal conditions, Discharge Air, Return air and case breakout is sound power.

Sound measurements taken at design air volume, 25Pa (0.1inH<sub>2</sub>O) ESP.

## Technical Data

## Sound Data - 50Hz

| Sound Measurement |                             | Overall<br>dB(A) | Frequency (Hz) dB |     |     |     |      |      |      |      |
|-------------------|-----------------------------|------------------|-------------------|-----|-----|-----|------|------|------|------|
|                   |                             |                  | 63                | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| SO15xxxCxDSx-0/A  | Discharge Air               | 88               | 85                | 86  | 84  | 83  | 84   | 80   | 76   | 64   |
|                   | Return Air                  | 74               | 79                | 85  | 74  | 69  | 67   | 65   | 61   | 45   |
|                   | Case Breakout               | 75               | 75                | 79  | 72  | 71  | 71   | 67   | 60   | 53   |
|                   | Sound Pressure @ 3m (9.8ft) | 57               | 58                | 61  | 55  | 53  | 53   | 49   | 43   | 35   |
| SO18xxxCxDSx-0/A  | Discharge Air               | 88               | 88                | 96  | 88  | 85  | 83   | 76   | 71   | 63   |
|                   | Return Air                  | 80               | 82                | 95  | 78  | 71  | 66   | 61   | 57   | 44   |
|                   | Case Breakout               | 77               | 78                | 89  | 76  | 73  | 70   | 63   | 56   | 52   |
|                   | Sound Pressure @ 3m (9.8ft) | 59               | 61                | 71  | 59  | 55  | 52   | 45   | 38   | 34   |
| SO22xxxCxDSx-0/A  | Discharge Air               | 91               | 87                | 89  | 87  | 86  | 87   | 82   | 80   | 67   |
|                   | Return Air                  | 77               | 81                | 87  | 77  | 72  | 70   | 68   | 65   | 48   |
|                   | Case Breakout               | 78               | 78                | 81  | 75  | 74  | 74   | 69   | 64   | 56   |
|                   | Sound Pressure @ 3m (9.8ft) | 60               | 60                | 64  | 58  | 57  | 56   | 52   | 47   | 38   |
| SO25xxxCxDSx-0/A  | Discharge Air               | 90               | 90                | 98  | 90  | 87  | 85   | 78   | 73   | 65   |
|                   | Return Air                  | 81               | 84                | 96  | 79  | 73  | 68   | 63   | 59   | 46   |
|                   | Case Breakout               | 78               | 80                | 90  | 78  | 75  | 72   | 65   | 58   | 54   |
|                   | Sound Pressure @ 3m (9.8ft) | 61               | 63                | 73  | 60  | 57  | 54   | 47   | 40   | 36   |
| SO31xxxCxDSx-0/A  | Discharge Air               | 91               | 91                | 99  | 91  | 87  | 86   | 78   | 74   | 66   |
|                   | Return Air                  | 82               | 85                | 97  | 80  | 73  | 69   | 64   | 60   | 47   |
|                   | Case Breakout               | 79               | 81                | 91  | 79  | 75  | 73   | 65   | 59   | 55   |
|                   | Sound Pressure @ 3m (9.8ft) | 62               | 64                | 74  | 61  | 58  | 55   | 48   | 41   | 37   |
| SO35xxxCxDSx-0/A  | Discharge Air               | 93               | 92                | 101 | 93  | 90  | 88   | 81   | 76   | 68   |
|                   | Return Air                  | 84               | 86                | 99  | 83  | 76  | 70   | 66   | 62   | 50   |
|                   | Case Breakout               | 81               | 82                | 93  | 81  | 78  | 74   | 68   | 61   | 57   |
|                   | Sound Pressure @ 3m (9.8ft) | 64               | 65                | 76  | 64  | 60  | 57   | 50   | 43   | 40   |
| SO09xxxCxDXx-0/A  | Discharge Air               | 88               | 84                | 85  | 84  | 83  | 84   | 79   | 78   | 64   |
|                   | Return Air                  | 74               | 78                | 84  | 74  | 69  | 67   | 65   | 63   | 45   |
|                   | Case Breakout               | 75               | 74                | 78  | 72  | 71  | 71   | 66   | 62   | 53   |
|                   | Sound Pressure @ 3m (9.8ft) | 57               | 57                | 60  | 55  | 54  | 53   | 48   | 45   | 35   |
| SO12xxxCxDXx-0/A  | Discharge Air               | 92               | 90                | 98  | 93  | 88  | 86   | 82   | 76   | 69   |
|                   | Return Air                  | 82               | 84                | 97  | 82  | 74  | 69   | 68   | 62   | 51   |
|                   | Case Breakout               | 80               | 80                | 91  | 81  | 76  | 73   | 69   | 61   | 58   |
|                   | Sound Pressure @ 3m (9.8ft) | 62               | 63                | 73  | 63  | 59  | 55   | 51   | 43   | 41   |
| SO15xxxCxDXx-0/A  | Discharge Air               | 91               | 87                | 88  | 88  | 87  | 88   | 82   | 81   | 67   |
|                   | Return Air                  | 77               | 81                | 87  | 77  | 73  | 70   | 68   | 67   | 49   |
|                   | Case Breakout               | 78               | 78                | 81  | 76  | 75  | 74   | 69   | 66   | 56   |
|                   | Sound Pressure @ 3m (9.8ft) | 61               | 60                | 63  | 58  | 57  | 57   | 52   | 48   | 39   |
| SO18xxxCxDXx-0/A  | Discharge Air               | 91               | 90                | 99  | 92  | 88  | 86   | 79   | 75   | 67   |
|                   | Return Air                  | 82               | 84                | 97  | 81  | 74  | 69   | 65   | 60   | 48   |
|                   | Case Breakout               | 80               | 80                | 91  | 80  | 76  | 73   | 66   | 59   | 56   |
|                   | Sound Pressure @ 3m (9.8ft) | 62               | 63                | 74  | 62  | 58  | 55   | 49   | 42   | 38   |
| SO22xxxCxDXx-0/A  | Discharge Air               | 95               | 90                | 91  | 90  | 90  | 91   | 85   | 85   | 71   |
|                   | Return Air                  | 81               | 84                | 90  | 80  | 76  | 73   | 71   | 71   | 52   |
|                   | Case Breakout               | 81               | 81                | 84  | 78  | 78  | 77   | 72   | 70   | 60   |
|                   | Sound Pressure @ 3m (9.8ft) | 64               | 63                | 66  | 61  | 61  | 60   | 55   | 52   | 42   |
| SO25xxxCxDXx-0/A  | Discharge Air               | 93               | 91                | 101 | 93  | 90  | 88   | 81   | 77   | 69   |
|                   | Return Air                  | 84               | 85                | 99  | 83  | 76  | 70   | 67   | 62   | 50   |
|                   | Case Breakout               | 81               | 82                | 93  | 81  | 78  | 74   | 68   | 61   | 58   |
|                   | Sound Pressure @ 3m (9.8ft) | 64               | 64                | 76  | 64  | 60  | 57   | 51   | 44   | 40   |
| SO31xxxCxDXx-0/A  | Discharge Air               | 94               | 92                | 101 | 94  | 91  | 89   | 82   | 77   | 70   |
|                   | Return Air                  | 85               | 86                | 100 | 84  | 77  | 71   | 67   | 63   | 51   |
|                   | Case Breakout               | 82               | 83                | 94  | 82  | 79  | 75   | 69   | 62   | 59   |
|                   | Sound Pressure @ 3m (9.8ft) | 65               | 65                | 76  | 65  | 61  | 58   | 51   | 44   | 41   |
| SO35xxxCxDXx-0/A  | Discharge Air               | 96               | 94                | 103 | 97  | 93  | 91   | 85   | 80   | 73   |
|                   | Return Air                  | 87               | 88                | 102 | 86  | 79  | 73   | 70   | 65   | 54   |
|                   | Case Breakout               | 84               | 85                | 96  | 85  | 81  | 77   | 72   | 64   | 62   |
|                   | Sound Pressure @ 3m (9.8ft) | 67               | 67                | 78  | 67  | 63  | 60   | 54   | 47   | 44   |
| SO30xxxCxDSx-0/A  | Discharge Air               | 100              | 98                | 107 | 101 | 97  | 95   | 90   | 85   | 78   |
|                   | Return Air                  | 91               | 92                | 105 | 91  | 83  | 77   | 76   | 71   | 60   |
|                   | Case Breakout               | 88               | 89                | 99  | 89  | 85  | 81   | 77   | 70   | 67   |
|                   | Sound Pressure @ 3m (9.8ft) | 71               | 71                | 82  | 72  | 68  | 64   | 60   | 52   | 50   |
| SO40xxxCxDSx-0/A  | Discharge Air               | 102              | 100               | 108 | 103 | 98  | 96   | 92   | 87   | 80   |
|                   | Return Air                  | 92               | 94                | 106 | 92  | 84  | 79   | 78   | 72   | 61   |
|                   | Case Breakout               | 90               | 90                | 100 | 91  | 86  | 83   | 79   | 71   | 69   |
|                   | Sound Pressure @ 3m (9.8ft) | 72               | 73                | 83  | 73  | 69  | 65   | 62   | 54   | 51   |
| SO50xxxCxDSx-0/A  | Discharge Air               | 103              | 101               | 109 | 104 | 99  | 97   | 93   | 88   | 81   |
|                   | Return Air                  | 93               | 95                | 107 | 93  | 85  | 79   | 79   | 73   | 62   |
|                   | Case Breakout               | 91               | 91                | 101 | 92  | 87  | 83   | 80   | 72   | 70   |
|                   | Sound Pressure @ 3m (9.8ft) | 73               | 74                | 84  | 74  | 70  | 66   | 63   | 55   | 52   |
| SO60xxxCxDSx-0/A  | Discharge Air               | 104              | 101               | 110 | 105 | 101 | 98   | 93   | 88   | 81   |
|                   | Return Air                  | 94               | 95                | 109 | 94  | 87  | 81   | 79   | 74   | 63   |
|                   | Case Breakout               | 92               | 92                | 103 | 93  | 89  | 85   | 80   | 73   | 70   |
|                   | Sound Pressure @ 3m (9.8ft) | 74               | 74                | 85  | 75  | 71  | 67   | 63   | 55   | 53   |

(1) dB(A) is the overall sound level, measured on the A scale

(2) All sound data measured at nominal conditions, Discharge Air, Return air and case breakout is sound power.

Sound measurements taken at design air volume, 25Pa (0.1inH<sub>2</sub>O) ESP.

## Technical Data

## Sound Data - 60Hz

| Sound Measurement |                             | Overall<br>dB(A) | Frequency (Hz) dB |     |     |     |      |      |      |      |
|-------------------|-----------------------------|------------------|-------------------|-----|-----|-----|------|------|------|------|
|                   |                             |                  | 63                | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| SO09xxxCxBSx-3    | Discharge Air               | 84               | 81                | 82  | 81  | 80  | 81   | 76   | 73   | 59   |
|                   | Return Air                  | 70               | 75                | 81  | 70  | 66  | 63   | 61   | 59   | 40   |
|                   | Case Breakout               | 71               | 72                | 75  | 69  | 68  | 67   | 63   | 58   | 48   |
|                   | Sound Pressure @ 3m (9.8ft) | 54               | 54                | 57  | 51  | 50  | 50   | 45   | 40   | 30   |
| SO12xxxCxBSx-3    | Discharge Air               | 88               | 87                | 95  | 89  | 85  | 83   | 78   | 72   | 64   |
|                   | Return Air                  | 79               | 81                | 94  | 79  | 71  | 65   | 64   | 58   | 46   |
|                   | Case Breakout               | 77               | 78                | 88  | 77  | 73  | 69   | 65   | 57   | 53   |
|                   | Sound Pressure @ 3m (9.8ft) | 59               | 60                | 70  | 60  | 56  | 52   | 48   | 39   | 36   |
| SO15xxxCxBSx-3    | Discharge Air               | 88               | 85                | 86  | 84  | 83  | 84   | 79   | 77   | 63   |
|                   | Return Air                  | 74               | 79                | 84  | 74  | 69  | 67   | 65   | 62   | 44   |
|                   | Case Breakout               | 75               | 75                | 78  | 72  | 71  | 71   | 66   | 61   | 52   |
|                   | Sound Pressure @ 3m (9.8ft) | 57               | 57                | 61  | 55  | 54  | 53   | 49   | 44   | 34   |
| SO18xxxCxBSx-3    | Discharge Air               | 88               | 87                | 96  | 88  | 85  | 83   | 76   | 71   | 62   |
|                   | Return Air                  | 79               | 81                | 94  | 78  | 71  | 65   | 61   | 56   | 44   |
|                   | Case Breakout               | 76               | 78                | 88  | 76  | 73  | 69   | 63   | 55   | 51   |
|                   | Sound Pressure @ 3m (9.8ft) | 59               | 60                | 71  | 59  | 55  | 52   | 45   | 38   | 34   |
| SO22xxxCxBSx-3    | Discharge Air               | 91               | 87                | 89  | 87  | 87  | 88   | 82   | 81   | 66   |
|                   | Return Air                  | 77               | 81                | 87  | 77  | 73  | 70   | 68   | 67   | 48   |
|                   | Case Breakout               | 78               | 78                | 81  | 75  | 75  | 74   | 69   | 66   | 55   |
|                   | Sound Pressure @ 3m (9.8ft) | 61               | 60                | 64  | 58  | 57  | 57   | 52   | 48   | 38   |
| SO25xxxCxBSx-3    | Discharge Air               | 90               | 89                | 98  | 90  | 87  | 85   | 78   | 73   | 64   |
|                   | Return Air                  | 81               | 83                | 96  | 80  | 73  | 67   | 63   | 58   | 46   |
|                   | Case Breakout               | 78               | 80                | 90  | 78  | 75  | 71   | 65   | 57   | 53   |
|                   | Sound Pressure @ 3m (9.8ft) | 61               | 62                | 73  | 60  | 57  | 54   | 47   | 40   | 36   |
| SO31xxxCxBSx-3    | Discharge Air               | 90               | 90                | 99  | 91  | 87  | 86   | 78   | 73   | 65   |
|                   | Return Air                  | 82               | 84                | 97  | 80  | 73  | 68   | 64   | 59   | 46   |
|                   | Case Breakout               | 79               | 81                | 91  | 79  | 75  | 72   | 65   | 58   | 54   |
|                   | Sound Pressure @ 3m (9.8ft) | 62               | 63                | 74  | 61  | 58  | 55   | 48   | 40   | 36   |
| SO35xxxCxBSx-3    | Discharge Air               | 93               | 92                | 100 | 93  | 90  | 88   | 81   | 76   | 68   |
|                   | Return Air                  | 84               | 86                | 99  | 83  | 76  | 70   | 67   | 61   | 49   |
|                   | Case Breakout               | 81               | 82                | 93  | 81  | 78  | 74   | 68   | 60   | 57   |
|                   | Sound Pressure @ 3m (9.8ft) | 64               | 64                | 75  | 64  | 60  | 56   | 51   | 43   | 39   |
| SO09xxxCxBXx-3    | Discharge Air               | 88               | 84                | 85  | 84  | 84  | 85   | 79   | 79   | 63   |
|                   | Return Air                  | 74               | 78                | 84  | 73  | 70  | 67   | 64   | 64   | 45   |
|                   | Case Breakout               | 75               | 74                | 78  | 72  | 72  | 71   | 66   | 63   | 52   |
|                   | Sound Pressure @ 3m (9.8ft) | 57               | 57                | 60  | 54  | 54  | 53   | 48   | 46   | 35   |
| SO12xxxCxBXx-3    | Discharge Air               | 91               | 90                | 97  | 93  | 88  | 86   | 83   | 77   | 69   |
|                   | Return Air                  | 82               | 84                | 96  | 82  | 74  | 68   | 68   | 62   | 50   |
|                   | Case Breakout               | 80               | 81                | 90  | 81  | 76  | 72   | 70   | 61   | 58   |
|                   | Sound Pressure @ 3m (9.8ft) | 62               | 63                | 72  | 63  | 58  | 55   | 52   | 44   | 40   |
| SO15xxxCxBXx-3    | Discharge Air               | 92               | 87                | 89  | 88  | 87  | 88   | 82   | 83   | 67   |
|                   | Return Air                  | 78               | 81                | 87  | 77  | 73  | 71   | 68   | 68   | 49   |
|                   | Case Breakout               | 79               | 78                | 81  | 76  | 75  | 75   | 69   | 67   | 56   |
|                   | Sound Pressure @ 3m (9.8ft) | 61               | 60                | 64  | 58  | 58  | 57   | 52   | 50   | 39   |
| SO18xxxCxBXx-3    | Discharge Air               | 91               | 90                | 98  | 92  | 88  | 86   | 80   | 74   | 67   |
|                   | Return Air                  | 82               | 84                | 97  | 81  | 74  | 68   | 65   | 60   | 48   |
|                   | Case Breakout               | 79               | 80                | 91  | 80  | 76  | 72   | 67   | 59   | 56   |
|                   | Sound Pressure @ 3m (9.8ft) | 62               | 63                | 73  | 62  | 58  | 55   | 49   | 41   | 38   |
| SO22xxxCxBXx-3    | Discharge Air               | 95               | 90                | 92  | 91  | 91  | 91   | 85   | 87   | 71   |
|                   | Return Air                  | 81               | 84                | 91  | 80  | 77  | 74   | 71   | 73   | 53   |
|                   | Case Breakout               | 82               | 81                | 85  | 79  | 79  | 78   | 72   | 72   | 60   |
|                   | Sound Pressure @ 3m (9.8ft) | 64               | 63                | 67  | 61  | 61  | 60   | 55   | 54   | 42   |
| SO25xxxCxBXx-3    | Discharge Air               | 93               | 91                | 100 | 94  | 90  | 88   | 82   | 76   | 69   |
|                   | Return Air                  | 84               | 85                | 99  | 83  | 76  | 70   | 67   | 62   | 50   |
|                   | Case Breakout               | 81               | 82                | 93  | 82  | 78  | 74   | 69   | 61   | 58   |
|                   | Sound Pressure @ 3m (9.8ft) | 64               | 64                | 75  | 64  | 60  | 57   | 51   | 43   | 40   |
| SO31xxxCxBXx-3    | Discharge Air               | 94               | 92                | 101 | 94  | 91  | 89   | 82   | 77   | 69   |
|                   | Return Air                  | 85               | 86                | 100 | 84  | 77  | 71   | 68   | 63   | 51   |
|                   | Case Breakout               | 82               | 83                | 94  | 82  | 79  | 75   | 69   | 62   | 58   |
|                   | Sound Pressure @ 3m (9.8ft) | 65               | 65                | 76  | 65  | 61  | 57   | 52   | 44   | 41   |
| SO35xxxCxBXx-3    | Discharge Air               | 96               | 94                | 103 | 97  | 93  | 90   | 86   | 80   | 72   |
|                   | Return Air                  | 87               | 88                | 101 | 86  | 79  | 73   | 71   | 65   | 54   |
|                   | Case Breakout               | 84               | 85                | 95  | 85  | 81  | 77   | 73   | 64   | 61   |
|                   | Sound Pressure @ 3m (9.8ft) | 67               | 67                | 78  | 67  | 63  | 59   | 55   | 47   | 44   |
| SO09xxxCxCSx-3    | Discharge Air               | 84               | 82                | 83  | 81  | 80  | 81   | 76   | 72   | 60   |
|                   | Return Air                  | 71               | 76                | 81  | 71  | 66  | 63   | 62   | 58   | 42   |
|                   | Case Breakout               | 71               | 72                | 75  | 69  | 68  | 67   | 63   | 57   | 49   |
|                   | Sound Pressure @ 3m (9.8ft) | 54               | 55                | 58  | 52  | 50  | 50   | 46   | 39   | 32   |

(1) dB(A) is the overall sound level, measured on the A scale

(2) All sound data measured at nominal conditions, Discharge Air, Return air and case breakout is sound power.

Sound measurements taken at design air volume, 25Pa (0.1inH<sub>2</sub>O) ESP.

## Technical Data

## Sound Data - 60Hz

| Sound Measurement |                             | Overall<br>dB(A) | Frequency (Hz) dB |     |     |     |      |      |      |      |
|-------------------|-----------------------------|------------------|-------------------|-----|-----|-----|------|------|------|------|
|                   |                             |                  | 63                | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| SO12xxxCxCSx-3    | Discharge Air               | 89               | 87                | 96  | 90  | 86  | 84   | 78   | 73   | 65   |
|                   | Return Air                  | 80               | 81                | 95  | 79  | 72  | 66   | 63   | 58   | 47   |
|                   | Case Breakout               | 77               | 78                | 89  | 78  | 74  | 70   | 65   | 57   | 54   |
|                   | Sound Pressure @ 3m (9.8ft) | 60               | 60                | 71  | 60  | 56  | 53   | 47   | 40   | 37   |
| SO15xxxCxCSx-3    | Discharge Air               | 88               | 85                | 86  | 85  | 83  | 84   | 80   | 76   | 64   |
|                   | Return Air                  | 74               | 79                | 85  | 74  | 69  | 67   | 65   | 61   | 45   |
|                   | Case Breakout               | 75               | 75                | 79  | 73  | 71  | 71   | 67   | 60   | 53   |
|                   | Sound Pressure @ 3m (9.8ft) | 57               | 58                | 61  | 55  | 54  | 53   | 49   | 43   | 35   |
| SO18xxxCxCSx-3    | Discharge Air               | 88               | 88                | 96  | 88  | 85  | 84   | 76   | 72   | 63   |
|                   | Return Air                  | 80               | 82                | 95  | 78  | 71  | 66   | 62   | 57   | 45   |
|                   | Case Breakout               | 77               | 79                | 89  | 76  | 73  | 70   | 63   | 56   | 52   |
|                   | Sound Pressure @ 3m (9.8ft) | 59               | 61                | 71  | 59  | 55  | 53   | 45   | 39   | 35   |
| SO22xxxCxCSx-3    | Discharge Air               | 91               | 88                | 89  | 88  | 87  | 88   | 83   | 80   | 67   |
|                   | Return Air                  | 77               | 82                | 87  | 77  | 73  | 70   | 68   | 65   | 49   |
|                   | Case Breakout               | 78               | 78                | 81  | 76  | 75  | 74   | 70   | 64   | 56   |
|                   | Sound Pressure @ 3m (9.8ft) | 61               | 61                | 64  | 58  | 57  | 57   | 52   | 47   | 39   |
| SO25xxxCxCSx-3    | Discharge Air               | 90               | 90                | 98  | 90  | 87  | 86   | 78   | 74   | 65   |
|                   | Return Air                  | 82               | 84                | 97  | 80  | 73  | 68   | 63   | 59   | 47   |
|                   | Case Breakout               | 79               | 81                | 91  | 78  | 75  | 72   | 65   | 58   | 54   |
|                   | Sound Pressure @ 3m (9.8ft) | 61               | 63                | 73  | 61  | 57  | 55   | 47   | 41   | 37   |
| SO31xxxCxCSx-3    | Discharge Air               | 91               | 91                | 99  | 91  | 88  | 87   | 79   | 75   | 66   |
|                   | Return Air                  | 83               | 85                | 97  | 80  | 74  | 69   | 64   | 60   | 48   |
|                   | Case Breakout               | 80               | 82                | 91  | 79  | 76  | 73   | 66   | 59   | 55   |
|                   | Sound Pressure @ 3m (9.8ft) | 62               | 64                | 74  | 61  | 58  | 56   | 48   | 42   | 38   |
| SO35xxxCxCSx-3    | Discharge Air               | 93               | 92                | 101 | 93  | 90  | 88   | 81   | 77   | 69   |
|                   | Return Air                  | 85               | 86                | 99  | 83  | 76  | 71   | 67   | 62   | 50   |
|                   | Case Breakout               | 82               | 83                | 93  | 81  | 78  | 75   | 68   | 61   | 58   |
|                   | Sound Pressure @ 3m (9.8ft) | 64               | 65                | 76  | 64  | 61  | 57   | 51   | 44   | 40   |
| SO09xxxCxCXx-3    | Discharge Air               | 88               | 84                | 85  | 84  | 83  | 84   | 79   | 77   | 64   |
|                   | Return Air                  | 74               | 78                | 84  | 74  | 69  | 67   | 65   | 63   | 46   |
|                   | Case Breakout               | 75               | 74                | 78  | 72  | 71  | 71   | 66   | 62   | 53   |
|                   | Sound Pressure @ 3m (9.8ft) | 57               | 57                | 60  | 55  | 54  | 53   | 49   | 44   | 36   |
| SO12xxxCxCXx-3    | Discharge Air               | 92               | 90                | 98  | 93  | 89  | 86   | 82   | 77   | 70   |
|                   | Return Air                  | 83               | 84                | 97  | 83  | 75  | 69   | 68   | 62   | 51   |
|                   | Case Breakout               | 80               | 80                | 91  | 81  | 77  | 73   | 69   | 61   | 59   |
|                   | Sound Pressure @ 3m (9.8ft) | 63               | 63                | 73  | 64  | 59  | 55   | 52   | 44   | 41   |
| SO15xxxCxCXx-3    | Discharge Air               | 91               | 87                | 89  | 88  | 87  | 88   | 83   | 81   | 68   |
|                   | Return Air                  | 77               | 81                | 87  | 77  | 73  | 70   | 68   | 67   | 49   |
|                   | Case Breakout               | 78               | 78                | 81  | 76  | 75  | 74   | 70   | 66   | 57   |
|                   | Sound Pressure @ 3m (9.8ft) | 61               | 60                | 64  | 58  | 58  | 57   | 52   | 48   | 39   |
| SO18xxxCxCXx-3    | Discharge Air               | 91               | 90                | 99  | 92  | 88  | 86   | 80   | 75   | 68   |
|                   | Return Air                  | 83               | 84                | 98  | 81  | 74  | 69   | 65   | 61   | 49   |
|                   | Case Breakout               | 80               | 80                | 92  | 80  | 76  | 73   | 67   | 60   | 57   |
|                   | Sound Pressure @ 3m (9.8ft) | 62               | 63                | 74  | 62  | 59  | 55   | 49   | 42   | 39   |
| SO22xxxCxCXx-3    | Discharge Air               | 95               | 90                | 92  | 91  | 91  | 91   | 86   | 85   | 72   |
|                   | Return Air                  | 81               | 84                | 90  | 80  | 77  | 74   | 71   | 71   | 53   |
|                   | Case Breakout               | 82               | 81                | 84  | 79  | 79  | 78   | 73   | 70   | 61   |
|                   | Sound Pressure @ 3m (9.8ft) | 64               | 63                | 67  | 61  | 61  | 60   | 55   | 52   | 43   |
| SO25xxxCxCXx-3    | Discharge Air               | 93               | 92                | 101 | 94  | 90  | 88   | 81   | 77   | 70   |
|                   | Return Air                  | 85               | 86                | 99  | 83  | 76  | 71   | 67   | 63   | 51   |
|                   | Case Breakout               | 82               | 82                | 93  | 82  | 78  | 75   | 68   | 62   | 59   |
|                   | Sound Pressure @ 3m (9.8ft) | 64               | 65                | 76  | 64  | 61  | 57   | 51   | 44   | 41   |
| SO31xxxCxCXx-3    | Discharge Air               | 94               | 93                | 102 | 94  | 91  | 89   | 82   | 78   | 70   |
|                   | Return Air                  | 85               | 87                | 100 | 84  | 77  | 72   | 68   | 63   | 52   |
|                   | Case Breakout               | 83               | 83                | 94  | 82  | 79  | 76   | 69   | 62   | 59   |
|                   | Sound Pressure @ 3m (9.8ft) | 65               | 66                | 77  | 65  | 61  | 58   | 52   | 45   | 42   |
| SO35xxxCxCXx-3    | Discharge Air               | 96               | 94                | 103 | 97  | 93  | 91   | 85   | 80   | 73   |
|                   | Return Air                  | 87               | 88                | 102 | 87  | 79  | 74   | 71   | 66   | 55   |
|                   | Case Breakout               | 85               | 85                | 96  | 85  | 81  | 78   | 72   | 65   | 62   |
|                   | Sound Pressure @ 3m (9.8ft) | 67               | 67                | 78  | 67  | 64  | 60   | 55   | 47   | 45   |
| SO09xxxCxDSx-3    | Discharge Air               | 85               | 83                | 84  | 82  | 80  | 81   | 77   | 73   | 62   |
|                   | Return Air                  | 72               | 77                | 83  | 71  | 66  | 64   | 63   | 58   | 43   |
|                   | Case Breakout               | 72               | 73                | 77  | 70  | 68  | 68   | 64   | 57   | 51   |
|                   | Sound Pressure @ 3m (9.8ft) | 54               | 55                | 59  | 52  | 50  | 50   | 47   | 40   | 33   |
| SO12xxxCxDSx-3    | Discharge Air               | 89               | 88                | 97  | 90  | 86  | 84   | 78   | 73   | 66   |
|                   | Return Air                  | 81               | 82                | 95  | 79  | 72  | 67   | 63   | 59   | 48   |
|                   | Case Breakout               | 78               | 78                | 89  | 78  | 74  | 71   | 65   | 58   | 55   |
|                   | Sound Pressure @ 3m (9.8ft) | 60               | 61                | 72  | 60  | 57  | 53   | 47   | 40   | 38   |

(1) dB(A) is the overall sound level, measured on the A scale

(2) All sound data measured at nominal conditions, Discharge Air, Return air and case breakout is sound power.

Sound measurements taken at design air volume, 25Pa (0.1inH<sub>2</sub>O) ESP.

## Technical Data

## Sound Data - 60Hz

| Sound Measurement |                             | Overall<br>dB(A) | Frequency (Hz) dB |     |     |     |      |      |      |      |
|-------------------|-----------------------------|------------------|-------------------|-----|-----|-----|------|------|------|------|
|                   |                             |                  | 63                | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| SO15xxxCxDSx-3    | Discharge Air               | 88               | 86                | 88  | 85  | 84  | 85   | 81   | 76   | 65   |
|                   | Return Air                  | 75               | 80                | 86  | 75  | 70  | 67   | 66   | 62   | 47   |
|                   | Case Breakout               | 75               | 76                | 80  | 73  | 72  | 71   | 68   | 61   | 54   |
|                   | Sound Pressure @ 3m (9.8ft) | 58               | 59                | 62  | 56  | 54  | 54   | 50   | 43   | 37   |
| SO18xxxCxDSx-3    | Discharge Air               | 89               | 90                | 97  | 89  | 85  | 85   | 77   | 73   | 65   |
|                   | Return Air                  | 80               | 84                | 95  | 78  | 71  | 67   | 62   | 58   | 46   |
|                   | Case Breakout               | 77               | 80                | 89  | 77  | 73  | 71   | 64   | 57   | 54   |
|                   | Sound Pressure @ 3m (9.8ft) | 60               | 63                | 72  | 59  | 56  | 53   | 46   | 40   | 36   |
| SO22xxxCxDSx-3    | Discharge Air               | 91               | 88                | 90  | 88  | 87  | 88   | 83   | 80   | 68   |
|                   | Return Air                  | 78               | 82                | 88  | 78  | 73  | 70   | 69   | 65   | 50   |
|                   | Case Breakout               | 78               | 79                | 82  | 76  | 75  | 74   | 70   | 64   | 57   |
|                   | Sound Pressure @ 3m (9.8ft) | 61               | 61                | 65  | 59  | 57  | 57   | 53   | 47   | 40   |
| SO25xxxCxDSx-3    | Discharge Air               | 91               | 92                | 99  | 91  | 87  | 86   | 79   | 75   | 66   |
|                   | Return Air                  | 82               | 86                | 97  | 80  | 73  | 69   | 64   | 60   | 48   |
|                   | Case Breakout               | 79               | 82                | 91  | 79  | 75  | 73   | 66   | 59   | 55   |
|                   | Sound Pressure @ 3m (9.8ft) | 62               | 64                | 74  | 61  | 58  | 55   | 48   | 42   | 38   |
| SO31xxxCxDSx-3    | Discharge Air               | 92               | 93                | 100 | 92  | 88  | 87   | 79   | 76   | 67   |
|                   | Return Air                  | 83               | 87                | 98  | 81  | 74  | 70   | 65   | 61   | 49   |
|                   | Case Breakout               | 80               | 83                | 92  | 80  | 76  | 74   | 66   | 60   | 56   |
|                   | Sound Pressure @ 3m (9.8ft) | 63               | 66                | 75  | 62  | 58  | 56   | 49   | 42   | 39   |
| SO35xxxCxDSx-3    | Discharge Air               | 93               | 93                | 101 | 94  | 90  | 89   | 81   | 77   | 70   |
|                   | Return Air                  | 85               | 87                | 100 | 83  | 76  | 71   | 67   | 63   | 51   |
|                   | Case Breakout               | 82               | 83                | 94  | 82  | 78  | 75   | 68   | 62   | 59   |
|                   | Sound Pressure @ 3m (9.8ft) | 64               | 66                | 76  | 64  | 61  | 58   | 51   | 44   | 41   |
| SO09xxxCxDXx-3    | Discharge Air               | 88               | 84                | 86  | 85  | 84  | 85   | 80   | 77   | 65   |
|                   | Return Air                  | 74               | 78                | 84  | 74  | 70  | 67   | 65   | 63   | 47   |
|                   | Case Breakout               | 75               | 75                | 78  | 73  | 72  | 71   | 67   | 62   | 54   |
|                   | Sound Pressure @ 3m (9.8ft) | 58               | 57                | 61  | 55  | 54  | 54   | 49   | 44   | 37   |
| SO12xxxCxDXx-3    | Discharge Air               | 92               | 90                | 99  | 93  | 89  | 87   | 82   | 77   | 70   |
|                   | Return Air                  | 83               | 84                | 97  | 83  | 75  | 69   | 67   | 62   | 51   |
|                   | Case Breakout               | 80               | 80                | 91  | 81  | 77  | 73   | 69   | 61   | 59   |
|                   | Sound Pressure @ 3m (9.8ft) | 63               | 63                | 74  | 64  | 60  | 56   | 51   | 44   | 41   |
| SO15xxxCxDXx-3    | Discharge Air               | 92               | 88                | 89  | 88  | 87  | 88   | 83   | 81   | 69   |
|                   | Return Air                  | 78               | 82                | 87  | 78  | 73  | 71   | 69   | 66   | 50   |
|                   | Case Breakout               | 79               | 78                | 81  | 76  | 75  | 75   | 70   | 65   | 58   |
|                   | Sound Pressure @ 3m (9.8ft) | 61               | 61                | 64  | 59  | 58  | 57   | 53   | 48   | 40   |
| SO18xxxCxDXx-3    | Discharge Air               | 92               | 90                | 99  | 92  | 89  | 87   | 80   | 76   | 68   |
|                   | Return Air                  | 83               | 84                | 98  | 81  | 75  | 69   | 65   | 61   | 50   |
|                   | Case Breakout               | 80               | 81                | 92  | 80  | 77  | 73   | 67   | 60   | 57   |
|                   | Sound Pressure @ 3m (9.8ft) | 63               | 63                | 74  | 62  | 59  | 56   | 49   | 43   | 40   |
| SO22xxxCxDXx-3    | Discharge Air               | 95               | 90                | 92  | 91  | 90  | 91   | 86   | 85   | 72   |
|                   | Return Air                  | 81               | 84                | 90  | 81  | 76  | 74   | 72   | 70   | 53   |
|                   | Case Breakout               | 82               | 81                | 84  | 79  | 78  | 78   | 73   | 69   | 61   |
|                   | Sound Pressure @ 3m (9.8ft) | 64               | 63                | 67  | 61  | 61  | 60   | 56   | 52   | 43   |
| SO25xxxCxDXx-3    | Discharge Air               | 93               | 92                | 101 | 94  | 90  | 89   | 81   | 78   | 70   |
|                   | Return Air                  | 85               | 86                | 100 | 83  | 76  | 71   | 67   | 63   | 52   |
|                   | Case Breakout               | 82               | 83                | 94  | 82  | 78  | 75   | 68   | 62   | 59   |
|                   | Sound Pressure @ 3m (9.8ft) | 64               | 65                | 76  | 64  | 61  | 58   | 51   | 45   | 42   |
| SO31xxxCxDXx-3    | Discharge Air               | 94               | 93                | 102 | 95  | 91  | 90   | 82   | 78   | 71   |
|                   | Return Air                  | 86               | 87                | 100 | 84  | 77  | 72   | 68   | 64   | 52   |
|                   | Case Breakout               | 83               | 84                | 94  | 83  | 79  | 76   | 69   | 63   | 60   |
|                   | Sound Pressure @ 3m (9.8ft) | 65               | 66                | 77  | 65  | 62  | 59   | 52   | 45   | 42   |
| SO35xxxCxDXx-3    | Discharge Air               | 96               | 95                | 104 | 97  | 94  | 91   | 85   | 81   | 74   |
|                   | Return Air                  | 88               | 89                | 102 | 87  | 80  | 74   | 70   | 66   | 55   |
|                   | Case Breakout               | 85               | 85                | 96  | 85  | 82  | 78   | 72   | 65   | 63   |
|                   | Sound Pressure @ 3m (9.8ft) | 67               | 67                | 79  | 68  | 64  | 60   | 54   | 48   | 45   |
| SO30xxxCxDSx-3    | Discharge Air               | 100              | 98                | 106 | 101 | 97  | 94   | 91   | 85   | 78   |
|                   | Return Air                  | 90               | 92                | 104 | 91  | 83  | 77   | 76   | 71   | 59   |
|                   | Case Breakout               | 88               | 89                | 98  | 89  | 85  | 81   | 78   | 70   | 67   |
|                   | Sound Pressure @ 3m (9.8ft) | 71               | 71                | 81  | 72  | 67  | 63   | 60   | 52   | 49   |
| SO40xxxCxDSx-3    | Discharge Air               | 101              | 100               | 107 | 103 | 98  | 96   | 93   | 87   | 79   |
|                   | Return Air                  | 92               | 94                | 106 | 92  | 84  | 78   | 78   | 72   | 61   |
|                   | Case Breakout               | 89               | 90                | 100 | 91  | 86  | 82   | 80   | 71   | 68   |
|                   | Sound Pressure @ 3m (9.8ft) | 72               | 73                | 82  | 73  | 68  | 65   | 62   | 54   | 51   |
| SO50xxxCxDSx-3    | Discharge Air               | 102              | 101               | 108 | 104 | 99  | 97   | 94   | 88   | 80   |
|                   | Return Air                  | 93               | 95                | 107 | 93  | 85  | 79   | 79   | 73   | 62   |
|                   | Case Breakout               | 90               | 91                | 101 | 92  | 87  | 83   | 81   | 72   | 69   |
|                   | Sound Pressure @ 3m (9.8ft) | 73               | 74                | 83  | 74  | 69  | 66   | 63   | 55   | 52   |
| SO60xxxCxDSx-3    | Discharge Air               | 103              | 101               | 110 | 105 | 100 | 98   | 94   | 88   | 81   |
|                   | Return Air                  | 94               | 95                | 108 | 94  | 86  | 80   | 79   | 74   | 62   |
|                   | Case Breakout               | 92               | 92                | 102 | 93  | 88  | 84   | 81   | 73   | 70   |
|                   | Sound Pressure @ 3m (9.8ft) | 74               | 74                | 85  | 75  | 71  | 67   | 63   | 55   | 52   |

(1) dB(A) is the overall sound level, measured on the A scale

(2) All sound data measured at nominal conditions, Discharge Air, Return air and case breakout is sound power.

Sound measurements taken at design air volume, 25Pa (0.1inH<sub>2</sub>O) ESP.

## Technical Data

## Mechanical and Electrical Data - 400V

|                                            | Notes | Units | SO09D004CLBSx-0 | SO12D006CLBSx-0 | SO15D007CLBSx-0 | SO18D009CLBSx-0 | SO22D011CLBSx-0 | SO25D013CLBSx-0 | SO31D017CLBSx-0 | SO35D019CLBSx-0 | SO09D004CLBXx-0 | SO12D006CLBXx-0 | SO15D009CLBXx-0 | SO18D010CLBXx-0 |
|--------------------------------------------|-------|-------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>Mechanical Data</b>                     |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| <b>Capacity</b>                            |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Nominal Cooling (Gross)                    | (1)   | kW    | 36.9            | 55.4            | 73.9            | 88.1            | 112.5           | 131.0           | 167.4           | 192.5           | 43.1            | 64.8            | 86.5            | 103.1           |
| Nominal Fan Power Input (Fan Gain)         |       | kW    | 1.08            | 1.71            | 2.28            | 2.60            | 3.71            | 3.97            | 5.15            | 6.05            | 1.40            | 2.35            | 3.01            | 3.51            |
| Nominal EER                                |       |       | 34.2            | 32.4            | 32.4            | 33.9            | 30.3            | 33.0            | 32.5            | 31.8            | 30.9            | 27.6            | 28.7            | 29.3            |
| Cooling (Gross) at Max. Airflow            | (2)   | kW    | 49.4            | 66.4            | 97.7            | 116.4           | 144.0           | 172.2           | 222.2           | 242.2           | 52.8            | 70.2            | 103.9           | 124.0           |
| Fan Power Input (Fan Gain) at Max. Airflow |       | kW    | 2.85            | 3.21            | 5.75            | 6.83            | 8.46            | 10.28           | 13.81           | 13.43           | 2.71            | 3.10            | 5.50            | 6.67            |
| EER at Max. Airflow                        |       |       | 17.3            | 20.7            | 17.0            | 17.0            | 17.0            | 16.8            | 16.1            | 18.0            | 19.4            | 22.7            | 18.9            | 18.6            |
| <b>Dimensions</b>                          |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Depth                                      |       | mm    | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             |
| Height                                     |       | mm    | 1980            | 1980            | 1980            | 1980            | 1980            | 1980            | 1980            | 1980            | 2280            | 2280            | 2280            | 2280            |
| Width                                      |       | mm    | 900             | 1200            | 1500            | 1800            | 2200            | 2500            | 3100            | 3500            | 900             | 1200            | 1500            | 1800            |
| Mass - Machine / Operating                 |       | kg    | 260 / 281       | 314 / 346       | 364 / 406       | 410 / 459       | 478 / 542       | 526 / 600       | 636 / 734       | 696 / 808       | 289 / 315       | 351 / 389       | 409 / 461       | 483 / 543       |
| <b>Unit</b>                                |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Water Volume                               |       | l     | 21.3            | 31.8            | 42.1            | 49.1            | 64.1            | 73.7            | 98.4            | 112.5           | 25.9            | 38.3            | 51.6            | 60.0            |
| Water Flow Rate                            |       | l/s   | 0.88            | 1.32            | 1.77            | 2.11            | 2.69            | 3.13            | 4.00            | 4.60            | 1.03            | 1.55            | 2.07            | 2.46            |
| Pressure Drop                              | (3)   | kPa   | 99.4            | 94.4            | 87.6            | 94.2            | 79.2            | 88.5            | 88.7            | 80.8            | 102.1           | 98.6            | 90.2            | 96.3            |
| <b>Fan Motor - Centrifugal</b>             |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Quantity x Motor Size                      |       | kW    | 1 x 3.95        | 1 x 3.70        | 2 x 3.95        | 2 x 3.70        | 3 x 3.95        | 3 x 3.70        | 4 x 3.70        | 4 x 3.70        | 1 x 3.95        | 1 x 3.70        | 2 x 3.95        | 2 x 3.70        |
| Speed @25Pa / Maximum ESP                  |       | rpm   | 1246 / 1780     | 1140 / 1420     | 1270 / 1780     | 1020 / 1420     | 1323 / 1780     | 1026 / 1420     | 1014 / 1420     | 1081 / 1420     | 1392 / 1780     | 1287 / 1420     | 1426 / 1780     | 1139 / 1420     |
| Maximum ESP                                |       | Pa    | 632             | 421             | 612             | 521             | 573             | 515             | 521             | 474             | 508             | 236             | 473             | 415             |
| Nominal Airflow                            | (1)   | m³/s  | 2.84            | 4.25            | 5.67            | 6.76            | 8.65            | 10.06           | 12.90           | 14.79           | 3.32            | 4.98            | 6.64            | 7.92            |
| Maximum Airflow                            | (2)   | m³/s  | 4.14            | 5.36            | 8.13            | 9.68            | 11.88           | 14.31           | 18.60           | 19.86           | 4.30            | 5.52            | 8.40            | 10.03           |
| <b>Electrical Data</b>                     |       |       | (1)             |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             |       | A     | 7               | 6.7             | 13              | 12.4            | 19              | 18.1            | 23.8            | 23.8            | 7               | 6.7             | 13              | 12.4            |
| Recommended Mains Fuse Size                |       | A     | 16              | 16              | 16              | 16              | 20              | 25              | 32              | 32              | 16              | 16              | 16              | 16              |
| Max Mains Incoming Cable Size              |       | mm²   | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              |
| <b>Fan and Motor</b>                       |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             | (5)   | A     | 6               | 5.7             | 6               | 5.7             | 6               | 5.7             | 5.7             | 5.7             | 6               | 5.7             | 6               | 5.7             |

(1) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow).

(2) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow), Max fan speed.

(3) Pressure drop through heat exchanger, control valve and unit pipework.

(4) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(5) Stated motor power is based on maximum electrical power absorbed.

## Technical Data

## Mechanical and Electrical Data - 400V

|                                            | Notes | Units | SO22D013CLBXx-0 | SO25D015CLBXx-0 | SO31D020CLBXx-0 | SO35D022CLBXx-0 | SO09D004CLCSx-0 | SO12D006CLCSx-0 | SO15D008CLCSx-0 | SO18D010CLCSx-0 | SO22D013CLCSx-0 | SO25D015CLCSx-0 | SO31D019CLCSx-0 | SO35D021CLCSx-0 |
|--------------------------------------------|-------|-------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>Mechanical Data</b>                     |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| <b>Capacity</b>                            |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Nominal Cooling (Gross)                    | (1)   | kW    | 132.0           | 152.7           | 196.8           | 224.9           | 41.1            | 61.6            | 82.2            | 98.0            | 125.5           | 145.4           | 186.9           | 214.2           |
| Nominal Fan Power Input (Fan Gain)         |       | kW    | 4.90            | 5.41            | 7.01            | 8.33            | 1.27            | 2.00            | 2.68            | 3.10            | 4.40            | 4.73            | 6.14            | 7.14            |
| Nominal EER                                |       |       | 26.9            | 28.2            | 28.1            | 27.0            | 32.2            | 30.8            | 30.7            | 31.6            | 28.5            | 30.7            | 30.4            | 30.0            |
| Cooling (Gross) at Max. Airflow            | (2)   | kW    | 153.0           | 182.5           | 237.8           | 256.3           | 53.8            | 72.2            | 106.3           | 125.9           | 157.0           | 186.1           | 241.4           | 262.8           |
| Fan Power Input (Fan Gain) at Max. Airflow |       | kW    | 8.01            | 10.04           | 13.53           | 13.08           | 2.97            | 3.34            | 5.99            | 7.00            | 8.92            | 10.52           | 14.09           | 13.84           |
| EER at Max. Airflow                        |       |       | 19.1            | 18.2            | 17.6            | 19.6            | 18.1            | 21.6            | 17.7            | 18.0            | 17.6            | 17.7            | 17.1            | 19.0            |
| <b>Dimensions</b>                          |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Depth                                      |       | mm    | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             |
| Height                                     |       | mm    | 2280            | 2280            | 2280            | 2280            | 1980            | 1980            | 1980            | 1980            | 1980            | 1980            | 1980            | 1980            |
| Width                                      |       | mm    | 2200            | 2500            | 3100            | 3500            | 900             | 1200            | 1500            | 1800            | 2200            | 2500            | 3100            | 3500            |
| Mass - Machine / Operating                 |       | kg    | 536 / 610       | 591 / 676       | 717 / 829       | 783 / 912       | 275 / 304       | 336 / 379       | 392 / 446       | 447 / 514       | 521 / 603       | 575 / 670       | 700 / 826       | 768 / 911       |
| <b>Unit</b>                                |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Water Volume                               |       | l     | 73.8            | 84.7            | 112.5           | 128.6           | 29.0            | 42.9            | 54.5            | 67.2            | 82.8            | 95.1            | 126.0           | 143.7           |
| Water Flow Rate                            |       | l/s   | 3.15            | 3.65            | 4.70            | 5.38            | 0.98            | 1.47            | 1.97            | 2.34            | 3.00            | 3.48            | 4.47            | 5.12            |
| Pressure Drop                              | (3)   | kPa   | 91.2            | 89.7            | 83.4            | 85.5            | 99.8            | 96.4            | 92.8            | 94.0            | 89.5            | 89.3            | 79.4            | 85.4            |
| <b>Fan Motor - Centrifugal</b>             |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Quantity x Motor Size                      |       | kW    | 3 x 3.95        | 3 x 3.70        | 4 x 3.70        | 4 x 3.70        | 1 x 3.95        | 1 x 3.70        | 2 x 3.95        | 2 x 3.70        | 3 x 3.95        | 3 x 3.70        | 4 x 3.70        | 4 x 3.70        |
| Speed @25Pa / Maximum ESP                  |       | rpm   | 1490 / 1780     | 1149 / 1420     | 1134 / 1420     | 1216 / 1420     | 1312 / 1780     | 1190 / 1420     | 1333 / 1780     | 1078 / 1420     | 1384 / 1780     | 1083 / 1420     | 1073 / 1420     | 1134 / 1420     |
| Maximum ESP                                |       | Pa    | 402             | 404             | 417             | 328             | 565             | 357             | 548             | 457             | 509             | 451             | 457             | 410             |
| Nominal Airflow                            | (1)   | m³/s  | 10.13           | 11.79           | 15.11           | 17.32           | 2.84            | 4.25            | 5.67            | 6.76            | 8.65            | 10.06           | 12.90           | 14.79           |
| Maximum Airflow                            | (2)   | m³/s  | 12.23           | 14.81           | 19.26           | 20.45           | 3.93            | 5.14            | 7.73            | 9.15            | 11.34           | 13.55           | 17.58           | 18.92           |
| <b>Electrical Data</b>                     |       |       | (1)             |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             |       | A     | 19              | 18.1            | 23.8            | 23.8            | 7               | 6.7             | 13              | 12.4            | 19              | 18.1            | 23.8            | 23.8            |
| Recommended Mains Fuse Size                |       | A     | 25              | 25              | 32              | 32              | 16              | 16              | 16              | 16              | 25              | 25              | 32              | 32              |
| Max Mains Incoming Cable Size              |       | mm²   | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              |
| <b>Fan and Motor</b>                       |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             | (5)   | A     | 6               | 5.7             | 5.7             | 5.7             | 6               | 5.7             | 6               | 5.7             | 6               | 5.7             | 5.7             | 5.7             |

(1) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow).

(2) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow), Max fan speed.

(3) Pressure drop through heat exchanger, control valve and unit pipework.

(4) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(5) Stated motor power is based on maximum electrical power absorbed.

## Technical Data

## Mechanical and Electrical Data - 400V

|                                            | Notes | Units | SO09D005CLCXx-0 | SO12D007CLCXx-0 | SO15D010CLCXx-0 | SO18D011CLCXx-0 | SO22D015CLCXx-0 | SO25D017CLCXx-0 | SO31D022CLCXx-0 | SO35D025CLCXx-0 | SO09D005CLDSx-0 | SO12D007CLDSx-0 | SO15D009CLDSx-0 | SO18D011CLDSx-0 |
|--------------------------------------------|-------|-------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>Mechanical Data</b>                     |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| <b>Capacity</b>                            |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Nominal Cooling (Gross)                    | (1)   | kW    | 48.1            | 72.0            | 96.2            | 114.6           | 146.3           | 169.8           | 218.5           | 250.0           | 45.0            | 67.3            | 90.1            | 107.0           |
| Nominal Fan Power Input (Fan Gain)         |       | kW    | 1.64            | 2.68            | 3.52            | 4.09            | 5.75            | 6.27            | 8.13            | 9.56            | 1.46            | 2.29            | 3.03            | 3.57            |
| Nominal EER                                |       |       | 29.3            | 26.8            | 27.4            | 28.1            | 25.4            | 27.1            | 26.9            | 26.1            | 30.8            | 29.4            | 29.8            | 30.0            |
| Cooling (Gross) at Max. Airflow            | (2)   | kW    | 57.6            | 76.3            | 113.2           | 134.6           | 166.1           | 198.3           | 257.8           | 278.4           | 57.2            | 76.6            | 113.5           | 133.7           |
| Fan Power Input (Fan Gain) at Max. Airflow |       | kW    | 2.87            | 3.23            | 5.80            | 6.86            | 8.55            | 10.33           | 13.88           | 13.52           | 3.02            | 3.40            | 6.07            | 7.06            |
| EER at Max. Airflow                        |       |       | 20.1            | 23.6            | 19.5            | 19.6            | 19.4            | 19.2            | 18.6            | 20.6            | 19.0            | 22.5            | 18.7            | 18.9            |
| <b>Dimensions</b>                          |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Depth                                      |       | mm    | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 1050            | 1050            | 1050            | 1050            |
| Height                                     |       | mm    | 2280            | 2280            | 2280            | 2280            | 2280            | 2280            | 2280            | 2280            | 1980            | 1980            | 1980            | 1980            |
| Width                                      |       | mm    | 900             | 1200            | 1500            | 1800            | 2200            | 2500            | 3100            | 3500            | 900             | 1200            | 1500            | 1800            |
| Mass - Machine / Operating                 |       | kg    | 307 / 340       | 376 / 426       | 442 / 508       | 522 / 599       | 586 / 682       | 656 / 771       | 790 / 935       | 874 / 1048      | 310 / 348       | 378 / 431       | 446 / 518       | 504 / 588       |
| <b>Unit</b>                                |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Water Volume                               |       | l     | 33.4            | 49.3            | 66.2            | 77.2            | 95.5            | 115.2           | 144.8           | 173.7           | 37.9            | 53.6            | 71.8            | 83.8            |
| Water Flow Rate                            |       | l/s   | 1.15            | 1.72            | 2.30            | 2.74            | 3.50            | 4.06            | 5.22            | 5.97            | 1.08            | 1.61            | 2.15            | 2.56            |
| Pressure Drop                              | (3)   | kPa   | 89.3            | 81.1            | 95.1            | 81.3            | 89.2            | 90.0            | 84.4            | 84.4            | 82.5            | 96.4            | 93.9            | 91.4            |
| <b>Fan Motor - Centrifugal</b>             |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Quantity x Motor Size                      |       | kW    | 1 x 3.95        | 1 x 3.70        | 2 x 3.95        | 2 x 3.70        | 3 x 3.95        | 3 x 3.70        | 4 x 3.70        | 4 x 3.70        | 1 x 3.95        | 1 x 3.70        | 2 x 3.95        | 2 x 3.70        |
| Speed @25Pa / Maximum ESP                  |       | rpm   | 1450 / 1780     | 1329 / 1420     | 1482 / 1780     | 1189 / 1420     | 1544 / 1780     | 1198 / 1420     | 1185 / 1420     | 1262 / 1420     | 1375 / 1780     | 1238 / 1420     | 1391 / 1780     | 1128 / 1420     |
| Maximum ESP                                |       | Pa    | 444             | 172             | 409             | 351             | 338             | 340             | 353             | 264             | 502             | 293             | 489             | 400             |
| Nominal Airflow                            | (1)   | m³/s  | 3.32            | 4.98            | 6.64            | 7.92            | 10.13           | 11.79           | 15.11           | 17.32           | 2.92            | 4.37            | 5.83            | 6.95            |
| Maximum Airflow                            | (2)   | m³/s  | 4.12            | 5.33            | 8.07            | 9.60            | 11.79           | 14.19           | 18.42           | 19.69           | 3.85            | 5.07            | 7.60            | 8.97            |
| <b>Electrical Data</b>                     |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             | (1)   | A     | 7               | 6.7             | 13              | 12.4            | 19              | 18.1            | 23.8            | 23.8            | 7               | 6.7             | 13              | 12.4            |
| Recommended Mains Fuse Size                |       | A     | 16              | 16              | 16              | 16              | 25              | 25              | 32              | 32              | 16              | 16              | 16              | 16              |
| Max Mains Incoming Cable Size              |       | mm²   | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              |
| <b>Fan and Motor</b>                       |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             | (5)   | A     | 6               | 5.7             | 6               | 5.7             | 6               | 5.7             | 5.7             | 5.7             | 6               | 5.7             | 6               | 5.7             |

(1) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow).

(2) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow), Max fan speed.

(3) Pressure drop through heat exchanger, control valve and unit pipework.

(4) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(5) Stated motor power is based on maximum electrical power absorbed.

## Technical Data

## Mechanical and Electrical Data - 400V

|                                            | Notes | Units | SO22D014CLDSx-0 | SO25D016CLDSx-0 | SO31D020CLDSx-0 | SO35D023CLDSx-0 | SO09D005CLDXx-0 | SO12D008CLDXx-0 | SO15D010CLDXx-0 | SO18D013CLDXx-0 | SO22D016CLDXx-0 | SO25D019CLDXx-0 | SO31D024CLDXx-0 | SO35D027CLDXx-0 |
|--------------------------------------------|-------|-------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>Mechanical Data</b>                     |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| <b>Capacity</b>                            |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Nominal Cooling (Gross)                    | (1)   | kW    | 137.2           | 159.5           | 205.0           | 234.4           | 52.5            | 77.8            | 104.4           | 125.3           | 159.9           | 186.2           | 238.5           | 272.2           |
| Nominal Fan Power Input (Fan Gain)         |       | kW    | 4.92            | 5.42            | 7.03            | 8.10            | 1.85            | 2.96            | 3.87            | 4.51            | 6.32            | 6.88            | 8.90            | 10.42           |
| Nominal EER                                |       |       | 27.9            | 29.4            | 29.1            | 28.9            | 28.4            | 26.3            | 27.0            | 27.8            | 25.3            | 27.1            | 26.8            | 26.1            |
| Cooling (Gross) at Max. Airflow            | (2)   | kW    | 168.1           | 198.6           | 257.7           | 280.3           | 61.5            | 80.7            | 120.6           | 144.3           | 178.8           | 213.4           | 276.6           | 297.7           |
| Fan Power Input (Fan Gain) at Max. Airflow |       | kW    | 9.15            | 10.61           | 14.19           | 14.03           | 2.96            | 3.30            | 5.92            | 6.95            | 8.88            | 10.45           | 14.02           | 13.72           |
| EER at Max. Airflow                        |       |       | 18.4            | 18.7            | 18.2            | 20.0            | 20.8            | 24.5            | 20.4            | 20.8            | 20.1            | 20.4            | 19.7            | 21.7            |
| <b>Dimensions</b>                          |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Depth                                      |       | mm    | 1050            | 1050            | 1050            | 1050            | 1050            | 1050            | 1050            | 1050            | 1050            | 1050            | 1050            | 1050            |
| Height                                     |       | mm    | 1980            | 1980            | 1980            | 1980            | 2280            | 2280            | 2280            | 2280            | 2280            | 2280            | 2280            | 2280            |
| Width                                      |       | mm    | 2200            | 2500            | 3100            | 3500            | 900             | 1200            | 1500            | 1800            | 2200            | 2500            | 3100            | 3500            |
| Mass - Machine / Operating                 |       | kg    | 590 / 693       | 667 / 792       | 800 / 965       | 879 / 1067      | 348 / 392       | 425 / 487       | 502 / 584       | 569 / 665       | 672 / 797       | 755 / 899       | 905 / 1093      | 996 / 1211      |
| <b>Unit</b>                                |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Water Volume                               |       | l     | 103.9           | 125.1           | 165.0           | 188.1           | 43.4            | 61.7            | 82.4            | 96.4            | 124.8           | 143.5           | 188.3           | 215.1           |
| Water Flow Rate                            |       | l/s   | 3.28            | 3.81            | 4.90            | 5.60            | 1.25            | 1.86            | 2.50            | 2.99            | 3.82            | 4.45            | 5.70            | 6.50            |
| Pressure Drop                              | (3)   | kPa   | 91.7            | 87.6            | 83.7            | 84.6            | 93.3            | 90.3            | 88.8            | 92.5            | 91.6            | 78.6            | 85.8            | 84.3            |
| <b>Fan Motor - Centrifugal</b>             |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Quantity x Motor Size                      |       | kW    | 3 x 3.95        | 3 x 3.70        | 4 x 3.70        | 4 x 3.70        | 1 x 3.95        | 1 x 3.70        | 2 x 3.95        | 2 x 3.70        | 3 x 3.95        | 3 x 3.70        | 4 x 3.70        | 4 x 3.70        |
| Speed @25Pa / Maximum ESP                  |       | rpm   | 1435 / 1780     | 1133 / 1420     | 1122 / 1420     | 1180 / 1420     | 1500 / 1780     | 1364 / 1420     | 1526 / 1780     | 1226 / 1420     | 1581 / 1780     | 1233 / 1420     | 1218 / 1420     | 1293 / 1420     |
| Maximum ESP                                |       | Pa    | 453             | 395             | 403             | 354             | 387             | 116             | 358             | 303             | 292             | 295             | 310             | 219             |
| Nominal Airflow                            | (1)   | m³/s  | 8.89            | 10.35           | 13.27           | 15.21           | 3.40            | 5.10            | 6.80            | 8.11            | 10.38           | 12.08           | 15.48           | 17.75           |
| Maximum Airflow                            | (2)   | m³/s  | 11.22           | 13.31           | 17.26           | 18.67           | 4.07            | 5.31            | 8.02            | 9.53            | 11.79           | 14.12           | 18.33           | 19.66           |
| <b>Electrical Data</b>                     |       |       | (1)             |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             |       | A     | 19              | 18.1            | 23.8            | 23.8            | 7               | 6.7             | 13              | 12.4            | 19              | 18.1            | 23.8            | 23.8            |
| Recommended Mains Fuse Size                |       | A     | 25              | 25              | 32              | 32              | 16              | 16              | 16              | 16              | 25              | 25              | 32              | 32              |
| Max Mains Incoming Cable Size              |       | mm²   | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              |
| <b>Fan and Motor</b>                       |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             | (5)   | A     | 6               | 5.7             | 5.7             | 5.7             | 6               | 5.7             | 6               | 5.7             | 6               | 5.7             | 5.7             | 5.7             |

(1) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow).

(2) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow), Max fan speed.

(3) Pressure drop through heat exchanger, control valve and unit pipework.

(4) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(5) Stated motor power is based on maximum electrical power absorbed.

## Technical Data

## Mechanical and Electrical Data - 400V

|                                            | Notes | Units | SO30D043CLDSx-0 | SO40D059CLDSx-0 | SO50D074CLDSx-0 | SO60D097CLDSx-0 | SO09D004CHBSx-0 | SO12D006CHBSx-0 | SO15D008CHBSx-0 | SO18D009CHBSx-0 | SO22D012CHBSx-0 | SO25D014CHBSx-0 | SO31D018CHBSx-0 | SO35D020CHBSx-0 |
|--------------------------------------------|-------|-------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>Mechanical Data</b>                     |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| <b>Capacity</b>                            |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Nominal Cooling (Gross)                    | (1)   | kW    | 430.0           | 590.2           | 739.5           | 965.9           | 39.0            | 58.5            | 77.7            | 92.7            | 118.4           | 137.4           | 176.3           | 201.8           |
| Nominal Fan Power Input (Fan Gain)         |       | kW    | 21.46           | 28.28           | 35.33           | 51.00           | 1.08            | 1.71            | 2.28            | 2.60            | 3.71            | 3.97            | 5.15            | 6.05            |
| Nominal EER                                |       |       | 20.0            | 20.9            | 20.9            | 18.9            | 36.1            | 34.2            | 34.0            | 35.7            | 31.9            | 34.6            | 34.3            | 33.4            |
| Cooling (Gross) at Max. Airflow            | (2)   | kW    | 430.1           | 590.4           | 739.9           | 966.0           | 52.6            | 70.5            | 103.4           | 123.3           | 152.4           | 181.8           | 235.8           | 255.3           |
| Fan Power Input (Fan Gain) at Max. Airflow |       | kW    | 21.48           | 28.31           | 35.35           | 51.03           | 2.85            | 3.21            | 5.75            | 6.83            | 8.46            | 10.28           | 13.81           | 13.43           |
| EER at Max. Airflow                        |       |       | 20.0            | 20.9            | 20.9            | 18.9            | 18.5            | 22.0            | 18.0            | 18.0            | 18.0            | 17.7            | 17.1            | 19.0            |
| <b>Dimensions</b>                          |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Depth                                      |       | mm    | 2200            | 2200            | 2200            | 2200            | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             |
| Height                                     |       | mm    | 2400            | 2400            | 2400            | 2400            | 1980            | 1980            | 1980            | 1980            | 1980            | 1980            | 1980            | 1980            |
| Width                                      |       | mm    | 3000            | 4000            | 5000            | 6000            | 900             | 1200            | 1500            | 1800            | 2200            | 2500            | 3100            | 3500            |
| Mass - Machine / Operating                 |       | kg    | 1815 / 2289     | 2362 / 3004     | 2956 / 3771     | 3561 / 4589     | 261 / 284       | 316 / 350       | 368 / 413       | 414 / 466       | 479 / 543       | 533 / 612       | 637 / 735       | 716 / 837       |
| <b>Unit</b>                                |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Water Volume                               |       | l     | 474.7           | 641.6           | 815.3           | 1028.8          | 22.5            | 33.4            | 45.2            | 52.4            | 64.2            | 78.7            | 98.5            | 120.9           |
| Water Flow Rate                            |       | l/s   | 10.28           | 14.10           | 17.67           | 23.08           | 1.16            | 1.75            | 2.32            | 2.77            | 3.54            | 4.10            | 5.27            | 6.03            |
| Pressure Drop                              | (3)   | kPa   | 62.3            | 78.7            | 64.5            | 74.6            | 58.6            | 55.3            | 47.1            | 52.1            | 48.7            | 47.1            | 56.1            | 42.1            |
| <b>Fan Motor - Centrifugal</b>             |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Quantity x Motor Size                      |       | kW    | 6 x 3.70        | 8 x 3.70        | 10 x 3.70       | 14 x 3.70       | 1 x 3.95        | 1 x 3.70        | 2 x 3.95        | 2 x 3.70        | 3 x 3.95        | 3 x 3.70        | 4 x 3.70        | 4 x 3.70        |
| Speed @25Pa / Maximum ESP                  |       | rpm   | 1417 / 1420     | 1418 / 1420     | 1418 / 1420     | 1418 / 1420     | 1247 / 1780     | 1140 / 1420     | 1270 / 1780     | 1020 / 1420     | 1323 / 1780     | 1026 / 1420     | 1014 / 1420     | 1081 / 1420     |
| Maximum ESP                                |       | Pa    | 27              | 27              | 26              | 26              | 629             | 421             | 612             | 521             | 573             | 515             | 521             | 474             |
| Nominal Airflow                            | (1)   | m³/s  | 24.62           | 33.58           | 42.09           | 55.46           | 2.84            | 4.25            | 5.67            | 6.76            | 8.65            | 10.06           | 12.90           | 14.79           |
| Maximum Airflow                            | (2)   | m³/s  | 24.63           | 33.59           | 42.10           | 55.47           | 4.14            | 5.36            | 8.13            | 9.68            | 11.88           | 14.31           | 18.60           | 19.86           |
| <b>Electrical Data</b>                     |       |       | (1)             |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             |       | A     | 35.2            | 46.6            | 58.0            | 80.8            | 7               | 6.7             | 13              | 12.4            | 19              | 18.1            | 23.8            | 23.8            |
| Recommended Mains Fuse Size                |       | A     | 40              | 63              | 80              | 100             | 16              | 16              | 16              | 16              | 25              | 25              | 32              | 32              |
| Max Mains Incoming Cable Size              |       | mm²   | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              |
| <b>Fan and Motor</b>                       |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             | (5)   | A     | 5.7             | 5.7             | 5.7             | 5.7             | 6               | 5.7             | 6               | 5.7             | 6               | 5.7             | 5.7             | 5.7             |

(1) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow).

(2) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow), Max fan speed.

(3) Pressure drop through heat exchanger, control valve and unit pipework.

(4) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(5) Stated motor power is based on maximum electrical power absorbed.

## Technical Data

## Mechanical and Electrical Data - 400V

|                                            | Notes | Units | SO09D005CHBXx-0 | SO12D007CHBXx-0 | SO15D009CHBXx-0 | SO18D011CHBXx-0 | SO22D014CHBXx-0 | SO25D016CHBXx-0 | SO31D021CHBXx-0 | SO35D024CHBXx-0 | SO09D004CHCSx-0 | SO12D006CHCSx-0 | SO15D009CHCSx-0 | SO18D010CHCSx-0 |
|--------------------------------------------|-------|-------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>Mechanical Data</b>                     |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| <b>Capacity</b>                            |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Nominal Cooling (Gross)                    | (1)   | kW    | 45.6            | 68.2            | 90.6            | 108.3           | 138.0           | 159.9           | 205.9           | 235.2           | 43.0            | 64.3            | 85.5            | 102.1           |
| Nominal Fan Power Input (Fan Gain)         |       | kW    | 1.40            | 2.35            | 3.01            | 3.51            | 4.90            | 5.41            | 7.01            | 8.33            | 1.27            | 2.00            | 2.68            | 3.10            |
| Nominal EER                                |       |       | 32.6            | 29.0            | 30.1            | 30.8            | 28.1            | 29.6            | 29.4            | 28.2            | 33.7            | 32.1            | 31.9            | 32.9            |
| Cooling (Gross) at Max. Airflow            | (2)   | kW    | 56.1            | 74.1            | 109.4           | 130.9           | 160.6           | 192.0           | 250.0           | 268.9           | 56.6            | 75.6            | 111.3           | 132.1           |
| Fan Power Input (Fan Gain) at Max. Airflow |       | kW    | 2.71            | 3.10            | 5.50            | 6.67            | 8.01            | 10.04           | 13.53           | 13.08           | 2.97            | 3.34            | 5.99            | 7.00            |
| EER at Max. Airflow                        |       |       | 20.7            | 23.9            | 19.9            | 19.6            | 20.0            | 19.1            | 18.5            | 20.6            | 19.1            | 22.7            | 18.6            | 18.9            |
| <b>Dimensions</b>                          |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Depth                                      |       | mm    | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             |
| Height                                     |       | mm    | 2280            | 2280            | 2280            | 2280            | 2280            | 2280            | 2280            | 2280            | 1980            | 1980            | 1980            | 1980            |
| Width                                      |       | mm    | 900             | 1200            | 1500            | 1800            | 2200            | 2500            | 3100            | 3500            | 900             | 1200            | 1500            | 1800            |
| Mass - Machine / Operating                 |       | kg    | 289 / 315       | 352 / 390       | 409 / 461       | 483 / 543       | 543 / 622       | 599 / 689       | 737 / 857       | 804 / 941       | 276 / 305       | 337 / 380       | 396 / 453       | 447 / 514       |
| <b>Unit</b>                                |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Water Volume                               |       | l     | 25.9            | 38.2            | 51.6            | 60.0            | 78.5            | 89.9            | 120.1           | 136.8           | 29.0            | 42.9            | 57.7            | 67.0            |
| Water Flow Rate                            |       | l/s   | 1.36            | 2.04            | 2.71            | 3.23            | 4.12            | 4.78            | 6.15            | 7.03            | 1.28            | 1.92            | 2.55            | 3.05            |
| Pressure Drop                              | (3)   | kPa   | 69.0            | 60.5            | 52.3            | 59.1            | 47.4            | 52.8            | 42.7            | 47.0            | 64.5            | 58.8            | 49.9            | 56.1            |
| <b>Fan Motor - Centrifugal</b>             |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Quantity x Motor Size                      |       | kW    | 1 x 3.95        | 1 x 3.70        | 2 x 3.95        | 2 x 3.70        | 3 x 3.95        | 3 x 3.70        | 4 x 3.70        | 4 x 3.70        | 1 x 3.95        | 1 x 3.70        | 2 x 3.95        | 2 x 3.70        |
| Speed @25Pa / Maximum ESP                  |       | rpm   | 1392 / 1780     | 1287 / 1420     | 1426 / 1780     | 1139 / 1420     | 1490 / 1780     | 1149 / 1420     | 1134 / 1420     | 1216 / 1420     | 1312 / 1780     | 1190 / 1420     | 1333 / 1780     | 1078 / 1420     |
| Maximum ESP                                |       | Pa    | 508             | 236             | 473             | 415             | 402             | 404             | 417             | 328             | 565             | 357             | 548             | 457             |
| Nominal Airflow                            | (1)   | m³/s  | 3.32            | 4.98            | 6.64            | 7.92            | 10.13           | 11.79           | 15.11           | 17.32           | 2.84            | 4.25            | 5.67            | 6.76            |
| Maximum Airflow                            | (2)   | m³/s  | 4.30            | 5.52            | 8.40            | 10.03           | 12.23           | 14.81           | 19.26           | 20.45           | 3.93            | 5.14            | 7.73            | 9.15            |
| <b>Electrical Data</b>                     |       |       | (1)             |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             |       | A     | 7               | 6.7             | 13              | 12.4            | 19              | 18.1            | 23.8            | 23.8            | 7               | 6.7             | 13              | 12.4            |
| Recommended Mains Fuse Size                |       | A     | 16              | 16              | 16              | 16              | 25              | 25              | 32              | 32              | 16              | 16              | 16              | 16              |
| Max Mains Incoming Cable Size              |       | mm²   | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              |
| <b>Fan and Motor</b>                       |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             | (5)   | A     | 6               | 5.7             | 6               | 5.7             | 6               | 5.7             | 5.7             | 5.7             | 6               | 5.7             | 6               | 5.7             |

(1) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow).

(2) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow), Max fan speed.

(3) Pressure drop through heat exchanger, control valve and unit pipework.

(4) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(5) Stated motor power is based on maximum electrical power absorbed.

## Technical Data

## Mechanical and Electrical Data - 400V

|                                            | Notes | Units | SO22D013CHCSx-0 | SO25D015CHCSx-0 | SO31D019CHCSx-0 | SO35D022CHCSx-0 | SO09D005CHCXx-0 | SO12D008CHCXx-0 | SO15D010CHCXx-0 | SO18D012CHCXx-0 | SO22D015CHCXx-0 | SO25D018CHCXx-0 | SO31D023CHCXx-0 | SO35D026CHCXx-0 |
|--------------------------------------------|-------|-------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>Mechanical Data</b>                     |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| <b>Capacity</b>                            |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Nominal Cooling (Gross)                    | (1)   | kW    | 130.2           | 151.1           | 194.0           | 222.7           | 50.3            | 75.1            | 99.7            | 119.1           | 151.8           | 175.9           | 226.6           | 260.8           |
| Nominal Fan Power Input (Fan Gain)         |       | kW    | 4.40            | 4.73            | 6.14            | 7.14            | 1.64            | 2.68            | 3.52            | 4.09            | 5.75            | 6.27            | 8.13            | 9.56            |
| Nominal EER                                |       |       | 29.6            | 31.9            | 31.6            | 31.2            | 30.6            | 28.0            | 28.4            | 29.1            | 26.4            | 28.1            | 27.9            | 27.3            |
| Cooling (Gross) at Max. Airflow            | (2)   | kW    | 164.0           | 194.5           | 252.5           | 274.7           | 60.5            | 79.7            | 117.7           | 140.4           | 172.8           | 206.0           | 268.3           | 291.3           |
| Fan Power Input (Fan Gain) at Max. Airflow |       | kW    | 8.92            | 10.52           | 14.09           | 13.84           | 2.87            | 3.23            | 5.80            | 6.86            | 8.55            | 10.33           | 13.88           | 13.52           |
| EER at Max. Airflow                        |       |       | 18.4            | 18.5            | 17.9            | 19.9            | 21.1            | 24.7            | 20.3            | 20.5            | 20.2            | 19.9            | 19.3            | 21.6            |
| <b>Dimensions</b>                          |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Depth                                      |       | mm    | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             |
| Height                                     |       | mm    | 1980            | 1980            | 1980            | 1980            | 2280            | 2280            | 2280            | 2280            | 2280            | 2280            | 2280            | 2280            |
| Width                                      |       | mm    | 2200            | 2500            | 3100            | 3500            | 900             | 1200            | 1500            | 1800            | 2200            | 2500            | 3100            | 3500            |
| Mass - Machine / Operating                 |       | kg    | 522 / 604       | 583 / 683       | 705 / 839       | 788 / 941       | 307 / 341       | 376 / 426       | 442 / 508       | 522 / 599       | 593 / 693       | 657 / 772       | 810 / 962       | 888 / 1062      |
| <b>Unit</b>                                |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Water Volume                               |       | l     | 82.7            | 100.4           | 133.3           | 152.3           | 33.4            | 49.2            | 66.0            | 77.0            | 100.2           | 115.1           | 152.2           | 173.5           |
| Water Flow Rate                            |       | l/s   | 3.89            | 4.51            | 5.80            | 6.65            | 1.50            | 2.24            | 2.98            | 3.56            | 4.53            | 5.25            | 6.77            | 7.79            |
| Pressure Drop                              | (3)   | kPa   | 50.9            | 49.3            | 56.6            | 46.8            | 58.3            | 51.8            | 55.3            | 47.6            | 49.7            | 56.7            | 45.3            | 56.5            |
| <b>Fan Motor - Centrifugal</b>             |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Quantity x Motor Size                      |       | kW    | 3 x 3.95        | 3 x 3.70        | 4 x 3.70        | 4 x 3.70        | 1 x 3.95        | 1 x 3.70        | 2 x 3.95        | 2 x 3.70        | 3 x 3.95        | 3 x 3.70        | 4 x 3.70        | 4 x 3.70        |
| Speed @25Pa / Maximum ESP                  |       | rpm   | 1384 / 1780     | 1083 / 1420     | 1073 / 1420     | 1134 / 1420     | 1450 / 1780     | 1329 / 1420     | 1482 / 1780     | 1189 / 1420     | 1544 / 1780     | 1198 / 1420     | 1185 / 1420     | 1262 / 1420     |
| Maximum ESP                                |       | Pa    | 509             | 451             | 457             | 410             | 444             | 172             | 409             | 351             | 338             | 340             | 353             | 264             |
| Nominal Airflow                            | (1)   | m³/s  | 8.65            | 10.06           | 12.90           | 14.79           | 3.32            | 4.98            | 6.64            | 7.92            | 10.13           | 11.79           | 15.11           | 17.32           |
| Maximum Airflow                            | (2)   | m³/s  | 11.34           | 13.55           | 17.58           | 18.92           | 4.12            | 5.33            | 8.07            | 9.60            | 11.79           | 14.19           | 18.42           | 19.69           |
| <b>Electrical Data</b>                     |       |       | (1)             |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             |       | A     | 19              | 18.1            | 23.8            | 23.8            | 7               | 6.7             | 13              | 12.4            | 19              | 18.1            | 23.8            | 23.8            |
| Recommended Mains Fuse Size                |       | A     | 25              | 25              | 32              | 32              | 16              | 16              | 16              | 16              | 25              | 25              | 32              | 32              |
| Max Mains Incoming Cable Size              |       | mm²   | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              |
| <b>Fan and Motor</b>                       |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             | (5)   | A     | 6               | 5.7             | 5.7             | 5.7             | 6               | 5.7             | 6               | 5.7             | 6               | 5.7             | 5.7             | 5.7             |

(1) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow).

(2) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow), Max fan speed.

(3) Pressure drop through heat exchanger, control valve and unit pipework.

(4) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(5) Stated motor power is based on maximum electrical power absorbed.

## Technical Data

## Mechanical and Electrical Data - 400V

|                                            | Notes | Units | SO09D005CHDSx-0 | SO12D007CHDSx-0 | SO15D009CHDSx-0 | SO18D011CHDSx-0 | SO22D014CHDSx-0 | SO25D016CHDSx-0 | SO31D021CHDSx-0 | SO35D024CHDSx-0 | SO09D005CHDXx-0 | SO12D008CHDXx-0 | SO15D011CHDXx-0 | SO18D013CHDXx-0 |
|--------------------------------------------|-------|-------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>Mechanical Data</b>                     |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| <b>Capacity</b>                            |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Nominal Cooling (Gross)                    | (1)   | kW    | 46.7            | 69.7            | 92.8            | 110.8           | 141.3           | 164.9           | 211.0           | 241.3           | 54.3            | 81.2            | 107.8           | 128.9           |
| Nominal Fan Power Input (Fan Gain)         |       | kW    | 1.46            | 2.29            | 3.03            | 3.57            | 4.92            | 5.42            | 7.03            | 8.10            | 1.85            | 2.96            | 3.87            | 4.51            |
| Nominal EER                                |       |       | 31.9            | 30.5            | 30.7            | 31.0            | 28.7            | 30.4            | 30.0            | 29.8            | 29.4            | 27.4            | 27.9            | 28.6            |
| Cooling (Gross) at Max. Airflow            | (2)   | kW    | 59.7            | 79.6            | 117.5           | 139.2           | 173.9           | 206.4           | 266.5           | 289.9           | 63.8            | 84.1            | 124.9           | 148.9           |
| Fan Power Input (Fan Gain) at Max. Airflow |       | kW    | 3.02            | 3.40            | 6.07            | 7.06            | 9.15            | 10.61           | 14.19           | 14.03           | 2.96            | 3.30            | 5.92            | 6.95            |
| EER at Max. Airflow                        |       |       | 19.8            | 23.4            | 19.4            | 19.7            | 19.0            | 19.5            | 18.8            | 20.7            | 21.6            | 25.5            | 21.1            | 21.4            |
| <b>Dimensions</b>                          |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Depth                                      |       | mm    | 1050            | 1050            | 1050            | 1050            | 1050            | 1050            | 1050            | 1050            | 1050            | 1050            | 1050            | 1050            |
| Height                                     |       | mm    | 1980            | 1980            | 1980            | 1980            | 1980            | 1980            | 1980            | 1980            | 2280            | 2280            | 2280            | 2280            |
| Width                                      |       | mm    | 900             | 1200            | 1500            | 1800            | 2200            | 2500            | 3100            | 3500            | 900             | 1200            | 1500            | 1800            |
| Mass - Machine / Operating                 |       | kg    | 309 / 345       | 379 / 432       | 446 / 518       | 504 / 588       | 597 / 705       | 668 / 793       | 814 / 979       | 894 / 1082      | 349 / 393       | 430 / 495       | 502 / 584       | 576 / 677       |
| <b>Unit</b>                                |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Water Volume                               |       | l     | 36.4            | 53.6            | 71.8            | 83.8            | 108.7           | 124.8           | 164.6           | 187.8           | 43.4            | 65.0            | 82.3            | 101.3           |
| Water Flow Rate                            |       | l/s   | 1.39            | 2.08            | 2.77            | 3.31            | 4.22            | 4.93            | 6.30            | 7.21            | 1.62            | 2.42            | 3.22            | 3.85            |
| Pressure Drop                              | (3)   | kPa   | 70.7            | 61.2            | 52.4            | 59.7            | 46.6            | 52.0            | 42.5            | 47.1            | 53.5            | 47.6            | 59.3            | 44.2            |
| <b>Fan Motor - Centrifugal</b>             |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Quantity x Motor Size                      |       | kW    | 1 x 3.95        | 1 x 3.70        | 2 x 3.95        | 2 x 3.70        | 3 x 3.95        | 3 x 3.70        | 4 x 3.70        | 4 x 3.70        | 1 x 3.95        | 1 x 3.70        | 2 x 3.95        | 2 x 3.70        |
| Speed @25Pa / Maximum ESP                  |       | rpm   | 1375 / 1780     | 1238 / 1420     | 1391 / 1780     | 1128 / 1420     | 1435 / 1780     | 1133 / 1420     | 1122 / 1420     | 1180 / 1420     | 1500 / 1780     | 1364 / 1420     | 1526 / 1780     | 1226 / 1420     |
| Maximum ESP                                |       | Pa    | 502             | 293             | 489             | 400             | 453             | 395             | 403             | 354             | 387             | 116             | 358             | 303             |
| Nominal Airflow                            | (1)   | m³/s  | 2.92            | 4.37            | 5.83            | 6.95            | 8.89            | 10.35           | 13.27           | 15.21           | 3.40            | 5.10            | 6.80            | 8.11            |
| Maximum Airflow                            | (2)   | m³/s  | 3.85            | 5.07            | 7.60            | 8.97            | 11.22           | 13.31           | 17.26           | 18.67           | 4.07            | 5.31            | 8.02            | 9.53            |
| <b>Electrical Data</b>                     |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             | (1)   | A     | 7               | 6.7             | 13              | 12.4            | 19              | 18.1            | 23.8            | 23.8            | 7               | 6.7             | 13              | 12.4            |
| Recommended Mains Fuse Size                |       | A     | 16              | 16              | 16              | 16              | 20              | 25              | 32              | 32              | 16              | 16              | 16              | 16              |
| Max Mains Incoming Cable Size              |       | mm²   | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              |
| <b>Fan and Motor</b>                       |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             | (5)   | A     | 6               | 5.7             | 6               | 5.7             | 6               | 5.7             | 5.7             | 5.7             | 6               | 5.7             | 6               | 5.7             |

(1) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow).

(2) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow), Max fan speed.

(3) Pressure drop through heat exchanger, control valve and unit pipework.

(4) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(5) Stated motor power is based on maximum electrical power absorbed.

## Technical Data

## Mechanical and Electrical Data - 400V

|                                            | Notes | Units | SO22D016CHDXx-0 | SO25D019CHDXx-0 | SO31D025CHDXx-0 | SO35D028CHDXx-0 | SO30D045CHDSx-0 | SO40D061CHDSx-0 | SO50D077CHDSx-0 | SO60D101CHDSx-0 |
|--------------------------------------------|-------|-------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>Mechanical Data</b>                     |       |       |                 |                 |                 |                 |                 |                 |                 |                 |
| <b>Capacity</b>                            |       |       |                 |                 |                 |                 |                 |                 |                 |                 |
| Nominal Cooling (Gross)                    | (1)   | kW    | 164.3           | 192.0           | 245.2           | 281.0           | 445.2           | 609.3           | 765.1           | 1005.2          |
| Nominal Fan Power Input (Fan Gain)         |       | kW    | 6.32            | 6.88            | 8.90            | 10.42           | 21.46           | 28.28           | 35.33           | 51.00           |
| Nominal EER                                |       |       | 26.0            | 27.9            | 27.5            | 27.0            | 20.7            | 21.5            | 21.7            | 19.7            |
| Cooling (Gross) at Max. Airflow            | (2)   | kW    | 184.2           | 220.6           | 285.1           | 308.1           | 445.2           | 609.5           | 765.3           | 1005.4          |
| Fan Power Input (Fan Gain) at Max. Airflow |       | kW    | 8.88            | 10.45           | 14.02           | 13.72           | 21.48           | 28.31           | 35.35           | 51.03           |
| EER at Max. Airflow                        |       |       | 20.7            | 21.1            | 20.3            | 22.5            | 20.7            | 21.5            | 21.7            | 19.7            |
| <b>Dimensions</b>                          |       |       |                 |                 |                 |                 |                 |                 |                 |                 |
| Depth                                      |       | mm    | 1050            | 1050            | 1050            | 1050            | 2200            | 2200            | 2200            | 2200            |
| Height                                     |       | mm    | 2280            | 2280            | 2280            | 2280            | 2400            | 2400            | 2400            | 2400            |
| Width                                      |       | mm    | 2200            | 2500            | 3100            | 3500            | 3000            | 4000            | 5000            | 6000            |
| Mass - Machine / Operating                 |       | kg    | 673 / 798       | 770 / 913       | 920 / 1108      | 1010 / 1225     | 1815 / 2289     | 2503 / 3184     | 3052 / 3914     | 3571 / 4600     |
| <b>Unit</b>                                |       |       |                 |                 |                 |                 |                 |                 |                 |                 |
| Water Volume                               |       | l     | 124.6           | 143.2           | 188.2           | 214.9           | 474.5           | 681.2           | 861.8           | 1028.7          |
| Water Flow Rate                            |       | l/s   | 4.91            | 5.73            | 7.32            | 8.39            | 13.30           | 18.20           | 22.85           | 30.02           |
| Pressure Drop                              | (3)   | kPa   | 53.1            | 43.4            | 47.7            | 56.3            | 69.4            | 60.2            | 55.5            | 83.4            |
| <b>Fan Motor - Centrifugal</b>             |       |       |                 |                 |                 |                 |                 |                 |                 |                 |
| Quantity x Motor Size                      |       | kW    | 3 x 3.95        | 3 x 3.70        | 4 x 3.70        | 4 x 3.70        | 6 x 3.70        | 8 x 3.70        | 10 x 3.70       | 14 x 3.70       |
| Speed @25Pa / Maximum ESP                  |       | rpm   | 1581 / 1780     | 1233 / 1420     | 1218 / 1420     | 1293 / 1420     | 1417 / 1420     | 1418 / 1420     | 1418 / 1420     | 1418 / 1420     |
| Maximum ESP                                |       | Pa    | 292             | 295             | 310             | 219             | 27              | 27              | 26              | 26              |
| Nominal Airflow                            | (1)   | m³/s  | 10.38           | 12.08           | 15.48           | 17.75           | 24.62           | 33.58           | 42.09           | 55.46           |
| Maximum Airflow                            | (2)   | m³/s  | 11.79           | 14.12           | 18.33           | 19.66           | 24.63           | 33.59           | 42.10           | 55.47           |

|                               |     |     |    |      |      |      |      |      |      |      |
|-------------------------------|-----|-----|----|------|------|------|------|------|------|------|
| <b>Electrical Data</b>        | (1) |     |    |      |      |      |      |      |      |      |
| Full Load Amps                |     | A   | 19 | 18.1 | 23.8 | 23.8 | 35.2 | 46.6 | 58.0 | 80.8 |
| Recommended Mains Fuse Size   |     | A   | 25 | 25   | 32   | 32   | 40   | 63   | 80   | 100  |
| Max Mains Incoming Cable Size |     | mm² | 35 | 35   | 35   | 35   | 35   | 35   | 35   | 35   |
| <b>Fan and Motor</b>          |     |     |    |      |      |      |      |      |      |      |
| Full Load Amps                | (5) | A   | 6  | 5.7  | 5.7  | 5.7  | 5.7  | 5.7  | 5.7  | 5.7  |

(1) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow).

(2) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow), Max fan speed.

(3) Pressure drop through heat exchanger, control valve and unit pipework.

(4) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(5) Stated motor power is based on maximum electrical power absorbed.

## Technical Data

## Mechanical and Electrical Data - 380V

|                                            | Notes | Units | SO09D004CLBSx-A | SO12D006CLBSx-A | SO15D007CLBSx-A | SO18D009CLBSx-A | SO22D011CLBSx-A | SO25D013CLBSx-A | SO31D017CLBSx-A | SO35D019CLBSx-A | SO09D004CLBXx-A | SO12D006CLBXx-A | SO15D009CLBXx-A | SO18D010CLBXx-A |
|--------------------------------------------|-------|-------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>Mechanical Data</b>                     |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| <b>Capacity</b>                            |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Nominal Cooling (Gross)                    | (1)   | kW    | 36.9            | 55.4            | 73.9            | 88.1            | 112.5           | 131.0           | 167.4           | 192.5           | 43.1            | 64.8            | 86.5            | 103.1           |
| Nominal Fan Power Input (Fan Gain)         |       | kW    | 1.08            | 1.71            | 2.28            | 2.60            | 3.71            | 3.97            | 5.15            | 6.05            | 1.40            | 2.35            | 3.01            | 3.51            |
| Nominal EER                                |       |       | 34.2            | 32.4            | 32.4            | 33.9            | 30.3            | 33.0            | 32.5            | 31.8            | 30.9            | 27.6            | 28.7            | 29.3            |
| Cooling (Gross) at Max. Airflow            | (2)   | kW    | 49.4            | 66.4            | 97.7            | 116.4           | 144.0           | 172.2           | 222.2           | 242.2           | 52.8            | 70.2            | 103.9           | 124.0           |
| Fan Power Input (Fan Gain) at Max. Airflow |       | kW    | 2.85            | 3.21            | 5.75            | 6.83            | 8.46            | 10.28           | 13.81           | 13.43           | 2.71            | 3.10            | 5.50            | 6.67            |
| EER at Max. Airflow                        |       |       | 17.3            | 20.7            | 17.0            | 17.0            | 17.0            | 16.8            | 16.1            | 18.0            | 19.4            | 22.7            | 18.9            | 18.6            |
| <b>Dimensions</b>                          |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Depth                                      |       | mm    | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             |
| Height                                     |       | mm    | 1980            | 1980            | 1980            | 1980            | 1980            | 1980            | 1980            | 1980            | 2280            | 2280            | 2280            | 2280            |
| Width                                      |       | mm    | 900             | 1200            | 1500            | 1800            | 2200            | 2500            | 3100            | 3500            | 900             | 1200            | 1500            | 1800            |
| Mass - Machine / Operating                 |       | kg    | 260 / 281       | 314 / 346       | 364 / 406       | 410 / 459       | 478 / 542       | 526 / 600       | 636 / 734       | 696 / 808       | 289 / 315       | 351 / 389       | 409 / 461       | 483 / 543       |
| <b>Unit</b>                                |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Water Volume                               |       | l     | 21.3            | 31.8            | 42.1            | 49.1            | 64.1            | 73.7            | 98.4            | 112.5           | 25.9            | 38.3            | 51.6            | 60.0            |
| Water Flow Rate                            |       | l/s   | 0.88            | 1.32            | 1.77            | 2.11            | 2.69            | 3.13            | 4.00            | 4.60            | 1.03            | 1.55            | 2.07            | 2.46            |
| Pressure Drop                              | (3)   | kPa   | 99.4            | 94.4            | 87.6            | 94.2            | 79.2            | 88.5            | 88.7            | 80.8            | 102.1           | 98.6            | 90.2            | 96.3            |
| <b>Fan Motor - Centrifugal</b>             |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Quantity x Motor Size                      |       | kW    | 1 x 3.95        | 1 x 3.70        | 2 x 3.95        | 2 x 3.70        | 3 x 3.95        | 3 x 3.70        | 4 x 3.70        | 4 x 3.70        | 1 x 3.95        | 1 x 3.70        | 2 x 3.95        | 2 x 3.70        |
| Speed @25Pa / Maximum ESP                  |       | rpm   | 1246 / 1780     | 1140 / 1420     | 1270 / 1780     | 1020 / 1420     | 1323 / 1780     | 1026 / 1420     | 1014 / 1420     | 1081 / 1420     | 1392 / 1780     | 1287 / 1420     | 1426 / 1780     | 1139 / 1420     |
| Maximum ESP                                |       | Pa    | 632             | 421             | 612             | 521             | 573             | 515             | 521             | 474             | 508             | 236             | 473             | 415             |
| Nominal Airflow                            | (1)   | m³/s  | 2.84            | 4.25            | 5.67            | 6.76            | 8.65            | 10.06           | 12.90           | 14.79           | 3.32            | 4.98            | 6.64            | 7.92            |
| Maximum Airflow                            | (2)   | m³/s  | 4.14            | 5.36            | 8.13            | 9.68            | 11.88           | 14.31           | 18.60           | 19.86           | 4.30            | 5.52            | 8.40            | 10.03           |
| <b>Electrical Data</b>                     |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             | (1)   | A     | 7.4             | 6.9             | 3.8             | 12.8            | 20.2            | 18.7            | 24.6            | 24.6            | 7.4             | 6.9             | 3.8             | 12.8            |
| Recommended Mains Fuse Size                |       | A     | 16              | 16              | 16              | 16              | 25              | 25              | 32              | 32              | 16              | 16              | 16              | 16              |
| Max Mains Incoming Cable Size              |       | mm²   | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              |
| <b>Fan and Motor</b>                       |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             | (5)   | A     | 6.4             | 5.9             | 6.4             | 5.9             | 6.4             | 5.9             | 5.9             | 5.9             | 6.4             | 5.9             | 6.4             | 5.9             |

(1) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow).

(2) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow), Max fan speed.

(3) Pressure drop through heat exchanger, control valve and unit pipework.

(4) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(5) Stated motor power is based on maximum electrical power absorbed.

## Technical Data

## Mechanical and Electrical Data - 380V

|                                            | Notes | Units | SO22D013CLBXx-A | SO25D015CLBXx-A | SO31D020CLBXx-A | SO35D022CLBXx-A | SO09D004CLCSx-A | SO12D006CLCSx-A | SO15D008CLCSx-A | SO18D010CLCSx-A | SO22D013CLCSx-A | SO25D015CLCSx-A | SO31D019CLCSx-A | SO35D021CLCSx-A |
|--------------------------------------------|-------|-------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>Mechanical Data</b>                     |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| <b>Capacity</b>                            |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Nominal Cooling (Gross)                    | (1)   | kW    | 132.0           | 152.7           | 196.8           | 224.9           | 41.1            | 61.6            | 82.2            | 98.0            | 125.5           | 145.4           | 186.9           | 214.2           |
| Nominal Fan Power Input (Fan Gain)         |       | kW    | 4.90            | 5.41            | 7.01            | 8.33            | 1.27            | 2.00            | 2.68            | 3.10            | 4.40            | 4.73            | 6.14            | 7.14            |
| Nominal EER                                |       |       | 26.9            | 28.2            | 28.1            | 27.0            | 32.2            | 30.8            | 30.7            | 31.6            | 28.5            | 30.7            | 30.4            | 30.0            |
| Cooling (Gross) at Max. Airflow            | (2)   | kW    | 153.0           | 182.5           | 237.8           | 256.3           | 53.8            | 72.2            | 106.3           | 125.9           | 157.0           | 186.1           | 241.4           | 262.8           |
| Fan Power Input (Fan Gain) at Max. Airflow |       | kW    | 8.01            | 10.04           | 13.53           | 13.08           | 2.97            | 3.34            | 5.99            | 7.00            | 8.92            | 10.52           | 14.09           | 13.84           |
| EER at Max. Airflow                        |       |       | 19.1            | 18.2            | 17.6            | 19.6            | 18.1            | 21.6            | 17.7            | 18.0            | 17.6            | 17.7            | 17.1            | 19.0            |
| <b>Dimensions</b>                          |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Depth                                      |       | mm    | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             |
| Height                                     |       | mm    | 2280            | 2280            | 2280            | 2280            | 1980            | 1980            | 1980            | 1980            | 1980            | 1980            | 1980            | 1980            |
| Width                                      |       | mm    | 2200            | 2500            | 3100            | 3500            | 900             | 1200            | 1500            | 1800            | 2200            | 2500            | 3100            | 3500            |
| Mass - Machine / Operating                 |       | kg    | 536 / 610       | 591 / 676       | 717 / 829       | 783 / 912       | 275 / 304       | 336 / 379       | 392 / 446       | 447 / 514       | 521 / 603       | 575 / 670       | 700 / 826       | 768 / 911       |
| <b>Unit</b>                                |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Water Volume                               |       | l     | 73.8            | 84.7            | 112.5           | 128.6           | 29.0            | 42.9            | 54.5            | 67.2            | 82.8            | 95.1            | 126.0           | 143.7           |
| Water Flow Rate                            |       | l/s   | 3.15            | 3.65            | 4.70            | 5.38            | 0.98            | 1.47            | 1.97            | 2.34            | 3.00            | 3.48            | 4.47            | 5.12            |
| Pressure Drop                              | (3)   | kPa   | 91.2            | 89.7            | 83.4            | 85.5            | 99.8            | 96.4            | 92.8            | 94.0            | 89.5            | 89.3            | 79.4            | 85.4            |
| <b>Fan Motor - Centrifugal</b>             |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Quantity x Motor Size                      |       | kW    | 3 x 3.95        | 3 x 3.70        | 4 x 3.70        | 4 x 3.70        | 1 x 3.95        | 1 x 3.70        | 2 x 3.95        | 2 x 3.70        | 3 x 3.95        | 3 x 3.70        | 4 x 3.70        | 4 x 3.70        |
| Speed @25Pa / Maximum ESP                  |       | rpm   | 1490 / 1780     | 1149 / 1420     | 1134 / 1420     | 1216 / 1420     | 1312 / 1780     | 1190 / 1420     | 1333 / 1780     | 1078 / 1420     | 1384 / 1780     | 1083 / 1420     | 1073 / 1420     | 1134 / 1420     |
| Maximum ESP                                |       | Pa    | 402             | 404             | 417             | 328             | 565             | 357             | 548             | 457             | 509             | 451             | 457             | 410             |
| Nominal Airflow                            | (1)   | m³/s  | 10.13           | 11.79           | 15.11           | 17.32           | 2.84            | 4.25            | 5.67            | 6.76            | 8.65            | 10.06           | 12.90           | 14.79           |
| Maximum Airflow                            | (2)   | m³/s  | 12.23           | 14.81           | 19.26           | 20.45           | 3.93            | 5.14            | 7.73            | 9.15            | 11.34           | 13.55           | 17.58           | 18.92           |
| <b>Electrical Data</b>                     |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             | (1)   | A     | 20.2            | 18.7            | 24.6            | 24.6            | 7.4             | 6.9             | 3.8             | 12.8            | 20.2            | 18.7            | 24.6            | 24.6            |
| Recommended Mains Fuse Size                |       | A     | 25              | 25              | 32              | 32              | 16              | 16              | 16              | 16              | 25              | 25              | 32              | 32              |
| Max Mains Incoming Cable Size              |       | mm²   | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              |
| <b>Fan and Motor</b>                       |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             | (5)   | A     | 6.4             | 5.9             | 5.9             | 5.9             | 6.4             | 5.9             | 6.4             | 5.9             | 6.4             | 5.9             | 5.9             | 5.9             |

(1) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow).

(2) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow), Max fan speed.

(3) Pressure drop through heat exchanger, control valve and unit pipework.

(4) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(5) Stated motor power is based on maximum electrical power absorbed.

## Technical Data

## Mechanical and Electrical Data - 380V

|                                            | Notes | Units | SO09D005CLCXx-A | SO12D007CLCXx-A | SO15D010CLCXx-A | SO18D011CLCXx-A | SO22D015CLCXx-A | SO25D017CLCXx-A | SO31D022CLCXx-A | SO35D025CLCXx-A | SO09D005CLDSx-A | SO12D007CLDSx-A | SO15D009CLDSx-A | SO18D011CLDSx-A |
|--------------------------------------------|-------|-------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>Mechanical Data</b>                     |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| <b>Capacity</b>                            |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Nominal Cooling (Gross)                    | (1)   | kW    | 48.1            | 72.0            | 96.2            | 114.6           | 146.3           | 169.8           | 218.5           | 250.0           | 45.0            | 67.3            | 90.1            | 107.0           |
| Nominal Fan Power Input (Fan Gain)         |       | kW    | 1.64            | 2.68            | 3.52            | 4.09            | 5.75            | 6.27            | 8.13            | 9.56            | 1.46            | 2.29            | 3.03            | 3.57            |
| Nominal EER                                |       |       | 29.3            | 26.8            | 27.4            | 28.1            | 25.4            | 27.1            | 26.9            | 26.1            | 30.8            | 29.4            | 29.8            | 30.0            |
| Cooling (Gross) at Max. Airflow            | (2)   | kW    | 57.6            | 76.3            | 113.2           | 134.6           | 166.1           | 198.3           | 257.8           | 278.4           | 57.2            | 76.6            | 113.5           | 133.7           |
| Fan Power Input (Fan Gain) at Max. Airflow |       | kW    | 2.87            | 3.23            | 5.80            | 6.86            | 8.55            | 10.33           | 13.88           | 13.52           | 3.02            | 3.40            | 6.07            | 7.06            |
| EER at Max. Airflow                        |       |       | 20.1            | 23.6            | 19.5            | 19.6            | 19.4            | 19.2            | 18.6            | 20.6            | 19.0            | 22.5            | 18.7            | 18.9            |
| <b>Dimensions</b>                          |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Depth                                      |       | mm    | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 1050            | 1050            | 1050            | 1050            |
| Height                                     |       | mm    | 2280            | 2280            | 2280            | 2280            | 2280            | 2280            | 2280            | 2280            | 1980            | 1980            | 1980            | 1980            |
| Width                                      |       | mm    | 900             | 1200            | 1500            | 1800            | 2200            | 2500            | 3100            | 3500            | 900             | 1200            | 1500            | 1800            |
| Mass - Machine / Operating                 |       | kg    | 307 / 340       | 376 / 426       | 442 / 508       | 522 / 599       | 586 / 682       | 656 / 771       | 790 / 935       | 874 / 1048      | 310 / 348       | 378 / 431       | 446 / 518       | 504 / 588       |
| <b>Unit</b>                                |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Water Volume                               |       | l     | 33.4            | 49.3            | 66.2            | 77.2            | 95.5            | 115.2           | 144.8           | 173.7           | 37.9            | 53.6            | 71.8            | 83.8            |
| Water Flow Rate                            |       | l/s   | 1.15            | 1.72            | 2.30            | 2.74            | 3.50            | 4.06            | 5.22            | 5.97            | 1.08            | 1.61            | 2.15            | 2.56            |
| Pressure Drop                              | (3)   | kPa   | 89.3            | 81.1            | 95.1            | 81.3            | 89.2            | 90.0            | 84.4            | 84.4            | 82.5            | 96.4            | 93.9            | 91.4            |
| <b>Fan Motor - Centrifugal</b>             |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Quantity x Motor Size                      |       | kW    | 1 x 3.95        | 1 x 3.70        | 2 x 3.95        | 2 x 3.70        | 3 x 3.95        | 3 x 3.70        | 4 x 3.70        | 4 x 3.70        | 1 x 3.95        | 1 x 3.70        | 2 x 3.95        | 2 x 3.70        |
| Speed @25Pa / Maximum ESP                  |       | rpm   | 1450 / 1780     | 1329 / 1420     | 1482 / 1780     | 1189 / 1420     | 1544 / 1780     | 1198 / 1420     | 1185 / 1420     | 1262 / 1420     | 1375 / 1780     | 1238 / 1420     | 1391 / 1780     | 1128 / 1420     |
| Maximum ESP                                |       | Pa    | 444             | 172             | 409             | 351             | 338             | 340             | 353             | 264             | 502             | 293             | 489             | 400             |
| Nominal Airflow                            | (1)   | m³/s  | 3.32            | 4.98            | 6.64            | 7.92            | 10.13           | 11.79           | 15.11           | 17.32           | 2.92            | 4.37            | 5.83            | 6.95            |
| Maximum Airflow                            | (2)   | m³/s  | 4.12            | 5.33            | 8.07            | 9.60            | 11.79           | 14.19           | 18.42           | 19.69           | 3.85            | 5.07            | 7.60            | 8.97            |
| <b>Electrical Data</b>                     |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             | (1)   | A     | 7.4             | 6.9             | 3.8             | 12.8            | 20.2            | 18.7            | 24.6            | 24.6            | 7.4             | 6.9             | 3.8             | 12.8            |
| Recommended Mains Fuse Size                |       | A     | 16              | 16              | 16              | 16              | 25              | 25              | 32              | 32              | 16              | 16              | 16              | 16              |
| Max Mains Incoming Cable Size              |       | mm²   | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              |
| <b>Fan and Motor</b>                       |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             | (5)   | A     | 6.4             | 5.9             | 6.4             | 5.9             | 6.4             | 5.9             | 5.9             | 5.9             | 6.4             | 5.9             | 6.4             | 5.9             |

(1) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow).

(2) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow), Max fan speed.

(3) Pressure drop through heat exchanger, control valve and unit pipework.

(4) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(5) Stated motor power is based on maximum electrical power absorbed.

## Technical Data

## Mechanical and Electrical Data - 380V

|                                            | Notes | Units | SO22D014CLDSx-A | SO25D016CLDSx-A | SO31D020CLDSx-A | SO35D023CLDSx-A | SO09D005CLDXx-A | SO12D008CLDXx-A | SO15D010CLDXx-A | SO18D013CLDXx-A | SO22D016CLDXx-A | SO25D019CLDXx-A | SO31D024CLDXx-A | SO35D027CLDXx-A |
|--------------------------------------------|-------|-------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>Mechanical Data</b>                     |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| <b>Capacity</b>                            |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Nominal Cooling (Gross)                    | (1)   | kW    | 137.2           | 159.5           | 205.0           | 234.4           | 52.5            | 77.8            | 104.4           | 125.3           | 159.9           | 186.2           | 238.5           | 272.2           |
| Nominal Fan Power Input (Fan Gain)         |       | kW    | 4.92            | 5.42            | 7.03            | 8.10            | 1.85            | 2.96            | 3.87            | 4.51            | 6.32            | 6.88            | 8.90            | 10.42           |
| Nominal EER                                |       |       | 27.9            | 29.4            | 29.1            | 28.9            | 28.4            | 26.3            | 27.0            | 27.8            | 25.3            | 27.1            | 26.8            | 26.1            |
| Cooling (Gross) at Max. Airflow            | (2)   | kW    | 168.1           | 198.6           | 257.7           | 280.3           | 61.5            | 80.7            | 120.6           | 144.3           | 178.8           | 213.4           | 276.6           | 297.7           |
| Fan Power Input (Fan Gain) at Max. Airflow |       | kW    | 9.15            | 10.61           | 14.19           | 14.03           | 2.96            | 3.30            | 5.92            | 6.95            | 8.88            | 10.45           | 14.02           | 13.72           |
| EER at Max. Airflow                        |       |       | 18.4            | 18.7            | 18.2            | 20.0            | 20.8            | 24.5            | 20.4            | 20.8            | 20.1            | 20.4            | 19.7            | 21.7            |
| <b>Dimensions</b>                          |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Depth                                      |       | mm    | 1050            | 1050            | 1050            | 1050            | 1050            | 1050            | 1050            | 1050            | 1050            | 1050            | 1050            | 1050            |
| Height                                     |       | mm    | 1980            | 1980            | 1980            | 1980            | 2280            | 2280            | 2280            | 2280            | 2280            | 2280            | 2280            | 2280            |
| Width                                      |       | mm    | 2200            | 2500            | 3100            | 3500            | 900             | 1200            | 1500            | 1800            | 2200            | 2500            | 3100            | 3500            |
| Mass - Machine / Operating                 |       | kg    | 590 / 693       | 667 / 792       | 800 / 965       | 879 / 1067      | 348 / 392       | 425 / 487       | 502 / 584       | 569 / 665       | 672 / 797       | 755 / 899       | 905 / 1093      | 996 / 1211      |
| <b>Unit</b>                                |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Water Volume                               |       | l     | 103.9           | 125.1           | 165.0           | 188.1           | 43.4            | 61.7            | 82.4            | 96.4            | 124.8           | 143.5           | 188.3           | 215.1           |
| Water Flow Rate                            |       | l/s   | 3.28            | 3.81            | 4.90            | 5.60            | 1.25            | 1.86            | 2.50            | 2.99            | 3.82            | 4.45            | 5.70            | 6.50            |
| Pressure Drop                              | (3)   | kPa   | 91.7            | 87.6            | 83.7            | 84.6            | 93.3            | 90.3            | 88.8            | 92.5            | 91.6            | 78.6            | 85.8            | 84.3            |
| <b>Fan Motor - Centrifugal</b>             |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Quantity x Motor Size                      |       | kW    | 3 x 3.95        | 3 x 3.70        | 4 x 3.70        | 4 x 3.70        | 1 x 3.95        | 1 x 3.70        | 2 x 3.95        | 2 x 3.70        | 3 x 3.95        | 3 x 3.70        | 4 x 3.70        | 4 x 3.70        |
| Speed @25Pa / Maximum ESP                  |       | rpm   | 1435 / 1780     | 1133 / 1420     | 1122 / 1420     | 1180 / 1420     | 1500 / 1780     | 1364 / 1420     | 1526 / 1780     | 1226 / 1420     | 1581 / 1780     | 1233 / 1420     | 1218 / 1420     | 1293 / 1420     |
| Maximum ESP                                |       | Pa    | 453             | 395             | 403             | 354             | 387             | 116             | 358             | 303             | 292             | 295             | 310             | 219             |
| Nominal Airflow                            | (1)   | m³/s  | 8.89            | 10.35           | 13.27           | 15.21           | 3.40            | 5.10            | 6.80            | 8.11            | 10.38           | 12.08           | 15.48           | 17.75           |
| Maximum Airflow                            | (2)   | m³/s  | 11.22           | 13.31           | 17.26           | 18.67           | 4.07            | 5.31            | 8.02            | 9.53            | 11.79           | 14.12           | 18.33           | 19.66           |
| <b>Electrical Data</b>                     |       |       | (1)             |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             |       | A     | 20.2            | 18.7            | 24.6            | 24.6            | 7.4             | 6.9             | 3.8             | 12.8            | 20.2            | 18.7            | 24.6            | 24.6            |
| Recommended Mains Fuse Size                |       | A     | 25              | 25              | 32              | 32              | 16              | 16              | 16              | 16              | 25              | 25              | 32              | 32              |
| Max Mains Incoming Cable Size              |       | mm²   | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              |
| <b>Fan and Motor</b>                       |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             | (5)   | A     | 6.4             | 5.9             | 5.9             | 5.9             | 6.4             | 5.9             | 6.4             | 5.9             | 6.4             | 5.9             | 5.9             | 5.9             |

(1) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow).

(2) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow), Max fan speed.

(3) Pressure drop through heat exchanger, control valve and unit pipework.

(4) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(5) Stated motor power is based on maximum electrical power absorbed.

## Technical Data

## Mechanical and Electrical Data - 380V

|                                            | Notes | Units | SO30D043CLDSx-A | SO40D059CLDSx-A | SO50D074CLDSx-A | SO60D097CLDSx-A | SO09D004CHBSx-A | SO12D006CHBSx-A | SO15D008CHBSx-A | SO18D009CHBSx-A | SO22D012CHBSx-A | SO25D014CHBSx-A | SO31D018CHBSx-A | SO35D020CHBSx-A |
|--------------------------------------------|-------|-------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>Mechanical Data</b>                     |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| <b>Capacity</b>                            |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Nominal Cooling (Gross)                    | (1)   | kW    | 430.0           | 590.2           | 739.5           | 965.9           | 39.0            | 58.5            | 77.7            | 92.7            | 118.4           | 137.4           | 176.3           | 201.8           |
| Nominal Fan Power Input (Fan Gain)         |       | kW    | 21.46           | 28.28           | 35.33           | 51.00           | 1.08            | 1.71            | 2.28            | 2.60            | 3.71            | 3.97            | 5.15            | 6.05            |
| Nominal EER                                |       |       | 20.0            | 20.9            | 20.9            | 18.9            | 36.1            | 34.2            | 34.0            | 35.7            | 31.9            | 34.6            | 34.3            | 33.4            |
| Cooling (Gross) at Max. Airflow            | (2)   | kW    | 430.1           | 590.4           | 739.9           | 966.0           | 52.6            | 70.5            | 103.4           | 123.3           | 152.4           | 181.8           | 235.8           | 255.3           |
| Fan Power Input (Fan Gain) at Max. Airflow |       | kW    | 21.48           | 28.31           | 35.35           | 51.03           | 2.85            | 3.21            | 5.75            | 6.83            | 8.46            | 10.28           | 13.81           | 13.43           |
| EER at Max. Airflow                        |       |       | 20.0            | 20.9            | 20.9            | 18.9            | 18.5            | 22.0            | 18.0            | 18.0            | 18.0            | 17.7            | 17.1            | 19.0            |
| <b>Dimensions</b>                          |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Depth                                      |       | mm    | 2200            | 2200            | 2200            | 2200            | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             |
| Height                                     |       | mm    | 2400            | 2400            | 2400            | 2400            | 1980            | 1980            | 1980            | 1980            | 1980            | 1980            | 1980            | 1980            |
| Width                                      |       | mm    | 3000            | 4000            | 5000            | 6000            | 900             | 1200            | 1500            | 1800            | 2200            | 2500            | 3100            | 3500            |
| Mass - Machine / Operating                 |       | kg    | 1815 / 2289     | 2362 / 3004     | 2956 / 3771     | 3561 / 4589     | 261 / 284       | 316 / 350       | 368 / 413       | 414 / 466       | 479 / 543       | 533 / 612       | 637 / 735       | 716 / 837       |
| <b>Unit</b>                                |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Water Volume                               |       | l     | 474.7           | 641.6           | 815.3           | 1028.8          | 22.5            | 33.4            | 45.2            | 52.4            | 64.2            | 78.7            | 98.5            | 120.9           |
| Water Flow Rate                            |       | l/s   | 10.28           | 14.10           | 17.67           | 23.08           | 1.16            | 1.75            | 2.32            | 2.77            | 3.54            | 4.10            | 5.27            | 6.03            |
| Pressure Drop                              | (3)   | kPa   | 62.3            | 78.7            | 64.5            | 74.6            | 58.6            | 55.3            | 47.1            | 52.1            | 48.7            | 47.1            | 56.1            | 42.1            |
| <b>Fan Motor - Centrifugal</b>             |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Quantity x Motor Size                      |       | kW    | 6 x 3.70        | 8 x 3.70        | 10 x 3.70       | 14 x 3.70       | 1 x 3.95        | 1 x 3.70        | 2 x 3.95        | 2 x 3.70        | 3 x 3.95        | 3 x 3.70        | 4 x 3.70        | 4 x 3.70        |
| Speed @25Pa / Maximum ESP                  |       | rpm   | 1417 / 1420     | 1418 / 1420     | 1418 / 1420     | 1418 / 1420     | 1247 / 1780     | 1140 / 1420     | 1270 / 1780     | 1020 / 1420     | 1323 / 1780     | 1026 / 1420     | 1014 / 1420     | 1081 / 1420     |
| Maximum ESP                                |       | Pa    | 27              | 27              | 26              | 26              | 629             | 421             | 612             | 521             | 573             | 515             | 521             | 474             |
| Nominal Airflow                            | (1)   | m³/s  | 24.62           | 33.58           | 42.09           | 55.46           | 2.84            | 4.25            | 5.67            | 6.76            | 8.65            | 10.06           | 12.90           | 14.79           |
| Maximum Airflow                            | (2)   | m³/s  | 24.63           | 33.59           | 42.10           | 55.47           | 4.14            | 5.36            | 8.13            | 9.68            | 11.88           | 14.31           | 18.60           | 19.86           |
| <b>Electrical Data</b>                     |       |       | (1)             |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             |       | A     | 36.4            | 48.2            | 60.0            | 83.6            | 7.4             | 6.9             | 3.8             | 12.8            | 20.2            | 18.7            | 24.6            | 24.6            |
| Recommended Mains Fuse Size                |       | A     | 50              | 63              | 80              | 100             | 16              | 16              | 16              | 16              | 25              | 25              | 32              | 32              |
| Max Mains Incoming Cable Size              |       | mm²   | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              |
| <b>Fan and Motor</b>                       |       |       | (5)             |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             |       | A     | 5.9             | 5.9             | 5.9             | 5.9             | 6.4             | 5.9             | 6.4             | 5.9             | 6.4             | 5.9             | 5.9             | 5.9             |

(1) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow).

(2) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow), Max fan speed.

(3) Pressure drop through heat exchanger, control valve and unit pipework.

(4) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(5) Stated motor power is based on maximum electrical power absorbed.

## Technical Data

## Mechanical and Electrical Data - 380V

|                                            | Notes | Units | SO09D005CHBXx-A | SO12D007CHBXx-A | SO15D009CHBXx-A | SO18D011CHBXx-A | SO22D014CHBXx-A | SO25D016CHBXx-A | SO31D021CHBXx-A | SO35D024CHBXx-A | SO09D004CHCSx-A | SO12D006CHCSx-A | SO15D009CHCSx-A | SO18D010CHCSx-A |
|--------------------------------------------|-------|-------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>Mechanical Data</b>                     |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| <b>Capacity</b>                            |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Nominal Cooling (Gross)                    | (1)   | kW    | 45.6            | 68.2            | 90.6            | 108.3           | 138.0           | 159.9           | 205.9           | 235.2           | 43.0            | 64.3            | 85.5            | 102.1           |
| Nominal Fan Power Input (Fan Gain)         |       | kW    | 1.40            | 2.35            | 3.01            | 3.51            | 4.90            | 5.41            | 7.01            | 8.33            | 1.27            | 2.00            | 2.68            | 3.10            |
| Nominal EER                                |       |       | 32.6            | 29.0            | 30.1            | 30.8            | 28.1            | 29.x6           | 29.4            | 28.2            | 33.7            | 32.1            | 31.9            | 32.9            |
| Cooling (Gross) at Max. Airflow            | (2)   | kW    | 56.1            | 74.1            | 109.4           | 130.9           | 160.6           | 192.0           | 250.0           | 268.9           | 56.6            | 75.6            | 111.3           | 132.1           |
| Fan Power Input (Fan Gain) at Max. Airflow |       | kW    | 2.71            | 3.10            | 5.50            | 6.67            | 8.01            | 10.04           | 13.53           | 13.08           | 2.97            | 3.34            | 5.99            | 7.00            |
| EER at Max. Airflow                        |       |       | 20.7            | 23.9            | 19.9            | 19.6            | 20.0            | 19.1            | 18.5            | 20.6            | 19.1            | 22.7            | 18.6            | 18.9            |
| <b>Dimensions</b>                          |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Depth                                      |       | mm    | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             |
| Height                                     |       | mm    | 2280            | 2280            | 2280            | 2280            | 2280            | 2280            | 2280            | 2280            | 1980            | 1980            | 1980            | 1980            |
| Width                                      |       | mm    | 900             | 1200            | 1500            | 1800            | 2200            | 2500            | 3100            | 3500            | 900             | 1200            | 1500            | 1800            |
| Mass - Machine / Operating                 |       | kg    | 289 / 315       | 352 / 390       | 409 / 461       | 483 / 543       | 543 / 622       | 599 / 689       | 737 / 857       | 804 / 941       | 276 / 305       | 337 / 380       | 396 / 453       | 447 / 514       |
| <b>Unit</b>                                |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Water Volume                               |       | l     | 25.9            | 38.2            | 51.6            | 60.0            | 78.5            | 89.9            | 120.1           | 136.8           | 29.0            | 42.9            | 57.7            | 67.0            |
| Water Flow Rate                            |       | l/s   | 1.36            | 2.04            | 2.71            | 3.23            | 4.12            | 4.78            | 6.15            | 7.03            | 1.28            | 1.92            | 2.55            | 3.05            |
| Pressure Drop                              | (3)   | kPa   | 69.0            | 60.5            | 52.3            | 59.1            | 47.4            | 52.8            | 42.7            | 47.0            | 64.5            | 58.8            | 49.9            | 56.1            |
| <b>Fan Motor - Centrifugal</b>             |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Quantity x Motor Size                      |       | kW    | 1 x 3.95        | 1 x 3.70        | 2 x 3.95        | 2 x 3.70        | 3 x 3.95        | 3 x 3.70        | 4 x 3.70        | 4 x 3.70        | 1 x 3.95        | 1 x 3.70        | 2 x 3.95        | 2 x 3.70        |
| Speed @25Pa / Maximum ESP                  |       | rpm   | 1392 / 1780     | 1287 / 1420     | 1426 / 1780     | 1139 / 1420     | 1490 / 1780     | 1149 / 1420     | 1134 / 1420     | 1216 / 1420     | 1312 / 1780     | 1190 / 1420     | 1333 / 1780     | 1078 / 1420     |
| Maximum ESP                                |       | Pa    | 508             | 236             | 473             | 415             | 402             | 404             | 417             | 328             | 565             | 357             | 548             | 457             |
| Nominal Airflow                            | (1)   | m³/s  | 3.32            | 4.98            | 6.64            | 7.92            | 10.13           | 11.79           | 15.11           | 17.32           | 2.84            | 4.25            | 5.67            | 6.76            |
| Maximum Airflow                            | (2)   | m³/s  | 4.30            | 5.52            | 8.40            | 10.03           | 12.23           | 14.81           | 19.26           | 20.45           | 3.93            | 5.14            | 7.73            | 9.15            |
| <b>Electrical Data</b>                     |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             | (1)   | A     | 7.4             | 6.9             | 3.8             | 12.8            | 20.2            | 18.7            | 24.6            | 24.6            | 7.4             | 6.9             | 3.8             | 12.8            |
| Recommended Mains Fuse Size                |       | A     | 16              | 16              | 16              | 16              | 25              | 25              | 32              | 32              | 16              | 16              | 16              | 16              |
| Max Mains Incoming Cable Size              |       | mm²   | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              |
| <b>Fan and Motor</b>                       |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             | (5)   | A     | 6.4             | 5.9             | 6.4             | 5.9             | 6.4             | 5.9             | 5.9             | 5.9             | 6.4             | 5.9             | 6.4             | 5.9             |

(1) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow).

(2) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow), Max fan speed.

(3) Pressure drop through heat exchanger, control valve and unit pipework.

(4) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(5) Stated motor power is based on maximum electrical power absorbed.

## Technical Data

## Mechanical and Electrical Data - 380V

|                                            | Notes | Units | SO22D013CHCSx-A | SO25D015CHCSx-A | SO31D019CHCSx-A | SO35D022CHCSx-A | SO09D005CHCXx-A | SO12D008CHCXx-A | SO15D010CHCXx-A | SO18D012CHCXx-A | SO22D015CHCXx-A | SO25D018CHCXx-A | SO31D023CHCXx-A | SO35D026CHCXx-A |
|--------------------------------------------|-------|-------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>Mechanical Data</b>                     |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| <b>Capacity</b>                            |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Nominal Cooling (Gross)                    | (1)   | kW    | 130.2           | 151.1           | 194.0           | 222.7           | 50.3            | 75.1            | 99.7            | 119.1           | 151.8           | 175.9           | 226.6           | 260.8           |
| Nominal Fan Power Input (Fan Gain)         |       | kW    | 4.40            | 4.73            | 6.14            | 7.14            | 1.64            | 2.68            | 3.52            | 4.09            | 5.75            | 6.27            | 8.13            | 9.56            |
| Nominal EER                                |       |       | 29.6            | 31.9            | 31.6            | 31.2            | 30.6            | 28.0            | 28.4            | 29.1            | 26.4            | 28.1            | 27.9            | 27.3            |
| Cooling (Gross) at Max. Airflow            | (2)   | kW    | 164.0           | 194.5           | 252.5           | 274.7           | 60.5            | 79.7            | 117.7           | 140.4           | 172.8           | 206.0           | 268.3           | 291.3           |
| Fan Power Input (Fan Gain) at Max. Airflow |       | kW    | 8.92            | 10.52           | 14.09           | 13.84           | 2.87            | 3.23            | 5.80            | 6.86            | 8.55            | 10.33           | 13.88           | 13.52           |
| EER at Max. Airflow                        |       |       | 18.4            | 18.5            | 17.9            | 19.9            | 21.1            | 24.7            | 20.3            | 20.5            | 20.2            | 19.9            | 19.3            | 21.6            |
| <b>Dimensions</b>                          |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Depth                                      |       | mm    | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             |
| Height                                     |       | mm    | 1980            | 1980            | 1980            | 1980            | 2280            | 2280            | 2280            | 2280            | 2280            | 2280            | 2280            | 2280            |
| Width                                      |       | mm    | 2200            | 2500            | 3100            | 3500            | 900             | 1200            | 1500            | 1800            | 2200            | 2500            | 3100            | 3500            |
| Mass - Machine / Operating                 |       | kg    | 522 / 604       | 583 / 683       | 705 / 839       | 788 / 941       | 307 / 341       | 376 / 426       | 442 / 508       | 522 / 599       | 593 / 693       | 657 / 772       | 810 / 962       | 888 / 1062      |
| <b>Unit</b>                                |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Water Volume                               |       | l     | 82.7            | 100.4           | 133.3           | 152.3           | 33.4            | 49.2            | 66.0            | 77.0            | 100.2           | 115.1           | 152.2           | 173.5           |
| Water Flow Rate                            |       | l/s   | 3.89            | 4.51            | 5.80            | 6.65            | 1.50            | 2.24            | 2.98            | 3.56            | 4.53            | 5.25            | 6.77            | 7.79            |
| Pressure Drop                              | (3)   | kPa   | 50.9            | 49.3            | 56.6            | 46.8            | 58.3            | 51.8            | 55.3            | 47.6            | 49.7            | 56.7            | 45.3            | 56.5            |
| <b>Fan Motor - Centrifugal</b>             |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Quantity x Motor Size                      |       | kW    | 3 x 3.95        | 3 x 3.70        | 4 x 3.70        | 4 x 3.70        | 1 x 3.95        | 1 x 3.70        | 2 x 3.95        | 2 x 3.70        | 3 x 3.95        | 3 x 3.70        | 4 x 3.70        | 4 x 3.70        |
| Speed @25Pa / Maximum ESP                  |       | rpm   | 1384 / 1780     | 1083 / 1420     | 1073 / 1420     | 1134 / 1420     | 1450 / 1780     | 1329 / 1420     | 1482 / 1780     | 1189 / 1420     | 1544 / 1780     | 1198 / 1420     | 1185 / 1420     | 1262 / 1420     |
| Maximum ESP                                |       | Pa    | 509             | 451             | 457             | 410             | 444             | 172             | 409             | 351             | 338             | 340             | 353             | 264             |
| Nominal Airflow                            | (1)   | m³/s  | 8.65            | 10.06           | 12.90           | 14.79           | 3.32            | 4.98            | 6.64            | 7.92            | 10.13           | 11.79           | 15.11           | 17.32           |
| Maximum Airflow                            | (2)   | m³/s  | 11.34           | 13.55           | 17.58           | 18.92           | 4.12            | 5.33            | 8.07            | 9.60            | 11.79           | 14.19           | 18.42           | 19.69           |
| <b>Electrical Data</b>                     |       |       | (1)             |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             |       | A     | 20.2            | 18.7            | 24.6            | 24.6            | 7.4             | 6.9             | 3.8             | 12.8            | 20.2            | 18.7            | 24.6            | 24.6            |
| Recommended Mains Fuse Size                |       | A     | 25              | 25              | 32              | 32              | 16              | 16              | 16              | 16              | 25              | 25              | 32              | 32              |
| Max Mains Incoming Cable Size              |       | mm²   | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              |
| <b>Fan and Motor</b>                       |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             | (5)   | A     | 6.4             | 5.9             | 5.9             | 5.9             | 6.4             | 5.9             | 6.4             | 5.9             | 6.4             | 5.9             | 5.9             | 5.9             |

(1) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow).

(2) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow), Max fan speed.

(3) Pressure drop through heat exchanger, control valve and unit pipework.

(4) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(5) Stated motor power is based on maximum electrical power absorbed.

## Technical Data

## Mechanical and Electrical Data - 380V

|                                            | Notes | Units | SO09D005CHDSx-A | SO12D007CHDSx-A | SO15D009CHDSx-A | SO18D011CHDSx-A | SO22D014CHDSx-A | SO25D016CHDSx-A | SO31D021CHDSx-A | SO35D024CHDSx-A | SO09D005CHDXx-A | SO12D008CHDXx-A | SO15D011CHDXx-A | SO18D013CHDXx-A |
|--------------------------------------------|-------|-------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>Mechanical Data</b>                     |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| <b>Capacity</b>                            |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Nominal Cooling (Gross)                    | (1)   | kW    | 46.7            | 69.7            | 92.8            | 110.8           | 141.3           | 164.9           | 211.0           | 241.3           | 54.3            | 81.2            | 107.8           | 128.9           |
| Nominal Fan Power Input (Fan Gain)         |       | kW    | 1.46            | 2.29            | 3.03            | 3.57            | 4.92            | 5.42            | 7.03            | 8.10            | 1.85            | 2.96            | 3.87            | 4.51            |
| Nominal EER                                |       |       | 31.9            | 30.5            | 30.7            | 31.0            | 28.7            | 30.4            | 30.0            | 29.8            | 29.4            | 27.4            | 27.9            | 28.6            |
| Cooling (Gross) at Max. Airflow            | (2)   | kW    | 59.7            | 79.6            | 117.5           | 139.2           | 173.9           | 206.4           | 266.5           | 289.9           | 63.8            | 84.1            | 124.9           | 148.9           |
| Fan Power Input (Fan Gain) at Max. Airflow |       | kW    | 3.02            | 3.40            | 6.07            | 7.06            | 9.15            | 10.61           | 14.19           | 14.03           | 2.96            | 3.30            | 5.92            | 6.95            |
| EER at Max. Airflow                        |       |       | 19.8            | 23.4            | 19.4            | 19.7            | 19.0            | 19.5            | 18.8            | 20.7            | 21.6            | 25.5            | 21.1            | 21.4            |
| <b>Dimensions</b>                          |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Depth                                      |       | mm    | 1050            | 1050            | 1050            | 1050            | 1050            | 1050            | 1050            | 1050            | 1050            | 1050            | 1050            | 1050            |
| Height                                     |       | mm    | 1980            | 1980            | 1980            | 1980            | 1980            | 1980            | 1980            | 1980            | 2280            | 2280            | 2280            | 2280            |
| Width                                      |       | mm    | 900             | 1200            | 1500            | 1800            | 2200            | 2500            | 3100            | 3500            | 900             | 1200            | 1500            | 1800            |
| Mass - Machine / Operating                 |       | kg    | 309 / 345       | 379 / 432       | 446 / 518       | 504 / 588       | 597 / 705       | 668 / 793       | 814 / 979       | 894 / 1082      | 349 / 393       | 430 / 495       | 502 / 584       | 576 / 677       |
| <b>Unit</b>                                |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Water Volume                               |       | l     | 36.4            | 53.6            | 71.8            | 83.8            | 108.7           | 124.8           | 164.6           | 187.8           | 43.4            | 65.0            | 82.3            | 101.3           |
| Water Flow Rate                            |       | l/s   | 1.39            | 2.08            | 2.77            | 3.31            | 4.22            | 4.93            | 6.30            | 7.21            | 1.62            | 2.42            | 3.22            | 3.85            |
| Pressure Drop                              | (3)   | kPa   | 70.7            | 61.2            | 52.4            | 59.7            | 46.6            | 52.0            | 42.5            | 47.1            | 53.5            | 47.6            | 59.3            | 44.2            |
| <b>Fan Motor - Centrifugal</b>             |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Quantity x Motor Size                      |       | kW    | 1 x 3.95        | 1 x 3.70        | 2 x 3.95        | 2 x 3.70        | 3 x 3.95        | 3 x 3.70        | 4 x 3.70        | 4 x 3.70        | 1 x 3.95        | 1 x 3.70        | 2 x 3.95        | 2 x 3.70        |
| Speed @25Pa / Maximum ESP                  |       | rpm   | 1375 / 1780     | 1238 / 1420     | 1391 / 1780     | 1128 / 1420     | 1435 / 1780     | 1133 / 1420     | 1122 / 1420     | 1180 / 1420     | 1500 / 1780     | 1364 / 1420     | 1526 / 1780     | 1226 / 1420     |
| Maximum ESP                                |       | Pa    | 502             | 293             | 489             | 400             | 453             | 395             | 403             | 354             | 387             | 116             | 358             | 303             |
| Nominal Airflow                            | (1)   | m³/s  | 2.92            | 4.37            | 5.83            | 6.95            | 8.89            | 10.35           | 13.27           | 15.21           | 3.40            | 5.10            | 6.80            | 8.11            |
| Maximum Airflow                            | (2)   | m³/s  | 3.85            | 5.07            | 7.60            | 8.97            | 11.22           | 13.31           | 17.26           | 18.67           | 4.07            | 5.31            | 8.02            | 9.53            |
| <b>Electrical Data</b>                     |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             | (1)   | A     | 7.4             | 6.9             | 3.8             | 12.8            | 20.2            | 18.7            | 24.6            | 24.6            | 7.4             | 6.9             | 3.8             | 12.8            |
| Recommended Mains Fuse Size                |       | A     | 16              | 16              | 16              | 16              | 25              | 25              | 32              | 32              | 16              | 16              | 16              | 16              |
| Max Mains Incoming Cable Size              |       | mm²   | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              | 35              |
| <b>Fan and Motor</b>                       |       |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                             | (5)   | A     | 6.4             | 5.9             | 6.4             | 5.9             | 6.4             | 5.9             | 5.9             | 5.9             | 6.4             | 5.9             | 6.4             | 5.9             |

(1) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow).

(2) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow), Max fan speed.

(3) Pressure drop through heat exchanger, control valve and unit pipework.

(4) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(5) Stated motor power is based on maximum electrical power absorbed.

## Technical Data

## Mechanical and Electrical Data - 380V

|                                            | Notes | Units | SO22D016CHDXx-A | SO25D019CHDXx-A | SO31D025CHDXx-A | SO35D028CHDXx-A | SO30D045CHDSx-A | SO40D061CHDSx-A | SO50D077CHDSx-A | SO60D101CHDSx-A |
|--------------------------------------------|-------|-------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>Mechanical Data</b>                     |       |       |                 |                 |                 |                 |                 |                 |                 |                 |
| <b>Capacity</b>                            |       |       |                 |                 |                 |                 |                 |                 |                 |                 |
| Nominal Cooling (Gross)                    | (1)   | kW    | 164.3           | 192.0           | 245.2           | 281.0           | 445.2           | 609.3           | 765.1           | 1005.2          |
| Nominal Fan Power Input (Fan Gain)         |       | kW    | 6.32            | 6.88            | 8.90            | 10.42           | 21.46           | 28.28           | 35.33           | 51.00           |
| Nominal EER                                |       |       | 26.0            | 27.9            | 27.5            | 27.0            | 20.7            | 21.5            | 21.7            | 19.7            |
| Cooling (Gross) at Max. Airflow            | (2)   | kW    | 184.2           | 220.6           | 285.1           | 308.1           | 445.2           | 609.5           | 765.3           | 1005.4          |
| Fan Power Input (Fan Gain) at Max. Airflow |       | kW    | 8.88            | 10.45           | 14.02           | 13.72           | 21.48           | 28.31           | 35.35           | 51.03           |
| EER at Max. Airflow                        |       |       | 20.7            | 21.1            | 20.3            | 22.5            | 20.7            | 21.5            | 21.7            | 19.7            |
| <b>Dimensions</b>                          |       |       |                 |                 |                 |                 |                 |                 |                 |                 |
| Depth                                      |       | mm    | 1050            | 1050            | 1050            | 1050            | 2200            | 2200            | 2200            | 2200            |
| Height                                     |       | mm    | 2280            | 2280            | 2280            | 2280            | 2400            | 2400            | 2400            | 2400            |
| Width                                      |       | mm    | 2200            | 2500            | 3100            | 3500            | 3000            | 4000            | 5000            | 6000            |
| Mass - Machine / Operating                 |       | kg    | 673 / 798       | 770 / 913       | 920 / 1108      | 1010 / 1225     | 1815 / 2289     | 2503 / 3184     | 3052 / 3914     | 3571 / 4600     |
| <b>Unit</b>                                |       |       |                 |                 |                 |                 |                 |                 |                 |                 |
| Water Volume                               |       | l     | 124.6           | 143.2           | 188.2           | 214.9           | 474.5           | 681.2           | 861.8           | 1028.7          |
| Water Flow Rate                            |       | l/s   | 4.91            | 5.73            | 7.32            | 8.39            | 13.30           | 18.20           | 22.85           | 30.02           |
| Pressure Drop                              | (3)   | kPa   | 53.1            | 43.4            | 47.7            | 56.3            | 69.4            | 60.2            | 55.5            | 83.4            |
| <b>Fan Motor - Centrifugal</b>             |       |       |                 |                 |                 |                 |                 |                 |                 |                 |
| Quantity x Motor Size                      |       | kW    | 3 x 3.95        | 3 x 3.70        | 4 x 3.70        | 4 x 3.70        | 6 x 3.70        | 8 x 3.70        | 10 x 3.70       | 14 x 3.70       |
| Speed @25Pa / Maximum ESP                  |       | rpm   | 1581 / 1780     | 1233 / 1420     | 1218 / 1420     | 1293 / 1420     | 1417 / 1420     | 1418 / 1420     | 1418 / 1420     | 1418 / 1420     |
| Maximum ESP                                |       | Pa    | 292             | 295             | 310             | 219             | 27              | 27              | 26              | 26              |
| Nominal Airflow                            | (1)   | m³/s  | 10.38           | 12.08           | 15.48           | 17.75           | 24.62           | 33.58           | 42.09           | 55.46           |
| Maximum Airflow                            | (2)   | m³/s  | 11.79           | 14.12           | 18.33           | 19.66           | 24.63           | 33.59           | 42.10           | 55.47           |

|                               |     |     |      |      |      |      |      |      |      |      |
|-------------------------------|-----|-----|------|------|------|------|------|------|------|------|
| <b>Electrical Data</b>        | (1) |     |      |      |      |      |      |      |      |      |
| Full Load Amps                |     | A   | 20.2 | 18.7 | 24.6 | 24.6 | 36.4 | 48.2 | 60.0 | 83.6 |
| Recommended Mains Fuse Size   |     | A   | 25   | 25   | 32   | 32   | 50   | 63   | 80   | 100  |
| Max Mains Incoming Cable Size |     | mm² | 35   | 35   | 35   | 35   | 35   | 35   | 35   | 35   |
| <b>Fan and Motor</b>          |     |     |      |      |      |      |      |      |      |      |
| Full Load Amps                | (5) | A   | 6.4  | 5.9  | 5.9  | 5.9  | 5.9  | 5.9  | 5.9  | 5.9  |

(1) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow).

(2) Entering air 36°C / 22.6% RH, Entering water 20°C Leaving water 30°C (Low Flow) 28°C (High Flow), Max fan speed.

(3) Pressure drop through heat exchanger, control valve and unit pipework.

(4) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(5) Stated motor power is based on maximum electrical power absorbed.

## Technical Data

## Mechanical and Electrical Data - 460V

|                                                      | Notes                   | Units                     | SO09D004CLBSx-3 | SO12D006CLBSx-3 | SO15D008CLBSx-3 | SO18D010CLBSx-3 | SO22D012CLBSx-3 | SO25D014CLBSx-3 | SO31D018CLBSx-3 | SO35D021CLBSx-3 | SO09D005CLBxx-3 | SO12D007CLBxx-3 | SO15D009CLBxx-3 | SO18D011CLBxx-3 |
|------------------------------------------------------|-------------------------|---------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Mechanical Data                                      |                         |                           |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Capacity                                             |                         |                           |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Nominal Cooling (Gross)                              | (1)                     | kW<br>MBH                 | 40.0<br>136     | 60.0<br>205     | 80.2<br>274     | 95.5<br>326     | 122.0<br>416    | 142.1<br>485    | 181.6<br>620    | 208.8<br>712    | 46.7<br>159     | 70.3<br>240     | 93.8<br>320     | 111.7<br>381    |
| Nominal Fan Power Input (Fan Gain)                   |                         | kW                        | 1.26            | 2.00            | 2.67            | 3.07            | 4.38            | 4.70            | 6.10            | 7.11            | 1.63            | 2.70            | 3.51            | 4.07            |
| Nominal EER                                          |                         |                           | 31.7            | 30.0            | 30.0            | 31.1            | 27.9            | 30.2            | 29.8            | 29.4            | 28.6            | 26.1            | 26.7            | 27.4            |
| Cooling (Gross) at Max. Airflow                      | (2)                     | kW<br>MBH                 | 52.1<br>178     | 70.0<br>239     | 103.1<br>352    | 122.4<br>418    | 151.9<br>518    | 181.1<br>618    | 233.8<br>798    | 255.1<br>870    | 55.7<br>190     | 74.0<br>253     | 109.7<br>374    | 130.6<br>446    |
| Fan Power Input (Fan Gain) at Max. Airflow           |                         | kW                        | 2.94            | 3.30            | 5.94            | 6.96            | 8.81            | 10.46           | 14.03           | 13.73           | 2.83            | 3.19            | 5.72            | 6.81            |
| EER at Max. Airflow                                  |                         |                           | 17.7            | 21.2            | 17.4            | 17.6            | 17.2            | 17.3            | 16.7            | 18.6            | 19.7            | 23.2            | 19.2            | 19.2            |
| Dimensions                                           |                         |                           |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Depth                                                |                         | mm                        | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             |
| Height                                               |                         | mm                        | 1980            | 1980            | 1980            | 1980            | 1980            | 1980            | 1980            | 1980            | 2280            | 2280            | 2280            | 2280            |
| Width                                                |                         | mm                        | 900             | 1200            | 1500            | 1800            | 2200            | 2500            | 3100            | 3500            | 900             | 1200            | 1500            | 1800            |
| Depth                                                |                         | in                        | 35.0            | 35.0            | 35.0            | 35.0            | 35.0            | 35.0            | 35.0            | 35.0            | 35.0            | 35.0            | 35.0            | 35.0            |
| Height                                               |                         | in                        | 78.0            | 78.0            | 78.0            | 78.0            | 78.0            | 78.0            | 78.0            | 78.0            | 89.8            | 89.8            | 89.8            | 89.8            |
| Width                                                |                         | in                        | 35.4            | 47.2            | 59.1            | 70.9            | 86.6            | 98.4            | 122.0           | 137.8           | 35.4            | 47.2            | 59.1            | 70.9            |
| Mass - Machine / Operating                           |                         | kg                        | 264 /<br>285    | 321 /<br>352    | 373 /<br>414    | 420 /<br>468    | 492 /<br>554    | 542 /<br>613    | 656 /<br>751    | 719 /<br>827    | 294 /<br>319    | 359 /<br>396    | 420 /<br>470    | 495 /<br>553    |
|                                                      |                         | lbs                       | 583 /<br>628    | 707 /<br>775    | 822 /<br>912    | 926 /<br>1031   | 1084 /<br>1220  | 1194 /<br>1351  | 1446 /<br>1656  | 1584 /<br>1823  | 648 /<br>703    | 790 /<br>872    | 926 /<br>1036   | 1091 /<br>1219  |
| Unit                                                 |                         |                           |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Water Volume                                         |                         | l<br>gal                  | 20.5<br>5.4     | 30.7<br>8.1     | 40.6<br>10.7    | 47.3<br>12.5    | 61.8<br>16.3    | 71.0<br>18.8    | 95.0<br>25.1    | 108.6<br>28.7   | 25.0<br>6.6     | 36.9<br>9.7     | 49.9<br>13.2    | 57.9<br>15.3    |
|                                                      |                         | l/s<br>gpm                | 0.95<br>15.1    | 1.43<br>22.7    | 1.92<br>30.4    | 2.28<br>36.2    | 2.92<br>46.2    | 3.40<br>53.8    | 4.34<br>68.8    | 4.99<br>79.1    | 1.12<br>17.7    | 1.68<br>26.6    | 2.24<br>35.5    | 2.67<br>42.3    |
| Pressure Drop                                        | (3)                     | kPa<br>ftH <sub>2</sub> O | 123.1<br>41.2   | 126.7<br>42.4   | 108.6<br>36.3   | 116.2<br>38.9   | 98.4<br>32.9    | 109.5<br>36.6   | 108.9<br>36.4   | 100.6<br>33.7   | 124.8<br>41.8   | 134.2<br>44.9   | 110.3<br>36.9   | 116.8<br>39.1   |
|                                                      | Fan Motor - Centrifugal |                           |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Quantity x Motor Size                                |                         | kW                        | 1 x 3.95        | 1 x 3.70        | 2 x 3.95        | 2 x 3.70        | 3 x 3.95        | 3 x 3.70        | 4 x 3.70        | 4 x 3.70        | 1 x 3.95        | 1 x 3.70        | 2 x 3.95        | 2 x 3.70        |
| Speed @25Pa (0.10 in H <sub>2</sub> O) / Maximum ESP |                         | rpm                       | 1309 /<br>1780  | 1193 /<br>1420  | 1334 /<br>1780  | 1075 /<br>1420  | 1386 /<br>1780  | 1083 /<br>1420  | 1071 /<br>1420  | 1135 /<br>1420  | 1453 /<br>1780  | 1336 /<br>1420  | 1488 /<br>1780  | 1191 /<br>1420  |
| Maximum ESP                                          |                         | Pa<br>inH <sub>2</sub> O  | 571<br>2.30     | 355<br>1.43     | 551<br>2.21     | 463<br>1.86     | 509<br>2.04     | 456<br>1.83     | 463<br>1.86     | 412<br>1.66     | 442<br>1.78     | 161<br>0.65     | 403<br>1.62     | 351<br>1.41     |
|                                                      | Nominal Airflow         | (1)                       | m³/s<br>cfm     | 2.88<br>6102    | 4.32<br>9154    | 5.76<br>12205   | 6.86<br>14536   | 8.79<br>18625   | 10.23<br>21676  | 13.11<br>27779  | 15.03<br>31847  | 3.37<br>7141    | 5.06<br>10722   | 6.75<br>14302   |
| Maximum Airflow                                      |                         | (2)                       | m³/s<br>cfm     | 3.99<br>8463    | 5.20<br>11028   | 7.85<br>16624   | 9.30<br>19715   | 11.49<br>24354  | 13.77<br>29180  | 17.87<br>37874  | 19.19<br>40671  | 4.17<br>8845    | 5.39<br>11415   | 8.16<br>17300   |
| Electrical Data                                      |                         |                           | (1)             |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                                       |                         | A                         | 5.7             | 5.4             | 11              | 10.4            | 16.3            | 15.4            | 20.4            | 20.4            | 5.7             | 5.4             | 11              | 10.4            |
| Recommended Mains Fuse Size                          |                         | A                         | 15              | 15              | 15              | 15              | 20              | 20              | 25              | 25              | 15              | 15              | 15              | 15              |
| Max Mains Incoming Cable Size                        |                         | AWG                       | 2               | 2               | 2               | 2               | 2               | 2               | 2               | 2               | 2               | 2               | 2               | 2               |
| Fan and Motor                                        |                         |                           |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                                       | (5)                     | A                         | 5.3             | 5.0             | 5.3             | 5.0             | 5.3             | 5.0             | 5.0             | 5.0             | 5.3             | 5.0             | 5.3             | 5.0             |

(1) Entering air 36°C (96.8°F) / 22.6% RH, Entering water 20°C (68°F) Leaving water 30°C (86°F) (Low Flow) 28°C (82.4°F) (High Flow)

(2) Entering air 36°C (96.8°F) / 22.6% RH, Entering water 20°C (68°F) Leaving water 30°C (86°F) (Low Flow) 28°C (82.4°F) (High Flow), Max fan speed

(3) Pressure drop through heat exchanger, control valve and unit pipework

(4) Fan gain based on 25Pa (0.10 inH<sub>2</sub>O) ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(5) Stated motor power is based on maximum electrical power absorbed.

## Technical Data

## Mechanical and Electrical Data - 460V

|                                                      | Notes | Units                     | SO22D014CLBXX-3                | SO25D017CLBXX-3                | SO31D021CLBXX-3                | SO35D024CLBXX-3                | SO09D004CLCSX-3              | SO12D007CLCSX-3              | SO15D009CLCSX-3               | SO18D010CLCSX-3                | SO22D013CLCSX-3                | SO25D016CLCSX-3                | SO31D020CLCSX-3                | SO35D023CLCSX-3                |
|------------------------------------------------------|-------|---------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|------------------------------|------------------------------|-------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| <b>Mechanical Data</b>                               |       |                           |                                |                                |                                |                                |                              |                              |                               |                                |                                |                                |                                |                                |
| <b>Capacity</b>                                      |       |                           |                                |                                |                                |                                |                              |                              |                               |                                |                                |                                |                                |                                |
| Nominal Cooling (Gross)                              | (1)   | kW<br>MBH                 | 143.1<br>488                   | 165.6<br>565                   | 213.3<br>728                   | 244.0<br>832                   | 43.7<br>149                  | 65.7<br>224                  | 87.6<br>299                   | 104.3<br>356                   | 133.7<br>456                   | 155.2<br>530                   | 199.3<br>680                   | 228.4<br>779                   |
| Nominal Fan Power Input (Fan Gain)                   |       | kW                        | 5.73                           | 6.27                           | 8.13                           | 9.59                           | 1.50                         | 2.38                         | 3.15                          | 3.74                           | 5.19                           | 5.72                           | 7.43                           | 8.54                           |
| Nominal EER                                          |       |                           | 25.0                           | 26.4                           | 26.2                           | 25.4                           | 29.2                         | 27.6                         | 27.9                          | 27.9                           | 25.8                           | 27.2                           | 26.8                           | 26.8                           |
| Cooling (Gross) at Max. Airflow                      | (2)   | kW<br>MBH                 | 161.5<br>551                   | 192.3<br>656                   | 250.5<br>855                   | 270.1<br>922                   | 55.1<br>188                  | 73.9<br>252                  | 109.0<br>372                  | 128.4<br>438                   | 161.1<br>550                   | 189.9<br>648                   | 246.1<br>840                   | 268.6<br>916                   |
| Fan Power Input (Fan Gain) at Max. Airflow           |       | kW                        | 8.41                           | 10.26                          | 13.79                          | 13.40                          | 3.02                         | 3.42                         | 6.08                          | 7.07                           | 9.11                           | 10.62                          | 14.20                          | 14.06                          |
| EER at Max. Airflow                                  |       |                           | 19.2                           | 18.8                           | 18.2                           | 20.2                           | 18.3                         | 21.6                         | 17.9                          | 18.2                           | 17.7                           | 17.9                           | 17.3                           | 19.1                           |
| <b>Dimensions</b>                                    |       |                           |                                |                                |                                |                                |                              |                              |                               |                                |                                |                                |                                |                                |
| Depth                                                |       | mm                        | 890                            | 890                            | 890                            | 890                            | 890                          | 890                          | 890                           | 890                            | 890                            | 890                            | 890                            | 890                            |
| Height                                               |       | mm                        | 2280                           | 2280                           | 2280                           | 2280                           | 1980                         | 1980                         | 1980                          | 1980                           | 1980                           | 1980                           | 1980                           | 1980                           |
| Width                                                |       | mm                        | 2200                           | 2500                           | 3100                           | 3500                           | 900                          | 1200                         | 1500                          | 1800                           | 2200                           | 2500                           | 3100                           | 3500                           |
| Depth                                                |       | in                        | 35.0                           | 35.0                           | 35.0                           | 35.0                           | 35.0                         | 35.0                         | 35.0                          | 35.0                           | 35.0                           | 35.0                           | 35.0                           | 35.0                           |
| Height                                               |       | in                        | 89.8                           | 89.8                           | 89.8                           | 89.8                           | 78.0                         | 78.0                         | 78.0                          | 78.0                           | 78.0                           | 78.0                           | 78.0                           | 78.0                           |
| Width                                                |       | in                        | 86.6                           | 98.4                           | 122.0                          | 137.8                          | 35.4                         | 47.2                         | 59.1                          | 70.9                           | 86.6                           | 98.4                           | 122.0                          | 137.8                          |
| Mass - Machine / Operating                           |       | kg<br>lbs                 | 552 /<br>623<br>1217 /<br>1374 | 610 /<br>691<br>1344 /<br>1524 | 740 /<br>848<br>1631 /<br>1870 | 810 /<br>934<br>1786 /<br>2059 | 281 /<br>309<br>620 /<br>681 | 345 /<br>387<br>761 /<br>852 | 404 /<br>456<br>890 /<br>1006 | 461 /<br>526<br>1016 /<br>1158 | 539 /<br>618<br>1187 /<br>1363 | 596 /<br>688<br>1314 /<br>1516 | 726 /<br>848<br>1601 /<br>1868 | 798 /<br>936<br>1759 /<br>2064 |
| <b>Unit</b>                                          |       |                           |                                |                                |                                |                                |                              |                              |                               |                                |                                |                                |                                |                                |
| Water Volume                                         |       | l<br>gal                  | 71.1<br>18.8                   | 81.6<br>21.6                   | 108.5<br>28.7                  | 124.0<br>32.8                  | 28.0<br>7.4                  | 41.3<br>10.9                 | 52.4<br>13.8                  | 64.7<br>17.1                   | 79.7<br>21.1                   | 91.5<br>24.2                   | 121.5<br>32.1                  | 138.4<br>36.6                  |
| Water Flow Rate                                      |       | l/s<br>gpm                | 3.42<br>54.2                   | 3.96<br>62.7                   | 5.10<br>80.8                   | 5.83<br>92.4                   | 1.05<br>16.6                 | 1.57<br>24.9                 | 2.09<br>33.2                  | 2.49<br>39.5                   | 3.20<br>50.7                   | 3.71<br>58.8                   | 4.76<br>75.5                   | 5.46<br>86.5                   |
| Pressure Drop                                        | (3)   | kPa<br>ftH <sub>2</sub> O | 112.9<br>37.8                  | 110.1<br>36.8                  | 103.7<br>34.7                  | 105.8<br>35.4                  | 118.7<br>39.7                | 126.8<br>42.4                | 111.1<br>37.2                 | 111.2<br>37.2                  | 107.8<br>36.1                  | 107.1<br>35.8                  | 96.1<br>32.2                   | 103.0<br>34.5                  |
| <b>Fan Motor - Centrifugal</b>                       |       |                           |                                |                                |                                |                                |                              |                              |                               |                                |                                |                                |                                |                                |
| Quantity x Motor Size                                |       | kW                        | 3 x 3.95                       | 3 x 3.70                       | 4 x 3.70                       | 4 x 3.70                       | 1 x 3.95                     | 1 x 3.70                     | 2 x 3.95                      | 2 x 3.70                       | 3 x 3.95                       | 3 x 3.70                       | 4 x 3.70                       | 4 x 3.70                       |
| Speed @25Pa (0.10 in H <sub>2</sub> O) / Maximum ESP |       | rpm                       | 1550 /<br>1780                 | 1201 /<br>1420                 | 1187 /<br>1420                 | 1267 /<br>1420                 | 1388 /<br>1780               | 1253 /<br>1420               | 1411 /<br>1780                | 1146 /<br>1420                 | 1460 /<br>1780                 | 1153 /<br>1420                 | 1143 /<br>1420                 | 1200 /<br>1420                 |
| Maximum ESP                                          |       | Pa<br>inH <sub>2</sub> O  | 331<br>1.33                    | 339<br>1.36                    | 353<br>1.42                    | 259<br>1.04                    | 489<br>1.96                  | 272<br>1.09                  | 469<br>1.88                   | 381<br>1.53                    | 426<br>1.71                    | 373<br>1.50                    | 380<br>1.53                    | 329<br>1.32                    |
| Nominal Airflow                                      | (1)   | m <sup>3</sup> /s<br>cfm  | 10.29<br>21803                 | 11.98<br>25384                 | 15.35<br>32525                 | 17.60<br>37292                 | 2.88<br>6102                 | 4.32<br>9154                 | 5.76<br>12205                 | 6.86<br>14536                  | 8.79<br>18625                  | 10.23<br>21676                 | 13.11<br>27779                 | 15.03<br>31847                 |
| Maximum Airflow                                      | (2)   | m <sup>3</sup> /s<br>cfm  | 11.92<br>25259                 | 14.37<br>30450                 | 18.67<br>39551                 | 19.91<br>42197                 | 3.76<br>7968                 | 4.94<br>10476                | 7.40<br>15688                 | 8.71<br>18465                  | 10.89<br>23075                 | 12.91<br>27352                 | 16.72<br>35433                 | 18.12<br>38391                 |
| <b>Electrical Data</b>                               |       |                           |                                |                                |                                |                                |                              |                              |                               |                                |                                |                                |                                |                                |
| Full Load Amps                                       | (1)   | A                         | 16.3                           | 15.4                           | 20.4                           | 20.4                           | 5.7                          | 5.4                          | 11                            | 10.4                           | 16.3                           | 15.4                           | 20.4                           | 20.4                           |
| Recommended Mains Fuse Size                          |       | A                         | 20                             | 20                             | 25                             | 25                             | 15                           | 15                           | 15                            | 15                             | 20                             | 20                             | 25                             | 25                             |
| Max Mains Incoming Cable Size                        |       | AWG                       | 2                              | 2                              | 2                              | 2                              | 2                            | 2                            | 2                             | 2                              | 2                              | 2                              | 2                              | 2                              |
| <b>Fan and Motor</b>                                 |       |                           |                                |                                |                                |                                |                              |                              |                               |                                |                                |                                |                                |                                |
| Full Load Amps                                       | (5)   | A                         | 5.3                            | 5.0                            | 5.0                            | 5.0                            | 5.3                          | 5.0                          | 5.3                           | 5.0                            | 5.3                            | 5.0                            | 5.0                            | 5.0                            |

(1) Entering air 36°C (96.8°F) / 22.6% RH, Entering water 20°C (68°F) Leaving water 30°C (86°F) (Low Flow) 28°C (82.4°F) (High Flow).

(2) Entering air 36°C (96.8°F) / 22.6% RH, Entering water 20°C (68°F) Leaving water 30°C (86°F) (Low Flow) 28°C (82.4°F) (High Flow), Max fan speed.

(3) Pressure drop through heat exchanger, control valve and unit pipework.

(4) Fan gain based on 25Pa (0.10 inH<sub>2</sub>O) ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(5) Stated motor power is based on maximum electrical power absorbed.

## Technical Data

## Mechanical and Electrical Data - 460V

|                                                      | Notes | Units                     | SO09D005CLCXX-3              | SO12D008CLCXX-3              | SO15D010CLCXX-3                | SO18D012CLCXX-3                | SO22D016CLCXX-3                | SO25D018CLCXX-3                | SO31D023CLCXX-3                | SO35D027CLCXX-3                 | SO09D005CLDSX-3              | SO12D007CLDSX-3              | SO15D009CLDSX-3                | SO18D011CLDSX-3                |
|------------------------------------------------------|-------|---------------------------|------------------------------|------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|---------------------------------|------------------------------|------------------------------|--------------------------------|--------------------------------|
| <b>Mechanical Data</b>                               |       |                           |                              |                              |                                |                                |                                |                                |                                |                                 |                              |                              |                                |                                |
| <b>Capacity</b>                                      |       |                           |                              |                              |                                |                                |                                |                                |                                |                                 |                              |                              |                                |                                |
| Nominal Cooling (Gross)                              | (1)   | kW<br>MBH                 | 51.2<br>175                  | 76.8<br>262                  | 102.6<br>350                   | 122.2<br>417                   | 156.0<br>532                   | 181.2<br>618                   | 233.0<br>795                   | 266.6<br>910                    | 47.4<br>162                  | 71.0<br>242                  | 94.9<br>324                    | 112.7<br>385                   |
| Nominal Fan Power Input (Fan Gain)                   |       | kW                        | 1.93                         | 3.13                         | 4.12                           | 4.82                           | 6.77                           | 7.40                           | 9.61                           | 11.20                           | 1.74                         | 2.76                         | 3.61                           | 4.38                           |
| Nominal EER                                          |       |                           | 26.6                         | 24.5                         | 24.9                           | 25.3                           | 23.0                           | 24.5                           | 24.3                           | 23.8                            | 27.3                         | 25.7                         | 26.3                           | 25.8                           |
| Cooling (Gross) at Max. Airflow                      | (2)   | kW<br>MBH                 | 59.1<br>202                  | 78.3<br>267                  | 116.2<br>397                   | 137.8<br>470                   | 170.7<br>583                   | 203.0<br>693                   | 263.8<br>900                   | 285.3<br>974                    | 57.3<br>195                  | 76.7<br>262                  | 113.6<br>388                   | 132.9<br>453                   |
| Fan Power Input (Fan Gain) at Max. Airflow           |       | kW                        | 2.95                         | 3.32                         | 5.96                           | 6.98                           | 8.87                           | 10.50                          | 14.07                          | 13.80                           | 3.03                         | 3.47                         | 6.10                           | 7.09                           |
| EER at Max. Airflow                                  |       |                           | 20.0                         | 23.6                         | 19.5                           | 19.7                           | 19.2                           | 19.3                           | 18.7                           | 20.7                            | 18.9                         | 22.1                         | 18.6                           | 18.7                           |
| <b>Dimensions</b>                                    |       |                           |                              |                              |                                |                                |                                |                                |                                |                                 |                              |                              |                                |                                |
| Depth                                                |       | mm                        | 890                          | 890                          | 890                            | 890                            | 890                            | 890                            | 890                            | 890                             | 1050                         | 1050                         | 1050                           | 1050                           |
| Height                                               |       | mm                        | 2280                         | 2280                         | 2280                           | 2280                           | 2280                           | 2280                           | 2280                           | 2280                            | 1980                         | 1980                         | 1980                           | 1980                           |
| Width                                                |       | mm                        | 900                          | 1200                         | 1500                           | 1800                           | 2200                           | 2500                           | 3100                           | 3500                            | 900                          | 1200                         | 1500                           | 1800                           |
| Depth                                                |       | in                        | 35.0                         | 35.0                         | 35.0                           | 35.0                           | 35.0                           | 35.0                           | 35.0                           | 35.0                            | 41.3                         | 41.3                         | 41.3                           | 41.3                           |
| Height                                               |       | in                        | 89.8                         | 89.8                         | 89.8                           | 89.8                           | 89.8                           | 89.8                           | 89.8                           | 89.8                            | 78.0                         | 78.0                         | 78.0                           | 78.0                           |
| Width                                                |       | in                        | 35.4                         | 47.2                         | 59.1                           | 70.9                           | 86.6                           | 98.4                           | 122.0                          | 137.8                           | 35.4                         | 47.2                         | 59.1                           | 70.9                           |
| Mass - Machine / Operating                           |       | kg<br>lbs                 | 314 /<br>346<br>691 /<br>762 | 387 /<br>435<br>853 /<br>958 | 456 /<br>520<br>1005 /<br>1146 | 538 /<br>612<br>1186 /<br>1350 | 607 /<br>699<br>1338 /<br>1540 | 680 /<br>791<br>1499 /<br>1744 | 821 /<br>961<br>1810 /<br>2118 | 909 /<br>1077<br>2004 /<br>2374 | 318 /<br>354<br>700 /<br>781 | 389 /<br>441<br>858 /<br>971 | 461 /<br>531<br>1017 /<br>1169 | 523 /<br>603<br>1152 /<br>1329 |
| <b>Unit</b>                                          |       |                           |                              |                              |                                |                                |                                |                                |                                |                                 |                              |                              |                                |                                |
| Water Volume                                         |       | l<br>gal                  | 32.2<br>8.5                  | 47.5<br>12.5                 | 63.8<br>16.9                   | 74.3<br>19.6                   | 91.9<br>24.3                   | 111.0<br>29.3                  | 139.5<br>36.9                  | 167.6<br>44.3                   | 36.6<br>9.7                  | 51.6<br>13.6                 | 69.2<br>18.3                   | 80.6<br>21.3                   |
| Water Flow Rate                                      |       | l/s<br>gpm                | 1.22<br>19.4                 | 1.84<br>29.1                 | 2.45<br>38.9                   | 2.92<br>46.3                   | 3.73<br>59.1                   | 4.33<br>68.6                   | 5.57<br>88.3                   | 6.37<br>101.0                   | 1.13<br>17.9                 | 1.70<br>26.9                 | 2.27<br>36.0                   | 2.69<br>42.7                   |
| Pressure Drop                                        | (3)   | kPa<br>ftH <sub>2</sub> O | 115.0<br>38.5                | 97.4<br>32.6                 | 112.4<br>37.6                  | 98.1<br>32.8                   | 106.5<br>35.6                  | 106.4<br>35.6                  | 101.5<br>34.0                  | 100.8<br>33.7                   | 103.2<br>34.5                | 125.4<br>42.0                | 109.3<br>36.6                  | 105.0<br>35.1                  |
| <b>Fan Motor - Centrifugal</b>                       |       |                           |                              |                              |                                |                                |                                |                                |                                |                                 |                              |                              |                                |                                |
| Quantity x Motor Size                                |       | kW                        | 1 x 3.95                     | 1 x 3.70                     | 2 x 3.95                       | 2 x 3.70                       | 3 x 3.95                       | 3 x 3.70                       | 4 x 3.70                       | 4 x 3.70                        | 1 x 3.95                     | 1 x 3.70                     | 2 x 3.95                       | 2 x 3.70                       |
| Speed @25Pa (0.10 in H <sub>2</sub> O) / Maximum ESP |       | rpm                       | 1523 /<br>1780               | 1387 /<br>1420               | 1557 /<br>1780                 | 1252 /<br>1420                 | 1615 /<br>1780                 | 1262 /<br>1420                 | 1249 /<br>1420                 | 1323 /<br>1420                  | 1462 /<br>1780               | 1310 /<br>1420               | 1482 /<br>1780                 | 1208 /<br>1420                 |
| Maximum ESP                                          |       | Pa<br>inH <sub>2</sub> O  | 360<br>1.45                  | 79<br>0.32                   | 321<br>1.29                    | 269<br>1.08                    | 248<br>1.00                    | 256<br>1.03                    | 271<br>1.09                    | 176<br>0.71                     | 409<br>1.65                  | 192<br>0.77                  | 391<br>1.57                    | 306<br>1.23                    |
| Nominal Airflow                                      | (1)   | m <sup>3</sup> /s<br>cfm  | 3.37<br>7141                 | 5.06<br>10722                | 6.75<br>14302                  | 8.04<br>17036                  | 10.29<br>21803                 | 11.98<br>25384                 | 15.35<br>32525                 | 17.60<br>37292                  | 2.96<br>6272                 | 4.44<br>9408                 | 5.93<br>12565                  | 7.06<br>14959                  |
| Maximum Airflow                                      | (2)   | m <sup>3</sup> /s<br>cfm  | 3.97<br>8418                 | 5.17<br>10959                | 7.79<br>16502                  | 9.23<br>19560                  | 11.41<br>24176                 | 13.65<br>28920                 | 17.70<br>37506                 | 19.02<br>40309                  | 3.66<br>7747                 | 4.84<br>10262                | 7.23<br>15326                  | 8.47<br>17951                  |
| <b>Electrical Data</b>                               |       |                           | (1)                          |                              |                                |                                |                                |                                |                                |                                 |                              |                              |                                |                                |
| Full Load Amps                                       |       | A                         | 5.7                          | 5.4                          | 11                             | 10.4                           | 16.3                           | 15.4                           | 20.4                           | 20.4                            | 5.7                          | 5.4                          | 11                             | 10.4                           |
| Recommended Mains Fuse Size                          |       | A                         | 15                           | 15                           | 15                             | 15                             | 20                             | 20                             | 25                             | 25                              | 15                           | 15                           | 15                             | 15                             |
| Max Mains Incoming Cable Size                        |       | AWG                       | 2                            | 2                            | 2                              | 2                              | 2                              | 2                              | 2                              | 2                               | 2                            | 2                            | 2                              | 2                              |
| <b>Fan and Motor</b>                                 |       |                           | (5)                          |                              |                                |                                |                                |                                |                                |                                 |                              |                              |                                |                                |
| Full Load Amps                                       |       | A                         | 5.3                          | 5.0                          | 5.3                            | 5.0                            | 5.3                            | 5.0                            | 5.0                            | 5.0                             | 5.3                          | 5.0                          | 5.3                            | 5.0                            |

(1) Entering air 36°C (96.8°F) / 22.6% RH, Entering water 20°C (68°F) Leaving water 30°C (86°F) (Low Flow) 28°C (82.4°F) (High Flow).

(2) Entering air 36°C (96.8°F) / 22.6% RH, Entering water 20°C (68°F) Leaving water 30°C (86°F) (Low Flow) 28°C (82.4°F) (High Flow), Max fan speed.

(3) Pressure drop through heat exchanger, control valve and unit pipework.

(4) Fan gain based on 25Pa (0.10 inH<sub>2</sub>O) ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(5) Stated motor power is based on maximum electrical power absorbed.

## Technical Data

## Mechanical and Electrical Data - 460V

|                                                      | Notes | Units                     | SO22D014CLDSx-3                | SO25D017CLDSx-3                | SO31D022CLDSx-3                | SO35D025CLDSx-3                 | SO09D006CLDXx-3              | SO12D008CLDXx-3               | SO15D011CLDXx-3                | SO18D013CLDXx-3                | SO22D017CLDXx-3                | SO25D020CLDXx-3                | SO31D025CLDXx-3                 | SO35D029CLDXx-3                  |
|------------------------------------------------------|-------|---------------------------|--------------------------------|--------------------------------|--------------------------------|---------------------------------|------------------------------|-------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|---------------------------------|----------------------------------|
| <b>Mechanical Data</b>                               |       |                           |                                |                                |                                |                                 |                              |                               |                                |                                |                                |                                |                                 |                                  |
| <b>Capacity</b>                                      |       |                           |                                |                                |                                |                                 |                              |                               |                                |                                |                                |                                |                                 |                                  |
| Nominal Cooling (Gross)                              | (1)   | kW<br>MBH                 | 144.6<br>494                   | 168.2<br>574                   | 215.8<br>736                   | 247.2<br>843                    | 55.4<br>189                  | 81.2<br>277                   | 110.2<br>376                   | 132.0<br>450                   | 168.3<br>574                   | 196.3<br>670                   | 251.4<br>858                    | 286.9<br>979                     |
| Nominal Fan Power Input (Fan Gain)                   |       | kW                        | 5.87                           | 6.65                           | 8.63                           | 9.84                            | 2.20                         | 3.39                          | 4.57                           | 5.42                           | 7.50                           | 8.25                           | 10.71                           | 12.39                            |
| Nominal EER                                          |       |                           | 24.6                           | 25.3                           | 25.0                           | 25.1                            | 25.2                         | 24.0                          | 24.1                           | 24.3                           | 22.5                           | 23.8                           | 23.5                            | 23.2                             |
| Cooling (Gross) at Max. Airflow                      | (2)   | kW<br>MBH                 | 168.5<br>575                   | 197.5<br>674                   | 256.0<br>874                   | 279.9<br>955                    | 61.7<br>211                  | 81.2<br>277                   | 121.3<br>414                   | 144.4<br>493                   | 180.0<br>614                   | 213.7<br>729                   | 276.5<br>943                    | 298.9<br>1020                    |
| Fan Power Input (Fan Gain) at Max. Airflow           |       | kW                        | 9.18                           | 10.66                          | 14.22                          | 14.18                           | 3.01                         | 3.39                          | 6.05                           | 7.05                           | 9.12                           | 10.59                          | 14.17                           | 13.98                            |
| EER at Max. Airflow                                  |       |                           | 18.3                           | 18.5                           | 18.0                           | 19.7                            | 20.5                         | 24.0                          | 20.1                           | 20.5                           | 19.7                           | 20.2                           | 19.5                            | 21.4                             |
| <b>Dimensions</b>                                    |       |                           |                                |                                |                                |                                 |                              |                               |                                |                                |                                |                                |                                 |                                  |
| Depth                                                |       | mm                        | 1050                           | 1050                           | 1050                           | 1050                            | 1050                         | 1050                          | 1050                           | 1050                           | 1050                           | 1050                           | 1050                            | 1050                             |
| Height                                               |       | mm                        | 1980                           | 1980                           | 1980                           | 1980                            | 2280                         | 2280                          | 2280                           | 2280                           | 2280                           | 2280                           | 2280                            | 2280                             |
| Width                                                |       | mm                        | 2200                           | 2500                           | 3100                           | 3500                            | 900                          | 1200                          | 1500                           | 1800                           | 2200                           | 2500                           | 3100                            | 3500                             |
| Depth                                                |       | in                        | 41.3                           | 41.3                           | 41.3                           | 41.3                            | 41.3                         | 41.3                          | 41.3                           | 41.3                           | 41.3                           | 41.3                           | 41.3                            | 41.3                             |
| Height                                               |       | in                        | 78.0                           | 78.0                           | 78.0                           | 78.0                            | 89.8                         | 89.8                          | 89.8                           | 89.8                           | 89.8                           | 89.8                           | 89.8                            | 89.8                             |
| Width                                                |       | in                        | 86.6                           | 98.4                           | 122.0                          | 137.8                           | 35.4                         | 47.2                          | 59.1                           | 70.9                           | 86.6                           | 98.4                           | 122.0                           | 137.8                            |
| Mass - Machine / Operating                           |       | kg<br>lbs                 | 613 /<br>713<br>1350 /<br>1570 | 694 /<br>815<br>1530 /<br>1795 | 834 /<br>993<br>1838 /<br>2188 | 918 /<br>1099<br>2023 /<br>2423 | 357 /<br>399<br>788 /<br>880 | 438 /<br>498<br>966 /<br>1097 | 519 /<br>599<br>1145 /<br>1320 | 590 /<br>683<br>1301 /<br>1505 | 699 /<br>819<br>1541 /<br>1806 | 786 /<br>925<br>1733 /<br>2038 | 945 /<br>1126<br>2082 /<br>2482 | 1041 /<br>1248<br>2294 /<br>2751 |
| <b>Unit</b>                                          |       |                           |                                |                                |                                |                                 |                              |                               |                                |                                |                                |                                |                                 |                                  |
| Water Volume                                         |       | l<br>gal                  | 99.9<br>26.4                   | 120.5<br>31.8                  | 159.1<br>42.0                  | 181.4<br>47.9                   | 41.9<br>11.1                 | 59.4<br>15.7                  | 79.4<br>21.0                   | 92.8<br>24.5                   | 120.1<br>31.7                  | 138.2<br>36.5                  | 181.4<br>47.9                   | 207.3<br>54.8                    |
| Water Flow Rate                                      |       | l/s<br>gpm                | 3.46<br>54.8                   | 4.02<br>63.7                   | 5.16<br>81.8                   | 5.91<br>93.6                    | 1.32<br>21.0                 | 1.94<br>30.8                  | 2.63<br>41.7                   | 3.15<br>50.0                   | 4.02<br>63.8                   | 4.69<br>74.4                   | 6.01<br>95.2                    | 6.86<br>108.7                    |
| Pressure Drop                                        | (3)   | kPa<br>ftH <sub>2</sub> O | 108.0<br>36.1                  | 102.6<br>34.3                  | 99.0<br>33.1                   | 99.6<br>33.3                    | 118.3<br>39.6                | 118.5<br>39.7                 | 101.6<br>34.0                  | 109.3<br>36.6                  | 106.3<br>35.6                  | 93.2<br>31.2                   | 100.8<br>33.7                   | 98.1<br>32.8                     |
| <b>Fan Motor - Centrifugal</b>                       |       |                           |                                |                                |                                |                                 |                              |                               |                                |                                |                                |                                |                                 |                                  |
| Quantity x Motor Size                                |       | kW                        | 3 x 3.95                       | 3 x 3.70                       | 4 x 3.70                       | 4 x 3.70                        | 1 x 3.95                     | 1 x 3.70                      | 2 x 3.95                       | 2 x 3.70                       | 3 x 3.95                       | 3 x 3.70                       | 4 x 3.70                        | 4 x 3.70                         |
| Speed @25Pa (0.10 in H <sub>2</sub> O) / Maximum ESP |       | rpm                       | 1523 /<br>1780                 | 1213 /<br>1420                 | 1203 /<br>1420                 | 1256 /<br>1420                  | 1587 /<br>1780               | 1415 /<br>1420                | 1610 /<br>1780                 | 1299 /<br>1420                 | 1661 /<br>1780                 | 1305 /<br>1420                 | 1293 /<br>1420                  | 1362 /<br>1420                   |
| Maximum ESP                                          |       | Pa<br>inH <sub>2</sub> O  | 352<br>1.42                    | 301<br>1.21                    | 309<br>1.24                    | 256<br>1.03                     | 281<br>1.13                  | 33<br>0.13                    | 253<br>1.02                    | 204<br>0.82                    | 187<br>0.75                    | 195<br>0.78                    | 210<br>0.85                     | 115<br>0.46                      |
| Nominal Airflow                                      | (1)   | m <sup>3</sup> /s<br>cfm  | 9.04<br>19155                  | 10.52<br>22291                 | 13.48<br>28563                 | 15.46<br>32758                  | 3.46<br>7331                 | 5.12<br>10844                 | 6.91<br>14641                  | 8.24<br>17460                  | 10.54<br>22333                 | 12.27<br>25999                 | 15.73<br>33330                  | 18.03<br>38203                   |
| Maximum Airflow                                      | (2)   | m <sup>3</sup> /s<br>cfm  | 10.71<br>22684                 | 12.57<br>26642                 | 16.28<br>34491                 | 17.74<br>37596                  | 3.90<br>8265                 | 5.12<br>10844                 | 7.69<br>16294                  | 9.09<br>19267                  | 11.34<br>24031                 | 13.48<br>28553                 | 17.48<br>37031                  | 18.86<br>39970                   |
| <b>Electrical Data</b>                               |       |                           | (1)                            |                                |                                |                                 |                              |                               |                                |                                |                                |                                |                                 |                                  |
| Full Load Amps                                       |       | A                         | 13.7                           | 15.4                           | 20.4                           | 20.4                            | 5.7                          | 5.4                           | 11                             | 10.4                           | 16.3                           | 15.4                           | 20.4                            | 20.4                             |
| Recommended Mains Fuse Size                          |       | A                         | 15                             | 20                             | 25                             | 25                              | 15                           | 15                            | 15                             | 15                             | 20                             | 20                             | 25                              | 25                               |
| Max Mains Incoming Cable Size                        |       | AWG                       | 2                              | 2                              | 2                              | 2                               | 2                            | 2                             | 2                              | 2                              | 2                              | 2                              | 2                               | 2                                |
| <b>Fan and Motor</b>                                 |       |                           | (5)                            |                                |                                |                                 |                              |                               |                                |                                |                                |                                |                                 |                                  |
| Full Load Amps                                       |       | A                         | 4.4                            | 5.0                            | 5.0                            | 5.0                             | 5.3                          | 5.0                           | 5.3                            | 5.0                            | 5.3                            | 5.0                            | 5.0                             | 5.0                              |

(1) Entering air 36°C (96.8°F) / 22.6% RH, Entering water 20°C (68°F) Leaving water 30°C (86°F) (Low Flow) 28°C (82.4°F) (High Flow).

(2) Entering air 36°C (96.8°F) / 22.6% RH, Entering water 20°C (68°F) Leaving water 30°C (86°F) (Low Flow) 28°C (82.4°F) (High Flow), Max fan speed.

(3) Pressure drop through heat exchanger, control valve and unit pipework.

(4) Fan gain based on 25Pa (0.10 inH<sub>2</sub>O) ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(5) Stated motor power is based on maximum electrical power absorbed.

## Technical Data

## Mechanical and Electrical Data - 460V

|                                                      | Notes | Units              | SO30D043CLDSx-3 | SO40D059CLDSx-3 | SO50D074CLDSx-3 | SO60D096CLDSx-3 | SO90D004CHBSx-3 | SO12D006CHBSx-3 | SO15D008CHBSx-3 | SO18D010CHBSx-3 | SO22D013CHBSx-3 | SO25D015CHBSx-3 | SO31D019CHBSx-3 | SO35D022CHBSx-3 |
|------------------------------------------------------|-------|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>Mechanical Data</b>                               |       |                    |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| <b>Capacity</b>                                      |       |                    |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Nominal Cooling (Gross)                              | (1)   | kW<br>MBH          | 427.8<br>1460   | 586.9<br>2003   | 735.6<br>2510   | 960.7<br>3278   | 41.9<br>143     | 63.0<br>215     | 83.7<br>286     | 99.8<br>341     | 127.6<br>435    | 148.2<br>506    | 190.1<br>649    | 217.7<br>743    |
| Nominal Fan Power Input (Fan Gain)                   |       | kW                 | 19.36           | 25.66           | 32.06           | 46.05           | 1.26            | 2.00            | 2.67            | 3.07            | 4.38            | 4.70            | 6.10            | 7.11            |
| Nominal EER                                          |       |                    | 22.1            | 22.9            | 22.9            | 20.9            | 33.2            | 31.5            | 31.4            | 32.5            | 29.2            | 31.5            | 31.2            | 30.6            |
| Cooling (Gross) at Max. Airflow                      | (2)   | kW<br>MBH          | 438.8<br>1497   | 601.0<br>2051   | 753.1<br>2570   | 986.2<br>3365   | 55.1<br>188     | 73.6<br>251     | 108.3<br>370    | 128.7<br>439    | 159.7<br>545    | 189.8<br>648    | 246.1<br>840    | 267.0<br>911    |
| Fan Power Input (Fan Gain) at Max. Airflow           |       | kW                 | 20.92           | 27.56           | 34.41           | 49.91           | 2.94            | 3.30            | 5.94            | 6.96            | 8.81            | 10.46           | 14.03           | 13.73           |
| EER at Max. Airflow                                  |       |                    | 21.0            | 21.8            | 21.9            | 19.8            | 18.7            | 22.3            | 18.2            | 18.5            | 18.1            | 18.1            | 17.5            | 19.4            |
| <b>Dimensions</b>                                    |       |                    |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Depth                                                |       | mm                 | 2200            | 2200            | 2200            | 2200            | 890             | 890             | 890             | 890             | 890             | 890             | 890             | 890             |
| Height                                               |       | mm                 | 2400            | 2400            | 2400            | 2400            | 1980            | 1980            | 1980            | 1980            | 1980            | 1980            | 1980            | 1980            |
| Width                                                |       | mm                 | 3000            | 4000            | 5000            | 6000            | 900             | 1200            | 1500            | 1800            | 2200            | 2500            | 3100            | 3500            |
| Depth                                                |       | in                 | 86.6            | 86.6            | 86.6            | 86.6            | 35.0            | 35.0            | 35.0            | 35.0            | 35.0            | 35.0            | 35.0            | 35.0            |
| Height                                               |       | in                 | 94.5            | 94.5            | 94.5            | 94.5            | 78.0            | 78.0            | 78.0            | 78.0            | 78.0            | 78.0            | 78.0            | 78.0            |
| Width                                                |       | in                 | 118.1           | 157.5           | 196.9           | 236.2           | 35.4            | 47.2            | 59.1            | 70.9            | 86.6            | 98.4            | 122.0           | 137.8           |
| Mass - Machine / Operating                           |       | kg                 | 1967 /<br>2448  | 2580 /<br>3229  | 3223 /<br>4048  | 3893 /<br>4934  | 266 /<br>288    | 323 /<br>356    | 377 /<br>420    | 424 /<br>475    | 493 /<br>555    | 549 /<br>625    | 657 /<br>752    | 740 /<br>857    |
|                                                      |       | lbs                | 4337 /<br>5395  | 5687 /<br>7118  | 7105 /<br>8924  | 8582 /<br>10876 | 586 /<br>634    | 712 /<br>783    | 830 /<br>926    | 935 /<br>1047   | 1086 /<br>1222  | 1210 /<br>1378  | 1447 /<br>1657  | 1631 /<br>1889  |
| <b>Unit</b>                                          |       |                    |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Water Volume                                         |       | l                  | 480.3           | 649.3           | 824.8           | 1040.5          | 21.8            | 32.3            | 43.7            | 50.6            | 61.9            | 76.1            | 95.0            | 117.0           |
|                                                      |       | gal                | 126.9           | 171.5           | 217.9           | 274.9           | 5.8             | 8.5             | 11.5            | 13.4            | 16.4            | 20.1            | 25.1            | 30.9            |
| Water Flow Rate                                      |       | l/s                | 10.22           | 14.03           | 17.58           | 22.96           | 1.25            | 1.88            | 2.50            | 2.98            | 3.81            | 4.43            | 5.68            | 6.50            |
|                                                      |       | gpm                | 162.0           | 222.3           | 278.6           | 363.9           | 19.8            | 29.8            | 39.6            | 47.2            | 60.4            | 70.2            | 90.0            | 103.1           |
| Pressure Drop                                        | (3)   | kPa                | 55.6            | 72.8            | 53.1            | 63.8            | 78.2            | 66.6            | 56.9            | 62.9            | 59.1            | 56.8            | 67.9            | 51.8            |
|                                                      |       | ftH <sub>2</sub> O | 18.6            | 24.4            | 17.8            | 21.3            | 26.2            | 22.3            | 19.0            | 21.1            | 19.8            | 19.0            | 22.7            | 17.3            |
| <b>Fan Motor - Centrifugal</b>                       |       |                    |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Quantity x Motor Size                                |       | kW                 | 6 x 3.70        | 8 x 3.70        | 10 x 3.70       | 14 x 3.70       | 1 x 3.95        | 1 x 3.70        | 2 x 3.95        | 2 x 3.70        | 3 x 3.95        | 3 x 3.70        | 4 x 3.70        | 4 x 3.70        |
| Speed @25Pa (0.10 in H <sub>2</sub> O) / Maximum ESP |       | rpm                | 1382 /<br>1420  | 1385 /<br>1420  | 1386 /<br>1420  | 1382 /<br>1420  | 1309 /<br>1780  | 1193 /<br>1420  | 1334 /<br>1780  | 1075 /<br>1420  | 1386 /<br>1780  | 1083 /<br>1420  | 1071 /<br>1420  | 1135 /<br>1420  |
| Maximum ESP                                          |       | Pa                 | 87              | 82              | 81              | 87              | 571             | 355             | 551             | 463             | 509             | 456             | 463             | 412             |
|                                                      |       | inH <sub>2</sub> O | 0.35            | 0.33            | 0.33            | 0.35            | 2.30            | 1.43            | 2.21            | 1.86            | 2.04            | 1.83            | 1.86            | 1.66            |
| Nominal Airflow                                      | (1)   | m <sup>3</sup> /s  | 24.62           | 33.58           | 42.09           | 55.46           | 2.88            | 4.32            | 5.76            | 6.86            | 8.79            | 10.23           | 13.11           | 15.03           |
|                                                      |       | cfm                | 52167           | 71152           | 89184           | 117513          | 6102            | 9154            | 12205           | 14536           | 18625           | 21676           | 27779           | 31847           |
| Maximum Airflow                                      | (2)   | m <sup>3</sup> /s  | 25.33           | 34.48           | 43.20           | 57.12           | 3.99            | 5.20            | 7.85            | 9.30            | 11.49           | 13.77           | 17.87           | 19.19           |
|                                                      |       | cfm                | 53680           | 73050           | 91530           | 121040          | 8463            | 11028           | 16624           | 19715           | 24354           | 29180           | 37874           | 40671           |
| <b>Electrical Data</b>                               |       |                    |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                                       | (1)   | A                  | 30.4            | 40.4            | 50.4            | 70.4            | 5.7             | 5.4             | 11              | 10.4            | 16.3            | 15.4            | 20.4            | 20.4            |
| Recommended Mains Fuse Size                          |       | A                  | 35              | 45              | 60              | 80              | 15              | 15              | 15              | 15              | 20              | 20              | 25              | 25              |
| Max Mains Incoming Cable Size                        |       | AWG                | 2               | 2               | 2               | 2               | 2               | 2               | 2               | 2               | 2               | 2               | 2               | 2               |
| <b>Fan and Motor</b>                                 |       |                    |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                                       | (5)   | A                  | 5.0             | 5.0             | 5.0             | 5.0             | 5.3             | 5.0             | 5.3             | 5.0             | 5.3             | 5.0             | 5.0             | 5.0             |

(1) Entering air 36°C (96.8°F) / 22.6% RH, Entering water 20°C (68°F) Leaving water 30°C (86°F) (Low Flow) 28°C (82.4°F) (High Flow).

(2) Entering air 36°C (96.8°F) / 22.6% RH, Entering water 20°C (68°F) Leaving water 30°C (86°F) (Low Flow) 28°C (82.4°F) (High Flow), Max fan speed.

(3) Pressure drop through heat exchanger, control valve and unit pipework.

(4) Fan gain based on 25Pa (0.10 inH<sub>2</sub>O) ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(5) Stated motor power is based on maximum electrical power absorbed.

## Technical Data

## Mechanical and Electrical Data - 460V

|                                                      | Notes | Units                     | SO09D005CHBXx-3              | SO12D007CHBXx-3              | SO15D010CHBXx-3               | SO18D012CHBXx-3                | SO22D015CHBXx-3                | SO25D017CHBXx-3                | SO31D022CHBXx-3                | SO35D025CHBXx-3                | SO09D005CHCx-3               | SO12D007CHCx-3               | SO15D009CHCx-3                | SO18D011CHCx-3                 |
|------------------------------------------------------|-------|---------------------------|------------------------------|------------------------------|-------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|------------------------------|------------------------------|-------------------------------|--------------------------------|
| <b>Mechanical Data</b>                               |       |                           |                              |                              |                               |                                |                                |                                |                                |                                |                              |                              |                               |                                |
| <b>Capacity</b>                                      |       |                           |                              |                              |                               |                                |                                |                                |                                |                                |                              |                              |                               |                                |
| Nominal Cooling (Gross)                              | (1)   | kW<br>MBH                 | 49.1<br>167                  | 73.5<br>251                  | 97.8<br>334                   | 116.6<br>398                   | 148.8<br>508                   | 172.6<br>589                   | 222.0<br>758                   | 253.8<br>866                   | 45.4<br>155                  | 68.1<br>232                  | 90.6<br>309                   | 108.0<br>369                   |
| Nominal Fan Power Input (Fan Gain)                   |       | kW                        | 1.63                         | 2.70                         | 3.51                          | 4.07                           | 5.73                           | 6.27                           | 8.13                           | 9.59                           | 1.50                         | 2.38                         | 3.15                          | 3.74                           |
| Nominal EER                                          |       |                           | 30.1                         | 27.3                         | 27.8                          | 28.6                           | 26.0                           | 27.5                           | 27.3                           | 26.5                           | 30.3                         | 28.6                         | 28.8                          | 28.9                           |
| Cooling (Gross) at Max. Airflow                      | (2)   | kW<br>MBH                 | 58.7<br>200                  | 77.5<br>264                  | 114.6<br>391                  | 136.8<br>467                   | 168.3<br>574                   | 200.9<br>686                   | 261.4<br>892                   | 281.4<br>960                   | 57.5<br>196                  | 76.8<br>262                  | 113.2<br>386                  | 133.5<br>456                   |
| Fan Power Input (Fan Gain) at Max. Airflow           |       | kW                        | 2.83                         | 3.19                         | 5.72                          | 6.81                           | 8.41                           | 10.26                          | 13.79                          | 13.40                          | 3.02                         | 3.42                         | 6.08                          | 7.07                           |
| EER at Max. Airflow                                  |       |                           | 20.8                         | 24.3                         | 20.0                          | 20.1                           | 20.0                           | 19.6                           | 19.0                           | 21.0                           | 19.1                         | 22.5                         | 18.6                          | 18.9                           |
| <b>Dimensions</b>                                    |       |                           |                              |                              |                               |                                |                                |                                |                                |                                |                              |                              |                               |                                |
| Depth                                                |       | mm                        | 890                          | 890                          | 890                           | 890                            | 890                            | 890                            | 890                            | 890                            | 890                          | 890                          | 890                           | 890                            |
| Height                                               |       | mm                        | 2280                         | 2280                         | 2280                          | 2280                           | 2280                           | 2280                           | 2280                           | 2280                           | 1980                         | 1980                         | 1980                          | 1980                           |
| Width                                                |       | mm                        | 900                          | 1200                         | 1500                          | 1800                           | 2200                           | 2500                           | 3100                           | 3500                           | 900                          | 1200                         | 1500                          | 1800                           |
| Depth                                                |       | in                        | 35.0                         | 35.0                         | 35.0                          | 35.0                           | 35.0                           | 35.0                           | 35.0                           | 35.0                           | 35.0                         | 35.0                         | 35.0                          | 35.0                           |
| Height                                               |       | in                        | 89.8                         | 89.8                         | 89.8                          | 89.8                           | 89.8                           | 89.8                           | 89.8                           | 89.8                           | 78.0                         | 78.0                         | 78.0                          | 78.0                           |
| Width                                                |       | in                        | 35.4                         | 47.2                         | 59.1                          | 70.9                           | 86.6                           | 98.4                           | 122.0                          | 137.8                          | 35.4                         | 47.2                         | 59.1                          | 70.9                           |
| Mass - Machine / Operating                           |       | kg<br>lbs                 | 295 /<br>320<br>649 /<br>704 | 360 /<br>397<br>793 /<br>874 | 420 /<br>470<br>926 /<br>1035 | 495 /<br>553<br>1091 /<br>1219 | 559 /<br>635<br>1232 /<br>1399 | 617 /<br>704<br>1360 /<br>1551 | 761 /<br>877<br>1677 /<br>1933 | 832 /<br>964<br>1833 /<br>2125 | 282 /<br>310<br>620 /<br>682 | 346 /<br>388<br>763 /<br>854 | 408 /<br>463<br>898 /<br>1021 | 461 /<br>526<br>1016 /<br>1158 |
| <b>Unit</b>                                          |       |                           |                              |                              |                               |                                |                                |                                |                                |                                |                              |                              |                               |                                |
| Water Volume                                         |       | l<br>gal                  | 25.0<br>6.6                  | 36.9<br>9.7                  | 49.8<br>13.2                  | 57.8<br>15.3                   | 75.8<br>20.0                   | 86.8<br>22.9                   | 116.1<br>30.7                  | 132.2<br>34.9                  | 28.0<br>7.4                  | 41.3<br>10.9                 | 55.6<br>14.7                  | 64.6<br>17.1                   |
| Water Flow Rate                                      |       | l/s<br>gpm                | 1.47<br>23.2                 | 2.19<br>34.8                 | 2.92<br>46.3                  | 3.48<br>55.2                   | 4.44<br>70.5                   | 5.15<br>81.7                   | 6.63<br>105.1                  | 7.58<br>120.1                  | 1.36<br>21.5                 | 2.03<br>32.2                 | 2.71<br>42.9                  | 3.23<br>51.1                   |
| Pressure Drop                                        | (3)   | kPa<br>ftH <sub>2</sub> O | 93.0<br>31.1                 | 72.2<br>24.1                 | 62.8<br>21.0                  | 71.0<br>23.7                   | 56.9<br>19.0                   | 63.0<br>21.1                   | 52.5<br>17.6                   | 57.8<br>19.3                   | 84.1<br>28.1                 | 68.5<br>22.9                 | 58.5<br>19.6                  | 65.7<br>22.0                   |
| <b>Fan Motor - Centrifugal</b>                       |       |                           |                              |                              |                               |                                |                                |                                |                                |                                |                              |                              |                               |                                |
| Quantity x Motor Size                                |       | kW                        | 1 x 3.95                     | 1 x 3.70                     | 2 x 3.95                      | 2 x 3.70                       | 3 x 3.95                       | 3 x 3.70                       | 4 x 3.70                       | 4 x 3.70                       | 1 x 3.95                     | 1 x 3.70                     | 2 x 3.95                      | 2 x 3.70                       |
| Speed @25Pa (0.10 in H <sub>2</sub> O) / Maximum ESP |       | rpm                       | 1453 /<br>1780               | 1336 /<br>1420               | 1488 /<br>1780                | 1191 /<br>1420                 | 1550 /<br>1780                 | 1201 /<br>1420                 | 1187 /<br>1420                 | 1267 /<br>1420                 | 1388 /<br>1780               | 1253 /<br>1420               | 1411 /<br>1780                | 1146 /<br>1420                 |
| Maximum ESP                                          |       | Pa<br>inH <sub>2</sub> O  | 442<br>1.78                  | 161<br>0.65                  | 403<br>1.62                   | 351<br>1.41                    | 331<br>1.33                    | 339<br>1.36                    | 353<br>1.42                    | 259<br>1.04                    | 489<br>1.96                  | 272<br>1.09                  | 469<br>1.88                   | 381<br>1.53                    |
| Nominal Airflow                                      | (1)   | m <sup>3</sup> /s<br>cfm  | 3.37<br>7141                 | 5.06<br>10722                | 6.75<br>14302                 | 8.04<br>17036                  | 10.29<br>21803                 | 11.98<br>25384                 | 15.35<br>32525                 | 17.60<br>37292                 | 2.88<br>6102                 | 4.32<br>9154                 | 5.76<br>12205                 | 6.86<br>14536                  |
| Maximum Airflow                                      | (2)   | m <sup>3</sup> /s<br>cfm  | 4.17<br>8845                 | 5.39<br>11415                | 8.16<br>17300                 | 9.73<br>20611                  | 11.92<br>25259                 | 14.37<br>30450                 | 18.67<br>39551                 | 19.91<br>42197                 | 3.76<br>7968                 | 4.94<br>10476                | 7.40<br>15688                 | 8.71<br>18465                  |
| <b>Electrical Data</b>                               |       |                           |                              |                              |                               |                                |                                |                                |                                |                                |                              |                              |                               |                                |
| Full Load Amps                                       | (1)   | A                         | 5.7                          | 5.4                          | 11                            | 10.4                           | 16.3                           | 15.4                           | 20.4                           | 20.4                           | 5.7                          | 5.4                          | 11                            | 10.4                           |
| Recommended Mains Fuse Size                          |       | A                         | 15                           | 15                           | 15                            | 15                             | 20                             | 20                             | 25                             | 25                             | 15                           | 15                           | 15                            | 15                             |
| Max Mains Incoming Cable Size                        |       | AWG                       | 2                            | 2                            | 2                             | 2                              | 2                              | 2                              | 2                              | 2                              | 2                            | 2                            | 2                             | 2                              |
| <b>Fan and Motor</b>                                 |       |                           |                              |                              |                               |                                |                                |                                |                                |                                |                              |                              |                               |                                |
| Full Load Amps                                       | (5)   | A                         | 5.3                          | 5.0                          | 5.3                           | 5.0                            | 5.3                            | 5.0                            | 5.0                            | 5.0                            | 5.3                          | 5.0                          | 5.3                           | 5.0                            |

(1) Entering air 36°C (96.8°F) / 22.6% RH, Entering water 20°C (68°F) Leaving water 30°C (86°F) (Low Flow) 28°C (82.4°F) (High Flow).

(2) Entering air 36°C (96.8°F) / 22.6% RH, Entering water 20°C (68°F) Leaving water 30°C (86°F) (Low Flow) 28°C (82.4°F) (High Flow), Max fan speed.

(3) Pressure drop through heat exchanger, control valve and unit pipework.

(4) Fan gain based on 25Pa (0.10 inH<sub>2</sub>O) ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(5) Stated motor power is based on maximum electrical power absorbed.

## Technical Data

## Mechanical and Electrical Data - 460V

|                                                      | Notes | Units                     | SO22D014CHCXX-3                | SO25D016CHCXX-3                | SO31D021CHCXX-3                | SO35D024CHCXX-3                | SO09D005CHCXX-3              | SO12D008CHCXX-3              | SO15D011CHCXX-3                | SO18D013CHCXX-3                | SO22D016CHCXX-3                | SO25D019CHCXX-3                | SO31D024CHCXX-3                | SO35D028CHCXX-3                 |
|------------------------------------------------------|-------|---------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|------------------------------|------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|---------------------------------|
| <b>Mechanical Data</b>                               |       |                           |                                |                                |                                |                                |                              |                              |                                |                                |                                |                                |                                |                                 |
| <b>Capacity</b>                                      |       |                           |                                |                                |                                |                                |                              |                              |                                |                                |                                |                                |                                |                                 |
| Nominal Cooling (Gross)                              | (1)   | kW<br>MBH                 | 138.0<br>471                   | 160.2<br>547                   | 205.7<br>702                   | 236.0<br>805                   | 53.2<br>182                  | 79.6<br>272                  | 105.7<br>361                   | 126.1<br>430                   | 160.8<br>549                   | 186.6<br>637                   | 240.1<br>819                   | 276.4<br>943                    |
| Nominal Fan Power Input (Fan Gain)                   |       | kW                        | 5.19                           | 5.72                           | 7.43                           | 8.54                           | 1.93                         | 3.13                         | 4.12                           | 4.82                           | 6.77                           | 7.40                           | 9.61                           | 11.20                           |
| Nominal EER                                          |       |                           | 26.6                           | 28.0                           | 27.7                           | 27.6                           | 27.6                         | 25.4                         | 25.7                           | 26.2                           | 23.8                           | 25.2                           | 25.0                           | 24.7                            |
| Cooling (Gross) at Max. Airflow                      | (2)   | kW<br>MBH                 | 166.8<br>569                   | 196.8<br>671                   | 255.2<br>871                   | 278.7<br>951                   | 61.6<br>210                  | 81.1<br>277                  | 120.0<br>410                   | 142.6<br>487                   | 176.3<br>602                   | 209.5<br>715                   | 272.7<br>930                   | 296.4<br>1011                   |
| Fan Power Input (Fan Gain) at Max. Airflow           |       | kW                        | 9.11                           | 10.62                          | 14.20                          | 14.06                          | 2.95                         | 3.32                         | 5.96                           | 6.98                           | 8.87                           | 10.50                          | 14.07                          | 13.80                           |
| EER at Max. Airflow                                  |       |                           | 18.3                           | 18.5                           | 18.0                           | 19.8                           | 20.8                         | 24.4                         | 20.1                           | 20.4                           | 19.9                           | 20.0                           | 19.4                           | 21.5                            |
| <b>Dimensions</b>                                    |       |                           |                                |                                |                                |                                |                              |                              |                                |                                |                                |                                |                                |                                 |
| Depth                                                |       | mm                        | 890                            | 890                            | 890                            | 890                            | 890                          | 890                          | 890                            | 890                            | 890                            | 890                            | 890                            | 890                             |
| Height                                               |       | mm                        | 1980                           | 1980                           | 1980                           | 1980                           | 2280                         | 2280                         | 2280                           | 2280                           | 2280                           | 2280                           | 2280                           | 2280                            |
| Width                                                |       | mm                        | 2200                           | 2500                           | 3100                           | 3500                           | 900                          | 1200                         | 1500                           | 1800                           | 2200                           | 2500                           | 3100                           | 3500                            |
| Depth                                                |       | in                        | 35.0                           | 35.0                           | 35.0                           | 35.0                           | 35.0                         | 35.0                         | 35.0                           | 35.0                           | 35.0                           | 35.0                           | 35.0                           | 35.0                            |
| Height                                               |       | in                        | 78.0                           | 78.0                           | 78.0                           | 78.0                           | 89.8                         | 89.8                         | 89.8                           | 89.8                           | 89.8                           | 89.8                           | 89.8                           | 89.8                            |
| Width                                                |       | in                        | 86.6                           | 98.4                           | 122.0                          | 137.8                          | 35.4                         | 47.2                         | 59.1                           | 70.9                           | 86.6                           | 98.4                           | 122.0                          | 137.8                           |
| Mass - Machine / Operating                           |       | kg<br>lbs                 | 539 /<br>619<br>1189 /<br>1364 | 603 /<br>700<br>1330 /<br>1543 | 732 /<br>860<br>1613 /<br>1896 | 820 /<br>967<br>1807 /<br>2131 | 314 /<br>346<br>692 /<br>763 | 387 /<br>434<br>853 /<br>957 | 456 /<br>520<br>1005 /<br>1145 | 539 /<br>613<br>1187 /<br>1351 | 614 /<br>710<br>1353 /<br>1566 | 681 /<br>792<br>1501 /<br>1745 | 842 /<br>989<br>1857 /<br>2180 | 925 /<br>1092<br>2039 /<br>2408 |
| <b>Unit</b>                                          |       |                           |                                |                                |                                |                                |                              |                              |                                |                                |                                |                                |                                |                                 |
| Water Volume                                         |       | l<br>gal                  | 79.6<br>21.0                   | 96.8<br>25.6                   | 128.7<br>34.0                  | 147.1<br>38.9                  | 32.2<br>8.5                  | 47.4<br>12.5                 | 63.6<br>16.8                   | 74.1<br>19.6                   | 96.6<br>25.5                   | 110.9<br>29.3                  | 146.9<br>38.8                  | 167.4<br>44.2                   |
| Water Flow Rate                                      |       | l/s<br>gpm                | 4.12<br>65.3                   | 4.79<br>75.9                   | 6.14<br>97.4                   | 7.05<br>111.7                  | 1.59<br>25.2                 | 2.38<br>37.7                 | 3.16<br>50.0                   | 3.77<br>59.7                   | 4.80<br>76.1                   | 5.57<br>88.3                   | 7.17<br>113.7                  | 8.25<br>130.8                   |
| Pressure Drop                                        | (3)   | kPa<br>ftH <sub>2</sub> O | 60.2<br>20.1                   | 57.6<br>19.3                   | 65.9<br>22.1                   | 55.9<br>18.7                   | 69.3<br>23.2                 | 61.5<br>20.6                 | 64.2<br>21.5                   | 56.4<br>18.9                   | 57.7<br>19.3                   | 65.6<br>22.0                   | 53.9<br>18.0                   | 67.4<br>22.5                    |
| <b>Fan Motor - Centrifugal</b>                       |       |                           |                                |                                |                                |                                |                              |                              |                                |                                |                                |                                |                                |                                 |
| Quantity x Motor Size                                |       | kW                        | 3 x 3.95                       | 3 x 3.70                       | 4 x 3.70                       | 4 x 3.70                       | 1 x 3.95                     | 1 x 3.70                     | 2 x 3.95                       | 2 x 3.70                       | 3 x 3.95                       | 3 x 3.70                       | 4 x 3.70                       | 4 x 3.70                        |
| Speed @25Pa (0.10 in H <sub>2</sub> O) / Maximum ESP |       | rpm                       | 1460 /<br>1780                 | 1153 /<br>1420                 | 1143 /<br>1420                 | 1200 /<br>1420                 | 1523 /<br>1780               | 1387 /<br>1420               | 1557 /<br>1780                 | 1252 /<br>1420                 | 1615 /<br>1780                 | 1262 /<br>1420                 | 1249 /<br>1420                 | 1323 /<br>1420                  |
| Maximum ESP                                          |       | Pa<br>inH <sub>2</sub> O  | 426<br>1.71                    | 373<br>1.50                    | 380<br>1.53                    | 329<br>1.32                    | 360<br>1.45                  | 79<br>0.32                   | 321<br>1.29                    | 269<br>1.08                    | 248<br>1.00                    | 256<br>1.03                    | 271<br>1.09                    | 176<br>0.71                     |
| Nominal Airflow                                      | (1)   | m <sup>3</sup> /s<br>cfm  | 8.79<br>18625                  | 10.23<br>21676                 | 13.11<br>27779                 | 15.03<br>31847                 | 3.37<br>7141                 | 5.06<br>10722                | 6.75<br>14302                  | 8.04<br>17036                  | 10.29<br>21803                 | 11.98<br>25384                 | 15.35<br>32525                 | 17.60<br>37292                  |
| Maximum Airflow                                      | (2)   | m <sup>3</sup> /s<br>cfm  | 10.89<br>23075                 | 12.91<br>27352                 | 16.72<br>35433                 | 18.12<br>38391                 | 3.97<br>8418                 | 5.17<br>10959                | 7.79<br>16502                  | 9.23<br>19560                  | 11.41<br>24176                 | 13.65<br>28920                 | 17.70<br>37506                 | 19.02<br>40309                  |
| <b>Electrical Data</b>                               |       |                           | (1)                            |                                |                                |                                |                              |                              |                                |                                |                                |                                |                                |                                 |
| Full Load Amps                                       |       | A                         | 16.3                           | 15.4                           | 20.4                           | 20.4                           | 5.7                          | 5.4                          | 11                             | 10.4                           | 16.3                           | 15.4                           | 20.4                           | 20.4                            |
| Recommended Mains Fuse Size                          |       | A                         | 20                             | 20                             | 25                             | 25                             | 15                           | 15                           | 15                             | 15                             | 20                             | 20                             | 25                             | 25                              |
| Max Mains Incoming Cable Size                        |       | AWG                       | 2                              | 2                              | 2                              | 2                              | 2                            | 2                            | 2                              | 2                              | 2                              | 2                              | 2                              | 2                               |
| <b>Fan and Motor</b>                                 |       |                           | (5)                            |                                |                                |                                |                              |                              |                                |                                |                                |                                |                                |                                 |
| Full Load Amps                                       |       | A                         | 5.3                            | 5.0                            | 5.0                            | 5.0                            | 5.3                          | 5.0                          | 5.3                            | 5.0                            | 5.3                            | 5.0                            | 5.0                            | 5.0                             |

(1) Entering air 36°C (96.8°F) / 22.6% RH, Entering water 20°C (68°F) Leaving water 30°C (86°F) (Low Flow) 28°C (82.4°F) (High Flow).

(2) Entering air 36°C (96.8°F) / 22.6% RH, Entering water 20°C (68°F) Leaving water 30°C (86°F) (Low Flow) 28°C (82.4°F) (High Flow), Max fan speed.

(3) Pressure drop through heat exchanger, control valve and unit pipework.

(4) Fan gain based on 25Pa (0.10 inH<sub>2</sub>O) ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(5) Stated motor power is based on maximum electrical power absorbed.

## Technical Data

## Mechanical and Electrical Data- 460V

|                                                      | Notes | Units                     | SO09D005CHDSx-3              | SO12D007CHDSx-3              | SO15D010CHDSx-3                | SO18D012CHDSx-3                | SO22D015CHDSx-3                | SO25D017CHDSx-3                | SO31D022CHDSx-3                 | SO35D025CHDSx-3                 | SO09D006CHDXx-3              | SO12D008CHDXx-3               | SO15D011CHDXx-3                | SO18D014CHDXx-3                |
|------------------------------------------------------|-------|---------------------------|------------------------------|------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|---------------------------------|---------------------------------|------------------------------|-------------------------------|--------------------------------|--------------------------------|
| <b>Mechanical Data</b>                               |       |                           |                              |                              |                                |                                |                                |                                |                                 |                                 |                              |                               |                                |                                |
| <b>Capacity</b>                                      |       |                           |                              |                              |                                |                                |                                |                                |                                 |                                 |                              |                               |                                |                                |
| Nominal Cooling (Gross)                              | (1)   | kW<br>MBH                 | 48.8<br>166                  | 73.0<br>249                  | 97.3<br>332                    | 116.0<br>396                   | 148.2<br>506                   | 172.8<br>590                   | 221.0<br>754                    | 253.0<br>863                    | 57.0<br>194                  | 84.1<br>287                   | 113.0<br>386                   | 135.1<br>461                   |
| Nominal Fan Power Input (Fan Gain)                   |       | kW                        | 1.74                         | 2.76                         | 3.61                           | 4.38                           | 5.87                           | 6.65                           | 8.63                            | 9.84                            | 2.20                         | 3.39                          | 4.57                           | 5.42                           |
| Nominal EER                                          |       |                           | 28.1                         | 26.5                         | 27.0                           | 26.5                           | 25.2                           | 26.0                           | 25.6                            | 25.7                            | 25.9                         | 24.8                          | 24.7                           | 24.9                           |
| Cooling (Gross) at Max. Airflow                      | (2)   | kW<br>MBH                 | 59.2<br>202                  | 79.1<br>270                  | 116.9<br>399                   | 137.3<br>468                   | 173.1<br>591                   | 203.7<br>695                   | 262.9<br>897                    | 287.3<br>980                    | 63.7<br>217                  | 84.0<br>287                   | 124.7<br>426                   | 147.9<br>505                   |
| Fan Power Input (Fan Gain) at Max. Airflow           |       | kW                        | 3.03                         | 3.47                         | 6.10                           | 7.09                           | 9.18                           | 10.66                          | 14.22                           | 14.18                           | 3.01                         | 3.39                          | 6.05                           | 7.05                           |
| EER at Max. Airflow                                  |       |                           | 19.6                         | 22.8                         | 19.2                           | 19.4                           | 18.8                           | 19.1                           | 18.5                            | 20.3                            | 21.1                         | 24.8                          | 20.6                           | 21.0                           |
| <b>Dimensions</b>                                    |       |                           |                              |                              |                                |                                |                                |                                |                                 |                                 |                              |                               |                                |                                |
| Depth                                                |       | mm                        | 1050                         | 1050                         | 1050                           | 1050                           | 1050                           | 1050                           | 1050                            | 1050                            | 1050                         | 1050                          | 1050                           | 1050                           |
| Height                                               |       | mm                        | 1980                         | 1980                         | 1980                           | 1980                           | 1980                           | 1980                           | 1980                            | 1980                            | 2280                         | 2280                          | 2280                           | 2280                           |
| Width                                                |       | mm                        | 900                          | 1200                         | 1500                           | 1800                           | 2200                           | 2500                           | 3100                            | 3500                            | 900                          | 1200                          | 1500                           | 1800                           |
| Depth                                                |       | in                        | 41.3                         | 41.3                         | 41.3                           | 41.3                           | 41.3                           | 41.3                           | 41.3                            | 41.3                            | 41.3                         | 41.3                          | 41.3                           | 41.3                           |
| Height                                               |       | in                        | 78.0                         | 78.0                         | 78.0                           | 78.0                           | 78.0                           | 78.0                           | 78.0                            | 78.0                            | 89.8                         | 89.8                          | 89.8                           | 89.8                           |
| Width                                                |       | in                        | 35.4                         | 47.2                         | 59.1                           | 70.9                           | 86.6                           | 98.4                           | 122.0                           | 137.8                           | 35.4                         | 47.2                          | 59.1                           | 70.9                           |
| Mass - Machine / Operating                           |       | kg<br>lbs                 | 317 /<br>352<br>698 /<br>775 | 390 /<br>442<br>860 /<br>974 | 461 /<br>531<br>1017 /<br>1169 | 523 /<br>603<br>1152 /<br>1330 | 619 /<br>724<br>1365 /<br>1596 | 695 /<br>815<br>1531 /<br>1796 | 849 /<br>1008<br>1872 /<br>2222 | 934 /<br>1115<br>2058 /<br>2458 | 359 /<br>400<br>790 /<br>882 | 443 /<br>506<br>977 /<br>1115 | 519 /<br>599<br>1145 /<br>1319 | 597 /<br>695<br>1316 /<br>1531 |
| <b>Unit</b>                                          |       |                           |                              |                              |                                |                                |                                |                                |                                 |                                 |                              |                               |                                |                                |
| Water Volume                                         |       | l<br>gal                  | 35.0<br>9.2                  | 51.6<br>13.6                 | 69.2<br>18.3                   | 80.7<br>21.3                   | 104.8<br>27.7                  | 120.2<br>31.8                  | 158.8<br>42.0                   | 181.2<br>47.9                   | 41.8<br>11.0                 | 62.7<br>16.6                  | 79.2<br>20.9                   | 97.7<br>25.8                   |
| Water Flow Rate                                      |       | l/s<br>gpm                | 1.46<br>23.1                 | 2.18<br>34.6                 | 2.91<br>46.1                   | 3.46<br>54.9                   | 4.43<br>70.1                   | 5.16<br>81.8                   | 6.60<br>104.6                   | 7.56<br>119.8                   | 1.70<br>27.0                 | 2.51<br>39.8                  | 3.38<br>53.5                   | 4.03<br>63.9                   |
| Pressure Drop                                        | (3)   | kPa<br>ftH <sub>2</sub> O | 90.7<br>30.4                 | 69.4<br>23.2                 | 60.0<br>20.1                   | 68.5<br>22.9                   | 53.4<br>17.9                   | 60.1<br>20.1                   | 49.9<br>16.7                    | 55.3<br>18.5                    | 61.7<br>20.6                 | 53.5<br>17.9                  | 67.2<br>22.5                   | 50.7<br>17.0                   |
| <b>Fan Motor - Centrifugal</b>                       |       |                           |                              |                              |                                |                                |                                |                                |                                 |                                 |                              |                               |                                |                                |
| Quantity x Motor Size                                |       | kW                        | 1 x 3.95                     | 1 x 3.70                     | 2 x 3.95                       | 2 x 3.70                       | 3 x 3.95                       | 3 x 3.70                       | 4 x 3.70                        | 4 x 3.70                        | 1 x 3.95                     | 1 x 3.70                      | 2 x 3.95                       | 2 x 3.70                       |
| Speed @25Pa (0.10 in H <sub>2</sub> O) / Maximum ESP |       | rpm                       | 1462 /<br>1780               | 1310 /<br>1420               | 1482 /<br>1780                 | 1208 /<br>1420                 | 1523 /<br>1780                 | 1213 /<br>1420                 | 1203 /<br>1420                  | 1256 /<br>1420                  | 1587 /<br>1780               | 1415 /<br>1420                | 1610 /<br>1780                 | 1299 /<br>1420                 |
| Maximum ESP                                          |       | Pa<br>inH <sub>2</sub> O  | 409<br>1.65                  | 192<br>0.77                  | 391<br>1.57                    | 306<br>1.23                    | 352<br>1.42                    | 301<br>1.21                    | 309<br>1.24                     | 256<br>1.03                     | 281<br>1.13                  | 33<br>0.13                    | 253<br>1.02                    | 204<br>0.82                    |
| Nominal Airflow                                      | (1)   | m <sup>3</sup> /s<br>cfm  | 2.96<br>6272                 | 4.44<br>9408                 | 5.93<br>12565                  | 7.06<br>14959                  | 9.04<br>19155                  | 10.52<br>22291                 | 13.48<br>28563                  | 15.46<br>32758                  | 3.46<br>7331                 | 5.12<br>10844                 | 6.91<br>14641                  | 8.24<br>17460                  |
| Maximum Airflow                                      | (2)   | m <sup>3</sup> /s<br>cfm  | 3.66<br>7747                 | 4.84<br>10262                | 7.23<br>15326                  | 8.47<br>17951                  | 10.71<br>22684                 | 12.57<br>26642                 | 16.28<br>34491                  | 17.74<br>37596                  | 3.90<br>8265                 | 5.12<br>10844                 | 7.69<br>16294                  | 9.09<br>19267                  |
| <b>Electrical Data</b>                               |       |                           | (1)                          |                              |                                |                                |                                |                                |                                 |                                 |                              |                               |                                |                                |
| Full Load Amps                                       |       | A                         | 5.7                          | 5.4                          | 11                             | 10.4                           | 16.3                           | 15.4                           | 20.4                            | 20.4                            | 5.7                          | 5.4                           | 11                             | 10.4                           |
| Recommended Mains Fuse Size                          |       | A                         | 15                           | 15                           | 15                             | 15                             | 20                             | 20                             | 25                              | 25                              | 15                           | 15                            | 15                             | 15                             |
| Max Mains Incoming Cable Size                        |       | AWG                       | 2                            | 2                            | 2                              | 2                              | 2                              | 2                              | 2                               | 2                               | 2                            | 2                             | 2                              | 2                              |
| <b>Fan and Motor</b>                                 |       |                           | (5)                          |                              |                                |                                |                                |                                |                                 |                                 |                              |                               |                                |                                |
| Full Load Amps                                       |       | A                         | 5.3                          | 5.0                          | 5.3                            | 5.0                            | 5.3                            | 5.0                            | 5.0                             | 5.0                             | 5.3                          | 5.0                           | 5.3                            | 5.0                            |

(1) Entering air 36°C (96.8°F) / 22.6% RH, Entering water 20°C (68°F) Leaving water 30°C (86°F) (Low Flow) 28°C (82.4°F) (High Flow).

(2) Entering air 36°C (96.8°F) / 22.6% RH, Entering water 20°C (68°F) Leaving water 30°C (86°F) (Low Flow) 28°C (82.4°F) (High Flow), Max fan speed.

(3) Pressure drop through heat exchanger, control valve and unit pipework.

(4) Fan gain based on 25Pa (0.10 inH<sub>2</sub>O) ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(5) Stated motor power is based on maximum electrical power absorbed.

## Technical Data

## Mechanical and Electrical Data - 460V

|                                                      | Notes | Units              | SO22D017CHDXx-3 | SO25D020CHDXx-3 | SO31D026CHDXx-3 | SO35D029CHDXx-3 | SO30D044CHDSx-3 | SO40D061CHDSx-3 | SO50D076CHDSx-3 | SO60D100CHDSx-3 |
|------------------------------------------------------|-------|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Mechanical Data                                      |       |                    |                 |                 |                 |                 |                 |                 |                 |                 |
| Capacity                                             |       |                    |                 |                 |                 |                 |                 |                 |                 |                 |
| Nominal Cooling (Gross)                              | (1)   | kW<br>MBH          | 172.2<br>587    | 201.1<br>686    | 257.0<br>877    | 294.5<br>1005   | 444.7<br>1517   | 608.6<br>2077   | 764.2<br>2608   | 1003.4<br>3424  |
| Nominal Fan Power Input (Fan Gain)                   |       | kW                 | 7.50            | 8.25            | 10.71           | 12.39           | 19.36           | 25.66           | 32.06           | 46.05           |
| Nominal EER                                          |       |                    | 23.0            | 24.4            | 24.0            | 23.8            | 23.0            | 23.7            | 23.8            | 21.8            |
| Cooling (Gross) at Max. Airflow                      | (2)   | kW<br>MBH          | 184.2<br>629    | 219.3<br>748    | 283.3<br>967    | 307.2<br>1048   | 456.4<br>1557   | 623.4<br>2127   | 782.8<br>2671   | 1031.0<br>3518  |
| Fan Power Input (Fan Gain) at Max. Airflow           |       | kW                 | 9.12            | 10.59           | 14.17           | 13.98           | 20.92           | 27.56           | 34.41           | 49.91           |
| EER at Max. Airflow                                  |       |                    | 20.2            | 20.7            | 20.0            | 22.0            | 21.8            | 22.6            | 22.7            | 20.7            |
| Dimensions                                           |       |                    |                 |                 |                 |                 |                 |                 |                 |                 |
| Depth                                                |       | mm                 | 1050            | 1050            | 1050            | 1050            | 2200            | 2200            | 2200            | 2200            |
| Height                                               |       | mm                 | 2280            | 2280            | 2280            | 2280            | 2400            | 2400            | 2400            | 2400            |
| Width                                                |       | mm                 | 2200            | 2500            | 3100            | 3500            | 3000            | 4000            | 5000            | 6000            |
| Depth                                                |       | in                 | 41.3            | 41.3            | 41.3            | 41.3            | 86.6            | 86.6            | 86.6            | 86.6            |
| Height                                               |       | in                 | 89.8            | 89.8            | 89.8            | 89.8            | 94.5            | 94.5            | 94.5            | 94.5            |
| Width                                                |       | in                 | 86.6            | 98.4            | 122.0           | 137.8           | 118.1           | 157.5           | 196.9           | 236.2           |
| Mass - Machine / Operating                           |       | kg                 | 700 / 820       | 802 / 940       | 960 / 1142      | 1056 / 1264     | 1967 / 2447     | 2714 / 3403     | 3320 / 4192     | 3905 / 4945     |
|                                                      |       | lbs                | 1542 / 1807     | 1768 / 2072     | 2116 / 2516     | 2329 / 2785     | 4337 / 5395     | 5982 / 7501     | 7320 / 9241     | 8608 / 10901    |
| Unit                                                 |       |                    |                 |                 |                 |                 |                 |                 |                 |                 |
| Water Volume                                         |       | l                  | 120.0           | 137.8           | 181.4           | 207.1           | 480.2           | 689.0           | 871.4           | 1040.5          |
|                                                      |       | gal                | 31.7            | 36.4            | 47.9            | 54.7            | 126.9           | 182.0           | 230.2           | 274.9           |
| Water Flow Rate                                      |       | l/s                | 5.14            | 6.01            | 7.68            | 8.80            | 13.28           | 18.18           | 22.82           | 29.97           |
|                                                      |       | gpm                | 81.5            | 95.2            | 121.7           | 139.4           | 210.5           | 288.1           | 361.7           | 475.0           |
| Pressure Drop                                        | (3)   | kPa                | 60.3            | 51.1            | 55.8            | 65.9            | 72.0            | 58.6            | 52.8            | 75.5            |
|                                                      |       | ftH <sub>2</sub> O | 20.2            | 17.1            | 18.7            | 22.0            | 24.1            | 19.6            | 17.7            | 25.3            |
| Fan Motor - Centrifugal                              |       |                    |                 |                 |                 |                 |                 |                 |                 |                 |
| Quantity x Motor Size                                |       | kW                 | 3 x 3.95        | 3 x 3.70        | 4 x 3.70        | 4 x 3.70        | 6 x 3.70        | 8 x 3.70        | 10 x 3.70       | 14 x 3.70       |
| Speed @25Pa (0.10 in H <sub>2</sub> O) / Maximum ESP |       | rpm                | 1661 / 1780     | 1305 / 1420     | 1293 / 1420     | 1362 / 1420     | 1382 / 1420     | 1385 / 1420     | 1386 / 1420     | 1382 / 1420     |
| Maximum ESP                                          |       | Pa                 | 187             | 195             | 210             | 115             | 87              | 82              | 81              | 87              |
|                                                      |       | inH <sub>2</sub> O | 0.75            | 0.78            | 0.85            | 0.46            | 0.35            | 0.33            | 0.33            | 0.35            |
| Nominal Airflow                                      | (1)   | m³/s               | 10.54           | 12.27           | 15.73           | 18.03           | 24.62           | 33.58           | 42.09           | 55.46           |
|                                                      |       | cfm                | 22333           | 25999           | 33330           | 38203           | 52167           | 71152           | 89184           | 117513          |
| Maximum Airflow                                      | (2)   | m³/s               | 11.34           | 13.48           | 17.48           | 18.86           | 25.33           | 34.48           | 43.20           | 57.12           |
|                                                      |       | cfm                | 24031           | 28553           | 37031           | 39970           | 53680           | 73050           | 91530           | 121040          |
| Electrical Data                                      |       |                    |                 |                 |                 |                 |                 |                 |                 |                 |
|                                                      | (1)   |                    |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                                       |       | A                  | 16.3            | 15.4            | 20.4            | 20.4            | 30.4            | 40.4            | 50.4            | 70.4            |
| Recommended Mains Fuse Size                          |       | A                  | 20              | 20              | 25              | 25              | 35              | 45              | 60              | 80              |
| Max Mains Incoming Cable Size                        |       | AWG                | 2               | 2               | 2               | 2               | 2               | 2               | 2               | 2               |
| Fan and Motor                                        |       |                    |                 |                 |                 |                 |                 |                 |                 |                 |
| Full Load Amps                                       | (5)   | A                  | 5.3             | 5.0             | 5.0             | 5.0             | 5.0             | 5.0             | 5.0             | 5.0             |

(1) Entering air 36°C (96.8°F) / 22.6% RH, Entering water 20°C (68°F) Leaving water 30°C (86°F) (Low Flow) 28°C (82.4°F) (High Flow).

(2) Entering air 36°C (96.8°F) / 22.6% RH, Entering water 20°C (68°F) Leaving water 30°C (86°F) (Low Flow) 28°C (82.4°F) (High Flow), Max fan speed.

(3) Pressure drop through heat exchanger, control valve and unit pipework.

(4) Fan gain based on 25Pa (0.10 inH<sub>2</sub>O) ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(5) Stated motor power is based on maximum electrical power absorbed.

## Commissioning Procedure

### General

To be read in conjunction with the commissioning sheets provided.

#### **NOTE**

Please ensure all documents have been completed correctly and return to Airedale Technical Support immediately to validate warranty.

The unit shall be commissioned with the return air dew point below the water inlet temperature to prevent condensation build up on any unit pipework without pipework lagging.

### Commissioning Checklist

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

#### **WARNING**

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

### Pre Commissioning checks

#### Pressure test

Ensure that the system has been pressure tested for pipework integrity and leaks. This not only ensures a correctly operating system but also reduces potential leaks in the future.

#### Electrical Connections

Prior to turning on the power supply to the unit ensure that all electrical connections are tight and correctly terminated.

#### External Fuses/MCBs

Check that the correct electrical supply rating is available to the unit.

#### Electrical Continuity

Before electrical power is applied to the unit, electrical continuity must be carried out on the 3 phase power.

#### Phase Rotation

Check that the phase rotation is correct. Components in the unit will malfunction with incorrect phase rotation. Check with a phase rotation meter.

#### Electrical Earthing

Check that the earth is correctly bonded.

#### Remote ON/OFF

To ensure that the unit does not start doing the pre-commissioning checks the remote on/off should be in the OFF state. Measure the voltage at the following points and record on the commissioning sheet:

- Mains incoming
- Dedicated power supply
- Permanent supply
- Control voltage at the transformer (min 22.5V, max 25V)

Fan Section

AHU Fan Motor

Record the following information on the commissioning sheet:

- Fan motor size
- Drive type
- Is the rotation correct?
- Motor currents (L1, L2 and L3)
- Fan speed
- Overload settings
- Phase voltage

Filter Change Switch

If fitted, ensure that the filter change switch is operating.

Glycol units

Glycol Type/Concentration

Check and record the glycol type and strength: Glycol concentration is measured by use of a Refractometer. Low levels of glycol can cause freeze up problems when operating at low temperatures or during the unit off state during cold ambient conditions. High concentrations of glycol can increase the system pressure drop and impair heat exchanger performance.

Record the following information on the commissioning sheet:

- Water flow rate.
- Water pressure drop; record the fluid pressure drop at full flow to the coil. Binder insertion points are fitted to the unit for this purpose.

2-Port Chilled Water and 2-Port Bypass Valves

The chilled water valve is modulated proportionally to provide the required cooling with respect to cooling demand. A bypass leg fitted with a further 2 port valve regulates system pressure drop.

The system pressure drop must be determined by the control system at design flow rate during commissioning. To initiate this process, select the Auto-Commissioning function in the Service menu on the controller (please refer to the SmartCool One Controls Manual for more information).

Initially, this process fully closes the bypass valve and fully opens the CW valve to insure maximum flow through the unit. The differential pressure is then sampled at four intervals over the space of a minute. The result is averaged, and this becomes the unit differential pressure setpoint. The controller maintains the same pressure drop through the coil by using a PID loop on the bypass output.

To prevent step changes in the valves and therefore both the CW and bypass valves competing, dampening will be used on the analogue outputs.

⚠ WARNING

The unit must maintain power once the waterside has been commissioned to allow the pressure transducer to operate correctly. This is to mitigate the scenario of an increase in water pressure exceeding the valve close off pressure or causing catastrophic failure of the water circuit.

If power cannot be maintained after commissioning, the waterside system must always be checked before isolating to ensure the valve is open to avoid issues with liquid lock, and the internal water temperature should not be allowed to raise significantly.

Day One Operation

During installation and commissioning the unit may experience higher humidity levels than it was designed for. The unit fan speed should be limited until the application conditions have stabilised and met design specification, to prevent condensate from leaving the coil fin surface at high air velocities. The velocity must be kept under 1.15m/s to prevent moisture carryover.

## Maintenance

### Water Treatment Guidelines

#### Protecting Plant

It is important that the Airedale plant and equipment is properly protected and maintained to ensure optimal system performance.

**⚠️ IMPORTANT** The equipment and system should be kept clean and free of solid fouling, scale, corrosion and biological fouling. Failure to do so may invalidate warranty.

Properly maintaining the system can improve energy efficiency and life expectancy. Acceptable water treatment levels for the system should be determined by the water treatment specialist on a project by project, system by system basis. The table below provides a guide to the acceptable range required for Airedale plant, although hardness of water may vary depending on the location of the site.

|                                                    |           |                                               |      |
|----------------------------------------------------|-----------|-----------------------------------------------|------|
| PH (41°C - 104°F / 5°C - 40°C)                     | 7.0 - 8.5 | Total Hardness (mg CaCO <sub>3</sub> /L)      | <200 |
| Electrical Conductivity (µs/cm)                    | <800      | Total Iron (mg Fe/l)                          | <3.0 |
| Chloride (mg Cl/l)                                 | <200      | Soluble Iron (mg Fe/l)                        | <1.0 |
| Alkalinity (mg CaCO <sub>3</sub> /l)               | <100      | Ammonium (mg NH <sub>4</sub> <sup>+</sup> /l) | <1.0 |
| Sulphate ion (mg SO <sub>4</sub> <sup>2-</sup> /l) | <200      | Sulphide (mg S <sup>2-</sup> /l)              | <5   |

When completing a chemical clean or a dynamic flush and dose on the secondary system from the low loss header or buffer vessel, primary units such as chillers, condensers and air conditioning units should have a full-bore bypass installed as close to the plant as possible. The plant should be placed in bypass when carrying out the chemical clean in order to protect sensitive plant items and smaller bore pipes from blockage. Airedale chillers have an optional, factory-fitted flushing bypass that can be integrated within the waterside pipework. Installers should refer to Airedale for the most up to date guidelines of pre-commissioning cleaning of pipework systems and ongoing water quality maintenance and systems in operation. The manufacturer is not responsible for damage to or malfunctioning of equipment caused by failure to treat water or by improperly treated system water - this applies to both before and after commissioning.

#### Choice of Chemicals

Below is a table of metallic and non-metallic substances found in plant items produced by Airedale.

All chemicals to be used during the water treatment process should be carefully selected by the water treatment specialist so that they do not have a detrimental effect on these items, any component within the plant and equipment or the system as a whole. Frost protection and the dosing of chemicals such as monoethylene glycol and polypropylene glycol should be carefully considered in terms of dosing levels and blended chemical compatibility. Thermal efficiency should also be considered, on a project-by-project basis.

**⚠️ IMPORTANT** This is not an exhaustive list and specific advice should be sought for individual items of equipment or specific applications, if required.

|             |                             |           |                            |
|-------------|-----------------------------|-----------|----------------------------|
| Copper      | Stainless Steel (AISI 302)  | Silicon   | PA66                       |
| Brass       | Stainless Steel (AISI 316)  | PVC       | Neoprene                   |
| Cast Bronze | Nickel Plated Brass         | PTFE      | Nitrile-Butylene Elastomer |
| Cast Iron   | Galvanized Iron             | PPS       | Ethylene Propylene Rubber  |
| Mild Steel  | VITON (Rubber/Silicone mix) | PPE       | EPDM                       |
| TPE         | Synthetic Fibre             | PPA 40-GF | Diaphragm                  |

#### Filling Stage

- Before filling plant items, a visual inspection of valves should take place to ensure that there are no open ends such as drain cocks opened during installation.
- The plant items should be filled with clean water, dosed with corrosion inhibitor and biocides as required in order to prevent corrosion and biological growth. Refer to BSRIA recommendations regarding pre-filling.
- Manual or automatic air vents should be opened to release displaced air from the system during the filling process until pressurised.

## Maintenance

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

### **⚠ WARNING**

The equipment contains live electrical and moving parts, ISOLATE remotely prior to maintenance or repair work. Ensure electrical lock-off procedures are carried out.

### General Maintenance

The maintenance schedule indicates the time period between maintenance operations. Access to the various components is via the doors to the front and panels to the side of the unit.

### Coil Bleed/Drain

The chilled water coil headers have air bleed and drain valves fitted at the top and bottom of the headers respectively. Side access for filter maintenance is required for the SO09 and SO12 single slab coil case sizes as well as all A-frame variants. The air bleed for the coil headers can also be accessed from the sides of the casework. For all other single slab coil variants the air bleed for the coil headers can be accessed from the sides of the casework if access is possible or from the front of the unit.

### Flood Detection Rope Sensor

If a leak has been detected by the rope sensor, check that all retaining clips are still secure and replace any that have come loose with a plastic retaining clip with adhesive backing of an equal specification. Ensure the rope sensor has been wiped dry before resetting.

### Working At Height Considerations

The installation of some units may require working at height. A risk assessment should be completed before carrying out any installation or maintenance work to assess the risks involved. Working at height should be avoided wherever reasonably practicable and, when it is required, should always utilise either an existing place of work that is safe or the right type of equipment to carry out the task. The height from which work is carried out should always be kept to a minimum and all necessary steps should be taken to minimise the risk and consequences of a fall.

Always follow local working from height practices and regulations.

### Filters

It is good practice to check filters at each maintenance visit. Unit filter condition is monitored via the microprocessor. The operational time is indicated along with the operational setpoint. This can be obtained through the maintenance sub menu of the controller.

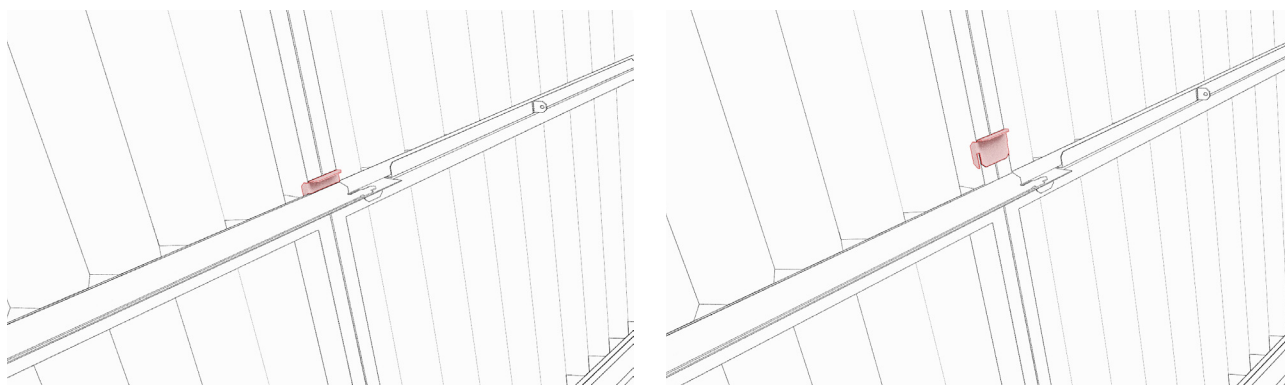
### No Filter Option

The unit application shall ensure a pre conditioned, filtered supply of air to the data hall to allow the unit to operate efficiently and prevent contaminants from damaging the unit or data hall equipment. No filtration increases unit efficiency and cooling performance; with this option selected it is the responsibility of the customer to maintain a clean environment.

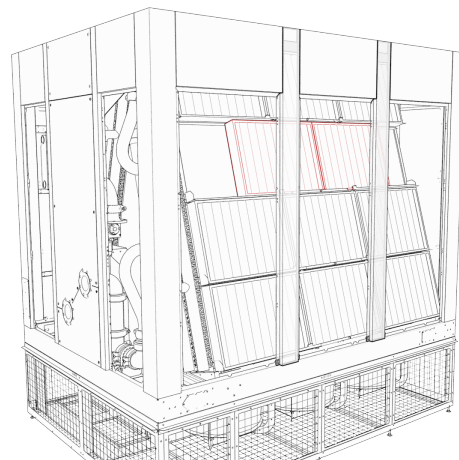
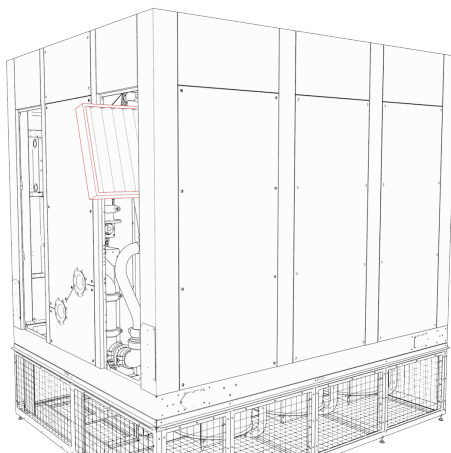
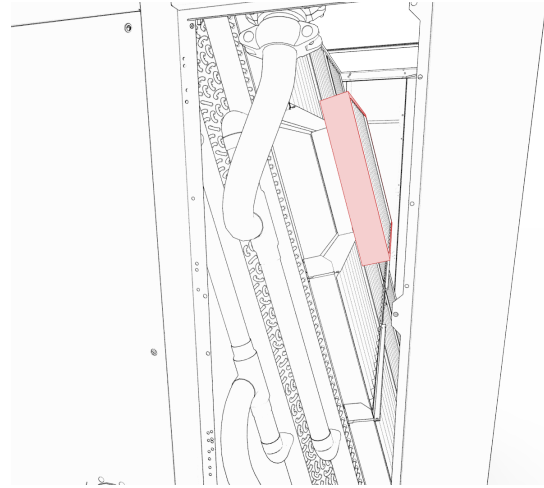
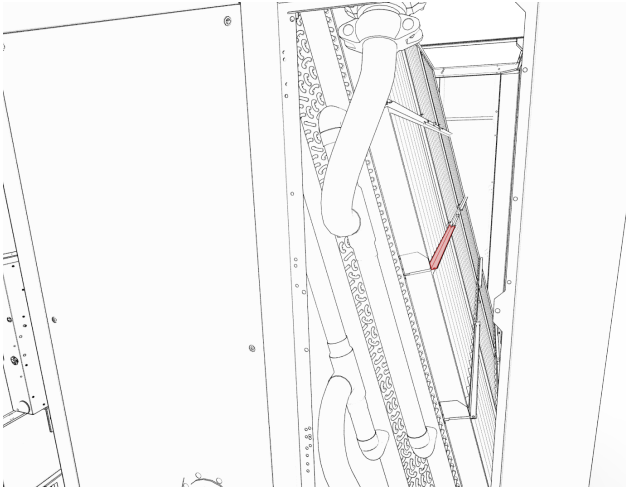
### Filter Access

On single slab coil units, for the SO09 & SO12 case sizes, adequate access must be provided from the side to allow filter maintenance and from the front on the remaining case sizes. For A-frame coil units, adequate access must be provided from the front and side to allow filter maintenance.

On A-frame units the filter frames are fastened together with a metal clip. When replacing filters, the metal clip must be fastened between filter frames to allow all filters to be removed from the side of the unit. The supplied filter panel fastening clips must be correctly fitted when installing filter panels to ensure each filter is connected to the adjacent filter. This is critical for filter removal from the side of the unit.

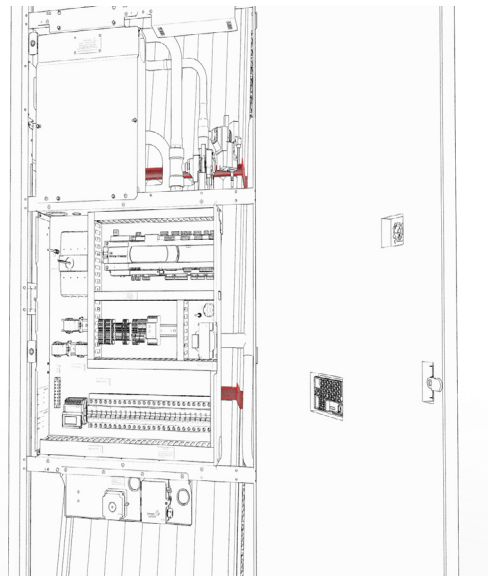
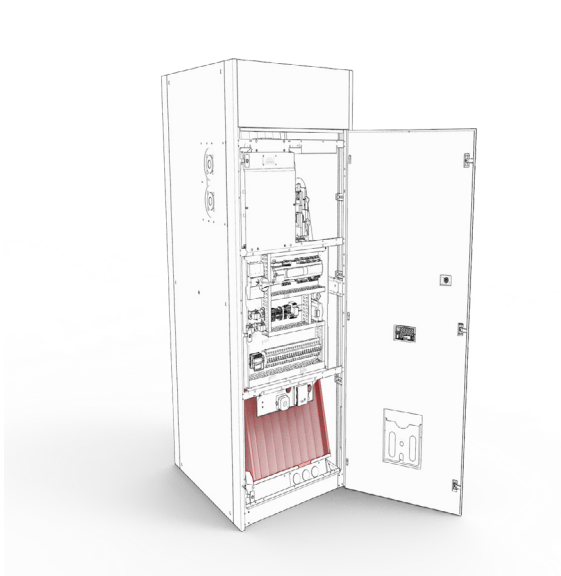


Remove rail to release filter.



## Filter Removal (Front Access)

The filters in SO09 and SO12 case sizes can be installed through the front of the unit. By removing the filter retaining sheet metal, the filters can be installed by feeding the filters under the control panel. The filter retaining bracketry can be returned into place once the filters are in position. For case sizes SO15-35, filters can be accessed through the front of the unit through the void to the left or right of the control panel.

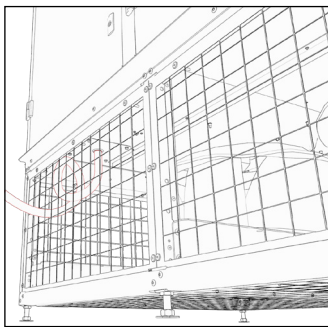
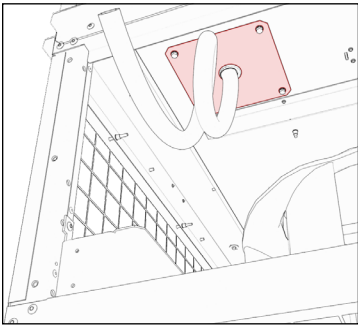
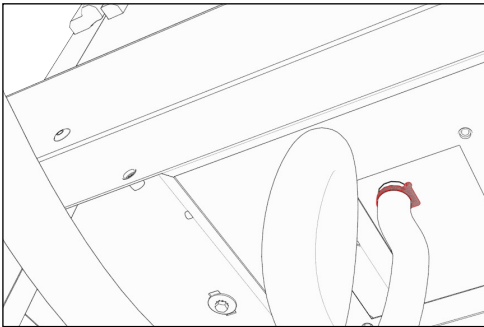




Fan Access

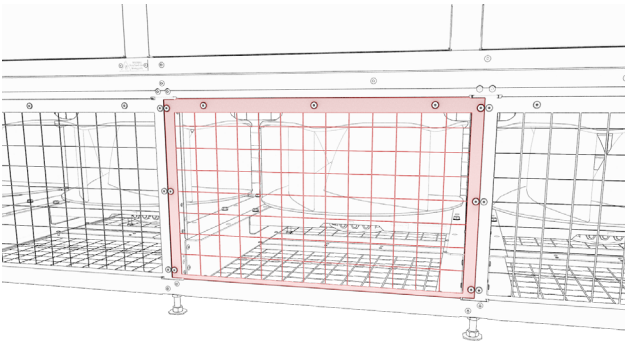
To ensure suitable access for removing and maintaining fans that are located in the floor void, a removable floor tile and support post must be provided when positioned in front of the unit.

|                    |                                                                                                                                                                                                                               |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>⚠️IMPORTANT</b> | On A-frame unit designs where the coil drain tube passes through the fan deck, the drain tube must be disconnected to allow the fan module to be removed. Ensure the drain tube is reconnected when replacing the fan module. |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

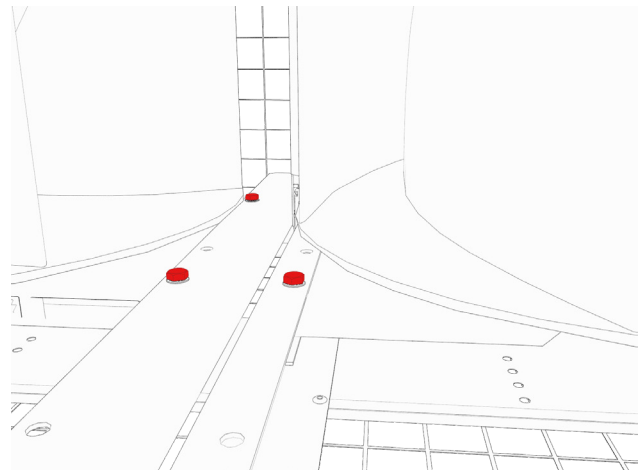
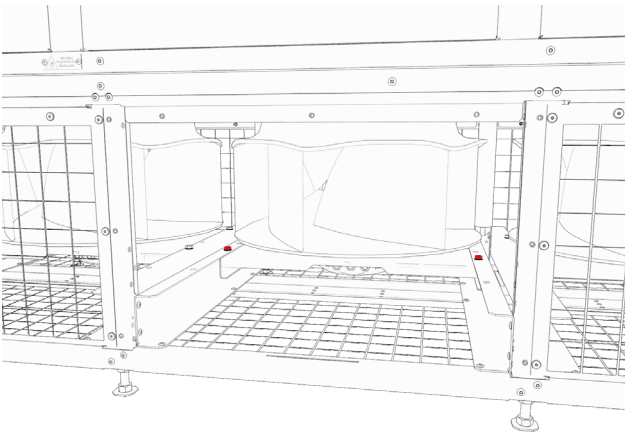


## Fan Removal

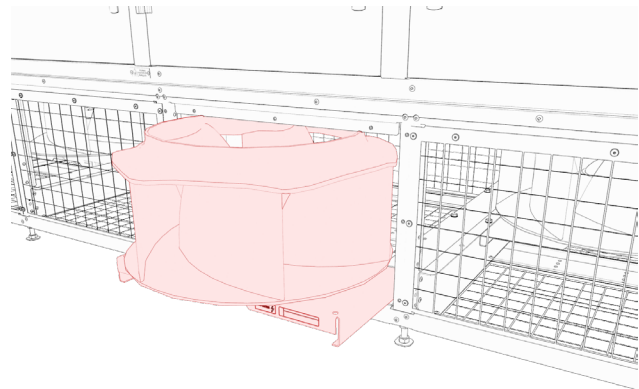
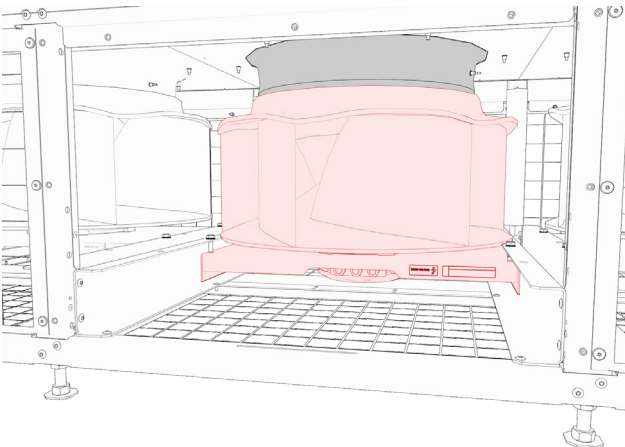
1. Remove any external panels by removing fixings.



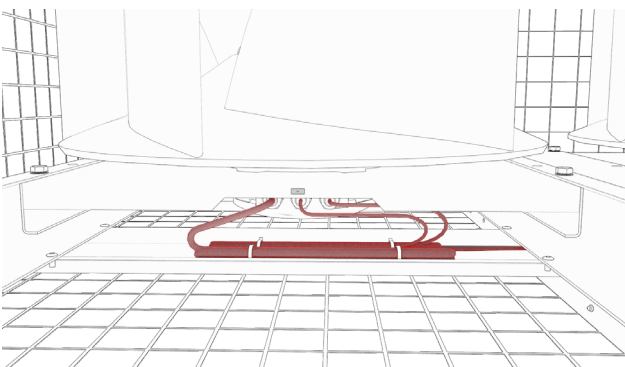
2. Loosen fixings to lower the fan assembly to the rail for removal, this will clear the fan inlet ring.



3. Pull the fan assembly out.

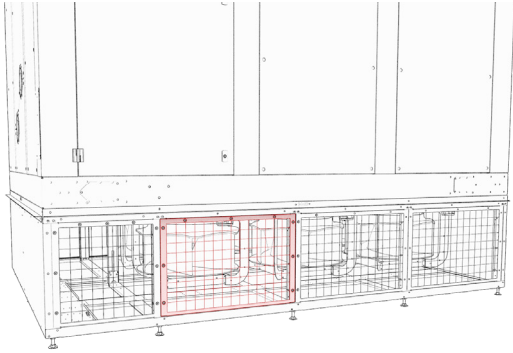


\*An additional length of cable is provided to allow fan removal/replacement. Tie wraps should be carefully cut and replaced once the fan has been changed.

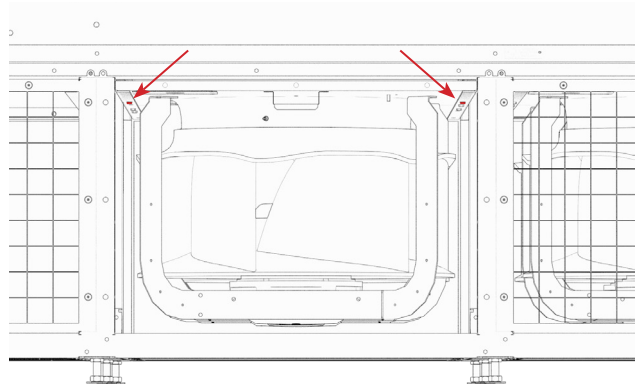


For double fan modules, to replace the rear fan you must first remove the front fan to access the rear fan fixings. The fan will slide out of the front of the unit as one complete assembly, including the inlet ring.

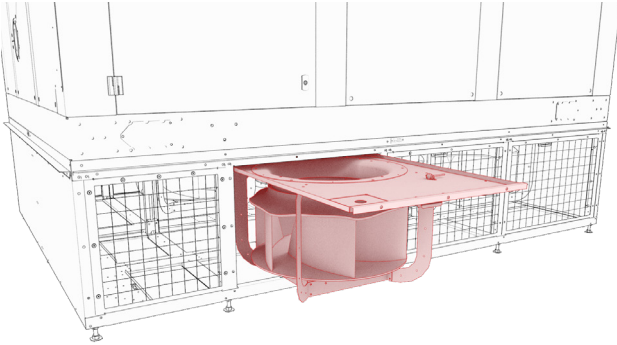
1. Remove external panel by removing fixings.



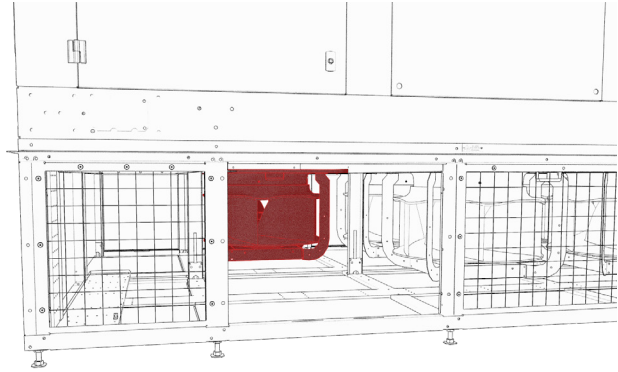
2. Loosen fixings to release fan cartridge ready for removal.



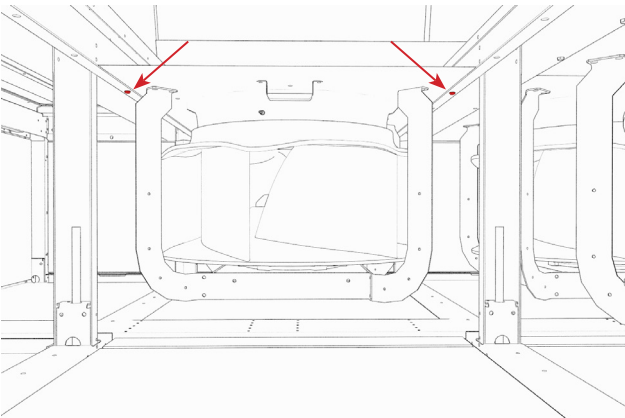
3. Pull fan assembly out.



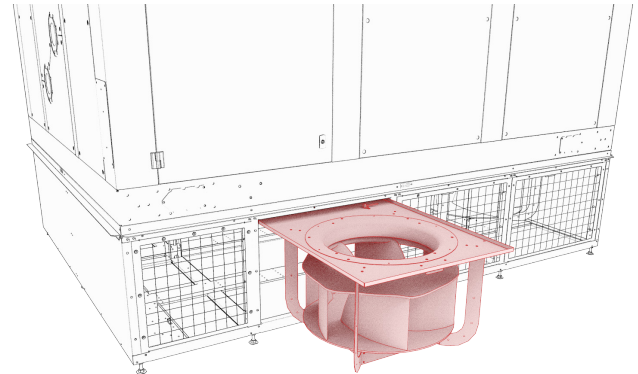
4. Rear fan can be accessed once the front fan is removed.



5. Release fixings to rear fan.



6. Remove rear fan.



## Maintenance

### General Inspections

General Maintenance - The maintenance schedule indicates the time period between maintenance operations. Access to the various components is via the doors to the front and sides of the unit.

Filters - It is good practice to check filters at each maintenance visit. Unit filter condition is monitored via the microprocessor. The operational time is indicated along with the operational setpoint. This can be obtained through the maintenance sub menu of the controller.

|                  |                                                                                                                                                                                                                                                              |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>⚠ WARNING</b> | <p>ALL work MUST be carried out by technically trained competent personnel.</p> <p>The equipment contains live electrical and moving parts, ISOLATE remotely prior to maintenance or repair work. Ensure Electrical lock-off procedures are carried out.</p> |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 3 Monthly

#### General

- Check the condition of filters and replace as necessary.
- Check the condensate drain is free from dirt or obstructions. Check water runs away freely.
- Inspect waterside for water leakage.
- Check the condition of the water/glycol solution to ensure that the system is protected against freezing, corrosion, scale and microbiological fouling, ensuring the maximum heat transfer efficiency.

#### Controls

- Check the operation of the system.
- Check any alarms registered and take action as necessary.

#### Electrical

- Check all electrical connections for signs of overheating or arcing.
- Check all cables for signs of chafing or physical damage.

#### Cabinet

- Wash down the cabinet using a mild detergent.
- Treat any paint damage or rust as necessary.

### 6 Monthly

As 3 monthly maintenance, plus:

- Check the float switches are operating freely, if not, clean the shafts with a damp cloth.

### 12 Monthly

As 6 monthly maintenance, plus:

- Check all electrical and plumbing connections for tightness.
- Check system readings against those recorded on the original commissioning sheet and investigate significant differences.
- Check the pressure drop of the water strainer external to unit. If excessive, clean the strainer.
- Visually inspect the pipe and pipework insulation and check the pipework clamps are secure.
- Check controller battery.

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## After Sales

### Warranty

All Airedale products or parts (non consumable) supplied for installation within the UK mainland and commissioned by an Airedale engineer, carry a full 'Parts and 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 Airedale for installation within the UK or for Export that are properly commissioned in accordance with Airedale standards and specification, not commissioned by an Airedale 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 Airedale 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 Airedale 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).

\*Once warranty is confirmed, maintenance must be continued to validate the warranty period.

Any spare part supplied by Airedale under warranty shall be warrantied 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.

### Procedure

When a component part fails, a replacement part should be obtained through our Spares department. If the part is considered to be under warranty, the following details are required to process this requirement:

- full description of part required, including Airedale's part number, if known
- the original equipment serial number
- an appropriate purchase order number.

A spares order will be raised under our warranty system and the replacement part will be despatched, usually within 24 hours should they be in stock. When replaced, the faulty part must be returned to Airedale with a suitably completed and securely attached "Faulty Component Return" (FCR) tag. FCR tags are available from Airedale and supplied with each Warranty order.

On receipt of the faulty part, suitably tagged, Airedale will pass to its Warranty department, where it will be fully inspected and tested in order to identify the reason for failure, identifying at the same time whether warranty is justified or not.

On completion of the investigation of the returned part, a full "Report on Goods Returned" will be issued. On occasion the release of this complete report may be delayed as component manufacturers become involved in the investigation. When warranty is allowed, a credit against the Warranty invoice will be raised. Should warranty be refused the Warranty invoice becomes payable on normal terms.

### Exclusions

Warranty may be refused for the following reasons:

- Misapplication of product or component
- Incorrect site installation
- Incomplete commissioning documentation
- Inadequate site installation
- Inadequate site maintenance
- Damage caused by mishandling
- Replaced part being returned damaged without explanation
- Unnecessary delays incurred in return of defective component

### Returns analysis

All faulty components returned under warranty are analysed on a monthly basis as a means of verifying component and product reliability as well as supplier performance. It is important that all component failures are reported correctly.



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