



TurboChill™

200kW to 1360kW

Air Cooled (TCC) and FreeCool (TCF) Chiller
R1234ze(E)



Technical Manual



ISO 14001
EMSS2086



ISO 9001
FM00542

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).

For a free quotation 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.

ChillerGuard™

In addition to commissioning, a 24 hour, 7 days a week on-call service is available throughout the year to UK mainland sites. This service will enable customers to contact a duty engineer outside normal working hours and receive assistance over the telephone. The duty engineer can, if necessary, attend site, usually within 24 hours or less.

Full details will be forwarded on acceptance of the maintenance agreement.

CAUTION

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

Spares

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

Training

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

Customer Services

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

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

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

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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 & 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 acceptable 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).

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

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

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.

Health and Safety

IMPORTANT

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

Safety

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

CAUTION

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.

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

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

Refrigerant Warning

These Airedale chillers use R1234ze refrigerant which requires careful attention to proper storage and handling procedures in accordance with EN 378.

All service personnel must have hydrocarbon refrigerant handling training.

Personal Refrigerant Leak Detector

Personal refrigerant leak detectors must be worn when servicing this machine.

Service Equipment

Use only manifold gauge sets designed for use with hydrocarbon refrigerants. Use only refrigerant recovery units and cylinders designed for the pressure category of the refrigerants. Hydrocarbon refrigerant recovery machines must be used.

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

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

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

Refrigerants must only be charged in the liquid state.

Global Warming Potential
R1234ze = <1

EN378-1 :2012 (100 year life)

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

Operating Temperature (TS),	TS =	Min -20°C to Max 120°C *
Maximum Operating Pressure (PS)	PS =	High Side 13 Barg

*Based upon the maximum machine running temperatures.

Protective Personal Equipment

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



CAUTION BURN HAZARDS

Care must be taken when working around the discharge pipe work of the unit. High surface temperatures may exist during unit operation.

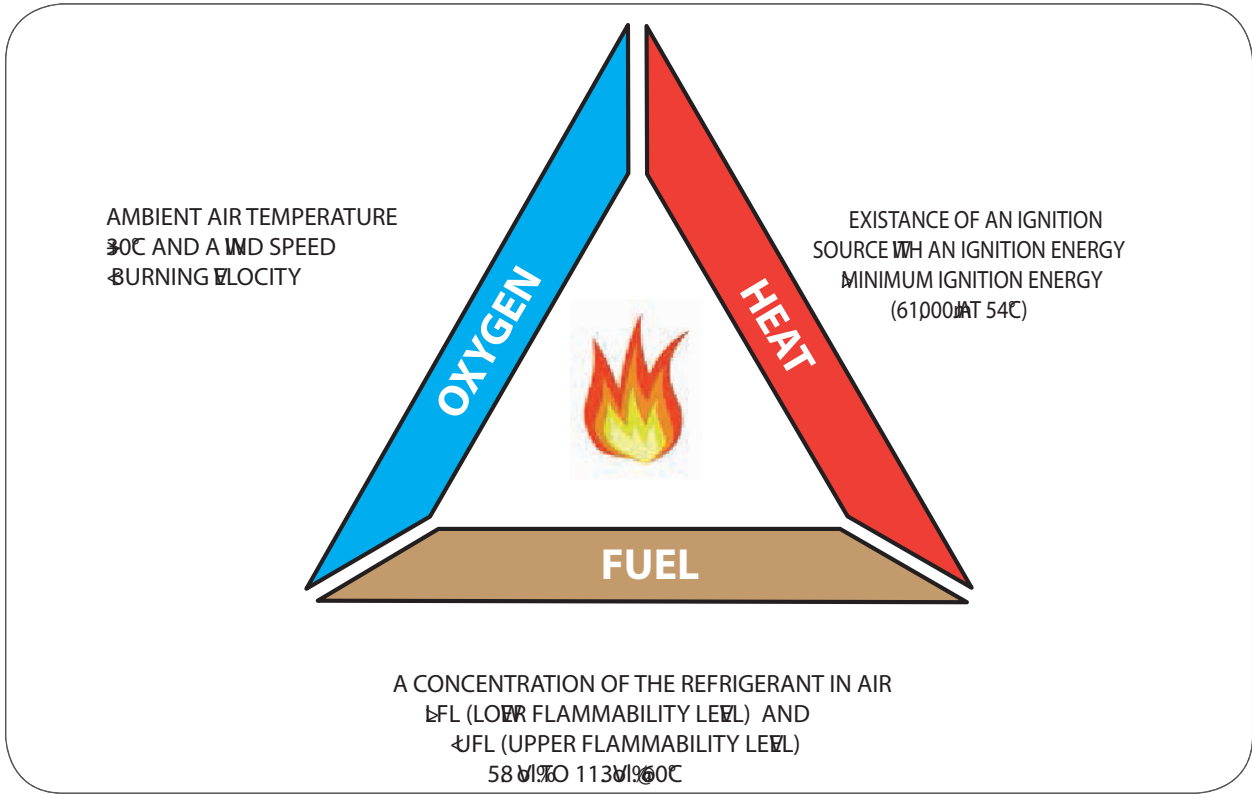
The refrigerant has a boiling point of -19°C.

Safe Operating Limits

The TurboChill R1234ze (E) chiller has operating limits set to ensure that the refrigerant does not become unstable. Certain aspects of the installation and design must be considered.
The installation of the unit is subject to various design aspects, see below.

Flammability

In the event of a leak the combination of the following 3 operating conditions detailed in the fire triangle MUST be avoided at all times. Failure to do this could cause a fire.



IMPORTANT
This refrigerant is not flammable as per the Material Safety Data Sheet (MSDS) "Hazards Identification" supplied by the refrigerant manufacturer.



NO SMOKING OR NAKED FLAME.



no access for people with active implanted cardiac devices

CAUTION PACEMAKER WEARERS
To avoid any risk of injury, any work to be carried out on or around the compressor and magnetic check valve should be done with personnel that don't have pacemakers fitted.

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

Environmental Considerations

Freeze Protection

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

Units with supply water temperatures below +5°C

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

Units subject to ambient temperatures lower than 0°C, a minimum of 1 of the following is required:

1. Glycol of an appropriate concentration ⁽¹⁾ is used within the system to ensure adequate protection. Please ensure that the concentration is capable of protection at least 3°C lower than the minimum operating ambient.
2. Ensure water / glycol solution is constantly circulated through all waterside pipework and coils to avoid static water from freezing.
3. Ensure that pumps are started and running even during shut down periods, when the ambient is within 3°C of the solution freeze point ⁽¹⁾ (i.e. if the solution freezes at 0°C, the pump must be operating at 3°C ambient).⁽²⁾
4. Additional trace heating is provided for interconnecting pipework.

(1) Refer to your glycol supplier for details.

(2) An actuated suction ball valve shall be fitted to protect the compressor from liquid migration.

Free Cooling Chillers

A minimum of 20% glycol concentration must be applied to all free cooling chillers. Concentration should be increased so that its capable of protection at least 3°C lower than the minimum operating ambient.

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 EC Directives:

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

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

Occupancy Note

When placing a chiller the occupancy of the surrounding area needs to be classified in accordance with EN 378-1:2008+A2:2012 section 4.2. In most cases the level of occupancy for a chiller would be 'Authorised occupancy C' as described in EN 378-1:2008+A2:2012 section 4.2.5 Table 1. This level needs to be confirmed by the customer.

Given that an air-cooled chiller can be classified as an 'indirect system' in accordance with EN 378-1:2008+A2:2012 section 4.1.3 and the R1234ze refrigerant falls into refrigerant safety group A2, no charge limitations apply if the level of occupancy is 'C'. Please refer to EN 378-1:2008+A2:2012 Table C.1 for further details.

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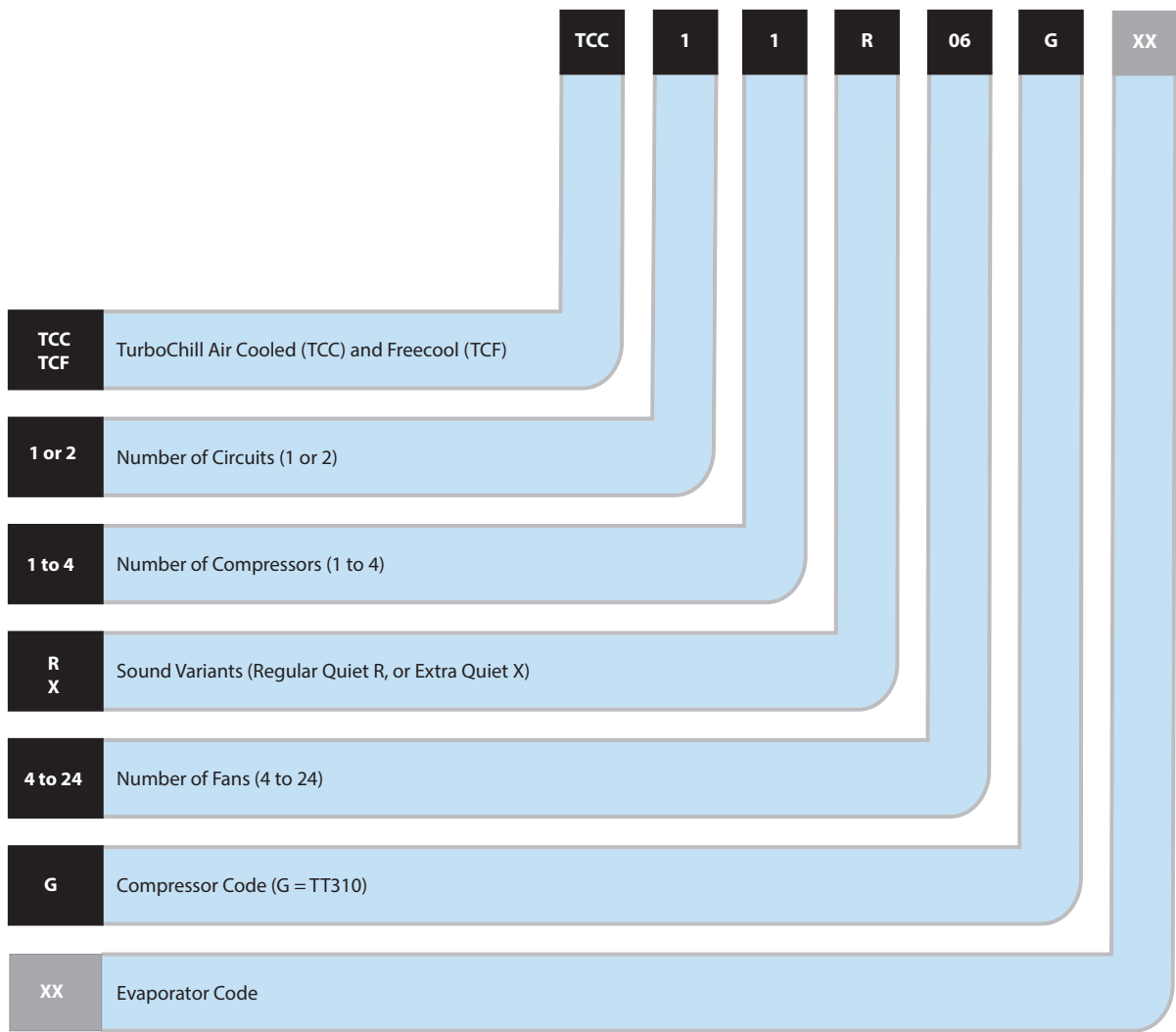
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Nomenclature



Introduction

The Airedale range of TurboChill air cooled and Free cool liquid chillers uses the technologically superior centrifugal Turbocor compressors. Designed to cover the high capacity range between 200kW and 1360kW.

Each model is individually selected to provide the optimum solution for each application by offering maximum flexibility and matching customer requirements in terms of:

- Capacity
- EER/ ESEER (Energy Efficiency Ratio and European Seasonal Energy Efficiency ratio)
- Sound Levels - Quiet (R) and Extra Quiet (X)
- Footprint

For guidance the unit's information within this manual has been generated at nominal conditions, due to the unit's ability to modulate capacity individually tailored unit solutions are available.

Please contact Airedale with your specific requirements and we will be pleased to provide you with an individually tailored selection and technical detail.

Refrigerants

The range has been designed and optimised for operation with ozone benign R1234ze(E) refrigerant.

Construction

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

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

Standard unit colour shall be Light Grey (RAL 7035).

Free Cooling Operation

The TurboChill Free Cool chiller has been designed to provide the cooling load required whilst optimising energy efficiency at all times and as such will take advantage of free cooling whenever available. If the free cooling available cannot satisfy the required full cooling load, direct expansion cooling is used to supplement the output.

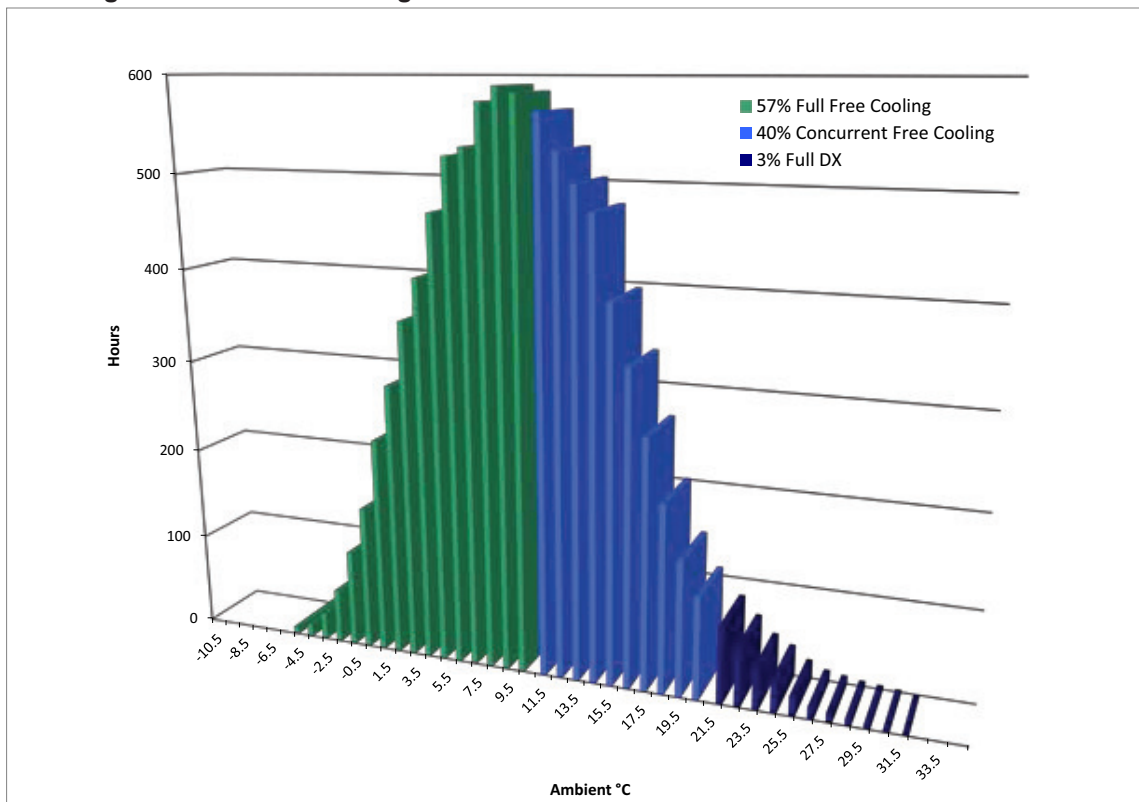
In high ambients where free cooling is not available the fan speed modulates in the conventional manner to maintain an optimised head pressure. Free cooling is initiated wherever the outdoor ambient is 2°C less than the return water temperature.

During concurrent cooling mode condensing temperature is constantly monitored and intelligently kept within the compressor envelope to allow the fans to run as fast as possible and therefore achieve the most free-cooling without having a negative impact on compressor integrity.

In ambients where the free cooling coil is capable of satisfying the full cooling demand, the condenser fans are modulated to provide the desired duty. The condenser fans are capable of being modulated between 15-100% (EC) or 40% - 100% (AC) of airflow to maintain the supply water temperature.

During periods where the condenser fan speed has been reduced to a minimum, the supply water temperature will then be controlled by the 3 way valve.

Free Cooling vs. Mechanical Cooling



Range Layout

Regular Quiet - Single Circuit - Air Cooled

Model No	Nominal Cooling (kW)	EER	ESEER	Free-cooling (kW)	Free Cooling EER	Sound Pressure @ 10m (dBA)	Dimensions H x W x L (mm)
Regular Quiet - Single Circuit - Air Cooled							
TCC11R04G-01	240	3.32	5.17	-	-	52.6	2800 x 2200 x 2626
TCC11R06G-01	265	3.60	5.35	-	-	49.2	2800 x 2200 x 3758
TCC11R08G-01	275	3.81	5.68	-	-	46.8	2800 x 2200 x 4890
TCC12R08G-04	470	3.34	5.13	-	-	54.6	2800 x 2200 x 4890
TCC12R10G-04	500	3.50	5.35	-	-	53.0	2800 x 2200 x 6022
TCC12R12G-04	530	3.59	5.51	-	-	51.5	2800 x 2200 x 7154
TCC12R14G-04	560	3.65	5.63	-	-	50.2	2800 x 2200 x 8286

Regular Quiet - Dual Circuit - Air Cooled

Model No	Nominal Cooling (kW)	EER	ESEER	Free-cooling (kW)	Free Cooling EER	Sound Pressure @ 10m (dBA)	Dimensions H x W x L (mm)
Regular Quiet - Dual Circuit - Air Cooled							
TCC22R08G-14	470	3.35	4.35	-	-	54.6	2800 x 2200 x 4890
TCC22R10G-14	500	3.50	4.83	-	-	53.0	2800 x 2200 x 6022
TCC22R12G-14	530	3.60	5.06	-	-	51.5	2800 x 2200 x 7154
TCC22R14G-14	560	3.66	5.23	-	-	50.2	2800 x 2200 x 8286
TCC23R12G-17	630	3.41	5.04	-	-	53.9	2800 x 2200 x 7154
TCC23R14G-17	680	3.52	5.22	-	-	53.1	2800 x 2200 x 8286
TCC23R16G-17	730	3.59	5.31	-	-	52.8	2800 x 2200 x 9418
TCC23R18G-17	780	3.62	5.42	-	-	52.4	2800 x 2200 x 10550
TCC24R16G-18	820	3.42	5.26	-	-	54.2	2800 x 2200 x 9418
TCC24R18G-18	860	3.50	5.35	-	-	53.7	2800 x 2200 x 10550
TCC24R20G-18	900	3.56	5.45	-	-	53.2	2800 x 2200 x 11682
TCC24R22G-18	950	3.62	5.52	-	-	52.6	2800 x 2200 x 12814
TCC24R24G-18	1000	3.65	5.58	-	-	52.4	2800 x 2200 x 13946

Range Layout

Extra Quiet - Single Circuit - Air Cooled

Model No	Nominal Cooling (kW)	EER	ESEER	Free-cooling (kW)	Free Cooling EER	Sound Pressure @ 10m (dBA)	Dimensions H x W x L (mm)
Extra Quiet - Single Circuit - Air Cooled							
TCC11X04G-01	200	3.27	5.13	-	-	44.5	2800 x 2200 x 2626
TCC11X06G-01	225	3.73	5.71	-	-	46.0	2800 x 2200 x 3758
TCC11X08G-01	250	3.92	5.64	-	-	45.3	2800 x 2200 x 4890
TCC12X08G-04	430	3.27	5.21	-	-	47.0	2800 x 2200 x 4890
TCC12X10G-04	460	3.52	5.38	-	-	47.7	2800 x 2200 x 6022
TCC12X12G-04	490	3.67	5.56	-	-	48.3	2800 x 2200 x 7154
TCC12X14G-04	520	3.75	5.69	-	-	48.7	2800 x 2200 x 8286

Extra Quiet - Dual Circuit - Air Cooled

Model No	Nominal Cooling (kW)	EER	ESEER	Free-cooling (kW)	Free Cooling EER	Sound Pressure @ 10m (dBA)	Dimensions H x W x L (mm)
Extra Quiet - Dual Circuit - Air Cooled							
TCC22X08G-14	430	3.27	4.71	-	-	47.0	2800 x 2200 x 4890
TCC22X10G-14	460	3.52	4.74	-	-	47.7	2800 x 2200 x 6022
TCC22X12G-14	490	3.67	4.97	-	-	48.3	2800 x 2200 x 7154
TCC22X14G-14	520	3.76	5.22	-	-	48.7	2800 x 2200 x 8286
TCC23X12G-17	590	3.30	5.04	-	-	48.3	2800 x 2200 x 7154
TCC23X14G-17	640	3.49	5.22	-	-	48.7	2800 x 2200 x 8286
TCC23X16G-17	690	3.60	5.33	-	-	49.1	2800 x 2200 x 9418
TCC23X18G-17	740	3.66	5.44	-	-	49.4	2800 x 2200 x 10550
TCC24X16G-18	790	3.29	5.26	-	-	49.1	2800 x 2200 x 9418
TCC24X18G-18	820	3.48	5.39	-	-	49.4	2800 x 2200 x 10550
TCC24X20G-18	860	3.56	5.46	-	-	49.7	2800 x 2200 x 11682
TCC24X22G-18	910	3.64	5.54	-	-	50.0	2800 x 2200 x 12814
TCC24X24G-18	960	3.68	5.61	-	-	50.2	2800 x 2200 x 13946

Range Layout

Regular Quiet - Single Circuit - Free Cooled

Model No	Nominal Cooling (kW)	EER	ESEER	Free-cooling (kW)	Free Cooling EER	Sound Pressure @ 10m (dBA)	Dimensions H x W x L (mm)
Regular Quiet - Single Circuit - FreeCool							
TCF11R06G-07	290	3.78	5.21	279.8	20.01	50.4	2800 x 2200 x 3758
TCF11R08G-07	300	4.04	5.55	335.8	18.01	47.1	2800 x 2200 x 4890
TCF12R08G-09	470	3.46	4.91	399.4	21.42	54.6	2800 x 2200 x 4890
TCF12R10G-05	500	3.77	5.22	472.3	20.27	52.6	2800 x 2200 x 6022
TCF12R12G-05	530	3.92	5.38	540.0	19.31	51.1	2800 x 2200 x 7154
TCF12R14G-05	560	4.01	5.50	604.5	18.53	49.7	2800 x 2200 x 8286

Regular Quiet - Dual Circuit - Free Cooled

Model No	Nominal Cooling (kW)	EER	ESEER	Free-cooling (kW)	Free Cooling EER	Sound Pressure @ 10m (dBA)	Dimensions H x W x L (mm)
Regular Quiet - Dual Circuit - FreeCool							
TCF22R10G-22	500	3.77	4.69	472.3	20.27	52.6	2800 x 2200 x 6022
TCF22R12G-22	530	3.91	4.91	540.0	19.31	51.1	2800 x 2200 x 7154
TCF22R14G-22	560	4.01	5.09	604.5	18.53	49.8	2800 x 2200 x 8286
TCF23R12G-24	630	3.60	4.89	576.9	20.63	54.0	2800 x 2200 x 7154
TCF23R14G-24	680	3.74	5.07	654.0	20.05	53.2	2800 x 2200 x 8286
TCF23R16G-25	730	3.85	5.19	729.5	19.57	52.5	2800 x 2200 x 9418
TCF23R18G-25	780	3.94	5.19	803.8	19.16	51.9	2800 x 2200 x 10550
TCF24R16G-26	820	3.61	5.12	762.5	20.45	54.5	2800 x 2200 x 9418
TCF24R18G-26	860	3.72	5.20	835.6	19.92	53.7	2800 x 2200 x 10550
TCF24R20G-26	900	3.82	5.30	906.9	19.46	53.1	2800 x 2200 x 11682
TCF24R22G-27	950	3.90	5.38	981.0	19.14	52.4	2800 x 2200 x 12814
TCF24R24G-27	1000	3.97	5.44	1054.4	18.85	52.0	2800 x 2200 x 13946

Range Layout

Extra Quiet - Single Circuit - Free Cooled

Model No	Nominal Cooling (kW)	EER	ESEER	Free-cooling (kW)	Free Cooling EER	Sound Pressure @ 10m (dBA)	Dimensions H x W x L (mm)
Extra Quiet - Single Circuit - FreeCool							
TCF11X06G-07	250	3.93	5.17	223.5	45.63	45.2	2800 x 2200 x 3758
TCF11X08G-07	260	4.23	5.52	274.8	42.07	45.7	2800 x 2200 x 4890
TCF12X08G-09	430	3.33	4.93	320.4	49.06	46.3	2800 x 2200 x 4890
TCF12X10G-05	460	3.74	5.25	383.8	47.01	47.0	2800 x 2200 x 6022
TCF12X12G-05	490	3.95	5.43	444.2	45.34	47.6	2800 x 2200 x 7154
TCF12X14G-05	520	4.09	5.57	502.8	43.99	48.0	2800 x 2200 x 8286

Extra Quiet - Dual Circuit - Free Cooled

Model No	Nominal Cooling (kW)	EER	ESEER	Free-cooling (kW)	Free Cooling EER	Sound Pressure @ 10m (dBA)	Dimensions H x W x L (mm)
Extra Quiet - Dual Circuit - FreeCool							
TCF22X10G-22	460	3.73	4.70	383.8	47.01	47.0	2800 x 2200 x 6022
TCF22X12G-22	490	3.94	4.80	444.2	45.34	47.6	2800 x 2200 x 7154
TCF22X14G-22	520	4.08	5.09	502.8	43.99	48.0	2800 x 2200 x 8286
TCF23X12G-24	520	3.58	5.00	199.5	20.36	47.1	2800 x 2200 x 7154
TCF23X14G-24	640	3.67	5.06	536.4	46.92	48.0	2800 x 2200 x 8286
TCF23X16G-25	690	3.82	5.17	602.4	46.11	48.4	2800 x 2200 x 9418
TCF23X18G-25	740	3.94	5.29	667.8	45.44	48.7	2800 x 2200 x 10550
TCF24X16G-26	780	3.48	5.11	624.4	47.79	48.4	2800 x 2200 x 9418
TCF24X18G-26	820	3.65	5.25	688.9	46.87	48.7	2800 x 2200 x 10550
TCF24X20G-26	860	3.77	5.31	752.3	46.07	49.0	2800 x 2200 x 11682
TCF24X22G-27	910	3.89	5.39	817.7	45.53	49.2	2800 x 2200 x 12814
TCF24X24G-27	960	3.97	5.47	882.7	45.05	49.4	2800 x 2200 x 13946

Unit Overview

Airflow

- AC Condenser Fans
- EC Condenser Fans
- High Airflow EC Condenser Fans
- Fan Discharge Plenum
- Extended Height Fan Discharge Plenum

Electrical Panel

- Single Point 3 Phase Isolation
- UltraCap Power Backup
- Control Panel Heater
- Panel Ventilation
- Emergency Stop
- Power Monitoring
- Rain Hood

Controls

- Microprocessor
- Leak Detection
- Intelligent Head Pressure Control



Coils

- Epoxy Coated Microchannel Condenser Coils
- Epoxy Coated RTPF Free Cooling Coils



Waterside

- Differential Pressure Sensor
- Flow Switch
- Pump Interlock
- Water Filter
- Various Pump Options
- Immersion Heaters
- Grooved and Clamped Type Connections

Refrigeration

- Centrifugal Compressors
- Flooded Evaporator with Integral Subcooler
- Actuated Suction Ball Valves
- Liquid and Discharge Shut Off Valves
- Liquid Line Sight Glasses
- Dual Pressure Relief Valves (remotely ventilated above condenser fans)
- Ventilated Compressor Enclosure upon Refrigerant Leak Detection

Unit Components

Refrigeration

Refrigeration	TCC	TCF
Compressors - Turbocor Centrifugal	●	●
Dual Maintainable Pressure Relief Valves	●	●
Microchannel Epoxy Coated Condensing Coils	●	●
RTPF Free Cooling Coils	-	●
Epoxy Coated RTPF Free Cooling Coils	-	○
Actuated Starting Line Assembly	●	●
Filter Driers with Replaceable Cores	●	●
Electronic Expansion Valves	●	●
Flooded Evaporator with integral subcooler	●	●
Stainless Steel Suction Pipe Assembly	●	●
Full Operating Charge of R1234ze(E)	●	●
Acoustically Lined Compressor Enclosure(s)	●	●
Ventilated Compressor Enclosure	●	●
Liquid and Discharge Shut Off Valves	●	●
Liquid Line Sight Glasses (integral to EEV)	●	●
Actuated Suction Ball Valve(s)*	●	●
Large capacity filter drier(s) with replaceable cores	●	●
Liquid line sight glasses	●	●
Low pressure switch with auto reset	●	●
2 High pressure switches with auto reset per compressor	●	●
High ambient starting valves	●	●
Suction and liquid pressure transducers	●	●
Discharge check (non return) valve(s)	●	●

● Standard features ○ Optional features — Feature not available

Evaporator

Flooded evaporator incorporating an internal round tube plate fin heat exchanger. This heat exchanger is used to further sub-cool refrigerant leaving the condenser extending the potential cooling capacity and as a result, efficiency of the system. At the same time suction gas vapour that passes over the heat exchanger within the shell is superheated to a higher temperature, eliminating the risk of wet vapour returning to the compressor.

The heat exchanger is insulated with closed cell polyurethane foam which is to Class O fire rating and the material is UV resistant.

The flooded evaporator results in significant energy savings in compressor operation particularly at part load.

Two immersion heaters and thermostat protect the evaporator against freeze up in ambient temperatures down to -20°C. (in compliance with Airedale freeze protection policy).

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

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

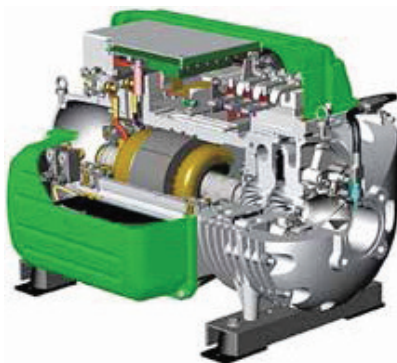




Turbocor Compressor

Turbocor centrifugal compressor supplied with as standard:

- Suction and discharge shut off valves
- Discharge non-return valve
- Line reactor (for removing additional impedance harmonics and voltage spikes in the ac waveform)
- EMI/EMC filter and comprising of:
 - o AC-DC rectifier
 - o DC capacitors
 - o DC-AC (IGBT) converter
 - o Motor/bearing management system and incorporated surge protection
 - o Soft start module
 - o Magnetic bearing system
 - o The compressors are mounted on Turbocor specially designed vibration reducing isolating rubber mounts
 - o Linear capacity modulation is provided by a variable frequency drive



Key benefits of Turbocor compressor technology:

- Oil Free Operation
- More efficient use of heat exchangers
- No oil entrainment issues – pipe work can be optimised for performance not oil return
- Variable speed operation offering exact capacity match and optimum part load performance
- Magnetic bearing system constantly optimises shaft / impeller position
- Small and light, only 132kg
- No mechanical contact, very quiet operation
- Very low start current, only 2A
- The intelligent, self optimising compressor offers near silent, oil free operation and ultra efficient variable speed control
- Turbocor compressor shaft and impellers levitate on a magnetic cushion eliminating friction and vibration resulting in the compressor running at a smooth and reduced sound spectrum
- The TurboChill compressor's variable speed control offers 2 major benefits:
 - o Uses substantially less power at part load and gives accurate set-point control and exact capacity match
 - o The inbuilt electronic soft start produces a very low starting current of just 2A and eradicates the need to oversize electrical supply components on site

Condenser

Large surface area microchannel coil(s) (ideally positioned to optimise airflow and heat transfer) shall be manufactured as a “V-block” arrangement. This “V-block” arrangement has a lower airside pressure drop making the fans run more efficiently. The coils have freeflowing liquid drains that enable us to reduce the amount of subcooling done in the coil, leaving more area for heat exchange.

R1234ze Leak Detection System

A factory calibrated leak detection system shall be fitted as standard to units

A dedicated refrigerant sensor shall be fitted within each compressor enclosure and will raise an alarm on detection of refrigerant gas.

Actuated Suction Ball Valve(s)

To protect the compressors against liquid migration, actuated suction line ball valves shall be fitted. This protects the compressors when there is no cooling demand by keeping the refrigerant in the evaporator, even if water is still flowing through the unit.

Refrigerant Isolation

To maintain the functionality of the refrigerant partial pump down and isolation strategy in the event of a power failure. This 24V actuator will be connected to a single phase permanent supply so that in the event of a power failure the evaporator is isolated.



Ensure single phase power supply is connected permanently to ensure that the system will isolate refrigerant and ventilate the compressor housing in the event of a leak being detected. A UPS permanent supply is required.

Maintainable Dual Pressure Relief Valve

An auto resetting pressure relief valve assembly shall be provided per evaporator circuit, opening on pressure rise above 10.3 barg. The dual shut-off valve assembly incorporates 2 pressure relief valves which can be individually shut off via a 3 way valve. This allows the maintenance of individual pressure relief valves without any requirement for refrigerant evacuation.

Rupture discs are also fitted on systems with a refrigerant charge larger than 300kg in line with EN 378-2:2008+A2:2012 clause 6.2.6.5.

In accordance with EN13136:2013, pressure relief valves have been sized to ensure that in the event of fire they can prevent excessive build-up of pressure within the evaporator. EN13136:2013 section 6.2.1 has been used to size valves accordingly.

Fire is a hazard that these units have not been designed to operate under. However, the inclusion of various safety devices ensures that any damage due to fire is limited via the release of pressure in the form of gas discharge.

If concerns of the ability of the pressure relief valve to discharge in the event of a fire >107°C exist, then it is the responsibility of the end user to protect the pressure relief valve assembly from excessive external temperatures.

This must however allow the pressure relief valve to discharge effectively and not act as a ‘choke’ (offer any resistance) when discharging.

Electrical

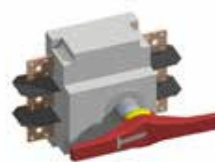


Controls and Electrical	TCC	TCF
Leak detection	●	●
Intelligent head pressure control	●	●
Actuated suction shut off valve	●	●
Power monitoring	○	○
Individual mains power isolator for each compressor	●	●
Separate electrical isolation for fans	●	●
Single point isolation for connection of incoming 3-phase and earth mains power supply	●	●
Emergency Stop fitted to controls compartment door	●	●
Circuit breakers for protection of all major unit components	●	●
Phase rotation relay incorporating phase loss protection	●	●
Single Phase Supply isolator (Panel mounted)	●	●
Mains power loss emergency shutdown via ultracap	●	●

● Standard features ○ Optional features — Feature not available

3 Phase Single Point Isolator

Single point isolation shall be fitted as a standard feature.



Ultracap Power Backup

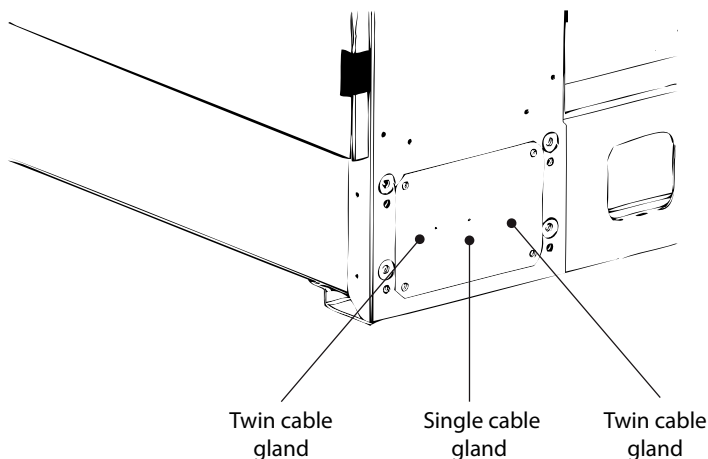
The Ultracap module is a standard feature utilising the latest Ultra Capacitor technology in external backup device for the EVD Evolution drivers and pCO controllers. The module guarantees temporary power to the controller and drivers in the event of mains power failures. The Ultra Capacitors are used to maintain the controller's main functions, to close the electronic valves in the event of mains power failures. This avoids the need to install a solenoid valve in the refrigerant circuit or use the battery backup module and allows the system to resume control as soon as mains or backup power returns to the unit.

Energy Manager

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

Mains Cable Entry

The unit mains cable can enter from either side of the electrical control panel.



Maximum Cable Gland Sizes

Single 1 x M75S

Twin 2 x M63S



Control Panel Light

A control panel light shall be fitted to enable control panel maintenance to be carried out during poor light conditions.

Condenser Fans



Fans	TCC	TCF
800 mm diameter AC axial fans	●	●
800 mm diameter EC axial fans	○	○
800 mm diameter high airflow EC fans*	○	○

● Standard features ○ Optional features — Feature not available

* High airflow EC fans are not available with the X type units

Condenser Fan and Motor - AC

Axial fan assemblies with finger proof grille and incorporating external rotor AC motor technology, capable of highly accurate discrete speed control, discharges air vertically. The fans offer maximum performance whilst keeping sound levels to a minimum.

Energy saving Electronically Commutated (EC) Fan Motor

Each 800 mm diameter fan incorporates on board electronics with AC / DC conversion and inverter driven DC motor control to offer unparalleled high efficiency levels combined with smooth step-less speed control and quiet operation.

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

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

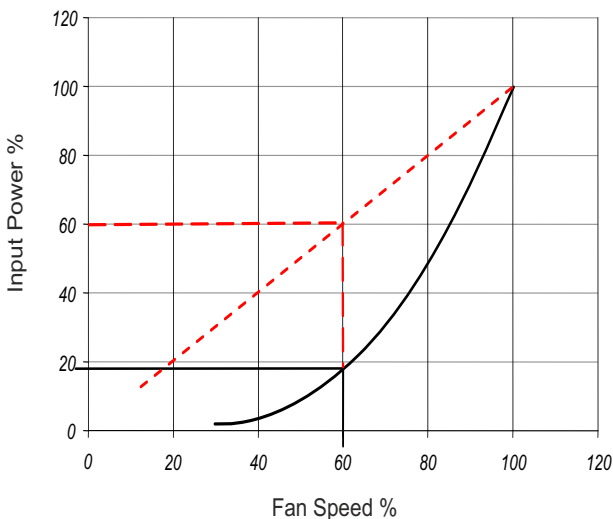
The fans offer maximum airflow performance while keeping sound levels to a minimum.

A mains EMC filter is fitted when the EC fan option is selected with the unit. The filter is designed for convenient mains connection within the bus bar chamber. The in built EC fan control module allows for fan speed modulation from 15 -100%, a standard AC fans modulating range is typically 40-100% of full fan speed.

The EC fan presents superior energy efficiency at reduced fan speed compared to the equivalent AC fan motor, offering efficiency savings anywhere between 30 to 100% compared with an AC fan.

Fan speeds are factory set depending on sound level variant.

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

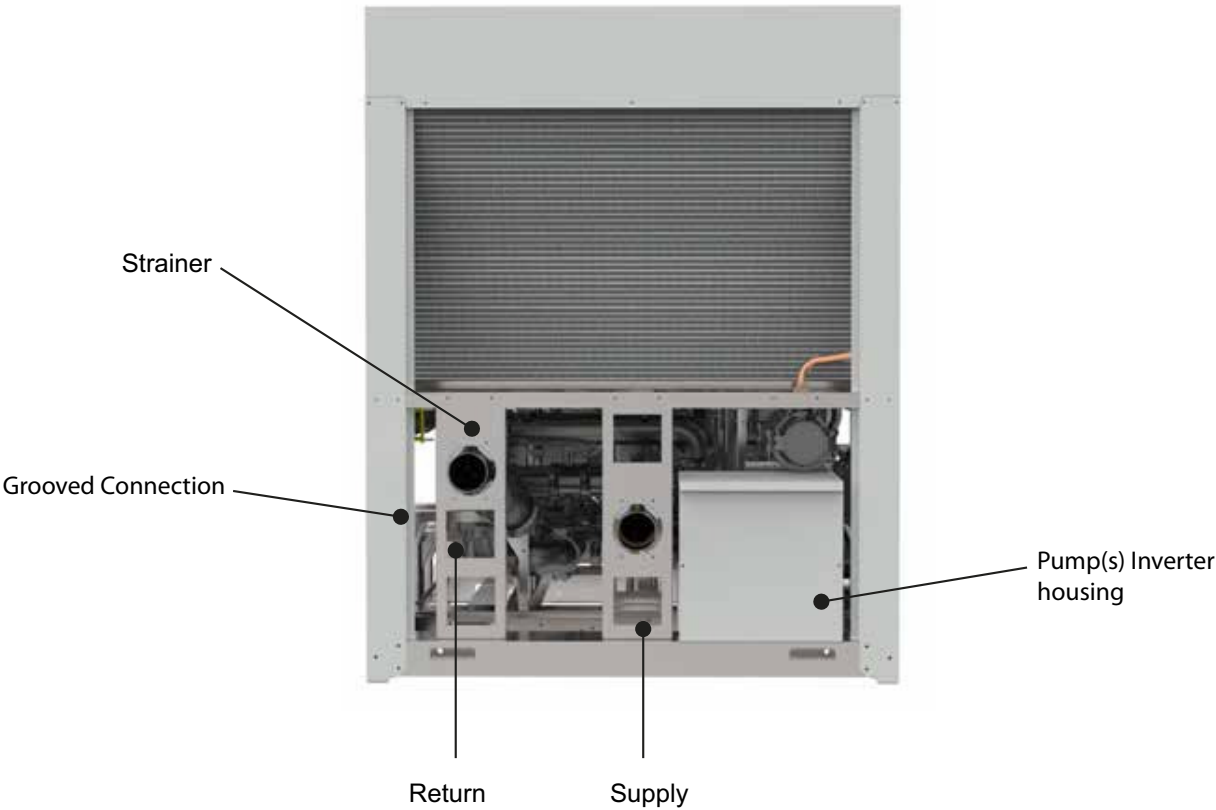


Fan speed of 60%
Voltage regulated input power required 60%
EC input power required 18%

— EC (Electronically Commutated) Fan Speed Control

- - - Voltage Regulated Fan Speed Control

Waterside



Waterside	TCC	TCF
Free Cooling Coil	—	●
Evaporator Immersion Heaters	●	●
Water filter**	○	●
Pump hydronic options**	○	○
Water flow meter	○	○
Grooved and clamped type connections	●	●
Flanged connections	○	○
Pump vibration eliminators	●	●
Pump interlock*	○	○
Flow switch*	○	○
Differential pressure transducer*	●	●

● Standard features ○ Optional features — Feature not available

* CAUTION

Each feature is a flow proving device, and 2 out of the 3 should be fitted to any unit to validate warranty.

** options only available within units with sufficient space.

Free Cooling Coil

A free cooling coil constructed in a "V" frame arrangement, allowing for efficient heat transfer from the ambient air temperature to the cooling process.

The free cooling coil is manufactured from copper tube and aluminium fins.

Free cooling is initiated whenever the outdoor ambient temperature is 2°C less than the return water temperature.

The "V" frame arrangement enables efficient concurrent cooling.

The TurboChill free cool chiller's pipe work has been designed to optimise pressure drop, reducing pump input power. It shall be fitted with a water drain valve (schrader point located at lowest point of coils) for maintenance purposes.

Flow Proving Device

An evaporator differential pressure sensor facilitates low flow limiting and pressure drop monitoring via the microprocessor which shall be fitted to ensure correct unit water flow.

Water Flow Meter

A water flow meter shall be fitted to the unit to monitor water flowrates.

Grooved and Clamp Type Connections

Grooved and clamp type connections shall be fitted to the unit.

Flanged Connections

Flanged connections shall be fitted to the unit upon request. Please contact Airedale.

Pump Interlock*

Provision for a pump interlock is available within the control panel.

Water Flow Switch*

If selected. A water flow switch is fitted ensuring integrity of the cooling solution flow.

The flow switch shall protect the Chiller against low water flow conditions.

Despatched loose for on site fitment. A 1" BSP socket is required for this fitment.

* CAUTION

Each feature is a flow proving device and 2 out of the 3 should be fitted to any unit to validate warranty.

Pump Vibration Eliminator

Flexible couplings shall be fitted to the pumps to reduce any vibration through the system pipework.

Pump Options

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

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

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

Run / standby pumps are rotated automatically to ensure even pump usage and prolong component life.

Pump - AC Motor - Fixed Speed

A factory fitted in line single or run / standby pump is available with various pump external head options, please specify at order.

Flow can be proven via the microprocessor display.

Factory fitted and supplied as standard complete with:

- Differential pressure sensor
- Isolating valves
- Inlet strainer
- Vibration isolation
- Electrical switch gear

Pump - Inverter Driven - Variable Speed

A factory fitted in line single or run / standby pump is available with various pump external head options, please specify at order.

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

Adjustment and monitoring is via the microprocessor display.

Factory fitted and supplied as standard complete with:

- Differential pressure sensor
- Isolating valves
- Inlet strainer
- Vibration isolation
- Electrical switch gear
- Inverter panel with ventilation fan and panel heater (high / low ambient operation)

Waterside Options

Air Cooled

		EVAPORATOR ONLY	EXTENDED PIPEWORK	NO BYPASS (FILTER + SOV)	BYPASS (FILTER + SOV)	SINGLE PUMP	RUN AND STANDBY
Air Cooled Units	TCC11R04G-01	●	-	-	-	-	-
	TCC11R06G-01	●	●	○	○	-	-
	TCC11R08G-01	●	●	●	●	●	●
	TCC12R08G-04	●	●	○	-	-	-
	TCC12R10G-04	●	●	●	●	●	●
	TCC12R12G-04	●	●	●	●	●	●
	TCC12R14G-04	●	●	●	●	●	●
	TCC22R08G-14	●	●	○	-	-	-
	TCC22R10G-14	●	●	●	●	●	●
	TCC22R12G-14	●	●	●	●	●	●
	TCC22R14G-14	●	●	●	●	●	●
	TCC23R12G-17	●	●	○	○	-	-
	TCC23R14G-17	●	●	●	●	●	●
	TCC23R16G-17	●	●	●	●	●	●
	TCC23R18G-17	●	●	●	●	●	●
	TCC24R16G-18	●	●	○	○	-	-
	TCC24R18G-18	●	●	●	●	●	●
	TCC24R20G-18	●	●	●	●	●	●
	TCC24R22G-18	●	●	●	●	●	●
	TCC24R24G-18	●	●	●	●	●	●
	TCC11X04G-01	●	-	-	-	-	-
	TCC11X06G-01	●	●	○	○	-	-
	TCC11X08G-01	●	●	●	●	●	●
	TCC12X08G-04	●	●	○	-	-	-
	TCC12X10G-04	●	●	●	●	●	●
	TCC12X12G-04	●	●	●	●	●	●
	TCC12X14G-04	●	●	●	●	●	●
	TCC22X08G-14	●	●	○	-	-	-
	TCC22X10G-14	●	●	●	●	●	●
	TCC22X12G-14	●	●	●	●	●	●
	TCC22X14G-14	●	●	●	●	●	●
	TCC23X12G-17	●	●	○	○	-	-
	TCC23X14G-17	●	●	●	●	●	●
	TCC23X16G-17	●	●	●	●	●	●
	TCC23X18G-17	●	●	●	●	●	●
	TCC24X16G-18	●	●	○	○	-	-

- Waterside + internal strainer
- Waterside + external strainer (supplied loose)
- Not available

Waterside Options

Free Cooled

		NO BYPASS (FILTER + SOV)	BYPASS (FILTER + SOV)	SINGLE PUMP	RUN AND STANDBY
Free Cooled Units	TCF11R06G-07	○	○	-	-
	TCF11R08G-07	●	●	●	●
	TCF12R08G-09	○	-	-	-
	TCF12R10G-05	○	○	-	-
	TCF12R12G-05	●	●	●	●
	TCF12R14G-05	●	●	●	●
	TCF22R10G-22	●	●	-	-
	TCF22R12G-22	●	●	●	●
	TCF22R14G-22	●	●	●	●
	TCF23R12G-24	●	●	-	-
	TCF23R14G-24	●	●	●	●
	TCF23R16G-25	●	●	●	●
	TCF23R18G-25	●	●	●	●
	TCF24R16G-26	●	●	-	-
	TCF24R18G-26	●	●	●	●
	TCF24R20G-26	●	●	●	●
	TCF24R22G-27	●	●	●	●
	TCF24R24G-27	●	●	●	●
	TCF11X06G-07	○	○	-	-
	TCF11X08G-07	●	●	●	●
	TCF12X08G-09	○	-	-	-
	TCF12X10G-05	○	○	-	-
	TCF12X12G-05	●	●	●	●
	TCF12X14G-05	●	●	●	●
	TCF22X10G-22	●	●	-	-
	TCF22X12G-22	●	●	●	●
	TCF22X14G-22	●	●	●	●
	TCF23X12G-24	●	●	-	-
	TCF23X14G-24	●	●	●	●
	TCF23X16G-25	●	●	●	●
	TCF23X18G-25	●	●	●	●
	TCF24X16G-26	●	●	-	-
	TCF24X18G-26	●	●	●	●
	TCF24X20G-26	●	●	●	●
	TCF24X22G-27	●	●	●	●
	TCF24X24G-27	●	●	●	●

- Waterside + internal strainer
- Waterside + external strainer (supplied loose)
- Not available

Water Connections

Water inlet and outlet connections shall be of a grooved and clamped type construction. Optional flanged connections shall be available on request, please consult Airedale.

Water connection to evaporator only (air cooled only)

Water inlet and outlet connections shall terminate directly on the evaporator.

Extended Water Connections (air cooled only)

Extended water connections shall be available on all air cooled units, it allows the water connections to terminate at the end of the unit.

Water Filter

A 20 mesh water filter can be supplied fitted to protect the evaporator from clogging by sediment. On certain models the filter is fitted externally.

Bypass Options

No bypass

Comprises

- Shut off valves
- Filter

Flushing bypass kit (standard)

Comprises:

- Shut off valves
- Filter
- Bypass leg with shut off valve

Flushing bypass kit (regulating)

Comprises:

- Shut off valves
- Filter
- Bypass leg with Double regulating valve

Pump Configurations

Single pump + filter + bypass (flushing)

Comprises:

- Single pump with vibration isolation
- Shut off valves
- Filter
- Bypass leg

Single pump + filter + bypass (regulating)

Comprises:

- Single pump with vibration isolation
- Shut off valves
- Filter
- Double regulating valve

Run & standby pumps + filter + bypass (flushing)

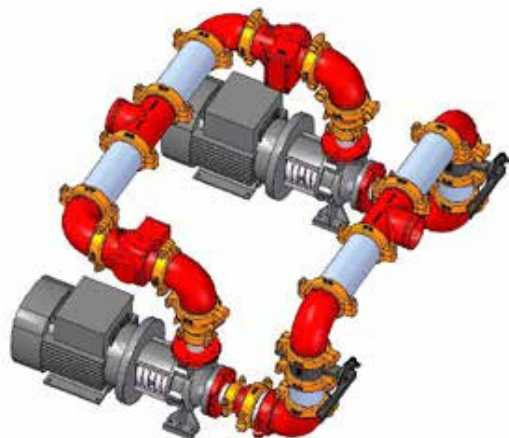
Comprises:

- Run and standby pumps with vibration isolation
- Shut off valves
- Filter
- Non return valve

Run & standby pumps + filter + bypass (regulating)

Comprises:

- Run and standby pumps with vibration isolation
- Shut off valves
- Filter
- Double regulating valve
- Non return valves

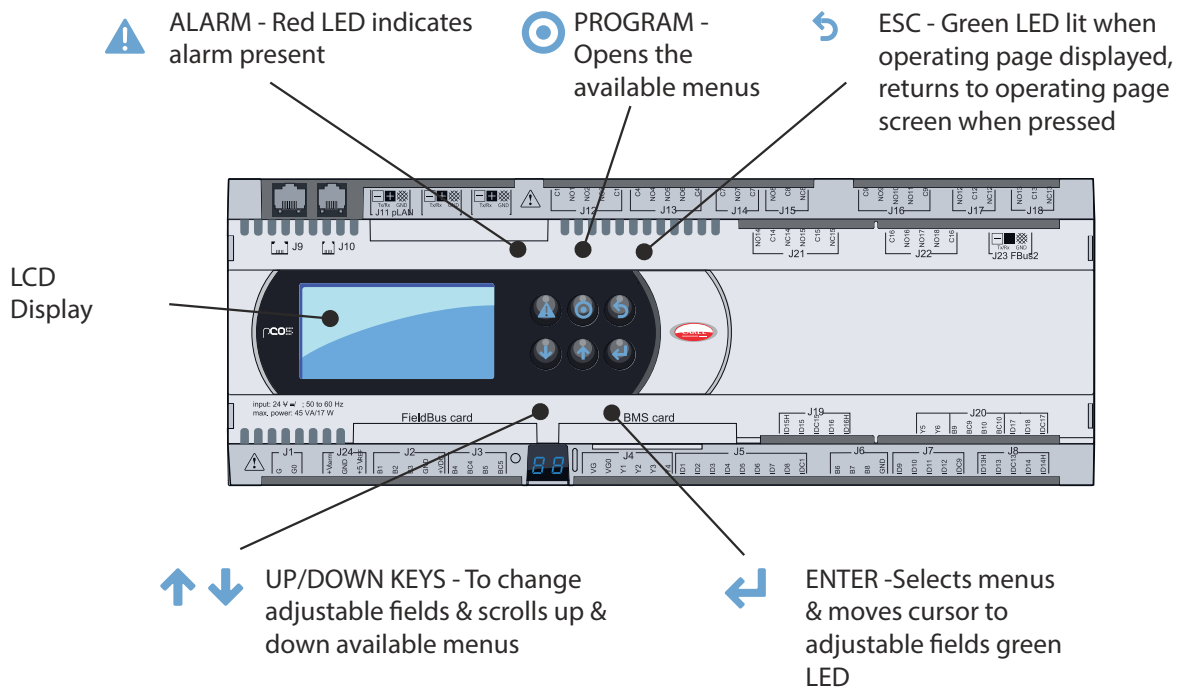


Controls

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

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

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



Temperature Control

The microprocessor controller shall monitor the return and supply temperatures. The supply temperature is used to calculate the required cooling demand. Further calculations are then made to determine the optimum compressors to be selected and their individual cooling demands. These calculations ensure the unit efficiency is maximised under all load conditions. As standard, the microprocessor controller can provide an infinite capacity control between 15% and 100%, depending on the component selection. Refer to mechanical data tables for unit specific control ranges.

Monitoring

The microprocessor shall also monitor and display the following measured parameters:

- Supply water temperature
- Return water temperature
- Liquid pressure
- Suction pressure
- Evaporator differential water pressure

Alarm Handling

The controller shall log and allow viewing of the last 150 conditions recorded in descending chronological order through the keypad display.

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

- High compressor discharge temperature (per compressor)
- Low supply temperature
- Phase rotation
- Emergency stop
- Evaporator flow failure
- Low pressure safety switch
- Low suction pressure (per compressor)
- High liquid pressure
- Refrigerant Leak Detected
- Compressor 1 contactor status
- Compressor 2 contactor status (dependant on model)
- Compressor 3 contactor status (dependant on model)
- Compressor 4 contactor status (dependant on model)
- Volt free contact non-critical alarm indication
- Volt free contact critical alarm indication

Building Management Systems (BMS)

Sequencing (Master / Slave and Run / Standby) via the Airedale sequence manager.

Please specify at time of enquiry.

Chiller Sequence Manager

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

Up to 6 units can be sequenced.

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

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



Unit Remote ON/OFF

Disables / Enables the unit remotely.

Compressor Anti Cycle Control

Automatic via the Microprocessor.

Compressor Load Limit

This feature limits the condensing pressure to 12.4 Barg by unloading the compressor.

Suction Pressure Limiting

Limits the evaporating pressure by unloading at the minimum pressure set-point, which is, adjustable depending on system glycol content.

Supply Temperature Limiting

Based upon the freezing point of the water/ glycol solution, the unit operation is limited to a 2°C differential. Cooling is reduced as the temperature approaches the freezing point (below this differential).

Pump(s) Remote ON/OFF

Disables / Enables the pump(s) remotely.

Evaporator Differential Pressure Sensor

Shall facilitate low flow limiting and pressure drop monitoring via the microprocessor.

Remote Setback Temperature Set-point Switch

A setback set-point for supply water temperature shall be selected to suit summer / winter conditions or night setback.

Remote Set-point Adjust

Shall allow the chilled water set-point to be adjusted via an external 0-10V signal.

Compressor Hours Run

Displays hours run of each compressor.

Interactive Head Pressure Setpoint Management

The combination of variable speed compressor, EC fan and interactive control logic allows fans to be slowed down to give the optimum head pressure setpoint in relation to combined power draw of compressor and fans.

The fan speed shall automatically modulate to achieve the best energy balance for all normal operating conditions.

Reducing the head pressure setpoint decreases the compressor input power at the expense of the fan input power.

Compressor Reduced Start Delay

Compressor fast start functionality shall be available for applications that require minimum downtime following 3 phase power failure. This is subject to a compressor UPS being fitted onto the L4 permanent supply. Please contact Airedale.

Password Protection

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

IMPORTANT:

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

BMS Interface Card

BMS system configuration by others.

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

A wide range of protocols shall be accommodated through the use of interface devices. Available as a standard option are: ModBus / Jbus, Carel, SNMP, LonWorks, Metasys and BACnet

Also available shall be Airedale's own supervisory plug-in BMS card pCOWEB.

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

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

**Modbus / Carel BMS Connection**

The Airedale controllers shall be able to communicate directly using the Modbus® protocol.

The Modbus® card shall be a small PCB (60mm x 30mm), which is plugged into the controller to provide it with the following protocol support

- Modbus® - JBus slave
- RTU mode (Remote Terminal Unit) with 8 bit encoding and error handling using 16 bit CRC
- Communication standard connection options of RS485 (multipoint) or RS232 (point-point)
- Maximum Baud Rate of 19200

The data communication shall be asynchronous serial, 8 data bits, 2 stop bits and no parity (in total 11 bits/datum).

The data/parameters from the controller shall be represented within Modbus® registers, each register containing information pertaining to temperatures, pressures, setpoint and status etc. shall be available to the site integration company in a spreadsheet format

Lon BMS Connection

The Airedale controllers, using special serial cards, shall be integrated into LonWorks® networks. The RS485 and the FTT10 standards shall be supported by the LonWorks® serial cards.

The two types of LonWorks® serial cards shall differ by the type of interface on the LonWorks® network side:-

FTT-10A 78 kbs (TP/FT-10)

RS485 39 kbs (TP/485-39)

pCOWeb

pCOWeb is a new generation of Airedale supervisory plug-in cards which make communicating with an Airedale unit simply a matter of logging onto the office Intranet or via the web.

Based on Ethernet TCP/IP secure technology, pCOWeb shall require no proprietary cabling. It shall have little or no setup on site and can be pre-programmed with an IP address prior to dispatch from airedale.

CAUTION

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

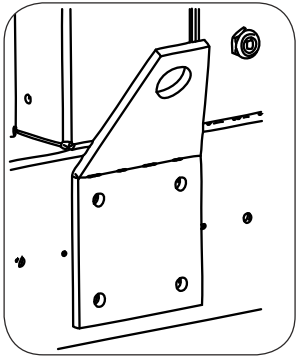
Mechanical

Mechanical	TCC	TCF
Lifting lugs	●	●
Base - plain galvanised steel	●	●
Panels - galvanised sheet steel with epoxy powder paint	●	●
Standard height fan discharge plenum	●	●
Extended height fan discharge plenum	○	○
Anti-vibration mounts (spring or pad type)	○	○
Control panel rain hood	○	○

● Standard features ○ Optional features — Feature not available

Lifting Lugs

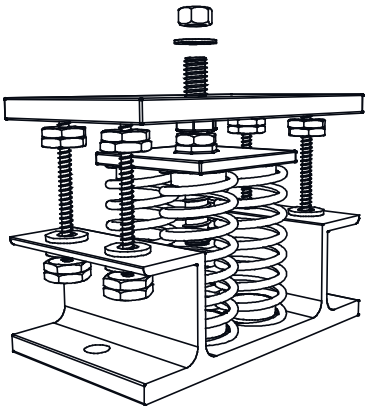
Lifting Lugs shall be fitted to the unit enabling full lifting requirements.
The lifting lug hole diameter is 40 mm.



Anti Vibration Mounts (Spring Type)

Specially selected spring vibration isolators shall be supplied loose for on site fitting to the base frame of each unit.

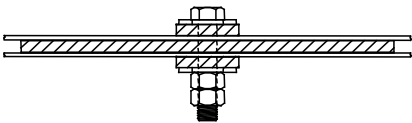
The isolators shall be suitable for fitting to structural steelwork providing the surface is level and of sufficient strength where a high level of vibration elimination is required.



Anti Vibration Mounts (Pad Type)

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

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



Discharge Air Plenum - Condenser Fan

Factory fitted and constructed from galvanised sheet steel coated with epoxy baked powder paint, this plenum shall direct discharge air vertically which reduces air re-circulation and provides a degree of acoustic reduction in the horizontal plane.

Standard unit colour shall be Light Grey (RAL 7035).

The overall unit height when fitted with the standard discharge air plenum is 2800mm.

Extended Discharge Air Plenum - Condenser Fan

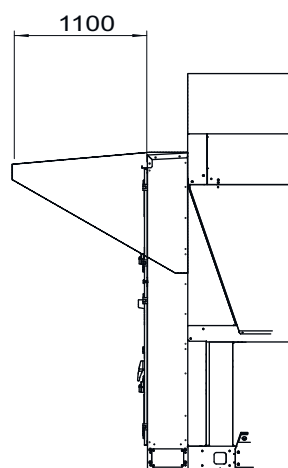
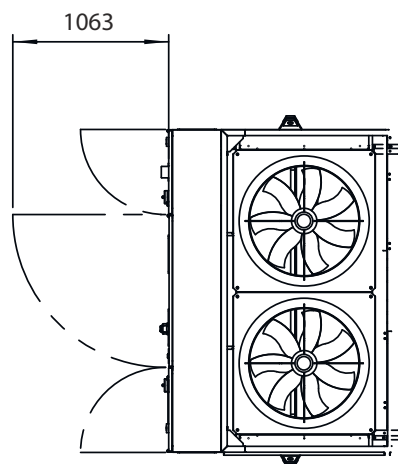
Site fitted and constructed from galvanised sheet steel coated with epoxy baked powder paint, this plenum shall direct discharge air vertically as an aid to minimise air re-circulation and also offers a degree of acoustic reduction in the horizontal plane; site fitted.

Standard unit colour shall be Light Grey (RAL 7035).

The overall unit height when fitted with the extended discharge air plenum is 3300mm.

Rain Hood

A rain hood shall be fitted to the TurboChill chiller which will allow the customer, (maintenance / commissioning personnel), to work on the control panel whatever the weather with a reduced risk of sensitive electrical components getting wet.

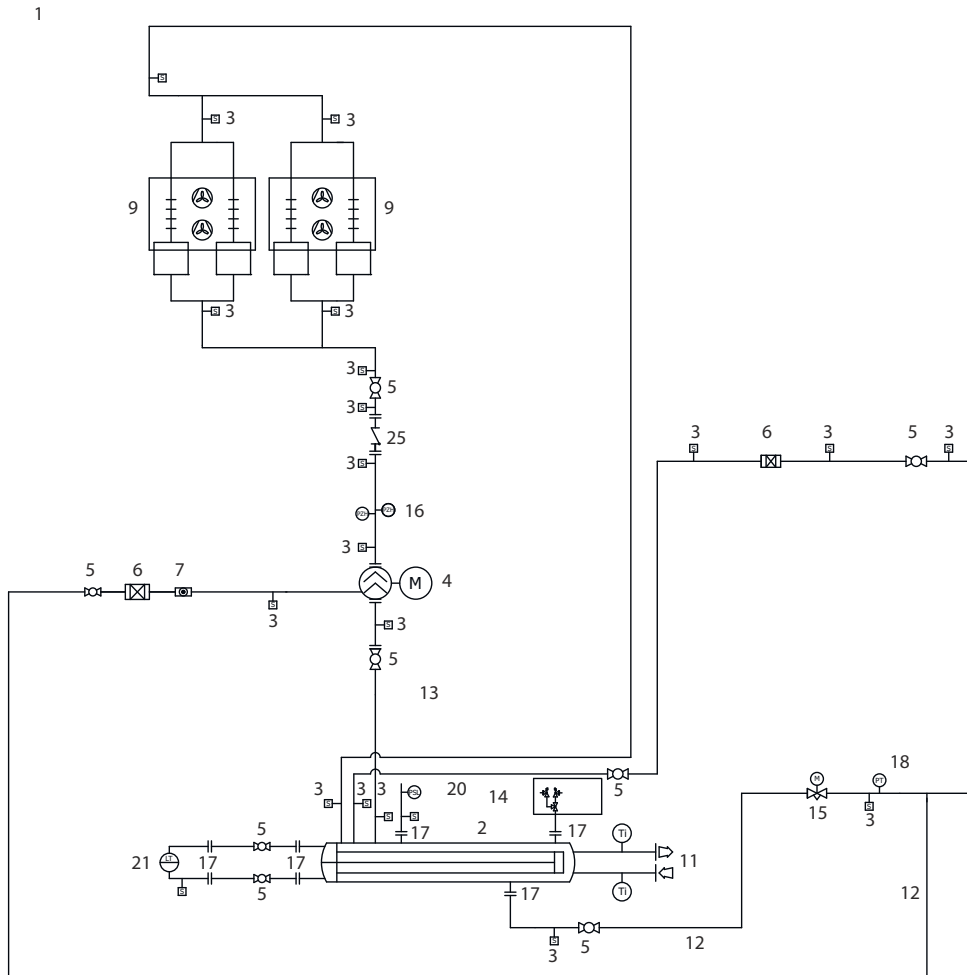


Design Features & Information

Pipework Design

Due to the unique oil free operation of the Turbocor compressor, the need for oil entrainment is eliminated. As pipe work is not required to be sized for oil return it is possible to size pipe work for minimal pressure losses through the system with maximum cooling capacity and optimised unit EER.

Refrigeration Schematic Single Circuit



Note: Schematic above is for a single circuit machine.

key	15	Liquid level control valve
1	16	High pressure switch
2	17	Rotalock adapter
3	18	Liquid pressure transmitter
4	19	Solenoid valves
5	20	Low pressure switch
6	21	Liquid level sensor
7		
9		Condenser section
10		Level transmitter
11		Water connections (Inlet /Outlet)
12		Liquid line
13		Suction line
14		Dual pressure relief valves

Design Features & Information

Specific Heat Capacity (SHC)

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

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

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

CAUTION

Only use the SHC data when calculating fluid VOLUME. Use figure for 0% concentration (100% water) when applying Glycol Correction Factors, refer to Glycol Data.

Minimum System Water Volume Calculations

METHOD 1

(Preferred Method)

Where the system permanent heat load is known, the minimum water volume in litres Vmin is:

$$V_{min} = \frac{\text{Water Flow Rate (litres/min)} \times \text{Minimum Compressor Run Time (min)} \times \text{Chiller Loading Factor}}{\text{Specific Heat Capacity (kJ/kgK)}}$$

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

$$\text{Minimum Turndown} = \begin{cases} 1 \text{ compressor} - 30\% \\ 2 \text{ compressors} - 15\% \\ 3 \text{ compressors} - 10\% \\ 4 \text{ compressors} - 5\% \end{cases}$$

Example: 750kW output at 35°C Ambient and 7/12°C Water

$$\begin{aligned} \text{Permanent Heat Load} &= 300\text{kW} \\ \text{Minimum Turndown} &= 15\% (2 \text{ compressors}) \end{aligned}$$

$$V_{min} = \frac{750 \times 60 \times 0.15 \times 1.2}{4.195 \times 300} = 193 \text{ litres}$$

METHOD 2

Where the system permanent heat load is unknown:

$$V_{min} = \frac{\text{Water Flow Rate (litres/hour)} \times \text{Minimum turndown ratio} \times 1.2}{\text{Maximum number of compressor starts (per hour)}}$$

$$\text{Minimum Turndown} = \begin{cases} 1 \text{ compressor} - 30\% \\ 2 \text{ compressor} - 15\% \\ 3 \text{ compressors} - 10\% \\ 4 \text{ compressors} - 5\% \end{cases}$$

Example: 750kW output at 35°C Ambient and 7/12°C Water

$$\text{Minimum Turndown} = 0.15 (15\% 2 \text{ compressors})$$

$$V_{min} = \frac{750 \times 60 \times 0.15 \times 1.2}{4.195 \times 60} = 193 \text{ litres}$$

Design Features & Information

Capacity Data

For guidance, a number of units from 200 kW to 1000 kW at nominal conditions and at both fan speeds have been pre-selected and used throughout this manual for information only.

Please contact Airedale with your specific requirements and we will be pleased to provide you with an individually tailored selection and technical detail.

Operating Limits

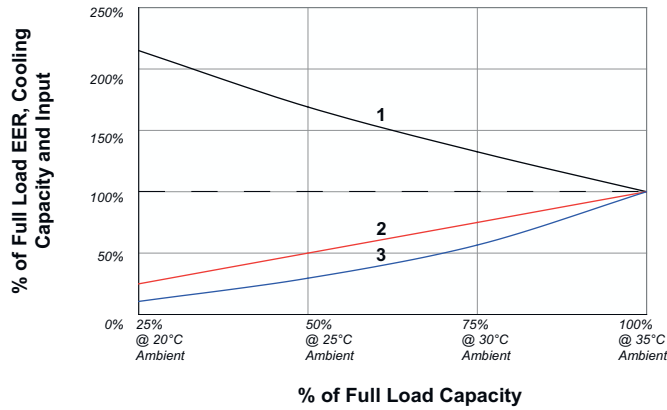
(For 100% Water) Standard Unit

Minimum ambient air DB	-20°C
Maximum ambient air DB at full load operation	35°C
Maximum ambient air DB at reduced load operation	40°C
Minimum supply water temperature	5°C
Maximum return water temperature	26°C*
Maximum supply water temperature	18°C
Minimum / maximum ΔT	4K / 8K

* With an 8K ΔT

Typical Part Load Efficiencies

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



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

ESEER Calculations

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

The ESEER value is calculated from the unit's performance at 20, 25, 30 and 35°C ambient temperatures for 25, 50, 75 and 100% loading stages respectively, and with a fixed 7°C supply temperature. All calculations assume the system operates with 100% water.

$$\text{ESEER} = A \bullet \text{EER}_{100\%} + B \bullet \text{EER}_{75\%} + C \bullet \text{EER}_{50\%} + D \bullet \text{EER}_{25\%}$$

A, B, C and D are weighting factors 0.03, 0.33, 0.41 and 0.23.

	A	B	C	D
Temperature	35°C	30°C	25°C	20°C
Capacity Requirement	100%	75%	50%	25%
Percentage of Total Hours	0.03	0.33	0.41	0.23

SEER

The quoted EER figures cover the performance of the unit ONLY at the standard rating conditions of 7/12°C water, 35°C ambient. The SEER calculation method is used for part of the Building Regulations Part "L" to give a single value that realistically indicates the efficiency of the chiller across the year round range of operation.

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

$$\text{SEER} = A \bullet \text{EER}_{100\%} + B \bullet \text{EER}_{75\%} + C \bullet \text{EER}_{50\%} + D \bullet \text{EER}_{25\%}$$

Where A,B,C and D are specific weighting factors 0.12, 0.32, 0.36 and 0.2 for use on calculating SEER.

	A	B	C	D
Temperature	35°C	30°C	25°C	20°C
Capacity Requirement	100%	75%	50%	25%
Percentage of Total Hours	0.12	0.32	0.36	0.2

Design Features & Information

Performance Effects of Glycol

Glycol Data

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

CAUTION

The source data must be 100% water for the correction factors to be valid.

Ethylene Glycol Nominal Correction Factors

Glycol in System / Freezing Point °C		10% / -4°C	20% / -7.8°C	30% / -14.1°C	40% / -22.3°C
Output (kW)	x	0.98	0.97	0.95	0.93
Compressor Input (kW)		0.99	0.98	0.96	0.95
Water Flow (l/s)		0.99	1.02	1.04	1.07
Pressure Drop (kPa)		1.05	1.20	1.38	1.57

Propylene Glycol Nominal Correction Factors

Glycol in System / Freezing Point °C		10% / -2°C	20% / -7.1°C	30% / -12.7°C	40% / -21.1°C
Output (kW)	x	0.97	0.95	0.91	0.88
Compressor Input (kW)		0.99	0.98	0.96	0.95
Water Flow (l/s)		0.98	0.97	0.95	0.95
Pressure Drop (kPa)		1.08	1.17	1.31	1.45

Example: At 100% Water:

Output =750 kW
Compressor Input =228.6 kW
Flow Rate =35.83 l/s
Pressure Drop =20.6 kPa
Ambient =35°C
Inlet Fluid Temp. =7°C
Outlet Fluid Temp. =12°C (5K ΔT)

To 20% Ethylene Glycol:

	100% Water	Multiplier	20% Ethylene Glycol
Output (kW)	750	x 0.97	727.5 kW
Compressor Input (kW)	228.6	x 0.98	224.0 kW
Water Flow (l/s)	35.83	x 1.02	36.55 l/s
Pressure Drop (kPa)	20.6	x 1.20	24.72 kPa

Design Features & Information

Sound Data

Measurement of Sound Data

All sound data quoted has been measured in the third-octave band limited values, using a Real Time Analyser calibrated sound intensity meter in accordance with BS EN ISO9614 Part 1:2009. The Global sound data quoted is valid for noise emitted in the horizontal plane in all directions.

All Sound Power Levels quoted are calculated from measured sound intensity according to BS EN ISO9614 Part 1: 2009.

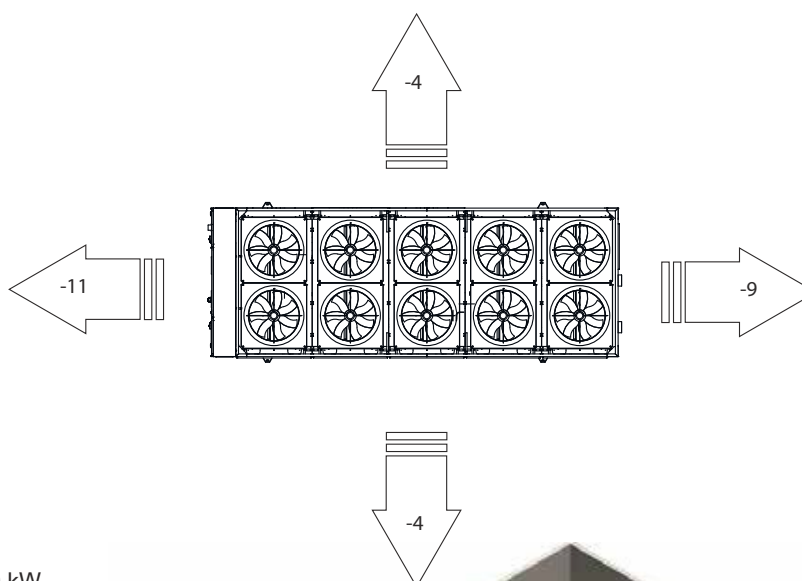
Sound Pressure Levels are calculated from sound power using the expanded parallelepiped method according to BS EN ISO 11203: 2009.

Sound Directivity

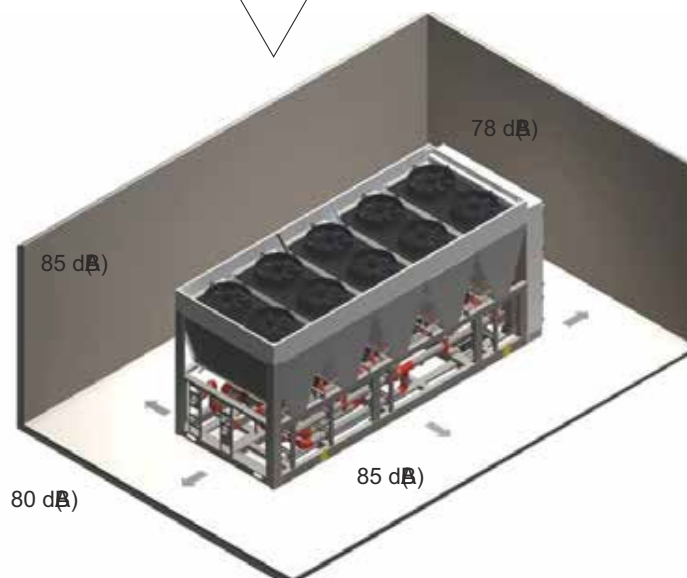
The Global sound measurements quoted in the following tables do not incorporate any directivity or denote any sound level heard at any given position surrounding the unit, rather they represent the total sound level radiating from the unit in all directions in the horizontal plane from source.

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

Base Correction Values - Global dB



EXAMPLE (dB(A)): 470 kW
Output - Quiet Models - TCC12R08G-04
Overall Sound Power of 89 dB(A) =



Design Features & Information

Water System

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

- National and Local Water supply company standards
- The manufacturer's instructions are followed when fitting ancillary components
- The system liquid is treated to prevent corrosion and algae forming
- In ambients of 3°C and below, where static water can be expected, or when water supply temperatures of +5°C or below are required, the necessary concentration of Glycol or use of an electrical trace heater must be included
- The schematic is referred to as a guide to ancillary recommendations

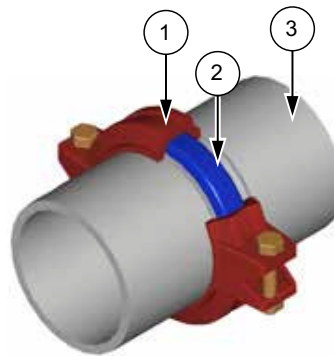
CAUTION



The unit water connections are NOT designed to support external pipe work, pipe work MUST be supported separately.

Grooved & Clamped Type Connection

1. Clamp
2. Gasket
3. Counter pipe



Standard Recommended Installation

General

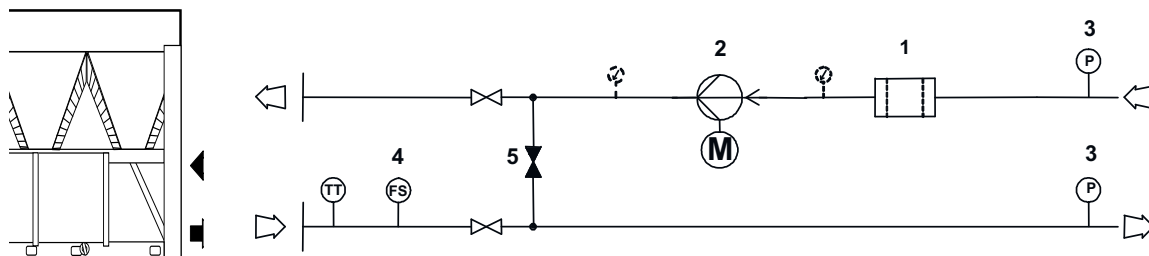
The following diagram illustrates the minimum component installation requirements. A wide range of optional extras are available to suit various applications.

CAUTION



The following installation recommendations should be adhered to. Failure to do this may invalidate the chiller warranty. The water flow commissioning valve set is not shown in the diagram, as the valve can be fitted elsewhere within the chilled water circuit.

- | | | | |
|---|-----------------|---|---------------------|
| 1 | Filter 20 Mesh | 4 | Flow switch |
| 2 | Pump | 5 | Flushing bypass leg |
| 3 | Pressure sensor | | |



CAUTION



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

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

Design Features & Information

Water Systems and Recommended Flow Schemes

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

- The inclusion of Binder Points adjacent to the flow and return connections, to allow temperature and pressure readings
- A flow switch or equivalent, fitted adjacent to the water outlet side of the Chiller
- A 20 mesh strainer fitted prior to the evaporator inlet
- A water-flow commissioning valve set fitted to the system
- In multiple chiller installations, 1 commissioning valve set is required per chiller
- Air vents are to be installed at all high points and where air is likely to be trapped at intermediate points
- Drain points are to be installed at all low points in the system and in particular adjacent to the unit for maintenance to be carried out. The unit must be drained for winter shutdown.
- Isolating valves should be installed adjacent to all major items of equipment for ease of maintenance
- Balancing valves can be installed if required to aid correct system balancing
- All chilled water pipe work must be insulated and vapour sealed to avoid condensation
- If several units are installed in parallel adjacent to each other, reverse return should be applied to avoid unnecessary balancing valves

Pump Statement

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

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

Interlocks & Protection

Always electrically interlock the operation of the chiller with the pump controls **and** water flow switch.

These safety devices prevent the chiller operating with low water flow which can cause serious damage.

CAUTION



Failure to install both safety devices will invalidate the chiller warranty.

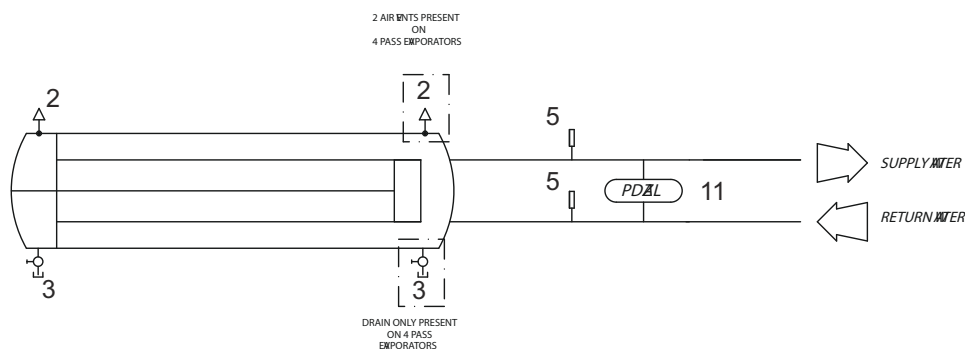
Do not rely solely on the BMS to protect the chiller against low flow conditions.

An evaporator pump interlock and flow switch **MUST** be directly wired to the Chiller, refer to **Interconnecting Wiring**.

Flow Schemes

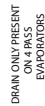
Basic Supplied Water Schematic - Evaporator only

(Includes Flow Proving Device)



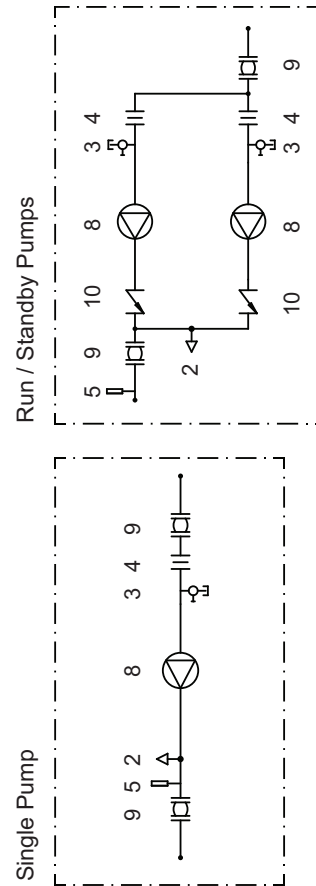
Incorporating

- 2 AIR VENTS PRESENT
ON
4 PASS EVAPORATORS



Key

- 1 Evaporator
- 2 Automatic Air Vent
- 3 Drain
- 4 Butterfly Shut off valve
- 5 Binder Point
- 6 Filter
- 7 Flanged Terminations (Option)
- 8 Pump
- 9 AV Mounts
- 10 Non Return Valve

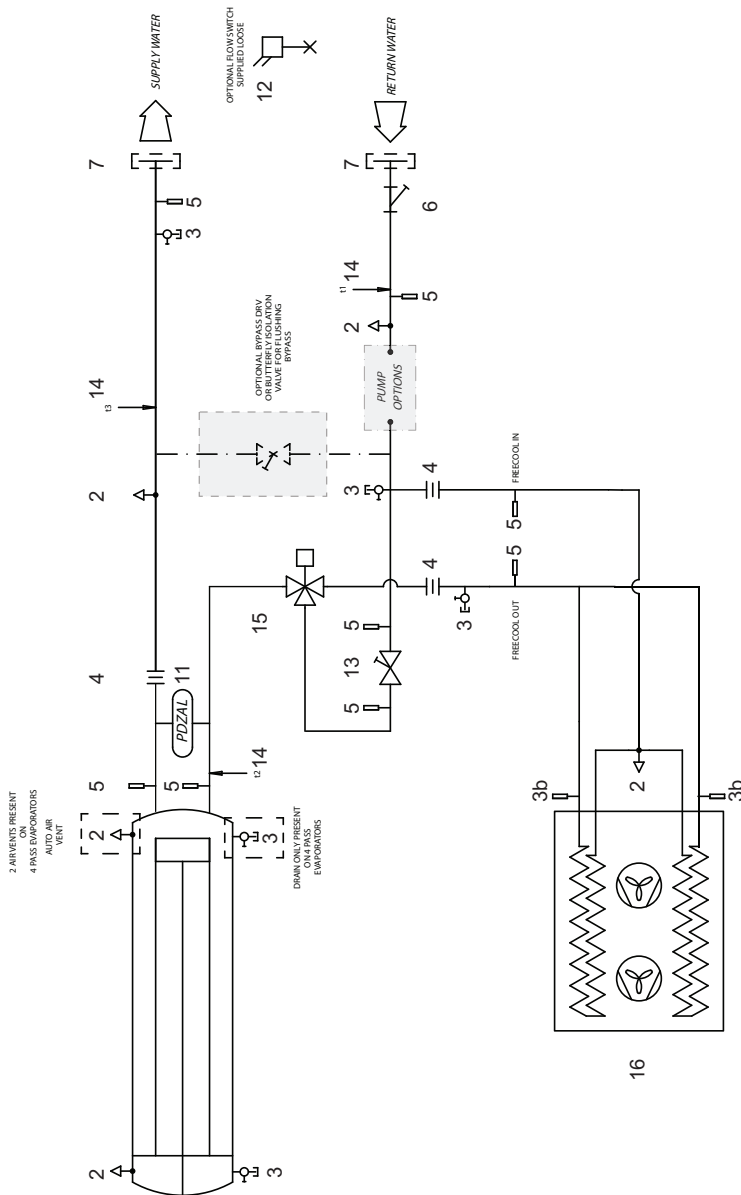


Design Features & Information

Standard Free Cooling Circuit

Incorporating

- 20 Mesh Water Filter
- Differential Pressure Transducer
- Shut off valves

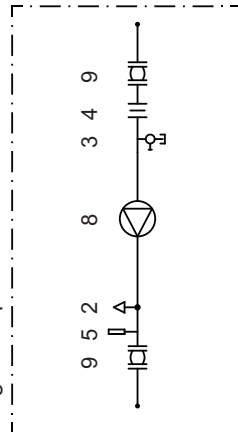


Key

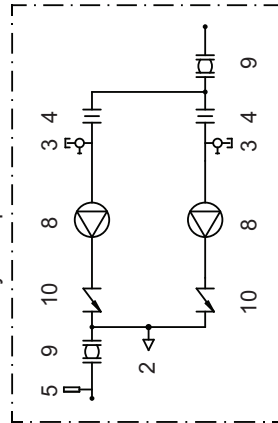
- 1 Evaporator
- 2 Automatic Air Vent
- 3 Drain
- 4 Butterfly Shut off Valve
- 5 Binder Point
- 6 Filter
- 7 Flanged Terminations (Option)
- 8 Pump
- 9 AV Mounts
- 10 Non Return Valve
- 11 Differential pressure transducer
- 12 Flow switch
- 13 Double Regulating Valve
- 14 temperature Sensor
- 15 Mixing Valve
- 16 Free Cooling Coil

Pump Options

Single Pump



Run / Standby Pumps



Technical Data TCC (R)

TCC11R04G-01, TCC11R06G-01, TCC11R08G-01

Mechanical Data

Mechanical Data	Notes	Units	TCC11R04G-01	TCC11R06G-01	TCC11R08G-01
Cooling Duty - AC Fans	(1)	kW	240	265	275
Nom Input -Cooling Only		kW	73.3	75.0	75.9
EER	(2)		3.27	3.53	3.62
ESEER	(3)		4.66	4.61	4.71
SEER	(3)		4.51	4.49	4.59
Nominal Output - Free Cooling	(4)	kW	N/A	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A	N/A
Cooling Duty - EC Fans	(1)	kW	240	265	275
Nom Input -Cooling Only		kW	72.2	73.6	72.1
EER	(2)		3.32	3.60	3.81
ESEER	(3)		5.17	5.35	5.68
SEER	(3)		4.96	5.15	5.47
Nominal Output - Free Cooling	(4)	kW	N/A	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A	N/A
Cooling Duty - High Airflow EC Fans	(1)	kW	240	265	275
Nom Input -Cooling Only		kW	72.2	73.6	72.0
EER	(2)		3.33	3.60	3.82
ESEER	(3)		5.17	5.35	5.68
SEER	(3)		4.96	5.15	5.46
Nominal Output - Free Cooling	(4)	kW	N/A	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A	N/A
Capacity Steps	(6)	%	30-100%	30-100%	30-100%
Dimensions (H x W x L)	(9)	mm	2800 x 2200 x 2626	2800 x 2200 x 3758	2800 x 2200 x 4890
Machine Weight	(7)	kg	2765	3390	3980
Operating Weight	(7)	kg	2865	3490	4080
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)		
Evaporator - Type			Flooded - Shell and Tube Evaporator		
Insulation			Class O, UV stable Insulation		
Total Max. Water Flow		l/s	21.9	21.9	21.9
Total Min. Water Flow		l/s	7.3	7.3	7.3
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins		
Face Area Total		m²	9.5	14.21	18.9
Maximum Airflow - AC Fans		m³/s	22.6	33.9	45.2
Maximum Airflow - EC Fans		m³/s	25.3	38.0	50.6
Maximum Airflow - High Airflow EC Fans		m³/s	27.3	41.0	54.7
Condenser Fan & Motor			Sickle Bladed Axial Fan		
Quantity			4	6	8
Diameter		mm	800	800	800
Maximum Speed - AC Fans		rpm	910	910	910
Maximum Speed - EC Fans		rpm	1025	1025	1025
Maximum Speed - High Airflow EC Fans		rpm	1100	1100	1100
Compressor - Type			Turbocor - Oil Free Compressor		
Quantity			1	1	1
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation		
Refrigeration			Single Circuit		
Refrigerant Pre-charged			R1234ze(E)	R1234ze(E)	R1234ze(E)
Charge (Total) CCT1 + CCT2		kg	110	115	125
Refrigeration Control			Electronic Expansion Valve (EEV)		
Water System			Grooved Type Coupling and Pipe Assembly		
Water Inlet / Outlet			DN100	DN100	DN100
Water Drain / Bleed - Evap		inch	1/2	1/2	1/2
Water Volume		l	101.9	101.9	113.8
Minimum System Water Volume	(8)	l	1123	1230	1284
Max System Operating Pressure		Barg	10	10	10
Flow Rate		l/s	9.5	10.5	10.9
Pressure Drop		kPa	26.1	30.8	32.8

(1) Based on AC units performance at 13/7°C return/supply temperatures, 35°C ambient, 100% water. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCC11R04G-01, TCC11R06G-01, TCC11R08G-01

Electrical Data

ELECTRICAL DATA		TCC11R04G-01	TCC11R06G-01	TCC11R08G-01
Unit Data				
Full Load Amps (1)	A	167	176	184
Maximum Start Amps	A	2	2	2
Mains Supply	VAC		400V (±10%) 3PH 50Hz	
Recommended Mains Fuse Size	A	250	250	250
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm²		2x 300mm² (Torque >20Nm)	
Independent Permanent Supply Recommended Fuse Size	A	25	25	25
Independent Permanent Supply	VAC		230V 1PH 50Hz (±10%)	
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm²		6mm² / 8 AWG	
Control Circuit	VAC		24 VAC & 230VAC (±10%)	
Evaporator				
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)	500 (2x 250)
External Trace Heating				
Available (fitted by others)	W	500	500	500
Condenser Fan - Per Fan (AC)				
Quantity		4	6	8
Full Load Amps	A	4.3	4.3	4.3
Locked Rotor Amps	A	15	15	15
Motor Rating	kW	1.8	1.8	1.8
Condenser Fan - Per Fan (EC)				
Quantity		4	6	8
Full Load Amps	A	3.9	3.9	3.9
Locked Rotor Amps	A	N/A	N/A	N/A
Motor Rating	kW	2.56	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)				
Quantity		4	6	8
Full Load Amps	A	4.8	4.8	4.8
Locked Rotor Amps	A	N/A	N/A	N/A
Motor Rating	kW	3.10	3.10	3.10
Compressor - Per Compressor				
Nominal Run Amps	A	150	150	150
Quantity		1	1	1
Motor Rating	kW	92	92	92
Start Amps	A	2	2	2
Type Of Start			Electronic Soft Start	

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Technical Data

TCC12R08G-04, TCC12R10G-04

Mechanical Data

Mechanical Data	Notes	Units	TCC12R08G-04	TCC12R10G-04
Cooling Duty - AC Fans	(1)	kW	470	500
Nom Input -Cooling Only		kW	142.4	144.8
EER	(2)		3.30	3.45
ESEER	(3)		4.55	4.65
SEER	(3)		4.41	4.52
Nominal Output - Free Cooling	(4)	kW	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A
Cooling Duty - EC Fans	(1)	kW	470	500
Nom Input -Cooling Only		kW	140.6	143.1
EER	(2)		3.34	3.50
ESEER	(3)		5.13	5.35
SEER	(3)		4.92	5.14
Nominal Output - Free Cooling	(4)	kW	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A
Cooling Duty - High Airflow EC Fans	(1)	kW	470	500
Nom Input -Cooling Only		kW	140.4	142.9
EER	(2)		3.35	3.50
ESEER	(3)		5.13	5.35
SEER	(3)		4.92	5.14
Nominal Output - Free Cooling	(4)	kW	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A
Capacity Steps	(6)	%	15-100%	15-100%
Dimensions (H x W x L)	(9)	mm	2800 x 2200 x 4890	2800 x 2200 x 6022
Machine Weight	(7)	kg	4795	5405
Operating Weight	(7)	kg	4935	5545
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)	
Evaporator - Type			Flooded - Shell and Tube Evaporator	
Insulation			Class O, UV stable Insulation	
Total Max. Water Flow		l/s	40.5	40.5
Total Min. Water Flow		l/s	13.3	13.3
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins	
Face Area Total		m²	18.9	23.7
Maximum Airflow - AC Fans		m³/s	45.2	56.5
Maximum Airflow - EC Fans		m³/s	50.6	63.3
Maximum Airflow - High Airflow EC Fans		m³/s	54.7	68.3
Condenser Fan & Motor			Sickle Bladed Axial Fan	
Quantity			8	10
Diameter		mm	800	800
Maximum Speed - AC Fans		rpm	910	910
Maximum Speed - EC Fans		rpm	1025	1025
Maximum Speed - High Airflow EC Fans		rpm	1100	1100
Compressor - Type			Turbocor - Oil Free Compressor	
Quantity			2	2
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation	
Refrigeration			Single Circuit	
Refrigerant Pre-charged			R1234ze	R1234ze
Charge (Total) CCT1 + CCT2		kg	255	265
Refrigeration Control			Electronic Expansion Valve (EEV)	
Water System			Grooved Type Coupling and Pipe Assembly	
Water Inlet / Outlet			DN125	DN125
Water Drain / Bleed - Evap		inch	1/2	1/2
Water Volume		l	141	141
Minimum System Water Volume	(8)	l	1141	1205
Max System Operating Pressure		Barg	10	10
Flow Rate		l/s	18.6	19.8
Pressure Drop		kPa	26.0	28.8

(1) Based on AC units performance at 13/7°C return/supply temperatures, 35°C ambient, 100% water. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCC12R08G-04, TCC12R10G-04

Electrical Data

ELECTRICAL DATA		TCC12R08G-04	TCC12R10G-04
Unit Data			
Full Load Amps (1)	A	334	343
Maximum Start Amps	A	186	195
Mains Supply	VAC	400V (±10%) 3PH 50Hz	
Recommended Mains Fuse Size	A	355	355
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm ²	2x 300mm ² (Torque >20Nm)	
Independent Permanent Supply Recommended Fuse Size	A	25	25
Independent Permanent Supply	VAC	230V 1PH 50Hz (±10%)	
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm ²	6mm ² / 8 AWG	
Control Circuit	VAC	24 VAC & 230VAC (±10%)	
Evaporator			
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)
External Trace Heating			
Available (fitted by others)	W	500	500
Condenser Fan - Per Fan (AC)			
Quantity		8	10
Full Load Amps	A	4.3	4.3
Locked Rotor Amps	A	15	15
Motor Rating	kW	1.8	1.8
Condenser Fan - Per Fan (EC)			
Quantity		8	10
Full Load Amps	A	3.9	3.9
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)			
Quantity		8	10
Full Load Amps	A	4.8	4.8
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	3.10	3.10
Compressor - Per Compressor			
Nominal Run Amps	A	150	150
Quantity		2	2
Motor Rating	kW	92	92
Start Amps	A	2	2
Type Of Start		Electronic Soft Start	

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Technical Data

TCC12R12G-04, TCC12R14G-04

Mechanical Data

Mechanical Data	Notes	Units	TCC12R12G-04	TCC12R14G-04
Cooling Duty - AC Fans	(1)	kW	530	560
Nom Input -Cooling Only		kW	150.2	157.7
EER	(2)		3.53	3.55
ESEER	(3)		4.71	4.74
SEER	(3)		4.57	4.61
Nominal Output - Free Cooling	(4)	kW	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A
Cooling Duty - EC Fans	(1)	kW	530	560
Nom Input -Cooling Only		kW	147.5	153.3
EER	(2)		3.59	3.65
ESEER	(3)		5.51	5.63
SEER	(3)		5.29	5.40
Nominal Output - Free Cooling	(4)	kW	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A
Cooling Duty - High Airflow EC Fans	(1)	kW	530	560
Nom Input -Cooling Only		kW	147.3	153.1
EER	(2)		3.60	3.66
ESEER	(3)		5.51	5.62
SEER	(3)		5.29	5.40
Nominal Output - Free Cooling	(4)	kW	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A
Capacity Steps	(6)	%	30-100%	30-100%
Dimensions (H x W x L)	(9)	mm	2800 x 2200 x 7154	2800 x 2200 x 8286
Machine Weight	(7)	kg	6025	6640
Operating Weight	(7)	kg	6165	6780
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)	
Evaporator - Type			Flooded - Shell and Tube Evaporator	
Insulation			Class O, UV stable Insulation	
Total Max. Water Flow		l/s	40.5	40.5
Total Min. Water Flow		l/s	13.3	13.3
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins	
Face Area Total		m²	28.4	33.2
Maximum Airflow - High Airflow EC Fans		m³/s	67.8	79.0
Maximum Airflow - EC Fans		m³/s	75.9	88.6
Maximum Airflow - AC Fans		m³/s	82.0	95.7
Condenser Fan & Motor			Sickle Bladed Axial Fan	
Quantity			12	14
Diameter		mm	800	800
Maximum Speed - AC Fans		rpm	910	910
Maximum Speed - EC Fans		rpm	1025	1025
Maximum Speed - High Airflow EC Fans		rpm	1100	1100
Compressor - Type			Turbocor - Oil Free Compressor	
Quantity			2	2
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation	
Refrigeration			Single Circuit	
Refrigerant Pre-charged			R1234ze(E)	R1234ze(E)
Charge (Total) CCT1 + CCT2		kg	280	290
Refrigeration Control			Electronic Expansion Valve (EEV)	
Water System			Grooved Type Coupling and Pipe Assembly	
Water Inlet / Outlet			DN100	DN100
Water Drain / Bleed - Evap		inch	1/2	1/2
Water Volume		l	141	141
Minimum System Water Volume	(8)	l	1268	1332
Max System Operating Pressure		Barg	10	10
Flow Rate		l/s	21.0	22.2
Pressure Drop		kPa	31.8	35.0

(1) Based on AC units performance at 13/7°C return/supply temperatures, 35°C ambient, 100% water. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCC12R12G-04, TCC12R14G-04

Electrical Data

ELECTRICAL DATA		TCC12R12G-04	TCC12R14G-04
Unit Data			
Full Load Amps (1)	A	352	360
Maximum Start Amps	A	204	212
Mains Supply	VAC	400V (±10%) 3PH 50Hz	
Recommended Mains Fuse Size	A	400	400
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm²	2x 300mm² (Torque >20Nm)	
Independent Permanent Supply Recommended Fuse Size	A	25	25
Independent Permanent Supply	VAC	230V 1PH 50Hz (±10%)	
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm²	6mm² / 8 AWG	
Control Circuit	VAC	24 VAC & 230VAC (±10%)	
Evaporator			
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)
External Trace Heating			
Available (fitted by others)	W	500	500
Condenser Fan - Per Fan (AC)			
Quantity		12	14
Full Load Amps	A	4.3	4.3
Locked Rotor Amps	A	15	15
Motor Rating	kW	1.8	1.8
Condenser Fan - Per Fan (EC)			
Quantity		12	14
Full Load Amps	A	3.9	3.9
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)			
Quantity		12	14
Full Load Amps	A	4.8	4.8
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	3.10	3.10
Compressor - Per Compressor			
Nominal Run Amps	A	150	150
Quantity		2	2
Motor Rating	kW	92	92
Start Amps	A	2	2
Type Of Start		Electronic Soft Start	

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Technical Data

TCC22R08G-14, TCC22R10G-14, TCC22R12G-14

Mechanical Data

Mechanical Data	Notes	Units	TCC22R08G-14	TCC22R10G-14	TCC22R12G-14
Cooling Duty - AC Fans	(1)	kW	470	500	530
Nom Input -Cooling Only		kW	142.3	144.7	150.1
EER	(2)		3.30	3.46	3.53
ESEER	(3)		4.39	4.45	4.53
SEER	(3)		4.26	4.34	4.42
Nominal Output - Free Cooling	(4)	kW	N/A	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A	N/A
Cooling Duty - EC Fans	(1)	kW	470	500	530
Nom Input -Cooling Only		kW	140.5	142.9	147.3
EER	(2)		3.35	3.50	3.60
ESEER	(3)		4.35	4.83	5.06
SEER	(3)		4.24	4.68	4.89
Nominal Output - Free Cooling	(4)	kW	N/A	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A	N/A
Cooling Duty - High Airflow EC Fans	(1)	kW	470	500	530
Nom Input -Cooling Only		kW	140.3	142.8	147.2
EER	(2)		3.35	3.50	3.60
ESEER	(3)		4.36	4.84	5.06
SEER	(3)		4.25	4.69	4.90
Nominal Output - Free Cooling	(4)	kW	N/A	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A	N/A
Capacity Steps	(6)	%	15-100%	15-100%	15-100%
Dimensions (H x W x L)	(9)	mm	2800 x 2200 x 4890	2800 x 2200 x 6022	2800 x 2200 x 7154
Machine Weight	(7)	kg	4800	5430	6050
Operating Weight	(7)	kg	4940	5570	6190
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)		
Evaporator - Type			Flooded - Shell and Tube Evaporator		
Insulation			Class O, UV stable Insulation		
Total Max. Water Flow		l/s	43.7	43.7	43.7
Total Min. Water Flow		l/s	14.6	14.6	14.6
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins		
Face Area Total		m²	18.9	23.7	28.4
Maximum Airflow - AC Fans		m³/s	45.2	56.5	67.8
Maximum Airflow - EC Fans		m³/s	50.6	63.3	75.9
Maximum Airflow - High Airflow EC Fans		m³/s	54.7	68.3	82.0
Condenser Fan & Motor			Sickle Bladed Axial Fan		
Quantity			8	10	12
Diameter		mm	800	800	800
Maximum Speed - AC Fans		rpm	910	910	910
Maximum Speed - EC Fans		rpm	1025	1025	1025
Maximum Speed - High Airflow EC Fans		rpm	1100	1100	1100
Compressor - Type			Turbocor - Oil Free Compressor		
Quantity			2	2	2
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation		
Refrigeration			Dual Circuit		
Refrigerant Pre-charged			R1234ze	R1234ze	R1234ze
Charge (Total) CCT1 + CCT2		kg	140 + 140	150 + 145	155 + 150
Refrigeration Control			Electronic Expansion Valve (EEV)		
Water System			Grooved Type Coupling and Pipe Assembly		
Water Inlet / Outlet			DN125	DN125	DN125
Water Drain / Bleed - Evap		inch	1/2	1/2	1/2
Water Volume		l	148	148	148
Minimum System Water Volume	(8)	l	1147	1211	1275
Max System Operating Pressure		Barg	10	10	10
Flow Rate		l/s	18.6	19.8	21.0
Pressure Drop		kPa	22.5	25.1	27.8

(1) Based on AC units performance at 13/7°C return/supply temperatures, 35°C ambient, 100% water. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCC22R08G-14, TCC22R10G-14, TCC22R12G-14

Electrical Data

ELECTRICAL DATA		TCC22R08G-14	TCC22R10G-14	TCC22R12G-14
Unit Data				
Full Load Amps (1)	A	334	343	352
Maximum Start Amps	A	186	195	204
Mains Supply	VAC		400V (±10%) 3PH 50Hz	
Recommended Mains Fuse Size	A	355	355	400
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm²		2x 300mm² (Torque >20Nm)	
Independent Permanent Supply Recommended Fuse Size	A	25	25	25
Independent Permanent Supply	VAC		230V 1PH 50Hz (±10%)	
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm²		6mm² / 8 AWG	
Control Circuit	VAC		24 VAC & 230VAC (±10%)	
Evaporator				
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)	500 (2x 250)
External Trace Heating				
Available (fitted by others)	W	500	500	500
Condenser Fan - Per Fan (AC)				
Quantity		8	10	12
Full Load Amps	A	4.3	4.3	4.3
Locked Rotor Amps	A	15	15	15
Motor Rating	kW	1.8	1.8	1.8
Condenser Fan - Per Fan (EC)				
Quantity		8	10	12
Full Load Amps	A	3.9	3.9	3.9
Locked Rotor Amps	A	N/A	N/A	N/A
Motor Rating	kW	2.56	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)				
Quantity		8	10	12
Full Load Amps	A	4.8	4.8	4.8
Locked Rotor Amps	A	N/A	N/A	N/A
Motor Rating	kW	3.10	3.10	3.10
Compressor - Per Compressor				
Nominal Run Amps	A	150	150	150
Quantity		1 / 1	1 / 1	1 / 1
Motor Rating	kW	92	92	92
Start Amps	A	2	2	2
Type Of Start			Electronic Soft Start	

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Technical Data

TCC22R14G-14, TCC23R12G-17, TCC23R14G-17

Mechanical Data

Mechanical Data	Notes	Units	TCC22R14G-14	TCC23R12G-17	TCC23R14G-17
Cooling Duty - AC Fans	(1)	kW	560	630	680
Nom Input -Cooling Only		kW	157.6	186.7	195.9
EER	(2)		3.55	3.37	3.47
ESEER	(3)		4.57	4.52	4.62
SEER	(3)		4.45	4.40	4.49
Nominal Output - Free Cooling	(4)	kW	N/A	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A	N/A
Cooling Duty - EC Fans	(1)	kW	560	630	680
Nom Input -Cooling Only		kW	153.1	184.7	193.2
EER	(2)		3.66	3.41	3.52
ESEER	(3)		5.23	5.04	5.22
SEER	(3)		5.05	4.86	5.03
Nominal Output - Free Cooling	(4)	kW	N/A	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A	N/A
Cooling Duty - High Airflow EC Fans	(1)	kW	560	630	680
Nom Input -Cooling Only		kW	153.0	184.5	193.0
EER	(2)		3.66	3.41	3.52
ESEER	(3)		5.23	5.04	5.22
SEER	(3)		5.05	4.86	5.03
Nominal Output - Free Cooling	(4)	kW	N/A	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A	N/A
Capacity Steps	(6)	%	15-100%	10-100%	10-100%
Dimensions (H x W x L)	(9)	mm	2800 x 2200 x 8286	2800 x 2200 x 7154	2800 x 2200 x 8286
Machine Weight	(7)	kg	6680	7000	7630
Operating Weight	(7)	kg	6820	7230	7860
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)		
Evaporator - Type			Flooded - Shell and Tube Evaporator		
Insulation			Class O, UV stable Insulation		
Total Max. Water Flow		l/s	43.7	66.5	66.5
Total Min. Water Flow		l/s	14.6	22.3	22.3
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins		
Face Area Total		m²	33.2	28.42	33.2
Maximum Airflow - AC Fans		m³/s	79.0	67.8	79.0
Maximum Airflow - EC Fans		m³/s	88.6	75.9	88.6
Maximum Airflow - High Airflow EC Fans		m³/s	95.7	82.0	95.7
Condenser Fan & Motor			Sickle Bladed Axial Fan		
Quantity			14	12	14
Diameter		mm	800	800	800
Maximum Speed - AC Fans		rpm	910	910	910
Maximum Speed - EC Fans		rpm	1025	1025	1025
Maximum Speed - High Airflow EC Fans		rpm	1100	1100	1100
Compressor - Type			Turbocor - Oil Free Compressor		
Quantity			2	3	3
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation		
Refrigeration			Dual Circuit		
Refrigerant Pre-charged			R1234ze	R1234ze	R1234ze
Charge (Total) CCT1 + CCT2		kg	165 + 160	300 + 175	310 + 180
Refrigeration Control			Electronic Expansion Valve (EEV)		
Water System			Grooved Type Coupling and Pipe Assembly		
Water Inlet / Outlet			DN125	DN150	DN150
Water Drain / Bleed - Evap		inch	1/2	1/2	1/2
Water Volume		l	148	235	235
Minimum System Water Volume	(8)	l	1339	1129	1200
Max System Operating Pressure		Barg	10	10	10
Flow Rate		l/s	22.2	25.0	27.0
Pressure Drop		kPa	30.6	17.8	20.4

(1) Based on AC units performance at 13/7°C return/supply temperatures, 35°C ambient, 100% water. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCC22R14G-14, TCC23R12G-17, TCC23R14G-17

Electrical Data

ELECTRICAL DATA		TCC22R14G-14	TCC23R12G-17	TCC23R14G-17
Unit Data				
Full Load Amps (1)	A	360	502	510
Maximum Start Amps	A	212	354	362
Mains Supply	VAC		400V (±10%) 3PH 50Hz	
Recommended Mains Fuse Size	A	400	560	560
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm ²		2x 300mm ² (Torque >20Nm)	
Independent Permanent Supply Recommended Fuse Size	A	25	25	25
Independent Permanent Supply	VAC		230V 1PH 50Hz (±10%)	
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm ²		6mm ² / 8 AWG	
Control Circuit	VAC		24 VAC & 230VAC (±10%)	
Evaporator				
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)	500 (2x 250)
External Trace Heating				
Available (fitted by others)	W	500	500	500
Condenser Fan - Per Fan (AC)				
Quantity		14	12	14
Full Load Amps	A	4.3	4.3	4.3
Locked Rotor Amps	A	15	15	15
Motor Rating	kW	1.8	1.8	1.8
Condenser Fan - Per Fan (EC)				
Quantity		14	12	14
Full Load Amps	A	3.9	3.9	3.9
Locked Rotor Amps	A	N/A	N/A	N/A
Motor Rating	kW	2.56	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)				
Quantity		14	12	14
Full Load Amps	A	4.8	4.8	4.8
Locked Rotor Amps	A	N/A	N/A	N/A
Motor Rating	kW	3.10	3.10	3.10
Compressor - Per Compressor				
Nominal Run Amps	A	150	150	150
Quantity		1 / 1	2 / 1	2 / 1
Motor Rating	kW	92	92	92
Start Amps	A	2	2	2
Type Of Start			Electronic Soft Start	

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Technical Data

TCC23R16G-17, TCC23R18G-17, TCC24R16G-18

Mechanical Data

Mechanical Data	Notes	Units	TCC23R16G-17	TCC23R18G-17	TCC24R16G-18
Cooling Duty - AC Fans	(1)	kW	730	780	820
Nom Input -Cooling Only		kW	207.0	219.6	242.5
EER	(2)		3.53	3.55	3.38
ESEER	(3)		4.66	4.71	4.68
SEER	(3)		4.53	4.57	4.53
Nominal Output - Free Cooling	(4)	kW	N/A	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A	N/A
Cooling Duty - EC Fans	(1)	kW	730	780	820
Nom Input -Cooling Only		kW	203.5	215.3	239.7
EER	(2)		3.59	3.62	3.42
ESEER	(3)		5.31	5.42	5.26
SEER	(3)		5.11	5.21	5.04
Nominal Output - Free Cooling	(4)	kW	N/A	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A	N/A
Cooling Duty - High Airflow EC Fans	(1)	kW	730	780	820
Nom Input -Cooling Only		kW	203.3	215.0	239.5
EER	(2)		3.59	3.63	3.42
ESEER	(3)		5.31	5.42	5.27
SEER	(3)		5.12	5.21	5.06
Nominal Output - Free Cooling	(4)	kW	N/A	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A	N/A
Capacity Steps	(6)	%	10-100%	10-100%	7.5-100%
Dimensions (H x W x L)	(9)	mm	2800 x 2200 x 9418	2800 x 2200 x 10550	2800 x 2200 x 9418
Machine Weight	(7)	kg	8270	8880	8670
Operating Weight	(7)	kg	8500	9110	8920
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)		
Evaporator - Type			Flooded - Shell and Tube Evaporator		
Insulation			Class O, UV stable Insulation		
Total Max. Water Flow		l/s	66.5	66.5	77.9
Total Min. Water Flow		l/s	22.3	22.3	25.8
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins		
Face Area Total		m²	37.9	42.63	37.9
Maximum Airflow - AC Fans		m³/s	90.3	101.6	90.3
Maximum Airflow - EC Fans		m³/s	101.2	113.9	101.2
Maximum Airflow - High Airflow EC Fans		m³/s	109.3	123.0	109.3
Condenser Fan & Motor			Sickle Bladed Axial Fan		
Quantity			16	18	16
Diameter		mm	800	800	800
Maximum Speed - AC Fans		rpm	910	910	910
Maximum Speed - EC Fans		rpm	1025	1025	1025
Maximum Speed - High Airflow EC Fans		rpm	1100	1100	1100
Compressor - Type			Turbocor - Oil Free Compressor		
Quantity			3	3	4
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation		
Refrigeration			Dual Circuit		
Refrigerant Pre-charged			R1234ze	R1234ze	R1234ze
Charge (Total) CCT1 + CCT2		kg	320 + 195	325 + 200	230 + 225
Refrigeration Control			Electronic Expansion Valve (EEV)		
Water System			Grooved Type Coupling and Pipe Assembly		
Water Inlet / Outlet			DN150	DN150	DN200
Water Drain / Bleed - Evap		inch	1/2	1/2	1/2
Water Volume		l	235	235	260
Minimum System Water Volume	(8)	l	1271	1342	1074
Max System Operating Pressure		Barg	10	10	10
Flow Rate		l/s	29.0	30.9	32.5
Pressure Drop		kPa	23.2	26.1	21.5

(1) Based on AC units performance at 13/7°C return/supply temperatures, 35°C ambient, 100% water. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCC23R16G-17, TCC23R18G-17, TCC24R16G-18

Electrical Data

ELECTRICAL DATA		TCC23R16G-17	TCC23R18G-17	TCC24R16G-18
Unit Data				
Full Load Amps (1)	A	519	527	669
Maximum Start Amps	A	371	379	521
Mains Supply	VAC	400V (±10%) 3PH 50Hz		
Recommended Mains Fuse Size	A	560	560	750
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm²	2x 300mm² (Torque >20Nm)		
Independent Permanent Supply Recommended Fuse Size	A	25	25	25
Independent Permanent Supply	VAC	230V 1PH 50Hz (±10%)		
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm²	6mm² / 8 AWG		
Control Circuit	VAC	24 VAC & 230VAC (±10%)		
Evaporator				
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)	500 (2x 250)
External Trace Heating				
Available (fitted by others)	W	500	500	500
Condenser Fan - Per Fan (AC)				
Quantity		16	18	16
Full Load Amps	A	4.3	4.3	4.3
Locked Rotor Amps	A	15	15	15
Motor Rating	kW	1.8	1.8	1.8
Condenser Fan - Per Fan (EC)				
Quantity		16	18	16
Full Load Amps	A	3.9	3.9	3.9
Locked Rotor Amps	A	N/A	N/A	N/A
Motor Rating	kW	2.56	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)				
Quantity		16	18	16
Full Load Amps	A	4.8	4.8	4.8
Locked Rotor Amps	A	N/A	N/A	N/A
Motor Rating	kW	3.10	3.10	3.10
Compressor - Per Compressor				
Nominal Run Amps	A	150	150	150
Quantity		2 / 1	2 / 1	2 / 2
Motor Rating	kW	92	92	92
Start Amps	A	2	2	2
Type Of Start		Electronic Soft Start		

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Technical Data

TCC24R18G-18, TCC24R20G-18

Mechanical Data

Mechanical Data	Notes	Units	TCC24R18G-18	TCC24R20G-18
Cooling Duty - AC Fans	(1)	kW	860	900
Nom Input -Cooling Only		kW	249.4	256.9
EER	(2)		3.45	3.50
ESEER	(3)		4.70	4.74
SEER	(3)		4.56	4.60
Nominal Output - Free Cooling	(4)	kW	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A
Cooling Duty - EC Fans	(1)	kW	860	900
Nom Input -Cooling Only		kW	245.9	252.5
EER	(2)		3.50	3.56
ESEER	(3)		5.35	5.45
SEER	(3)		5.14	5.23
Nominal Output - Free Cooling	(4)	kW	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A
Cooling Duty - High Airflow EC Fans	(1)	kW	860	900
Nom Input -Cooling Only		kW	245.7	252.2
EER	(2)		3.50	3.57
ESEER	(3)		5.35	5.45
SEER	(3)		5.14	5.23
Nominal Output - Free Cooling	(4)	kW	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A
Capacity Steps	(6)	%	7.5-100%	7.5-100%
Dimensions (H x W x L)	(9)	mm	2800 x 2200 x 10550	2800 x 2200 x 11682
Machine Weight	(7)	kg	9300	9930
Operating Weight	(7)	kg	9550	10180
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)	
Evaporator - Type			Flooded - Shell and Tube Evaporator	
Insulation			Class O, UV stable Insulation	
Total Max. Water Flow		l/s	77.9	77.9
Total Min. Water Flow		l/s	25.8	25.8
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins	
Face Area Total		m²	42.6	47.4
Maximum Airflow - AC Fans		m³/s	101.6	112.9
Maximum Airflow - EC Fans		m³/s	113.9	126.5
Maximum Airflow - High Airflow EC Fans		m³/s	123.0	136.7
Condenser Fan & Motor			Sickle Bladed Axial Fan	
Quantity			18	20
Diameter		mm	800	800
Maximum Speed - AC Fans		rpm	910	910
Maximum Speed - EC Fans		rpm	1025	1025
Maximum Speed - High Airflow EC Fans		rpm	1100	1100
Compressor - Type			Turbocor - Oil Free Compressor	
Quantity			4	4
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation	
Refrigeration			Dual Circuit	
Refrigerant Pre-charged			R1234ze	R1234ze
Charge (Total) CCT1 + CCT2		kg	240 + 230	245 + 245
Refrigeration Control			Electronic Expansion Valve (EEV)	
Water System			Grooved Type Coupling and Pipe Assembly	
Water Inlet / Outlet			DN200	DN200
Water Drain / Bleed - Evap		inch	1/2	1/2
Water Volume		l	260	260
Minimum System Water Volume	(8)	l	1114	1153
Max System Operating Pressure		Barg	10	10
Flow Rate		l/s	34.1	35.7
Pressure Drop		kPa	23.4	25.3

(1) Based on AC units performance at 13/7°C return/supply temperatures, 35°C ambient, 100% water. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCC24R18G-18, TCC24R20G-18

Electrical Data

ELECTRICAL DATA		TCC24R18G-18	TCC24R20G-18
Unit Data			
Full Load Amps (1)	A	677	686
Maximum Start Amps	A	529	538
Mains Supply	VAC	400V (±10%) 3PH 50Hz	
Recommended Mains Fuse Size	A	750	750
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm²	2x 300mm² (Torque >20Nm)	
Independent Permanent Supply Recommended Fuse Size	A	25	25
Independent Permanent Supply	VAC	230V 1PH 50Hz (±10%)	
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm²	6mm² / 8 AWG	
Control Circuit	VAC	24 VAC & 230VAC (±10%)	
Evaporator			
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)
External Trace Heating			
Available (fitted by others)	W	500	500
Condenser Fan - Per Fan (AC)			
Quantity		18	20
Full Load Amps	A	4.3	4.3
Locked Rotor Amps	A	15	15
Motor Rating	kW	1.8	1.8
Condenser Fan - Per Fan (EC)			
Quantity		18	20
Full Load Amps	A	3.9	3.9
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)			
Quantity		18	20
Full Load Amps	A	4.8	4.8
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	3.10	3.10
Compressor - Per Compressor			
Nominal Run Amps	A	150	150
Quantity		2 / 2	2 / 2
Motor Rating	kW	92	92
Start Amps	A	2	2
Type Of Start		Electronic Soft Start	

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Technical Data

TCC24R22G-18, TCC24R24G-18

Mechanical Data

Mechanical Data	Notes	Units	TCC24R22G-18	TCC24R24G-18
Cooling Duty - AC Fans	(1)	kW	950	1000
Nom Input -Cooling Only		kW	267.8	280.2
EER	(2)		3.55	3.57
ESEER	(3)		4.76	4.79
SEER	(3)		4.63	4.65
Nominal Output - Free Cooling	(4)	kW	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A
Cooling Duty - EC Fans	(1)	kW	950	1000
Nom Input -Cooling Only		kW	262.1	273.6
EER	(2)		3.62	3.65
ESEER	(3)		5.52	5.58
SEER	(3)		5.30	5.36
Nominal Output - Free Cooling	(4)	kW	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A
Cooling Duty - High Airflow EC Fans	(1)	kW	950	1000
Nom Input -Cooling Only		kW	261.8	273.3
EER	(2)		3.63	3.66
ESEER	(3)		5.52	5.58
SEER	(3)		5.30	5.36
Nominal Output - Free Cooling	(4)	kW	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A
Capacity Steps	(6)	%	7.5-100%	7.5-100%
Dimensions (H x W x L)	(9)	mm	2800 x 2200 x 12814	2800 x 2200 x 13946
Machine Weight	(7)	kg	10560	11190
Operating Weight	(7)	kg	10810	11440
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)	
Evaporator - Type			Flooded - Shell and Tube Evaporator	
Insulation			Class O, UV stable Insulation	
Total Max. Water Flow		l/s	77.9	77.9
Total Min. Water Flow		l/s	25.8	25.8
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins	
Face Area Total		m²	52.1	56.8
Maximum Airflow - AC Fans		m³/s	124.2	135.5
Maximum Airflow - EC Fans		m³/s	139.2	151.9
Maximum Airflow - High Airflow EC Fans		m³/s	150.3	164.0
Condenser Fan & Motor			Sickle Bladed Axial Fan	
Quantity			22	24
Diameter		mm	800	800
Maximum Speed - AC Fans		rpm	910	910
Maximum Speed - EC Fans		rpm	1025	1025
Maximum Speed - High Airflow EC Fans		rpm	1100	1100
Compressor - Type			Turbocor - Oil Free Compressor	
Quantity			4	4
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation	
Refrigeration			Dual Circuit	
Refrigerant Pre-charged			R1234ze	R1234ze
Charge (Total) CCT1 + CCT2		kg	250 + 255	265 + 260
Refrigeration Control			Electronic Expansion Valve (EEV)	
Water System			Grooved Type Coupling and Pipe Assembly	
Water Inlet / Outlet			DN200	DN200
Water Drain / Bleed - Evap		inch	1/2	1/2
Water Volume		l	260	260
Minimum System Water Volume	(8)	l	1203	1253
Max System Operating Pressure		Barg	10	10
Flow Rate		l/s	37.7	39.7
Pressure Drop		kPa	27.9	30.5

(1) Based on AC units performance at 13/7°C return/supply temperatures, 35°C ambient, 100% water. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCC24R22G-18, TCC24R24G-18

Electrical Data

ELECTRICAL DATA		TCC24R22G-18	TCC24R24G-18
Unit Data			
Full Load Amps (1)	A	695	703
Maximum Start Amps	A	547	555
Mains Supply	VAC	400V (±10%) 3PH 50Hz	
Recommended Mains Fuse Size	A	750	750
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm²	2x 300mm² (Torque >20Nm)	
Independent Permanent Supply Recommended Fuse Size	A	25	25
Independent Permanent Supply	VAC	230V 1PH 50Hz (±10%)	
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm²	6mm² / 8 AWG	
Control Circuit	VAC	24 VAC & 230VAC (±10%)	
Evaporator			
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)
External Trace Heating			
Available (fitted by others)	W	500	500
Condenser Fan - Per Fan (AC)			
Quantity		22	24
Full Load Amps	A	4.3	4.3
Locked Rotor Amps	A	15	15
Motor Rating	kW	1.8	1.8
Condenser Fan - Per Fan (EC)			
Quantity		22	22
Full Load Amps	A	3.9	3.9
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)			
Quantity		22	24
Full Load Amps	A	4.8	4.8
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	3.10	3.10
Compressor - Per Compressor			
Nominal Run Amps	A	150	150
Quantity		1	1
Motor Rating	kW	92	92
Start Amps	A	2	2
Type Of Start		Electronic Soft Start	

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Technical Data TCC (X)

TCC11X04G-01, TCC11X06G-01, TCC11X08G-01

Mechanical Data

Mechanical Data	Notes	Units	TCC11X04G-01	TCC11X06G-01	TCC11X08G-01
Cooling Duty - AC Fans	(1)	kW	200	225	250
Nom Input -Cooling Only		kW	62.7	62.6	66.9
EER	(2)		3.19	3.59	3.74
ESEER	(3)		4.69	4.95	4.77
SEER	(3)		4.52	4.79	4.65
Nominal Output - Free Cooling	(4)	kW	N/A	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A	N/A
Cooling Duty - EC Fans	(1)	kW	200	225	250
Nom Input -Cooling Only		kW	61.2	60.3	63.8
EER	(2)		3.27	3.73	3.92
ESEER	(3)		5.13	5.71	5.64
SEER	(3)		4.94	5.47	5.44
Nominal Output - Free Cooling	(4)	kW	N/A	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A	N/A
Cooling Duty - High Airflow EC Fans	(1)	kW	N/A	N/A	N/A
Nom Input -Cooling Only		kW	N/A	N/A	N/A
EER	(2)		N/A	N/A	N/A
ESEER	(3)		N/A	N/A	N/A
SEER	(3)		N/A	N/A	N/A
Nominal Output - Free Cooling	(4)	kW	N/A	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A	N/A
Capacity Steps	(6)	%	30-100%	30-100%	30-100%
Dimensions (H x W x L)	(9)	mm	2800 x 2200 x 2626	2800 x 2200 x 3758	2800 x 2200 x 4890
Machine Weight	(7)	kg	2765	3390	3980
Operating Weight	(7)	kg	2865	3490	4080
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)		
Evaporator - Type			Flooded - Shell and Tube Evaporator		
Insulation			Class O, UV stable Insulation		
Total Max. Water Flow		l/s	21.9	21.9	21.9
Total Min. Water Flow		l/s	7.3	7.3	7.3
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins		
Face Area Total		m²	9.5	14.21	18.9
Maximum Airflow - AC Fans		m³/s	17.7	26.5	35.3
Maximum Airflow - EC Fans		m³/s	17.7	26.5	35.3
Maximum Airflow - High Airflow EC Fans		m³/s	N/A	N/A	N/A
Condenser Fan & Motor			Sickle Bladed Axial Fan		
Quantity			4	6	8
Diameter		mm	800	800	800
Maximum Speed - AC Fans		rpm	730	730	730
Maximum Speed - EC Fans		rpm	730	730	730
Maximum Speed - High Airflow EC Fans		rpm	N/A	N/A	N/A
Compressor - Type			Turbocor - Oil Free Compressor		
Quantity			1	1	1
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation		
Refrigeration			Single Circuit		
Refrigerant Pre-charged			R1234ze	R1234ze	R1234ze
Charge (Total) CCT1 + CCT2		kg	110	115	125
Refrigeration Control			Electronic Expansion Valve (EEV)		
Water System			Grooved Type Coupling and Pipe Assembly		
Water Inlet / Outlet			DN100	DN100	DN100
Water Drain / Bleed - Evap		inch	1/2	1/2	1/2
Water Volume		l	102	102	102
Minimum System Water Volume	(8)	l	953	1059	1166
Max System Operating Pressure		Barg	10	10	10
Flow Rate		l/s	7.9	8.9	9.9
Pressure Drop		kPa	19.3	23.4	27.9

(1) Based on AC units performance at 13/7°C return/supply temperatures, 35°C ambient, 100% water. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCC11X04G-01, TCC11X06G-01, TCC11X08G-01

Electrical Data

ELECTRICAL DATA		TCC11X04G-01	TCC11X06G-01	TCC11X08G-01
Unit Data				
Full Load Amps (1)	A	160	165	170
Maximum Start Amps	A	2	2	2
Mains Supply	VAC		400V (±10%) 3PH 50Hz	
Recommended Mains Fuse Size	A	250	250	250
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm²		2x 300mm² (Torque >20Nm)	
Independent Permanent Supply Recommended Fuse Size	A	25	25	25
Independent Permanent Supply			230V 1PH 50Hz (±10%)	
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm²		6mm² / 8 AWG	
Control Circuit	VAC		24 VAC & 230VAC (±10%)	
Evaporator				
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)	500 (2x 250)
External Trace Heating				
Available (fitted by others)	W	500	500	500
Condenser Fan - Per Fan (AC)				
Quantity		4	6	8
Full Load Amps	A	2.5	2.5	2.5
Locked Rotor Amps	A	8.8	8.8	8.8
Motor Rating	kW	1.3	1.3	1.3
Condenser Fan - Per Fan (EC)				
Quantity		4	6	8
Full Load Amps	A	3.9	3.9	3.9
Locked Rotor Amps	A	N/A	N/A	N/A
Motor Rating	kW	2.56	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)				
Quantity		N/A	N/A	N/A
Full Load Amps	A	N/A	N/A	N/A
Locked Rotor Amps	A	N/A	N/A	N/A
Motor Rating	kW	N/A	N/A	N/A
Compressor - Per Compressor				
Nominal Run Amps	A	150	150	150
Quantity		1	1	1
Motor Rating	kW	92	92	92
Start Amps	A	2	2	2
Type Of Start			Electronic Soft Start	

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Technical Data

TCC12X08G-04, TCC12X10G-04

Mechanical Data

Mechanical Data	Notes	Units	TCC12X08G-04	TCC12X10G-04
Cooling Duty - AC Fans	(1)	kW	430	460
Nom Input -Cooling Only		kW	134.4	134.4
EER	(2)		3.20	3.42
ESEER	(3)		4.67	4.74
SEER	(3)		4.51	4.59
Nominal Output - Free Cooling	(4)	kW	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A
Cooling Duty - EC Fans	(1)	kW	430	460
Nom Input -Cooling Only		kW	131.4	130.6
EER	(2)		3.27	3.52
ESEER	(3)		5.21	5.38
SEER	(3)		4.99	5.16
Nominal Output - Free Cooling	(4)	kW	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A
Cooling Duty - High Airflow EC Fans	(1)	kW	N/A	N/A
Nom Input -Cooling Only		kW	N/A	N/A
EER	(2)		N/A	N/A
ESEER	(3)		N/A	N/A
SEER	(3)		N/A	N/A
Nominal Output - Free Cooling	(4)	kW	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A
Capacity Steps	(6)	%	15-100%	15-100%
Dimensions (H x W x L)	(9)	mm	2800 x 2200 x 4890	2800 x 2200 x 6022
Machine Weight	(7)	kg	4795	5405
Operating Weight	(7)	kg	4935	5545
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)	
Evaporator - Type			Flooded - Shell and Tube Evaporator	
Insulation			Class O, UV stable Insulation	
Total Max. Water Flow		l/s	40.5	40.5
Total Min. Water Flow		l/s	13.3	13.3
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins	
Face Area Total		m²	18.9	23.7
Maximum Airflow - AC Fans		m³/s	35.3	44.2
Maximum Airflow - EC Fans		m³/s	35.3	44.2
Maximum Airflow - High Airflow EC Fans		m³/s	N/A	N/A
Condenser Fan & Motor			Sickle Bladed Axial Fan	
Quantity			8	10
Diameter		mm	800	800
Maximum Speed - AC Fans		rpm	730	730
Maximum Speed - EC Fans		rpm	730	730
Maximum Speed - High Airflow EC Fans		rpm	N/A	N/A
Compressor - Type			Turbocor - Oil Free Compressor	
Quantity			2	2
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation	
Refrigeration			Single Circuit	
Refrigerant Pre-charged			R1234ze	R1234ze
Charge (Total) CCT1 + CCT2		kg	255	265
Refrigeration Control			Electronic Expansion Valve (EEV)	
Water System			Grooved Type Coupling and Pipe Assembly	
Water Inlet / Outlet			DN125	DN125
Water Drain / Bleed - Evap		inch	1/2	1/2
Water Volume		l	141	141
Minimum System Water Volume	(8)	l	1056	1119
Max System Operating Pressure		Barg	10	10
Flow Rate		l/s	17.1	18.2
Pressure Drop		kPa	22.4	25.0

(1) Based on AC units performance at 13/7°C return/supply temperatures, 35°C ambient, 100% water. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCC12X08G-04, TCC12X10G-04

Electrical Data

ELECTRICAL DATA		TCC12X08G-04	TCC12X10G-04
Unit Data			
Full Load Amps (1)	A	320	325
Maximum Start Amps	A	172	177
Mains Supply	VAC	400V (±10%) 3PH 50Hz	
Recommended Mains Fuse Size	A	355	355
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm²	2x 300mm² (Torque >20Nm)	
Independent Permanent Supply Recommended Fuse Size	A	25	25
Independent Permanent Supply		230V 1PH 50Hz (±10%)	
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm²	6mm² / 8 AWG	
Control Circuit	VAC	24 VAC & 230VAC (±10%)	
Evaporator			
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)
External Trace Heating			
Available (fitted by others)	W	500	500
Condenser Fan - Per Fan (AC)			
Quantity		8	10
Full Load Amps	A	2.5	2.5
Locked Rotor Amps	A	8.8	8.8
Motor Rating	kW	1.3	1.3
Condenser Fan - Per Fan (EC)			
Quantity		8	10
Full Load Amps	A	3.9	3.9
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)			
Quantity		N/A	N/A
Full Load Amps	A	N/A	N/A
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	N/A	N/A
Compressor - Per Compressor			
Nominal Run Amps	A	150	150
Quantity		2	2
Motor Rating	kW	92	92
Start Amps	A	2	2
Type Of Start		Electronic Soft Start	

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Technical Data

TCC12X12G-04, TCC12X14G-04

Mechanical Data

Mechanical Data	Notes	Units	TCC12X12G-04	TCC12X14G-04
Cooling Duty - AC Fans	(1)	kW	490	520
Nom Input -Cooling Only		kW	138.2	143.9
EER	(2)		3.55	3.61
ESEER	(3)		4.82	4.88
SEER	(3)		4.68	4.74
Nominal Output - Free Cooling	(4)	kW	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A
Cooling Duty - EC Fans	(1)	kW	490	520
Nom Input -Cooling Only		kW	133.6	138.6
EER	(2)		3.67	3.75
ESEER	(3)		5.56	5.69
SEER	(3)		5.34	5.47
Nominal Output - Free Cooling	(4)	kW	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A
Cooling Duty - High Airflow EC Fans	(1)	kW	N/A	N/A
Nom Input -Cooling Only		kW	N/A	N/A
EER	(2)		N/A	N/A
ESEER	(3)		N/A	N/A
SEER	(3)		N/A	N/A
Nominal Output - Free Cooling	(4)	kW	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A
Capacity Steps	(6)	%	15-100%	15-100%
Dimensions (H x W x L)	(9)	mm	2800 x 2200 x 7154	2800 x 2200 x 8286
Machine Weight	(7)	kg	6025	6640
Operating Weight	(7)	kg	6165	6780
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)	
Evaporator - Type			Flooded - Shell and Tube Evaporator	
Insulation			Class O, UV stable Insulation	
Total Max. Water Flow		l/s	40.5	40.5
Total Min. Water Flow		l/s	13.3	13.3
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins	
Face Area Total		m²	28.4	33.2
Maximum Airflow - AC Fans		m³/s	53.0	61.9
Maximum Airflow - EC Fans		m³/s	53.0	61.9
Maximum Airflow - High Airflow EC Fans		m³/s	N/A	N/A
Condenser Fan & Motor			Sickle Bladed Axial Fan	
Quantity			12	14
Diameter		mm	800	800
Maximum Speed - AC Fans		rpm	730	730
Maximum Speed - EC Fans		rpm	730	730
Maximum Speed - High Airflow EC Fans		rpm	N/A	N/A
Compressor - Type			Turbocor - Oil Free Compressor	
Quantity			2	2
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation	
Refrigeration			Single Circuit	
Refrigerant Pre-charged			R1234ze	R1234ze
Charge (Total) CCT1 + CCT2		kg	280	290
Refrigeration Control			Electronic Expansion Valve (EEV)	
Water System			Grooved Type Coupling and Pipe Assembly	
Water Inlet / Outlet			DN125	DN125
Water Drain / Bleed - Evap		inch	1/2	1/2
Water Volume		l	141	141
Minimum System Water Volume	(8)	l	1183	1247
Max System Operating Pressure		Barg	10	10
Flow Rate		l/s	19.4	20.6
Pressure Drop		kPa	27.8	30.8

(1) Based on AC units performance at 13/7°C return/supply temperatures, 35°C ambient, 100% water. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCC12X12G-04, TCC12X14G-04

Electrical Data

ELECTRICAL DATA		TCC12X12G-04	TCC12X14G-04
Unit Data			
Full Load Amps (1)	A	330	335
Maximum Start Amps	A	182	187
Mains Supply	VAC	400V (±10%) 3PH 50Hz	
Recommended Mains Fuse Size	A	355	355
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm²	2x 300mm² (Torque >20Nm)	
Independent Permanent Supply Recommended Fuse Size	A	25	25
Independent Permanent Supply	VAC	230V 1PH 50Hz (±10%)	
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm²	6mm² / 8 AWG	
Control Circuit	VAC	24 VAC & 230VAC (±10%)	
Evaporator			
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)
External Trace Heating			
Available (fitted by others)	W	500	500
Condenser Fan - Per Fan (AC)			
Quantity		12	14
Full Load Amps	A	2.5	2.5
Locked Rotor Amps	A	8.8	8.8
Motor Rating	kW	1.3	1.3
Condenser Fan - Per Fan (EC)			
Quantity		12	14
Full Load Amps	A	3.9	3.9
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)			
Quantity		N/A	N/A
Full Load Amps	A	N/A	N/A
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	N/A	N/A
Compressor - Per Compressor			
Nominal Run Amps	A	150	150
Quantity		2	2
Motor Rating	kW	92	92
Start Amps	A	2	2
Type Of Start		Electronic Soft Start	

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Technical Data

TCC22X08G-14, TCC22X10G-14, TCC22X12G-14

Mechanical Data

Mechanical Data	Notes	Units	TCC22X08G-14	TCC22X10G-14	TCC22X12G-14
Cooling Duty - AC Fans	(1)	kW	430	460	490
Nom Input -Cooling Only		kW	134.4	134.3	138.1
EER	(2)		3.20	3.42	3.55
ESEER	(3)		4.44	4.47	4.61
SEER	(3)		4.30	4.36	4.49
Nominal Output - Free Cooling	(4)	kW	N/A	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A	N/A
Cooling Duty - EC Fans	(1)	kW	430	460	490
Nom Input -Cooling Only		kW	131.3	130.5	133.5
EER	(2)		3.27	3.52	3.67
ESEER	(3)		4.71	4.74	4.97
SEER	(3)		4.55	4.61	4.83
Nominal Output - Free Cooling	(4)	kW	N/A	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A	N/A
Cooling Duty - High Airflow EC Fans	(1)	kW	N/A	N/A	N/A
Nom Input -Cooling Only		kW	N/A	N/A	N/A
EER	(2)		N/A	N/A	N/A
ESEER	(3)		N/A	N/A	N/A
SEER	(3)		N/A	N/A	N/A
Nominal Output - Free Cooling	(4)	kW	N/A	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A	N/A
Capacity Steps	(6)	%	15-100%	15-100%	15-100%
Dimensions (H x W x L)	(9)	mm	2800 x 2200 x 4890	2800 x 2200 x 6022	2800 x 2200 x 7154
Machine Weight	(7)	kg	4800	5430	6050
Operating Weight	(7)	kg	4940	5570	6190
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)		
Evaporator - Type			Flooded - Shell and Tube Evaporator		
Insulation			Class O, UV stable Insulation		
Total Max. Water Flow		l/s	43.7	43.7	43.7
Total Min. Water Flow		l/s	14.6	14.6	14.6
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins		
Face Area Total		m²	18.9	23.68	28.4
Maximum Airflow - AC Fans		m³/s	35.3	44.2	53.0
Maximum Airflow - EC Fans		m³/s	35.3	44.2	53.0
Maximum Airflow - High Airflow EC Fans		m³/s	N/A	N/A	N/A
Condenser Fan & Motor			Sickle Bladed Axial Fan		
Quantity			8	10	12
Diameter		mm	800	800	800
Maximum Speed - AC Fans		rpm	730	730	730
Maximum Speed - EC Fans		rpm	730	730	730
Maximum Speed - High Airflow EC Fans		rpm	N/A	N/A	N/A
Compressor - Type			Turbocor - Oil Free Compressor		
Quantity			2	2	2
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation		
Refrigeration			Dual Circuit		
Refrigerant Pre-charged			R1234ze	R1234ze	R1234ze
Charge (Total) CCT1 + CCT2		kg	140 + 140	150 + 145	155 + 150
Refrigeration Control			Electronic Expansion Valve (EEV)		
Water System			Grooved Type Coupling and Pipe Assembly		
Water Inlet / Outlet			DN125	DN125	DN125
Water Drain / Bleed - Evap		inch	1/2	1/2	1/2
Water Volume		l	148	148	148
Minimum System Water Volume	(8)	l	1062	1126	1190
Max System Operating Pressure		Barg	10	10	10
Flow Rate		l/s	17.1	18.2	19.4
Pressure Drop		kPa	19.2	21.7	24.2

(1) Based on AC units performance at 13/7°C return/supply temperatures, 35°C ambient, 100% water. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCC22X08G-14, TCC22X10G-14, TCC22X12G-14

Electrical Data

ELECTRICAL DATA		TCC22X08G-14	TCC22X10G-14	TCC22X12G-14
Unit Data				
Full Load Amps (1)	A	320	325	330
Maximum Start Amps	A	172	177	182
Mains Supply	VAC		400V (±10%) 3PH 50Hz	
Recommended Mains Fuse Size	A	355	355	355
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm ²		2x 300mm ² (Torque >20Nm)	
Independent Permanent Supply Recommended Fuse Size	A	25	25	25
Independent Permanent Supply			230V 1PH 50Hz (±10%)	
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm ²		6mm ² / 8 AWG	
Control Circuit	VAC		24 VAC & 230VAC (±10%)	
Evaporator				
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)	500 (2x 250)
External Trace Heating				
Available (fitted by others)	W	500	500	500
Condenser Fan - Per Fan (AC)				
Quantity		8	10	12
Full Load Amps	A	2.5	2.5	2.5
Locked Rotor Amps	A	8.8	8.8	8.8
Motor Rating	kW	1.3	1.3	1.3
Condenser Fan - Per Fan (EC)				
Quantity		8	10	12
Full Load Amps	A	3.9	3.9	3.9
Locked Rotor Amps	A	N/A	N/A	N/A
Motor Rating	kW	2.56	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)				
Quantity		N/A	N/A	N/A
Full Load Amps	A	N/A	N/A	N/A
Locked Rotor Amps	A	N/A	N/A	N/A
Motor Rating	kW	N/A	N/A	N/A
Compressor - Per Compressor				
Nominal Run Amps	A	150	150	150
Quantity		1 / 1	1 / 1	1 / 1
Motor Rating	kW	92	92	92
Start Amps	A	2	2	2
Type Of Start			Electronic Soft Start	

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Technical Data

TCC22X14G-14, TCC23X12G-17, TCC23X14G-17

Mechanical Data

Mechanical Data	Notes	Units	TCC22X14G-14	TCC23X12G-17	TCC23X14G-17
Cooling Duty - AC Fans	(1)	kW	520	590	640
Nom Input -Cooling Only		kW	143.8	183.5	188.8
EER	(2)		3.62	3.22	3.39
ESEER	(3)		4.69	4.62	4.68
SEER	(3)		4.57	4.47	4.54
Nominal Output - Free Cooling	(4)	kW	N/A	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A	N/A
Cooling Duty - EC Fans	(1)	kW	520	590	640
Nom Input -Cooling Only		kW	138.5	178.9	183.4
EER	(2)		3.76	3.30	3.49
ESEER	(3)		5.22	5.04	5.22
SEER	(3)		5.06	4.84	5.03
Nominal Output - Free Cooling	(4)	kW	N/A	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A	N/A
Cooling Duty - High Airflow EC Fans	(1)	kW	N/A	N/A	N/A
Nom Input -Cooling Only		kW	N/A	N/A	N/A
EER	(2)		N/A	N/A	N/A
ESEER	(3)		N/A	N/A	N/A
SEER	(3)		N/A	N/A	N/A
Nominal Output - Free Cooling	(4)	kW	N/A	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A	N/A
Capacity Steps	(6)	%	15-100%	10-100%	10-100%
Dimensions (H x W x L)	(9)	mm	2800 x 2200 x 8286	2800 x 2200 x 7154	2800 x 2200 x 8286
Machine Weight	(7)	kg	6680	7000	7630
Operating Weight	(7)	kg	6820	7230	7860
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)		
Evaporator - Type			Flooded - Shell and Tube Evaporator		
Insulation			Class O, UV stable Insulation		
Total Max. Water Flow		l/s	43.7	66.5	66.5
Total Min. Water Flow		l/s	14.6	22.3	22.3
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins		
Face Area Total		m²	33.2	28.42	33.2
Maximum Airflow - AC Fans		m³/s	61.9	53.0	61.9
Maximum Airflow - EC Fans		m³/s	61.9	53.0	61.9
Maximum Airflow - High Airflow EC Fans		m³/s	N/A	N/A	N/A
Condenser Fan & Motor			Sickle Bladed Axial Fan		
Quantity			14	12	14
Diameter		mm	800	800	800
Maximum Speed - AC Fans		rpm	730	730	730
Maximum Speed - EC Fans		rpm	730	730	730
Maximum Speed - High Airflow EC Fans		rpm	N/A	N/A	N/A
Compressor - Type			Turbocor - Oil Free Compressor		
Quantity			2	3	3
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation		
Refrigeration			Dual Circuit		
Refrigerant Pre-charged			R1234ze	R1234ze	R1234ze
Charge (Total) CCT1 + CCT2		kg	165 + 160	300 + 175	310 + 180
Refrigeration Control			Electronic Expansion Valve (EEV)		
Water System			Grooved Type Coupling and Pipe Assembly		
Water Inlet / Outlet			DN125	DN150	DN150
Water Drain / Bleed - Evap		inch	1/2	1/2	1/2
Water Volume		l	148	235	235
Minimum System Water Volume	(8)	l	1254	1072	1143
Max System Operating Pressure		Barg	10	10	10
Flow Rate		l/s	20.6	23.4	25.4
Pressure Drop		kPa	26.9	15.8	18.3

(1) Based on AC units performance at 13/7°C return/supply temperatures, 35°C ambient, 100% water. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCC22X14G-14, TCC23X12G-17, TCC23X14G-17

Electrical Data

ELECTRICAL DATA		TCC22X14G-14	TCC23X12G-17	TCC23X14G-17
Unit Data				
Full Load Amps (1)	A	335	480	485
Maximum Start Amps	A	187	332	337
Mains Supply	VAC		400V (±10%) 3PH 50Hz	
Recommended Mains Fuse Size	A	355	560	560
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm²		2x 300mm² (Torque >20Nm)	
Independent Permanent Supply Recommended Fuse Size	A	25	25	25
Independent Permanent Supply			230V 1PH 50Hz (±10%)	
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm²		6mm² / 8 AWG	
Control Circuit	VAC		24 VAC & 230VAC (±10%)	
Evaporator				
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)	500 (2x 250)
External Trace Heating				
Available (fitted by others)	W	500	500	500
Condenser Fan - Per Fan (AC)				
Quantity		14	12	14
Full Load Amps	A	2.5	2.5	2.5
Locked Rotor Amps	A	8.8	8.8	8.8
Motor Rating	kW	1.3	1.3	1.3
Condenser Fan - Per Fan (EC)				
Quantity		14	12	14
Full Load Amps	A	3.9	3.9	3.9
Locked Rotor Amps	A	N/A	N/A	N/A
Motor Rating	kW	2.56	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)				
Quantity		N/A	N/A	N/A
Full Load Amps	A	N/A	N/A	N/A
Locked Rotor Amps	A	N/A	N/A	N/A
Motor Rating	kW	N/A	N/A	N/A
Compressor - Per Compressor				
Nominal Run Amps	A	150	150	150
Quantity		1 / 1	2 / 1	2 / 1
Motor Rating	kW	92	92	92
Start Amps	A	2	2	2
Type Of Start			Electronic Soft Start	

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Technical Data

TCC23X16G-17, TCC23X18G-17, TCC24X16G-18

Mechanical Data

Mechanical Data	Notes	Units	TCC23X16G-17	TCC23X18G-17	TCC24X16G-18
Cooling Duty - AC Fans	(1)	kW	690	740	790
Nom Input -Cooling Only		kW	197.8	208.8	246.5
EER	(2)		3.49	3.54	3.20
ESEER	(3)		4.73	4.80	4.78
SEER	(3)		4.59	4.66	4.60
Nominal Output - Free Cooling	(4)	kW	N/A	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A	N/A
Cooling Duty - EC Fans	(1)	kW	690	740	790
Nom Input -Cooling Only		kW	191.7	201.9	240.5
EER	(2)		3.60	3.66	3.29
ESEER	(3)		5.33	5.44	5.26
SEER	(3)		5.13	5.24	5.04
Nominal Output - Free Cooling	(4)	kW	N/A	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A	N/A
Cooling Duty - High Airflow EC Fans	(1)	kW	N/A	N/A	N/A
Nom Input -Cooling Only		kW	N/A	N/A	N/A
EER	(2)		N/A	N/A	N/A
ESEER	(3)		N/A	N/A	N/A
SEER	(3)		N/A	N/A	N/A
Nominal Output - Free Cooling	(4)	kW	N/A	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A	N/A
Capacity Steps	(6)	%	10-100%	10-100%	7.5-100%
Dimensions (H x W x L)	(9)	mm	2800 x 2200 x 9418	2800 x 2200 x 10550	2800 x 2200 x 9418
Machine Weight	(7)	kg	8270	8880	8670
Operating Weight	(7)	kg	8500	9110	8920
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)		
Evaporator - Type			Flooded - Shell and Tube Evaporator		
Insulation			Class O, UV stable Insulation		
Total Max. Water Flow		l/s	66.5	66.5	77.9
Total Min. Water Flow		l/s	22.3	22.3	25.8
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins		
Face Area Total		m²	37.9	42.63	37.9
Maximum Airflow - AC Fans		m³/s	70.7	79.5	70.7
Maximum Airflow - EC Fans		m³/s	70.7	79.5	70.7
Maximum Airflow - High Airflow EC Fans		m³/s	N/A	N/A	N/A
Condenser Fan & Motor			Sickle Bladed Axial Fan		
Quantity			16	18	16
Diameter		mm	800	800	800
Maximum Speed - AC Fans		rpm	730	730	730
Maximum Speed - EC Fans		rpm	730	730	730
Maximum Speed - High Airflow EC Fans		rpm	N/A	N/A	N/A
Compressor - Type			Turbocor - Oil Free Compressor		
Quantity			3	3	4
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation		
Refrigeration			Dual Circuit		
Refrigerant Pre-charged			R1234ze	R1234ze	R1234ze
Charge (Total) CCT1 + CCT2		kg	320 + 195	325 + 200	230 + 225
Refrigeration Control			Electronic Expansion Valve (EEV)		
Water System			Grooved Type Coupling and Pipe Assembly		
Water Inlet / Outlet			DN150	DN150	DN200
Water Drain / Bleed - Evap		inch	1/2	1/2	1/2
Water Volume		l	235	235	260
Minimum System Water Volume	(8)	l	1214	1285	1044
Max System Operating Pressure		Barg	10	10	10
Flow Rate		l/s	27.4	29.4	31.3
Pressure Drop		kPa	21.0	23.8	20.1

(1) Based on AC units performance at 13/7°C return/supply temperatures, 35°C ambient, 100% water. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCC23X16G-17, TCC23R18G-17, TCC24X16G-18

Electrical Data

ELECTRICAL DATA		TCC23X16G-17	TCC23X18G-17	TCC24X16G-18
Unit Data				
Full Load Amps (1)	A	490	495	640
Maximum Start Amps	A	342	347	492
Mains Supply	VAC		400V (±10%) 3PH 50Hz	
Recommended Mains Fuse Size	A	560	560	560
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm²		2x 300mm² (Torque >20Nm)	
Independent Permanent Supply Recommended Fuse Size	A	25	25	25
Independent Permanent Supply			230V 1PH 50Hz (±10%)	
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm²		6mm² / 8 AWG	
Control Circuit	VAC		24 VAC & 230VAC (±10%)	
Evaporator				
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)	500 (2x 250)
External Trace Heating				
Available (fitted by others)	W	500	500	500
Condenser Fan - Per Fan (AC)				
Quantity		16	18	16
Full Load Amps	A	2.5	2.5	2.5
Locked Rotor Amps	A	8.8	8.8	8.8
Motor Rating	kW	1.3	1.3	1.3
Condenser Fan - Per Fan (EC)				
Quantity		16	18	16
Full Load Amps	A	3.9	3.9	3.9
Locked Rotor Amps	A	N/A	N/A	N/A
Motor Rating	kW	2.56	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)				
Quantity		N/A	N/A	N/A
Full Load Amps	A	N/A	N/A	N/A
Locked Rotor Amps	A	N/A	N/A	N/A
Motor Rating	kW	N/A	N/A	N/A
Compressor - Per Compressor				
Nominal Run Amps	A	150	150	150
Quantity		2 / 1	2 / 1	2 / 2
Motor Rating	kW	92	92	92
Start Amps	A	2	2	2
Type Of Start			Electronic Soft Start	

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Technical Data

TCC24X18G-18, TCC24X20G-18

Mechanical Data

Mechanical Data	Notes	Units	TCC24X18G-18	TCC24X20G-18
Cooling Duty - AC Fans	(1)	kW	820	860
Nom Input -Cooling Only		kW	242.2	249.1
EER	(2)		3.39	3.45
ESEER	(3)		4.83	4.84
SEER	(3)		4.67	4.68
Nominal Output - Free Cooling	(4)	kW	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A
Cooling Duty - EC Fans	(1)	kW	820	860
Nom Input -Cooling Only		kW	235.4	241.5
EER	(2)		3.48	3.56
ESEER	(3)		5.39	5.46
SEER	(3)		5.18	5.24
Nominal Output - Free Cooling	(4)	kW	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A
Cooling Duty - High Airflow EC Fans	(1)	kW	N/A	N/A
Nom Input -Cooling Only		kW	N/A	N/A
EER	(2)		N/A	N/A
ESEER	(3)		N/A	N/A
SEER	(3)		N/A	N/A
Nominal Output - Free Cooling	(4)	kW	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A
Capacity Steps	(6)	%	7.5-100%	7.5-100%
Dimensions (H x W x L)	(9)	mm	2800 x 2200 x 10550	2800 x 2200 x 11682
Machine Weight	(7)	kg	9300	9930
Operating Weight	(7)	kg	9550	10180
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)	
Evaporator - Type			Flooded - Shell and Tube Evaporator	
Insulation			Class O, UV stable Insulation	
Total Max. Water Flow		l/s	77.9	77.9
Total Min. Water Flow		l/s	25.8	25.8
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins	
Face Area Total		m²	42.6	47.4
Maximum Airflow - AC Fans		m³/s	79.5	88.4
Maximum Airflow - EC Fans		m³/s	79.5	88.4
Maximum Airflow - High Airflow EC Fans		m³/s	N/A	N/A
Condenser Fan & Motor			Sickle Bladed Axial Fan	
Quantity			18	20
Diameter		mm	800	800
Maximum Speed - AC Fans		rpm	730	730
Maximum Speed - EC Fans		rpm	730	730
Maximum Speed - High Airflow EC Fans		rpm	N/A	N/A
Compressor - Type			Turbocor - Oil Free Compressor	
Quantity			4	4
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation	
Refrigeration			Dual Circuit	
Refrigerant Pre-charged			R1234ze	R1234ze
Charge (Total) CCT1 + CCT2		kg	240 + 230	245 + 245
Refrigeration Control			Electronic Expansion Valve (EEV)	
Water System			Grooved Type Coupling and Pipe Assembly	
Water Inlet / Outlet			DN200	DN200
Water Drain / Bleed - Evap		inch	1/2	1/2
Water Volume		l	260	260
Minimum System Water Volume	(8)	l	1074	1114
Max System Operating Pressure		Barg	10	10
Flow Rate		l/s	32.5	34.1
Pressure Drop		kPa	21.5	23.4

(1) Based on AC units performance at 13/7°C return/supply temperatures, 35°C ambient, 100% water. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCC24X18G-18, TCF24X20G-18

Electrical Data

ELECTRICAL DATA		TCC24X18G-18	TCC24X20G-18
Unit Data			
Full Load Amps (1)	A	645	650
Maximum Start Amps	A	497	502
Mains Supply	VAC	400V (±10%) 3PH 50Hz	
Recommended Mains Fuse Size	A	670	670
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm²	2x 300mm² (Torque >20Nm)	
Independent Permanent Supply Recommended Fuse Size	A	25	25
Independent Permanent Supply		230V 1PH 50Hz (±10%)	
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm²	6mm² / 8 AWG	
Control Circuit	VAC	24 VAC & 230VAC (±10%)	
Evaporator			
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)
External Trace Heating			
Available (fitted by others)	W	500	500
Condenser Fan - Per Fan (AC)			
Quantity		18	20
Full Load Amps	A	2.5	2.5
Locked Rotor Amps	A	8.8	8.8
Motor Rating	kW	1.3	1.3
Condenser Fan - Per Fan (EC)			
Quantity		18	20
Full Load Amps	A	3.9	3.9
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)			
Quantity		N/A	N/A
Full Load Amps	A	N/A	N/A
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	N/A	N/A
Compressor - Per Compressor			
Nominal Run Amps	A	150	150
Quantity		2 / 2	2 / 2
Motor Rating	kW	92	92
Start Amps	A	2	2
Type Of Start		Electronic Soft Start	

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Technical Data

TCC24X22G-18, TCC24X24G-18

Mechanical Data

Mechanical Data	Notes	Units	TCC24X22G-18	TCC24X24G-18
Cooling Duty - AC Fans	(1)	kW	910	960
Nom Input -Cooling Only		kW	258.5	270.1
EER	(2)		3.52	3.55
ESEER	(3)		4.87	4.89
SEER	(3)		4.72	4.74
Nominal Output - Free Cooling	(4)	kW	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A
Cooling Duty - EC Fans	(1)	kW	910	960
Nom Input -Cooling Only		kW	250.1	260.9
EER	(2)		3.64	3.68
ESEER	(3)		5.54	5.61
SEER	(3)		5.32	5.39
Nominal Output - Free Cooling	(4)	kW	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A
Cooling Duty - High Airflow EC Fans	(1)	kW	N/A	N/A
Nom Input -Cooling Only		kW	N/A	N/A
EER	(2)		N/A	N/A
ESEER	(3)		N/A	N/A
SEER	(3)		N/A	N/A
Nominal Output - Free Cooling	(4)	kW	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A
Capacity Steps	(6)	%	7.5-100%	7.5-100%
Dimensions (H x W x L)	(9)	mm	2800 x 2200 x 12814	2800 x 2200 x 13946
Machine Weight	(7)	kg	10560	11190
Operating Weight	(7)	kg	10810	11440
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)	
Evaporator - Type			Flooded - Shell and Tube Evaporator	
Insulation			Class O, UV stable Insulation	
Total Max. Water Flow		l/s	77.9	77.9
Total Min. Water Flow		l/s	25.8	25.8
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins	
Face Area Total		m²	52.1	56.8
Maximum Airflow - AC Fans		m³/s	97.2	106.0
Maximum Airflow - EC Fans		m³/s	97.2	106.0
Maximum Airflow - High Airflow EC Fans		m³/s	N/A	N/A
Condenser Fan & Motor			Sickle Bladed Axial Fan	
Quantity			22	24
Diameter		mm	800	800
Maximum Speed - AC Fans		rpm	730	730
Maximum Speed - EC Fans		rpm	730	730
Maximum Speed - High Airflow EC Fans		rpm	N/A	N/A
Compressor - Type			Turbocor - Oil Free Compressor	
Quantity			4	4
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation	
Refrigeration			Dual Circuit	
Refrigerant Pre-charged			R1234ze	R1234ze
Charge (Total) CCT1 + CCT2		kg	250 + 255	265 + 260
Refrigeration Control			Electronic Expansion Valve (EEV)	
Water System			Grooved Type Coupling and Pipe Assembly	
Water Inlet / Outlet			DN200	DN200
Water Drain / Bleed - Evap		inch	1/2	1/2
Water Volume		l	260	260
Minimum System Water Volume	(8)	l	1163	1213
Max System Operating Pressure		Barg	10	10
Flow Rate		l/s	36.1	38.1
Pressure Drop		kPa	25.8	28.4

(1) Based on AC units performance at 13/7°C return/supply temperatures, 35°C ambient, 100% water. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCC24X22G-18, TCC24X24G-18

Electrical Data

ELECTRICAL DATA		TCC24X22G-18	TCC24X24G-18
Unit Data			
Full Load Amps (1)	A	655	660
Maximum Start Amps	A	507	512
Mains Supply	VAC	400V (±10%) 3PH 50Hz	
Recommended Mains Fuse Size	A	670	750
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm²	2x 300mm² (Torque >20Nm)	
Independent Permanent Supply Recommended Fuse Size	A	25	25
Independent Permanent Supply		230V 1PH 50Hz (±10%)	
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm²	6mm² / 8 AWG	
Control Circuit	VAC	24 VAC & 230VAC (±10%)	
Evaporator			
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)
External Trace Heating			
Available (fitted by others)	W	500	500
Condenser Fan - Per Fan (AC)			
Quantity		22	24
Full Load Amps	A	2.5	2.5
Locked Rotor Amps	A	8.8	8.8
Motor Rating	kW	1.3	1.3
Condenser Fan - Per Fan (EC)			
Quantity		22	24
Full Load Amps	A	3.9	3.9
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)			
Quantity		N/A	N/A
Full Load Amps	A	N/A	N/A
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	N/A	N/A
Compressor - Per Compressor			
Nominal Run Amps	A	150	150
Quantity		2 / 2	2 / 2
Motor Rating	kW	92	92
Start Amps	A	2	2
Type Of Start		Electronic Soft Start	

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Sound Data - TCC

TCC - AC Fans

		Single-Octave Sound								Overall [dB(A)]
		63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
TCC11R04G-01	Power	86	85	84	81	83	76	76	80	87
	Sound Pressure @10m	53	53	52	49	51	44	44	54	53
TCC11R06G-01	Power	87	87	86	82	83	77	76	80	87
	Sound Pressure @10m	55	54	53	49	51	45	44	51	51
TCC11R08G-01	Power	86	86	86	82	83	77	76	80	87
	Sound Pressure @10m	54	53	53	49	50	44	44	52	48
TCC12R08G-04	Power	89	88	87	84	86	79	79	83	90
	Sound Pressure @10m	56	55	54	51	53	47	46	56	55
TCC12R10G-04	Power	90	89	88	84	86	80	79	83	90
	Sound Pressure @10m	57	56	55	51	53	47	46	55	54
TCC12R12G-04	Power	90	90	89	85	86	80	79	83	90
	Sound Pressure @10m	57	56	56	52	53	47	46	53	53
TCC12R14G-04	Power	91	90	89	85	87	80	79	83	91
	Sound Pressure @10m	58	57	56	52	53	47	46	52	52
TCC22R08G-14	Power	89	88	87	84	86	79	79	83	90
	Sound Pressure @10m	56	55	54	51	53	47	46	56	55
TCC22R10G-14	Power	90	89	88	84	86	80	79	83	90
	Sound Pressure @10m	57	56	55	51	53	47	46	55	54
TCC22R12G-14	Power	90	90	89	85	86	80	79	83	90
	Sound Pressure @10m	57	56	56	52	53	47	46	53	53
TCC22R14G-14	Power	91	90	89	85	87	80	79	83	91
	Sound Pressure @10m	58	57	56	52	53	47	46	52	52
TCC23R12G-17	Power	90	90	89	85	87	81	81	84	91
	Sound Pressure @10m	57	56	56	52	54	48	48	56	55
TCC23R14G-17	Power	91	90	89	86	88	81	81	84	92
	Sound Pressure @10m	58	57	56	53	54	48	48	55	54
TCC23R16G-17	Power	92	91	90	86	88	81	81	84	92
	Sound Pressure @10m	58	57	56	53	54	48	47	55	54
TCC23R18G-17	Power	92	91	90	87	88	82	81	84	92
	Sound Pressure @10m	58	58	57	53	54	48	47	54	54
TCC24R16G-18	Power	92	91	90	87	89	82	82	86	93
	Sound Pressure @10m	58	57	56	53	55	49	49	56	55
TCC24R18G-18	Power	92	91	90	87	89	82	82	86	93
	Sound Pressure @10m	58	58	57	53	55	49	48	55	55
TCC24R20G-18	Power	93	92	91	87	89	83	82	86	93
	Sound Pressure @10m	59	58	57	53	55	49	48	55	54
TCC24R22G-18	Power	93	92	91	88	89	83	82	86	93
	Sound Pressure @10m	59	58	57	54	55	49	48	54	54
TCC24R24G-18	Power	93	93	92	88	89	83	82	86	93
	Sound Pressure @10m	59	58	57	54	55	49	48	54	54
TCC11X04G-01	Power	81	82	80	78	82	75	76	80	86
	Sound Pressure @10m	49	50	48	46	49	43	44	49	46
TCC11X06G-01	Power	83	83	82	79	82	75	76	80	86
	Sound Pressure @10m	50	51	49	47	49	43	44	51	48
TCC11X08G-01	Power	84	85	83	80	82	76	76	80	86
	Sound Pressure @10m	51	52	50	47	49	43	43	50	47
TCC12X08G-04	Power	84	85	83	81	85	78	79	83	89
	Sound Pressure @10m	51	52	50	49	52	45	46	52	49
TCC12X10G-04	Power	85	86	84	82	85	78	79	83	89
	Sound Pressure @10m	52	53	51	49	52	45	46	53	49

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

(2) All sound data measured at nominal conditions: Water in/out 13/7°C at 35°C ambient.

(3) Based on standard unit, for units fitted with optional extras, please contact Airedale.

Sound Data - TCC

TCC - AC Fans

		Single-Octave Sound								Overall [dB(A)]
		63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
TCC12X12G-04	Power	86	86	85	82	85	78	79	83	89
	Sound Pressure @10m	53	53	52	49	52	45	46	53	50
TCC12X14G-04	Power	87	87	85	82	85	78	79	83	89
	Sound Pressure @10m	53	54	52	49	52	45	46	54	50
TCC22X08G-14	Power	84	85	83	81	85	78	79	83	89
	Sound Pressure @10m	51	52	50	49	52	45	46	52	49
TCC22X10G-14	Power	85	86	84	82	85	78	79	83	89
	Sound Pressure @10m	52	53	51	49	52	45	46	53	49
TCC22X12G-14	Power	86	86	85	82	85	78	79	83	89
	Sound Pressure @10m	53	53	52	49	52	45	46	53	50
TCC22X14G-14	Power	87	87	85	82	85	78	79	83	89
	Sound Pressure @10m	53	54	52	49	52	45	46	54	50
TCC23X12G-17	Power	86	87	85	83	86	80	81	84	90
	Sound Pressure @10m	53	53	52	50	53	47	48	53	50
TCC23X14G-17	Power	87	87	85	83	86	80	81	84	90
	Sound Pressure @10m	53	54	52	50	53	47	47	54	50
TCC23X16G-17	Power	87	88	86	84	86	80	81	84	90
	Sound Pressure @10m	54	54	52	50	53	46	47	54	51
TCC23X18G-17	Power	88	88	86	84	87	80	81	84	91
	Sound Pressure @10m	54	55	53	50	53	46	47	54	51
TCC24X16G-18	Power	87	88	86	84	88	81	82	86	92
	Sound Pressure @10m	54	54	52	51	54	48	48	54	51
TCC24X18G-18	Power	88	88	86	84	88	81	82	86	92
	Sound Pressure @10m	54	55	53	51	54	47	48	54	51
TCC24X20G-18	Power	88	89	87	85	88	81	82	86	92
	Sound Pressure @10m	54	55	53	51	54	47	48	55	51
TCC24X22G-18	Power	89	89	87	85	88	81	82	86	92
	Sound Pressure @10m	54	55	53	51	54	47	48	55	52
TCC24X24G-18	Power	89	90	88	85	88	81	82	86	92
	Sound Pressure @10m	55	55	53	51	54	47	48	55	52

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

(2) All sound data measured at nominal conditions: Water in/out 13/7°C at 35°C ambient.

(3) Based on standard unit, for units fitted with optional extras, please contact Airedale.

Sound Data - TCC

TCC - EC Fans

		Single-Octave Sound								Overall [dB(A)]
		63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
TCC11R04G-01	Power	89	87	85	82	84	78	76	80	88
	Sound Pressure @10m	57	54	53	50	52	46	44	48	56
TCC11R06G-01	Power	85	83	83	80	83	76	76	80	87
	Sound Pressure @10m	52	51	51	48	51	44	44	47	54
TCC11R08G-01	Power	85	84	81	80	82	75	76	80	86
	Sound Pressure @10m	53	52	48	47	50	43	43	47	53
TCC12R08G-04	Power	92	89	88	85	87	81	79	83	91
	Sound Pressure @10m	59	56	55	52	54	48	47	50	58
TCC12R10G-04	Power	89	88	87	84	86	80	79	83	90
	Sound Pressure @10m	56	55	54	51	54	47	46	50	57
TCC12R12G-04	Power	88	86	86	83	86	79	79	83	90
	Sound Pressure @10m	54	53	53	50	53	46	46	50	57
TCC12R14G-04	Power	86	86	85	83	86	79	79	83	89
	Sound Pressure @10m	53	52	52	49	52	45	46	49	56
TCC22R08G-14	Power	92	89	88	85	87	81	79	83	91
	Sound Pressure @10m	59	56	55	52	54	48	47	50	58
TCC22R10G-14	Power	89	88	87	84	86	80	79	83	90
	Sound Pressure @10m	56	55	54	51	54	47	46	50	57
TCC22R12G-14	Power	88	86	86	83	86	79	79	83	90
	Sound Pressure @10m	54	53	53	50	53	46	46	50	57
TCC22R14G-14	Power	86	86	85	83	86	79	79	83	89
	Sound Pressure @10m	53	52	52	49	52	45	46	49	56
TCC23R12G-17	Power	91	89	88	85	88	81	81	84	92
	Sound Pressure @10m	57	56	55	52	55	48	48	51	58
TCC23R14G-17	Power	90	88	88	85	88	81	81	84	91
	Sound Pressure @10m	56	55	54	52	54	48	48	51	58
TCC23R16G-17	Power	89	88	88	85	88	81	81	84	91
	Sound Pressure @10m	56	55	54	51	54	47	47	51	58
TCC23R18G-17	Power	89	88	87	85	88	81	81	84	91
	Sound Pressure @10m	55	54	54	51	54	47	47	51	58
TCC24R16G-18	Power	91	90	89	86	89	82	82	86	93
	Sound Pressure @10m	58	56	55	53	56	49	49	52	59
TCC24R18G-18	Power	91	89	89	86	89	82	82	86	93
	Sound Pressure @10m	57	55	55	52	55	48	48	52	59
TCC24R20G-18	Power	90	89	88	86	89	82	82	86	92
	Sound Pressure @10m	56	55	54	52	55	48	48	52	59
TCC24R22G-18	Power	89	89	88	86	89	82	82	86	92
	Sound Pressure @10m	55	54	54	52	55	48	48	52	58
TCC24R24G-18	Power	89	89	88	86	89	82	82	86	92
	Sound Pressure @10m	55	54	54	52	54	48	48	51	58

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

(2) All sound data measured at nominal conditions: Water in/out 13/7°C at 35°C ambient.

(3) Based on standard unit, for units fitted with optional extras, please contact Airedale.

Sound Data - TCC

TCC - EC Fans

		Single-Octave Sound								Overall [dB(A)]
		63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
TCC11X04G-01	Power	83	82	78	78	82	75	76	80	86
	Sound Pressure @10m	50	49	46	46	50	43	44	47	53
TCC11X06G-01	Power	84	83	80	79	82	75	76	80	86
	Sound Pressure @10m	52	51	48	47	50	43	44	47	53
TCC11X08G-01	Power	84	83	80	79	82	75	76	80	86
	Sound Pressure @10m	51	50	47	46	49	42	43	47	53
TCC12X08G-04	Power	86	85	81	81	85	78	79	83	89
	Sound Pressure @10m	53	52	49	49	52	45	46	50	56
TCC12X10G-04	Power	86	86	82	82	85	78	79	83	89
	Sound Pressure @10m	54	53	49	49	52	45	46	50	56
TCC12X12G-04	Power	87	86	83	82	85	78	79	83	89
	Sound Pressure @10m	54	53	50	49	52	45	46	50	56
TCC12X14G-04	Power	88	87	84	82	85	78	79	83	89
	Sound Pressure @10m	55	54	50	49	52	45	46	49	56
TCC22X08G-14	Power	86	85	81	81	85	78	79	83	89
	Sound Pressure @10m	53	52	49	49	52	45	46	50	56
TCC22X10G-14	Power	86	86	82	82	85	78	79	83	89
	Sound Pressure @10m	54	53	49	49	52	45	46	50	56
TCC22X12G-14	Power	87	86	83	82	85	78	79	83	89
	Sound Pressure @10m	54	53	50	49	52	45	46	50	56
TCC22X14G-14	Power	88	87	84	82	85	78	79	83	89
	Sound Pressure @10m	55	54	50	49	52	45	46	49	56
TCC23X12G-17	Power	87	86	83	83	87	80	81	84	90
	Sound Pressure @10m	54	53	50	50	53	47	48	51	57
TCC23X14G-17	Power	88	87	84	83	87	80	81	84	90
	Sound Pressure @10m	55	54	50	50	53	46	47	51	57
TCC23X16G-17	Power	89	88	84	84	87	80	81	84	90
	Sound Pressure @10m	55	54	51	50	53	46	47	51	57
TCC23X18G-17	Power	89	88	85	84	87	80	81	84	91
	Sound Pressure @10m	55	54	51	50	53	46	47	51	57
TCC24X16G-18	Power	89	88	84	84	88	81	82	86	92
	Sound Pressure @10m	55	54	51	51	54	47	48	52	58
TCC24X18G-18	Power	89	88	85	85	88	81	82	86	92
	Sound Pressure @10m	55	54	51	51	54	47	48	52	58
TCC24X20G-18	Power	89	89	85	85	88	81	82	86	92
	Sound Pressure @10m	56	55	51	51	54	47	48	52	58
TCC24X22G-18	Power	90	89	86	85	88	81	82	86	92
	Sound Pressure @10m	56	55	52	51	54	47	48	52	58
TCC24X24G-18	Power	90	89	86	85	88	81	82	86	92
	Sound Pressure @10m	56	55	52	51	54	47	48	51	58

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

(2) All sound data measured at nominal conditions: Water in/out 13/7°C at 35°C ambient.

(3) Based on standard unit, for units fitted with optional extras, please contact Airedale.

Sound Data - TCC

TCC - HAEC Fans

		HAEC								
		63	125	250	500	1000	2000	4000	8000	Overall [dB(A)]
TCC11R04G-01	Power	96	94	91	85	85	80	77	80	90
	Sound Pressure @10m	64	62	59	53	52	48	45	48	58
TCC11R06G-01	Power	93	91	89	82	83	77	76	80	88
	Sound Pressure @10m	61	59	57	50	51	45	44	47	56
TCC11R08G-01	Power	93	90	87	81	83	76	76	80	87
	Sound Pressure @10m	60	57	54	49	50	43	43	47	54
TCC12R08G-04	Power	99	97	94	87	87	83	80	83	93
	Sound Pressure @10m	66	64	61	55	55	50	48	50	60
TCC12R10G-04	Power	98	95	93	86	87	81	80	83	92
	Sound Pressure @10m	65	62	60	53	54	48	47	50	59
TCC12R12G-04	Power	96	94	92	85	86	80	79	83	91
	Sound Pressure @10m	63	61	59	52	53	47	46	50	58
TCC12R14G-04	Power	95	93	91	85	86	80	79	83	91
	Sound Pressure @10m	62	59	58	51	53	46	46	49	57
TCC22R08G-14	Power	99	97	94	87	87	83	80	83	93
	Sound Pressure @10m	66	64	61	55	55	50	48	50	60
TCC22R10G-14	Power	98	95	93	86	87	81	80	83	92
	Sound Pressure @10m	65	62	60	53	54	48	47	50	59
TCC22R12G-14	Power	96	94	92	85	86	80	79	83	91
	Sound Pressure @10m	63	61	59	52	53	47	46	50	58
TCC22R14G-14	Power	95	93	91	85	86	80	79	83	91
	Sound Pressure @10m	62	59	58	51	53	46	46	49	57
TCC23R12G-17	Power	99	97	94	88	88	83	81	84	93
	Sound Pressure @10m	66	63	61	54	55	50	48	51	60
TCC23R14G-17	Power	98	96	94	87	88	82	81	84	93
	Sound Pressure @10m	65	63	60	54	55	49	48	51	60
TCC23R16G-17	Power	98	96	94	87	88	82	81	84	93
	Sound Pressure @10m	65	62	60	53	55	49	48	51	59
TCC23R18G-17	Power	98	95	94	87	88	82	81	84	93
	Sound Pressure @10m	64	62	60	53	54	48	47	51	59
TCC24R16G-18	Power	100	97	95	88	89	84	83	86	94
	Sound Pressure @10m	66	64	61	55	56	50	49	52	61
TCC24R18G-18	Power	99	97	95	88	89	83	83	86	94
	Sound Pressure @10m	65	63	61	54	56	50	49	52	60
TCC24R20G-18	Power	99	96	95	88	89	83	82	86	94
	Sound Pressure @10m	65	63	61	54	55	49	49	52	60
TCC24R22G-18	Power	98	96	94	88	89	83	82	86	94
	Sound Pressure @10m	64	62	60	54	55	49	48	52	60
TCC24R24G-18	Power	98	96	94	88	89	83	82	86	94
	Sound Pressure @10m	64	62	60	53	55	49	48	51	59

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

(2) All sound data measured at nominal conditions: Water in/out 13/7°C at 35°C ambient.

(3) Based on standard unit, for units fitted with optional extras, please contact Airedale.

Intentionally Blank



Technical Data - TCF (R) TCF11R06G-07, TCF11R08G-07**Mechanical Data**

Mechanical Data	Notes	Units	TCF11R06G-07	TCF11R08G-07
Cooling Duty - AC Fans	(1)	kW	290	300
Nom Input -Cooling Only		kW	78.0	77.9
EER	(2)		3.72	3.85
ESEER	(3)		4.50	4.60
SEER	(3)		4.37	4.47
Nominal Output - Free Cooling	(4)	kW	265.9	322.0
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	0.7	3.0
Cooling Duty - EC Fans	(1)	kW	290	300
Nom Input -Cooling Only		kW	76.7	74.3
EER	(2)		3.78	4.04
ESEER	(3)		5.21	5.55
SEER	(3)		5.00	5.33
Nominal Output - Free Cooling	(4)	kW	279.8	335.8
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	1.5	3.3
Cooling Duty - High Airflow EC Fans	(1)	kW	290	300
Nom Input -Cooling Only		kW	75.9	73.6
EER	(2)		3.82	4.07
ESEER	(3)		5.25	5.59
SEER	(3)		5.03	5.36
Nominal Output - Free Cooling	(4)	kW	292.9	347.2
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	1.9	3.6
Insulation	(6)	%	30-100%	30-100%
Dimensions (H x W x L)		mm	2800 x 2200 x 3758	2800 x 2200 x 4890
Machine Weight	(7)	kg	4145	4960
Operating Weight	(7)	kg	4565	5470
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)	
Evaporator - Type			Flooded - Shell and Tube Evaporator	
Insulation			Class O, UV stable Insulation	
Total Max. Water Flow		l/s	25.0	25.0
Total Min. Water Flow		l/s	8.3	8.3
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins	
Face Area Total		m²	14.2	18.9
Maximum Airflow - AC Fans		m³/s	30.6	40.8
Maximum Airflow - EC Fans		m³/s	34.4	45.9
Maximum Airflow - High Airflow EC Fans		m³/s	38.4	51.1
Condenser Fan & Motor			Sickle Bladed Axial Fan	
Quantity			6	8
Diameter		mm	800	800
Maximum Speed - AC Fans		rpm	905	905
Maximum Speed - EC Fans		rpm	1025	1025
Maximum Speed - High Airflow EC Fans		rpm	1100	1100
Compressor - Type			Turbocor - Oil Free Compressor	
Quantity			1	1
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation	
Refrigeration			Single Circuit	
Refrigerant Pre-charged			R1234ze	R1234ze
Charge (Total) CCT1 + CCT2		kg	105	120
Refrigeration Control			Electronic Expansion Valve (EEV)	
Water System			Grooved Type Coupling and Pipe Assembly	
Water Inlet / Outlet			DN100	DN100
Water Drain / Bleed - Evap		inch	1/2	1/2
Water Volume		l	424	514
Minimum System Water Volume	(8)	l	1784	1920
Max System Operating Pressure		Barg	10	10
Flow Rate		l/s	12.2	12.6
Pressure Drop		kPa	94.6	91.7

(1) Based on FC units performance at 16/10°C return/supply temperatures, 35°C ambient, 20% ethylene glycol. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCF11R06G-07, TCF11R08G-07

Electrical Data

ELECTRICAL DATA		TCF11R06G-07	TCF11R08G-07
Unit Data			
Full Load Amps (1)	A	176	184
Maximum Start Amps	A	2	2
Mains Supply	VAC	400V (±10%) 3PH 50Hz	
Recommended Mains Fuse Size	A	250	250
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm²	2x 300mm² (Torque >20Nm)	
Independent Permanent Supply Recommended Fuse Size	A	25	25
Independent Permanent Supply	VAC	230V 1PH 50Hz (±10%)	
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm²	6mm² / 8 AWG	
Control Circuit	VAC	24 VAC & 230VAC (±10%)	
Evaporator			
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)
External Trace Heating			
Available (fitted by others)	W	500	500
Condenser Fan - Per Fan (AC)			
Quantity		6	8
Full Load Amps	A	4.3	4.3
Locked Rotor Amps	A	15	15
Motor Rating	kW	1.8	1.8
Condenser Fan - Per Fan (EC)			
Quantity		6	8
Full Load Amps	A	3.9	3.9
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)			
Quantity		6	8
Full Load Amps	A	4.8	4.8
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	3.10	3.10
Compressor - Per Compressor			
Nominal Run Amps	A	150	150
Quantity		1	1
Motor Rating	kW	92	92
Start Amps	A	2	2
Type Of Start		Electronic Soft Start	

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Technical Data

TCF12R08G-09, TCF12R10G-05

Mechanical Data

Mechanical Data	Notes	Units	TCF12R08G-09	TCF12R10G-05
Cooling Duty - AC Fans	(1)	kW	470	500
Nom Input -Cooling Only		kW	138.0	134.6
EER	(2)		3.41	3.72
ESEER	(3)		4.33	4.51
SEER	(3)		4.20	4.38
Nominal Output - Free Cooling	(4)	kW	377.4	448.4
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	-1.4	0.4
Cooling Duty - EC Fans	(1)	kW	470	500
Nom Input -Cooling Only		kW	135.8	132.5
EER	(2)		3.46	3.77
ESEER	(3)		4.91	5.22
SEER	(3)		4.70	5.01
Nominal Output - Free Cooling	(4)	kW	399.4	472.3
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	-0.5	1.2
Cooling Duty - High Airflow EC Fans	(1)	kW	470	500
Nom Input -Cooling Only		kW	134.1	131.0
EER	(2)		3.50	3.82
ESEER	(3)		4.94	5.26
SEER	(3)		4.74	5.04
Nominal Output - Free Cooling	(4)	kW	420.1	494.8
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	0.2	1.6
Capacity Steps	(6)	%	15-100%	15-100%
Dimensions (H x W x L)		mm	2800 x 2200 x 4890	2800 x 2200 x 6022
Machine Weight	(7)	kg	5610	6700
Operating Weight	(7)	kg	6010	7395
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)	
Evaporator - Type			Flooded - Shell and Tube Evaporator	
Insulation			Class O, UV stable Insulation	
Total Max. Water Flow		l/s	50.0	50.0
Total Min. Water Flow		l/s	16.7	16.7
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins	
Face Area Total		m²	18.9	23.7
Maximum Airflow - AC Fans		m³/s	40.8	51.0
Maximum Airflow - EC Fans		m³/s	45.9	57.4
Maximum Airflow - High Airflow EC Fans		m³/s	51.1	63.9
Condenser Fan & Motor			Sickle Bladed Axial Fan	
Quantity			8	10
Diameter		mm	800	800
Maximum Speed - AC Fans		rpm	905	905
Maximum Speed - EC Fans		rpm	1025	1025
Maximum Speed - High Airflow EC Fans		rpm	1100	1100
Compressor - Type			Turbocor - Oil Free Compressor	
Quantity			2	2
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation	
Refrigeration			Single Circuit	
Refrigerant Pre-charged			R1234ze	R1234ze
Charge (Total) CCT1 + CCT2		kg	170	240
Refrigeration Control			Electronic Expansion Valve (EEV)	
Water System			Grooved Type Coupling and Pipe Assembly	
Water Inlet / Outlet			DN125	DN125
Water Drain / Bleed - Evap		inch	1/2	1/2
Water Volume		l	401	700
Minimum System Water Volume	(8)	l	1503	1872
Max System Operating Pressure		Barg	10	10
Flow Rate		l/s	19.8	21.0
Pressure Drop		kPa	85.4	92.3

(1) Based on FC units performance at 16/10°C return/supply temperatures, 35°C ambient, 20% ethylene glycol. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCF12R08G-09, TCF12R10G-05

Electrical Data

ELECTRICAL DATA		TCF12R08G-09	TCF12R10G-05
Unit Data			
Full Load Amps (1)	A	334	343
Maximum Start Amps	A	186	195
Mains Supply	VAC	400V (±10%) 3PH 50Hz	
Recommended Mains Fuse Size	A	355	355
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm ²	2x 300mm ² (Torque >20Nm)	
Independent Permanent Supply Recommended Fuse Size	A	25	25
Independent Permanent Supply	VAC	230V 1PH 50Hz (±10%)	
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm ²	6mm ² / 8 AWG	
Control Circuit	VAC	24 VAC & 230VAC (±10%)	
Evaporator			
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)
External Trace Heating			
Available (fitted by others)	W	500	500
Condenser Fan - Per Fan (AC)			
Quantity		8	10
Full Load Amps	A	4.3	4.3
Locked Rotor Amps	A	15	15
Motor Rating	kW	1.8	1.8
Condenser Fan - Per Fan (EC)			
Quantity		8	10
Full Load Amps	A	3.9	3.9
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)			
Quantity		8	10
Full Load Amps	A	4.8	4.8
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	3.10	3.10
Compressor - Per Compressor			
Nominal Run Amps	A	150	150
Quantity		2	2
Motor Rating	kW	92	92
Start Amps	A	2	2
Type Of Start		Electronic Soft Start	

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Technical Data

TCF12R12G-05, TCF12R14G-05

Mechanical Data

Mechanical Data	Notes	Units	TCF12R12G-05	TCF12R14G-05
Cooling Duty - AC Fans	(1)	kW	530	560
Nom Input -Cooling Only		kW	138.7	144.9
EER	(2)		3.82	3.86
ESEER	(3)		4.57	4.60
SEER	(3)		4.44	4.48
Nominal Output - Free Cooling	(4)	kW	514.8	578.2
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	1.6	2.4
Cooling Duty - EC Fans	(1)	kW	530	560
Nom Input -Cooling Only		kW	135.3	139.6
EER	(2)		3.92	4.01
ESEER	(3)		5.38	5.50
SEER	(3)		5.17	5.28
Nominal Output - Free Cooling	(4)	kW	540.0	604.5
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	2.2	2.9
Cooling Duty - High Airflow EC Fans	(1)	kW	530	560
Nom Input -Cooling Only		kW	133.9	138.2
EER	(2)		3.96	4.05
ESEER	(3)		5.42	5.53
SEER	(3)		5.20	5.31
Nominal Output - Free Cooling	(4)	kW	563.9	629.4
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	2.6	3.2
Capacity Steps	(6)	%	15-100%	15-100%
Dimensions (H x W x L)	(9)	mm	2800 x 2200 x 7154	2800 x 2200 x 8286
Machine Weight	(7)	kg	7585	8450
Operating Weight	(7)	kg	8400	9390
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)	
Evaporator - Type			Flooded - Shell and Tube Evaporator	
Insulation			Class O, UV stable Insulation	
Total Max. Water Flow		l/s	50.0	50.0
Total Min. Water Flow		l/s	16.7	16.7
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins	
Face Area Total		m²	28.4	33.2
Maximum Airflow - AC Fans		m³/s	61.2	71.3
Maximum Airflow - EC Fans		m³/s	68.9	80.4
Maximum Airflow - High Airflow EC Fans		m³/s	76.7	89.5
Condenser Fan & Motor			Sickle Bladed Axial Fan	
Quantity			12	14
Diameter		mm	800	800
Maximum Speed - AC Fans		rpm	905	905
Maximum Speed - EC Fans		rpm	1025	1025
Maximum Speed - High Airflow EC Fans		rpm	1100	1100
Compressor - Type			Turbocor - Oil Free Compressor	
Quantity			2	2
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation	
Refrigeration			Single Circuit	
Refrigerant Pre-charged			R1234ze	R1234ze
Charge (Total) CCT1 + CCT2		kg	255	265
Refrigeration Control			Electronic Expansion Valve (EEV)	
Water System			Grooved Type Coupling and Pipe Assembly	
Water Inlet / Outlet			DN125	DN125
Water Drain / Bleed - Evap		inch	1/2	1/2
Water Volume		l	819	943
Minimum System Water Volume	(8)	l	2062	2256
Max System Operating Pressure		Barg	10	10
Flow Rate		l/s	22.3	23.6
Pressure Drop		kPa	95.6	101.5

(1) Based on FC units performance at 16/10°C return/supply temperatures, 35°C ambient, 20% ethylene glycol. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCF12R12G-05, TCF12R14G-05

Electrical Data

ELECTRICAL DATA		TCF12R12G-05	TCF12R14G-05
Unit Data			
Full Load Amps (1)	A	352	360
Maximum Start Amps	A	204	212
Mains Supply	VAC	400V (±10%) 3PH 50Hz	
Recommended Mains Fuse Size	A	400	400
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm²	2x 300mm² (Torque >20Nm)	
Independent Permanent Supply Recommended Fuse Size	A	25	25
Independent Permanent Supply	VAC	230V 1PH 50Hz (±10%)	
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm²	6mm² / 8 AWG	
Control Circuit	VAC	24 VAC & 230VAC (±10%)	
Evaporator			
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)
External Trace Heating			
Available (fitted by others)	W	500	500
Condenser Fan - Per Fan (AC)			
Quantity		12	14
Full Load Amps	A	4.3	4.3
Locked Rotor Amps	A	15	15
Motor Rating	kW	1.8	1.8
Condenser Fan - Per Fan (EC)			
Quantity		12	14
Full Load Amps	A	3.9	3.9
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)			
Quantity		12	14
Full Load Amps	A	4.8	4.8
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	3.10	3.10
Compressor - Per Compressor			
Nominal Run Amps	A	150	150
Quantity		2	2
Motor Rating	kW	92	92
Start Amps	A	2	2
Type Of Start		Electronic Soft Start	

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Technical Data

TCF22R10G-22, TCF22R12G-22, TCF22R14G-22

Mechanical Data

Mechanical Data	Notes	Units	TCF22R10G-22	TCF22R12G-22	TCF22R14G-22
Cooling Duty - AC Fans	(1)	kW	500	530	560
Nom Input -Cooling Only		kW	134.8	139.0	145.1
EER	(2)		3.71	3.81	3.86
ESEER	(3)		4.31	4.39	4.43
SEER	(3)		4.20	4.29	4.33
Nominal Output - Free Cooling	(4)	kW	448.4	514.8	578.2
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	0.4	1.6	2.4
Cooling Duty - EC Fans	(1)	kW	500	530	560
Nom Input -Cooling Only		kW	132.8	135.6	139.8
EER	(2)		3.77	3.91	4.01
ESEER	(3)		4.69	4.91	5.09
SEER	(3)		4.54	4.76	4.92
Nominal Output - Free Cooling	(4)	kW	472.3	540.0	604.5
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	1.2	2.2	2.9
Cooling Duty - High Airflow EC Fans	(1)	kW	500	530	560
Nom Input -Cooling Only		kW	131.2	134.2	138.5
EER	(2)		3.81	3.95	4.04
ESEER	(3)		4.72	4.95	5.12
SEER	(3)		4.58	4.79	4.95
Nominal Output - Free Cooling	(4)	kW	494.8	563.9	629.4
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	1.6	2.6	3.2
Capacity Steps	(6)	%	15-100%	15-100%	15-100%
Dimensions (H x W x L)	(9)	mm	2800 x 2200 x 6022	2800 x 2200 x 7154	2800 x 2200 x 8286
Machine Weight	(7)	kg	6730	7610	8520
Operating Weight	(7)	kg	7460	8440	9490
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)		
Evaporator - Type			Flooded - Shell and Tube Evaporator		
Insulation			Class O, UV stable Insulation		
Total Max. Water Flow		l/s	49.9	49.9	49.9
Total Min. Water Flow		l/s	16.7	16.7	16.7
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins		
Face Area Total		m²	23.7	28.42	33.2
Maximum Airflow - AC Fans		m³/s	51.0	61.2	71.3
Maximum Airflow - EC Fans		m³/s	57.4	68.9	80.4
Maximum Airflow - High Airflow EC Fans		m³/s	63.9	76.7	89.5
Condenser Fan & Motor			Sickle Bladed Axial Fan		
Quantity			10	12	14
Diameter		mm	800	800	800
Maximum Speed - AC Fans		rpm	905	905	905
Maximum Speed - EC Fans		rpm	1025	1025	1025
Maximum Speed - High Airflow EC Fans		rpm	1100	1100	1100
Compressor - Type			Turbocor - Oil Free Compressor		
Quantity			2	2	2
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation		
Refrigeration			Dual Circuit		
Refrigerant Pre-charged			R1234ze		
Charge (Total) CCT1 + CCT2		kg	140 + 135	145 + 140	155 + 150
Refrigeration Control			Electronic Expansion Valve (EEV)		
Water System			Grooved Type Coupling and Pipe Assembly		
Water Inlet / Outlet			DN125	DN125	DN125
Water Drain / Bleed - Evap		inch	1/2	1/2	1/2
Water Volume		l	735	830	975
Minimum System Water Volume	(8)	l	1907	2073	2288
Max System Operating Pressure		Barg	10	10	10
Flow Rate		l/s	21.0	22.3	23.6
Pressure Drop		kPa	90.6	94.3	100.3

(1) Based on FC units performance at 16/10°C return/supply temperatures, 35°C ambient, 20% ethylene glycol. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCF22R10G-22, TCF22R12G-22, TCF22R14G-22

Electrical Data

ELECTRICAL DATA		TCF22R10G-22	TCF22R12G-22	TCF22R14G-22
Unit Data				
Full Load Amps (1)	A	343	352	360
Maximum Start Amps	A	195	204	212
Mains Supply	VAC		400V (±10%) 3PH 50Hz	
Recommended Mains Fuse Size	A	355	400	400
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm²		2x 300mm² (Torque >20Nm)	
Independent Permanent Supply Recommended Fuse Size	A	25	25	25
Independent Permanent Supply	VAC		230V 1PH 50Hz (±10%)	
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm²		6mm² / 8 AWG	
Control Circuit	VAC		24 VAC & 230VAC (±10%)	
Evaporator				
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)	500 (2x 250)
External Trace Heating				
Available (fitted by others)	W	500	500	500
Condenser Fan - Per Fan (AC)				
Quantity		10	12	14
Full Load Amps	A	4.3	4.3	4.3
Locked Rotor Amps	A	15	15	15
Motor Rating	kW	1.8	1.8	1.8
Condenser Fan - Per Fan (EC)				
Quantity		12	12	14
Full Load Amps	A	3.9	3.9	3.9
Locked Rotor Amps	A	N/A	N/A	N/A
Motor Rating	kW	2.56	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)				
Quantity		12	12	14
Full Load Amps	A	4.8	4.8	4.8
Locked Rotor Amps	A	N/A	N/A	N/A
Motor Rating	kW	3.10	3.10	4.10
Compressor - Per Compressor				
Nominal Run Amps	A	150	150	150
Quantity		1 / 1	1 / 1	1 / 1
Motor Rating	kW	92	92	92
Start Amps	A	2	2	2
Type Of Start			Electronic Soft Start	

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Technical Data

TCF23R12G-24, TCF23R14G-24

Mechanical Data

Mechanical Data	Notes	Units	TCF23R12G-24	TCF23R14G-24
Cooling Duty - AC Fans	(1)	kW	630	680
Nom Input -Cooling Only		kW	177.6	185.0
EER	(2)		3.55	3.68
ESEER	(3)		4.37	4.46
SEER	(3)		4.25	4.34
Nominal Output - Free Cooling	(4)	kW	546.9	621.5
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	-0.1	0.7
Cooling Duty - EC Fans	(1)	kW	630	680
Nom Input -Cooling Only		kW	175.2	181.9
EER	(2)		3.60	3.74
ESEER	(3)		4.89	5.07
SEER	(3)		4.71	4.88
Nominal Output - Free Cooling	(4)	kW	576.9	654.0
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	0.7	1.4
Cooling Duty - High Airflow EC Fans	(1)	kW	630	680
Nom Input -Cooling Only		kW	173.2	179.9
EER	(2)		3.64	3.78
ESEER	(3)		4.93	5.10
SEER	(3)		4.75	4.92
Nominal Output - Free Cooling	(4)	kW	605.2	684.7
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	1.3	1.9
Capacity Steps	(6)	%	10-100%	10-100%
Dimensions (H x W x L)	(9)	mm	2800 x 2200 x 7154	2800 x 2200 x 8286
Machine Weight	(7)	kg	8880	9780
Operating Weight	(7)	kg	9900	10910
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)	
Evaporator - Type			Flooded - Shell and Tube Evaporator	
Insulation			Class O, UV stable Insulation	
Total Max. Water Flow		l/s	70.2	70.2
Total Min. Water Flow		l/s	23.5	23.5
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins	
Face Area Total		m²	28.4	33.2
Maximum Airflow - AC Fans		m³/s	61.2	71.3
Maximum Airflow - EC Fans		m³/s	68.9	80.4
Maximum Airflow - High Airflow EC Fans		m³/s	76.7	89.5
Condenser Fan & Motor			Sickle Bladed Axial Fan	
Quantity			12	14
Diameter		mm	800	800
Maximum Speed - AC Fans		rpm	905	905
Maximum Speed - EC Fans		rpm	1025	1025
Maximum Speed - High Airflow EC Fans		rpm	1100	1100
Compressor - Type			Turbocor - Oil Free Compressor	
Quantity			3	3
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation	
Refrigeration			Dual Circuit	
Refrigerant Pre-charged			R1234ze	R1234ze
Charge (Total) CCT1 + CCT2		kg	290 + 170	300 + 180
Refrigeration Control			Electronic Expansion Valve (EEV)	
Water System			Grooved Type Coupling and Pipe Assembly	
Water Inlet / Outlet			DN150	DN150
Water Drain / Bleed - Evap		inch	1/2	1/2
Water Volume		l	1026	1138
Minimum System Water Volume	(8)	l	2011	2201
Max System Operating Pressure		Barg	10	10
Flow Rate		l/s	26.5	28.6
Pressure Drop		kPa	77.0	81.6

(1) Based on FC units performance at 16/10°C return/supply temperatures, 35°C ambient, 20% ethylene glycol. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCF23R12G-24, TCF23R14G-24

Electrical Data

ELECTRICAL DATA		TCF23R12G-24	TCF23R14G-24
Unit Data			
Full Load Amps (1)	A	502	510
Maximum Start Amps	A	354	362
Mains Supply	VAC	400V (±10%) 3PH 50Hz	
Recommended Mains Fuse Size	A	560	560
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm²	2x 300mm² (Torque >20Nm)	
Independent Permanent Supply Recommended Fuse Size	A	25	25
Independent Permanent Supply	VAC	230V 1PH 50Hz (±10%)	
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm²	6mm² / 8 AWG	
Control Circuit	VAC	24 VAC & 230VAC (±10%)	
Evaporator			
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)
External Trace Heating			
Available (fitted by others)	W	500	500
Condenser Fan - Per Fan (AC)			
Quantity		12	14
Full Load Amps	A	4.3	4.3
Locked Rotor Amps	A	15	15
Motor Rating	kW	1.8	1.8
Condenser Fan - Per Fan (EC)			
Quantity		12	14
Full Load Amps	A	3.9	3.9
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)			
Quantity		12	14
Full Load Amps	A	4.8	4.8
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	3.10	3.10
Compressor - Per Compressor			
Nominal Run Amps	A	150	150
Quantity		2 / 1	2 / 1
Motor Rating	kW	92	92
Start Amps	A	2	2
Type Of Start		Electronic Soft Start	

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Technical Data

TCF23R16G-25, TCF23R18G-25

Mechanical Data

Mechanical Data	Notes	Units	TCF23R16G-25	TCF23R18G-25
Cooling Duty - AC Fans	(1)	kW	730	780
Nom Input -Cooling Only		kW	193.6	203.4
EER	(2)		3.77	3.83
ESEER	(3)		4.52	4.50
SEER	(3)		4.39	4.38
Nominal Output - Free Cooling	(4)	kW	694.7	766.7
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	1.3	1.8
Cooling Duty - EC Fans	(1)	kW	730	780
Nom Input -Cooling Only		kW	189.5	198.1
EER	(2)		3.85	3.94
ESEER	(3)		5.19	5.19
SEER	(3)		4.99	5.00
Nominal Output - Free Cooling	(4)	kW	729.5	803.8
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	1.9	2.3
Cooling Duty - High Airflow EC Fans	(1)	kW	730	780
Nom Input -Cooling Only		kW	187.5	196.0
EER	(2)		3.89	3.98
ESEER	(3)		5.22	5.23
SEER	(3)		5.03	5.04
Nominal Output - Free Cooling	(4)	kW	762.5	838.9
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	2.3	2.7
Capacity Steps	(6)	%	10-100%	10-100%
Dimensions (H x W x L)	(9)	mm	2800 x 2200 x 9418	2800 x 2200 x 10550
Machine Weight	(7)	kg	10710	11510
Operating Weight	(7)	kg	11990	12850
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)	
Evaporator - Type			Flooded - Shell and Tube Evaporator	
Insulation			Class O, UV stable Insulation	
Total Max. Water Flow		l/s	77.9	77.9
Total Min. Water Flow		l/s	25.8	25.8
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins	
Face Area Total		m²	37.9	42.6
Maximum Airflow - AC Fans		m³/s	81.5	91.7
Maximum Airflow - EC Fans		m³/s	91.8	103.3
Maximum Airflow - High Airflow EC Fans		m³/s	102.3	115.1
Condenser Fan & Motor			Sickle Bladed Axial Fan	
Quantity			16	18
Diameter		mm	800	800
Maximum Speed - AC Fans		rpm	905	905
Maximum Speed - EC Fans		rpm	1025	1025
Maximum Speed - High Airflow EC Fans		rpm	1100	1100
Compressor - Type			Turbocor - Oil Free Compressor	
Quantity			3	3
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation	
Refrigeration			Dual Circuit	
Refrigerant Pre-charged			R1234ze	R1234ze
Charge (Total) CCT1 + CCT2		kg	300 + 180	300 + 190
Refrigeration Control			Electronic Expansion Valve (EEV)	
Water System			Grooved Type Coupling and Pipe Assembly	
Water Inlet / Outlet			DN150	DN150
Water Drain / Bleed - Evap		inch	1/2	1/2
Water Volume		l	1282	1343
Minimum System Water Volume	(8)	l	2423	2562
Max System Operating Pressure		Barg	10	10
Flow Rate		l/s	30.7	32.8
Pressure Drop		kPa	83.5	89.5

(1) Based on FC units performance at 16/10°C return/supply temperatures, 35°C ambient, 20% ethylene glycol. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCF23R16G-25, TCF23R18G-25

Electrical Data

ELECTRICAL DATA		TCF23R16G-25	TCF23R18G-25
Unit Data			
Full Load Amps (1)	A	519	527
Maximum Start Amps	A	371	379
Mains Supply	VAC	400V (±10%) 3PH 50Hz	
Recommended Mains Fuse Size	A	560	560
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm ²	2x 300mm ² (Torque >20Nm)	
Independent Permanent Supply Recommended Fuse Size	A	25	25
Independent Permanent Supply	VAC	230V 1PH 50Hz (±10%)	
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm ²	6mm ² / 8 AWG	
Control Circuit	VAC	24 VAC & 230VAC (±10%)	
Evaporator			
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)
External Trace Heating			
Available (fitted by others)	W	500	500
Condenser Fan - Per Fan (AC)			
Quantity		16	18
Full Load Amps	A	4.3	4.3
Locked Rotor Amps	A	15	15
Motor Rating	kW	1.8	1.8
Condenser Fan - Per Fan (EC)			
Quantity		16	18
Full Load Amps	A	3.9	3.9
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)			
Quantity		16	18
Full Load Amps	A	4.8	4.8
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	3.10	3.10
Compressor - Per Compressor			
Nominal Run Amps	A	150	150
Quantity		2 / 1	2 / 1
Motor Rating	kW	92	92
Start Amps	A	2	2
Type Of Start		Electronic Soft Start	

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Technical Data

TCF24R16G-26, TCF24R18G-26, TCF24R20G-26

Mechanical Data

Mechanical Data	Notes	Units	TCF24R16G-26	TCF24R18G-26	TCF24R20G-26
Cooling Duty - AC Fans	(1)	kW	820	860	900
Nom Input -Cooling Only		kW	230.6	235.4	241.0
EER	(2)		3.56	3.65	3.74
ESEER	(3)		4.52	4.55	4.59
SEER	(3)		4.38	4.41	4.46
Nominal Output - Free Cooling	(4)	kW	723.4	794.5	864.0
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	0.1	0.8	1.4
Cooling Duty - EC Fans	(1)	kW	820	860	900
Nom Input -Cooling Only		kW	227.4	231.4	235.9
EER	(2)		3.61	3.72	3.82
ESEER	(3)		5.12	5.20	5.30
SEER	(3)		4.92	5.00	5.09
Nominal Output - Free Cooling	(4)	kW	762.5	835.6	906.9
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	0.9	1.6	2.0
Cooling Duty - High Airflow EC Fans	(1)	kW	820	860	900
Nom Input -Cooling Only		kW	224.8	228.9	233.4
EER	(2)		3.65	3.76	3.86
ESEER	(3)		5.15	5.24	5.34
SEER	(3)		4.95	5.03	5.13
Nominal Output - Free Cooling	(4)	kW	799.4	874.5	947.5
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	1.5	2.0	2.4
Capacity Steps	(6)	%	7.5-100%	7.5-100%	7.5-100%
Dimensions (H x W x L)	(9)	mm	2800 x 2200 x 9418	2800 x 2200 x 10550	2800 x 2200 x 11682
Machine Weight	(7)	kg	12090	13000	13990
Operating Weight	(7)	kg	13870	14950	16150
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)		
Evaporator - Type			Flooded - Shell and Tube Evaporator		
Insulation			Class O, UV stable Insulation		
Total Max. Water Flow		l/s	99.7	99.7	99.7
Total Min. Water Flow		l/s	33.2	33.2	33.2
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins		
Face Area Total		m²	37.9	42.63	47.4
Maximum Airflow - AC Fans		m³/s	81.5	91.7	101.9
Maximum Airflow - EC Fans		m³/s	91.8	103.3	114.8
Maximum Airflow - High Airflow EC Fans		m³/s	102.3	115.1	127.9
Condenser Fan & Motor			Sickle Bladed Axial Fan		
Quantity			16	18	20
Diameter		mm	800	800	800
Maximum Speed - AC Fans		rpm	905	905	905
Maximum Speed - EC Fans		rpm	1025	1025	1025
Maximum Speed - High Airflow EC Fans		rpm	1100	1100	1100
Compressor - Type			Turbocor - Oil Free Compressor		
Quantity			4	4	4
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation		
Refrigeration			Dual Circuit		
Refrigerant Pre-charged			R1234ze	R1234ze	R1234ze
Charge (Total) CCT1 + CCT2		kg	315 + 315	325 + 315	335 + 330
Refrigeration Control			Electronic Expansion Valve (EEV)		
Water System			Grooved Type Coupling and Pipe Assembly		
Water Inlet / Outlet			DN200	DN200	DN200
Water Drain / Bleed - Evap		inch	1/2	1/2	1/2
Water Volume		l	1785	1954	2160
Minimum System Water Volume	(8)	l	2682	2895	3145
Max System Operating Pressure		Barg	10	10	10
Flow Rate		l/s	34.5	36.2	37.8
Pressure Drop		kPa	67.0	67.9	69.6

(1) Based on FC units performance at 16/10°C return/supply temperatures, 35°C ambient, 20% ethylene glycol. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCF24R16G-26, TCF24R18G-26, TCF24R20G-26

Electrical Data

ELECTRICAL DATA		TCF24R16G-26	TCF24R18G-26	TCF24R20G-26
Unit Data				
Full Load Amps (1)	A	669	677	686
Maximum Start Amps	A	521	529	538
Mains Supply	VAC		400V (±10%) 3PH 50Hz	
Recommended Mains Fuse Size	A	750	750	750
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm²		2x 300mm² (Torque >20Nm)	
Independent Permanent Supply Recommended Fuse Size	A	25	25	25
Independent Permanent Supply	VAC		230V 1PH 50Hz (±10%)	
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm²		6mm² / 8 AWG	
Control Circuit	VAC		24 VAC & 230VAC (±10%)	
Evaporator				
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)	500 (2x 250)
External Trace Heating				
Available (fitted by others)	W	500	500	500
Condenser Fan - Per Fan (AC)				
Quantity		16	18	20
Full Load Amps	A	4.3	4.3	4.3
Locked Rotor Amps	A	15	15	15
Motor Rating	kW	1.8	1.8	1.8
Condenser Fan - Per Fan (EC)				
Quantity		16	18	20
Full Load Amps	A	3.9	3.9	3.9
Locked Rotor Amps	A	N/A	N/A	N/A
Motor Rating	kW	2.56	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)				
Quantity		16	18	20
Full Load Amps	A	4.8	4.8	4.8
Locked Rotor Amps	A	N/A	N/A	N/A
Motor Rating	kW	3.10	3.10	3.10
Compressor - Per Compressor				
Nominal Run Amps	A	150	150	150
Quantity		2 / 2	2 / 2	2 / 2
Motor Rating	kW	92	92	92
Start Amps	A	2	2	2
Type Of Start			Electronic Soft Start	

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Technical Data

TCF24R22G-27, TCF24R24G-27

Mechanical Data

Mechanical Data	Notes	Units	TCF24R22G-27	TCF24R24G-27
Cooling Duty - AC Fans	(1)	kW	950	1000
Nom Input -Cooling Only		kW	249.9	259.7
EER	(2)		3.80	3.85
ESEER	(3)		4.62	4.64
SEER	(3)		4.49	4.51
Nominal Output - Free Cooling	(4)	kW	935.9	1007.1
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	1.8	2.1
Cooling Duty - EC Fans	(1)	kW	950	1000
Nom Input -Cooling Only		kW	243.3	251.6
EER	(2)		3.90	3.97
ESEER	(3)		5.38	5.44
SEER	(3)		5.17	5.23
Nominal Output - Free Cooling	(4)	kW	981.0	1054.4
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	2.4	2.6
Cooling Duty - High Airflow EC Fans	(1)	kW	950	1000
Nom Input -Cooling Only		kW	240.9	249.2
EER	(2)		3.94	4.01
ESEER	(3)		5.41	5.48
SEER	(3)		5.20	5.26
Nominal Output - Free Cooling	(4)	kW	1023.7	1099.2
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	2.7	2.9
Capacity Steps	(6)	%	7.5-100%	7.5-100%
Dimensions (H x W x L)	(9)	mm	2800 x 2200 x 12814	2800 x 2200 x 13946
Machine Weight	(7)	kg	14810	15800
Operating Weight	(7)	kg	17100	18340
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)	
Evaporator - Type			Flooded - Shell and Tube Evaporator	
Insulation			Class O, UV stable Insulation	
Total Max. Water Flow		l/s	104.2	104.2
Total Min. Water Flow		l/s	34.6	34.6
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins	
Face Area Total		m²	52.1	56.8
Maximum Airflow - AC Fans		m³/s	112.1	122.3
Maximum Airflow - EC Fans		m³/s	126.3	137.8
Maximum Airflow - High Airflow EC Fans		m³/s	140.7	153.4
Condenser Fan & Motor			Sickle Bladed Axial Fan	
Quantity			22	24
Diameter		mm	800	800
Maximum Speed - AC Fans		rpm	905	905
Maximum Speed - EC Fans		rpm	1025	1025
Maximum Speed - High Airflow EC Fans		rpm	1100	1100
Compressor - Type			Turbocor - Oil Free Compressor	
Quantity			4	4
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation	
Refrigeration			Dual Circuit	
Refrigerant Pre-charged			R1234ze	R1234ze
Charge (Total) CCT1 + CCT2		kg	330 + 335	345 + 340
Refrigeration Control			Electronic Expansion Valve (EEV)	
Water System			Grooved Type Coupling and Pipe Assembly	
Water Inlet / Outlet			DN200	DN200
Water Drain / Bleed - Evap		inch	1/2	1/2
Water Volume		l	2298	2544
Minimum System Water Volume	(8)	l	3338	3638
Max System Operating Pressure		Barg	10	10
Flow Rate		l/s	40.0	42.1
Pressure Drop		kPa	71.4	75.6

(1) Based on FC units performance at 16/10°C return/supply temperatures, 35°C ambient, 20% ethylene glycol. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCF24R22G-27, TCF24R24G-27

Electrical Data

ELECTRICAL DATA		TCF24R22G-27	TCF24R24G-27
Unit Data			
Full Load Amps (1)	A	695	703
Maximum Start Amps	A	547	555
Mains Supply	VAC	400V (±10%) 3PH 50Hz	
Recommended Mains Fuse Size	A	750	750
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm²	2x 300mm² (Torque >20Nm)	
Independent Permanent Supply Recommended Fuse Size	A	25	25
Independent Permanent Supply	VAC	230V 1PH 50Hz (±10%)	
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm²	6mm² / 8 AWG	
Control Circuit	VAC	24 VAC & 230VAC (±10%)	
Evaporator			
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)
External Trace Heating			
Available (fitted by others)	W	500	500
Condenser Fan - Per Fan (AC)			
Quantity		22	24
Full Load Amps	A	4.3	4.3
Locked Rotor Amps	A	15	15
Motor Rating	kW	1.8	1.8
Condenser Fan - Per Fan (EC)			
Quantity		22	24
Full Load Amps	A	3.9	3.9
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)			
Quantity		22	24
Full Load Amps	A	4.8	4.8
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	3.10	3.10
Compressor - Per Compressor			
Nominal Run Amps	A	150	150
Quantity		2 / 2	2 / 2
Motor Rating	kW	92	92
Start Amps	A	2	2
Type Of Start		Electronic Soft Start	

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Technical Data TCF (X)

TCF11X06G-07, TCF11X08G-07

Mechanical Data

Mechanical Data	Notes	Units	TCF11X06G-07	TCF11X08G-07
Cooling Duty - AC Fans	(1)	kW	250	260
Nom Input -Cooling Only		kW	66.4	65.1
EER	(2)		3.77	3.99
ESEER	(3)		4.52	4.65
SEER	(3)		4.39	4.53
Nominal Output - Free Cooling	(4)	kW	223.5	274.8
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	0.3	2.8
Cooling Duty - EC Fans	(1)	kW	250	260
Nom Input -Cooling Only		kW	63.7	61.5
EER	(2)		3.93	4.23
ESEER	(3)		5.17	5.52
SEER	(3)		4.98	5.32
Nominal Output - Free Cooling	(4)	kW	223.5	274.8
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	0.3	2.8
Cooling Duty - High Airflow EC Fans	(1)	kW	N/A	N/A
Nom Input -Cooling Only		kW	N/A	N/A
EER	(2)		N/A	N/A
ESEER	(3)		N/A	N/A
SEER	(3)		N/A	N/A
Nominal Output - Free Cooling	(4)	kW	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A
Capacity Steps	(6)	%	30-100%	30-100%
Dimensions (H x W x L)	(9)	mm	2800 x 2200 x 3758	2800 x 2200 x 4890
Machine Weight	(7)	kg	4145	4960
Operating Weight	(7)	kg	4565	5470
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)	
Evaporator - Type			Flooded - Shell and Tube Evaporator	
Insulation			Class O, UV stable Insulation	
Total Max. Water Flow		l/s	25.0	25.0
Total Min. Water Flow		l/s	8.3	8.3
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins	
Face Area Total		m²	14.2	18.9
Maximum Airflow - AC Fans		m³/s	23.3	31.1
Maximum Airflow - EC Fans		m³/s	23.3	31.1
Maximum Airflow - High Airflow EC Fans		m³/s	N/A	N/A
Condenser Fan & Motor			Sickle Bladed Axial Fan	
Quantity			6	8
Diameter		mm	800	800
Maximum Speed - AC Fans		rpm	710	710
Maximum Speed - EC Fans		rpm	715	715
Maximum Speed - High Airflow EC Fans		rpm	N/A	N/A
Compressor - Type			Turbocor - Oil Free Compressor	
Quantity			1	1
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation	
Refrigeration			Single Circuit	
Refrigerant Pre-charged			R1234ze	R1234ze
Charge (Total) CCT1 + CCT2		kg	105	120
Refrigeration Control			Electronic Expansion Valve (EEV)	
Water System			Grooved Type Coupling and Pipe Assembly	
Water Inlet / Outlet			DN100	DN100
Water Drain / Bleed - Evap		inch	1/2	1/2
Water Volume		l	424	514
Minimum System Water Volume	(8)	l	1597	1733
Max System Operating Pressure		Barg	10	10
Flow Rate		l/s	10.5	10.9
Pressure Drop		kPa	72.7	70.9

(1) Based on FC units performance at 16/10°C return/supply temperatures, 35°C ambient, 20% ethylene glycol. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCF11X06G-07, TCF11X08G-07

Electrical Data

ELECTRICAL DATA		TCF11X06G-07	TCF11X08G-07
Unit Data			
Full Load Amps (1)	A	165	170
Maximum Start Amps	A	2	2
Mains Supply	VAC	400V (±10%) 3PH 50Hz	
Recommended Mains Fuse Size	A	250	250
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm²	2x 300mm² (Torque >20Nm)	
Independent Permanent Supply Recommended Fuse Size	A	25	25
Independent Permanent Supply	VAC	230V 1PH 50Hz (±10%)	
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm²	6mm² / 8 AWG	
Control Circuit	VAC	24 VAC & 230VAC (±10%)	
Evaporator			
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)
External Trace Heating			
Available (fitted by others)	W	500	500
Condenser Fan - Per Fan (AC)			
Quantity		6	8
Full Load Amps	A	2.5	2.5
Locked Rotor Amps	A	8.8	8.8
Motor Rating	kW	1.3	1.3
Condenser Fan - Per Fan (EC)			
Quantity		6	8
Full Load Amps	A	3.9	3.9
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)			
Quantity		N/A	N/A
Full Load Amps	A	N/A	N/A
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	N/A	N/A
Compressor - Per Compressor			
Nominal Run Amps	A	150	150
Quantity		1	1
Motor Rating	kW	92	92
Start Amps	A	2	2
Type Of Start		Electronic Soft Start	

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Technical Data

TCF12X08G-09, TCF12X10G-05

Mechanical Data

Mechanical Data	Notes	Units	TCF12X08G-09	TCF12X10G-05
Cooling Duty - AC Fans	(1)	kW	430	460
Nom Input -Cooling Only		kW	132.7	127.6
EER	(2)		3.24	3.60
ESEER	(3)		4.45	4.58
SEER	(3)		4.28	4.43
Nominal Output - Free Cooling	(4)	kW	320.4	383.8
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	-2.8	-0.8
Cooling Duty - EC Fans	(1)	kW	430	460
Nom Input -Cooling Only		kW	129.0	123.1
EER	(2)		3.33	3.74
ESEER	(3)		4.93	5.25
SEER	(3)		4.71	5.03
Nominal Output - Free Cooling	(4)	kW	320.4	383.8
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	-2.8	-0.8
Cooling Duty - High Airflow EC Fans	(1)	kW	N/A	N/A
Nom Input -Cooling Only		kW	N/A	N/A
EER	(2)		N/A	N/A
ESEER	(3)		N/A	N/A
SEER	(3)		N/A	N/A
Nominal Output - Free Cooling	(4)	kW	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A
Capacity Steps	(6)	%	15-100%	15-100%
Dimensions (H x W x L)	(9)	mm	2800 x 2200 x 4890	2800 x 2200 x 6022
Machine Weight	(7)	kg	5610	6700
Operating Weight	(7)	kg	6010	7395
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)	
Evaporator - Type			Flooded - Shell and Tube Evaporator	
Insulation			Class O, UV stable Insulation	
Total Max. Water Flow		l/s	50.0	50.0
Total Min. Water Flow		l/s	16.7	16.7
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins	
Face Area Total		m²	18.9	23.7
Maximum Airflow - AC Fans		m³/s	31.1	38.9
Maximum Airflow - EC Fans		m³/s	31.1	38.9
Maximum Airflow - High Airflow EC Fans		m³/s	N/A	N/A
Condenser Fan & Motor			Sickle Bladed Axial Fan	
Quantity			8	10
Diameter		mm	800	800
Maximum Speed - AC Fans		rpm	710	710
Maximum Speed - EC Fans		rpm	715	715
Maximum Speed - High Airflow EC Fans		rpm	N/A	N/A
Compressor - Type			Turbocor - Oil Free Compressor	
Quantity			2	2
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation	
Refrigeration			Single Circuit	
Refrigerant Pre-charged			R1234ze	R1234ze
Charge (Total) CCT1 + CCT2		kg	170	240
Refrigeration Control			Electronic Expansion Valve (EEV)	
Water System			Grooved Type Coupling and Pipe Assembly	
Water Inlet / Outlet			DN125	DN125
Water Drain / Bleed - Evap		inch	1/2	1/2
Water Volume		l	401	700
Minimum System Water Volume	(8)	l	1409	1778
Max System Operating Pressure		Barg	10	10
Flow Rate		l/s	18.1	19.3

(1) Based on FC units performance at 16/10°C return/supply temperatures, 35°C ambient, 20% ethylene glycol. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCF12X08G-09, TCF12X10G-05

Electrical Data

ELECTRICAL DATA		TCF12X08G-09	TCF12X10G-05
Unit Data			
Full Load Amps (1)	A	320	325
Maximum Start Amps	A	172	177
Mains Supply	VAC	400V (±10%) 3PH 50Hz	
Recommended Mains Fuse Size	A	355	355
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm²	2x 300mm² (Torque >20Nm)	
Independent Permanent Supply Recommended Fuse Size	A	25	25
Independent Permanent Supply		230V 1PH 50Hz (±10%)	
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm²	6mm² / 8 AWG	
Control Circuit	VAC	24 VAC & 230VAC (±10%)	
Evaporator			
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)
External Trace Heating			
Available (fitted by others)	W	500	500
Condenser Fan - Per Fan (AC)			
Quantity		8	10
Full Load Amps	A	2.5	2.5
Locked Rotor Amps	A	8.8	8.8
Motor Rating	kW	1.3	1.3
Condenser Fan - Per Fan (EC)			
Quantity		8	10
Full Load Amps	A	3.9	3.9
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)			
Quantity		N/A	N/A
Full Load Amps	A	N/A	N/A
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	N/A	N/A
Compressor - Per Compressor			
Nominal Run Amps	A	150	150
Quantity		2	2
Motor Rating	kW	92	92
Start Amps	A	2	2
Type Of Start		Electronic Soft Start	

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Technical Data

TCF12X12G-05, TCF12X14G-05

Mechanical Data

Mechanical Data	Notes	Units	TCF12X12G-05	TCF12X14G-05
Cooling Duty - AC Fans	(1)	kW	490	520
Nom Input -Cooling Only		kW	129.5	133.3
EER	(2)		3.78	3.90
ESEER	(3)		4.67	4.73
SEER	(3)		4.53	4.59
Nominal Output - Free Cooling	(4)	kW	444.2	502.8
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	0.6	1.5
Cooling Duty - EC Fans	(1)	kW	490	520
Nom Input -Cooling Only		kW	124.1	127.0
EER	(2)		3.95	4.09
ESEER	(3)		5.43	5.57
SEER	(3)		5.21	5.35
Nominal Output - Free Cooling	(4)	kW	444.2	502.8
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	0.6	1.5
Cooling Duty - High Airflow EC Fans	(1)	kW	N/A	N/A
Nom Input -Cooling Only		kW	N/A	N/A
EER	(2)		N/A	N/A
ESEER	(3)		N/A	N/A
SEER	(3)		N/A	N/A
Nominal Output - Free Cooling	(4)	kW	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A
Capacity Steps	(6)	%	15-100%	15-100%
Dimensions (H x W x L)	(9)	mm	2800 x 2200 x 7154	2800 x 2200 x 8286
Machine Weight	(7)	kg	7585	8450
Operating Weight	(7)	kg	8400	9390
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)	
Evaporator - Type			Flooded - Shell and Tube Evaporator	
Insulation			Class O, UV stable Insulation	
Total Max. Water Flow		l/s	50.0	50.0
Total Min. Water Flow		l/s	16.7	16.7
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins	
Face Area Total		m²	28.4	33.2
Maximum Airflow - AC Fans		m³/s	46.6	54.4
Maximum Airflow - EC Fans		m³/s	46.6	54.4
Maximum Airflow - High Airflow EC Fans		m³/s	N/A	N/A
Condenser Fan & Motor			Sickle Bladed Axial Fan	
Quantity			12	14
Diameter		mm	800	800
Maximum Speed - AC Fans		rpm	710	710
Maximum Speed - EC Fans		rpm	715	715
Maximum Speed - High Airflow EC Fans		rpm	N/A	N/A
Compressor - Type			Turbocor - Oil Free Compressor	
Quantity			2	2
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation	
Refrigeration			Single Circuit	
Refrigerant Pre-charged			R1234ze	R1234ze
Charge (Total) CCT1 + CCT2		kg	255	265
Refrigeration Control			Electronic Expansion Valve (EEV)	
Water System			Grooved Type Coupling and Pipe Assembly	
Water Inlet / Outlet			DN125	DN125
Water Drain / Bleed - Evap		inch	1/2	1/2
Water Volume		l	819	943
Minimum System Water Volume	(8)	l	1968	2162
Max System Operating Pressure		Barg	10	10
Flow Rate		l/s	20.6	21.9
Pressure Drop		kPa	83.4	89.0

(1) Based on FC units performance at 16/10°C return/supply temperatures, 35°C ambient, 20% ethylene glycol. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCF12X12G-05, TCF12X14G-05

Electrical Data

ELECTRICAL DATA		TCF12X12G-05	TCF12X14G-05
Unit Data			
Full Load Amps (1)	A	330	335
Maximum Start Amps	A	182	187
Mains Supply	VAC	400V (±10%) 3PH 50Hz	
Recommended Mains Fuse Size	A	355	355
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm²	2x 300mm² (Torque >20Nm)	
Independent Permanent Supply Recommended Fuse Size	A	25	25
Independent Permanent Supply		230V 1PH 50Hz (±10%)	
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm²	6mm² / 8 AWG	
Control Circuit	VAC	24 VAC & 230VAC (±10%)	
Evaporator			
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)
External Trace Heating			
Available (fitted by others)	W	500	500
Condenser Fan - Per Fan (AC)			
Quantity		12	14
Full Load Amps	A	2.5	2.5
Locked Rotor Amps	A	8.8	8.8
Motor Rating	kW	1.3	1.3
Condenser Fan - Per Fan (EC)			
Quantity		12	14
Full Load Amps	A	3.9	3.9
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)			
Quantity		N/A	N/A
Full Load Amps	A	N/A	N/A
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	N/A	N/A
Compressor - Per Compressor			
Nominal Run Amps	A	150	150
Quantity		2	2
Motor Rating	kW	92	92
Start Amps	A	2	2
Type Of Start		Electronic Soft Start	

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Technical Data

TCF22X10G-22, TCF22X12G-22, TCF22X14G-22

Mechanical Data

Mechanical Data	Notes	Units	TCF22X10G-22	TCF22X12G-22	TCF22X14G-22
Cooling Duty - AC Fans	(1)	kW	460	490	520
Nom Input -Cooling Only		kW	127.7	129.7	133.6
EER	(2)		3.60	3.78	3.89
ESEER	(3)		4.40	4.44	4.54
SEER	(3)		4.27	4.33	4.43
Nominal Output - Free Cooling	(4)	kW	383.8	444.2	502.8
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	-0.8	0.6	1.5
Cooling Duty - EC Fans	(1)	kW	460	490	520
Nom Input -Cooling Only		kW	123.2	124.3	127.3
EER	(2)		3.73	3.94	4.08
ESEER	(3)		4.70	4.80	5.09
SEER	(3)		4.55	4.66	4.93
Nominal Output - Free Cooling	(4)	kW	383.8	444.2	502.8
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	-0.8	0.6	1.5
Cooling Duty - High Airflow EC Fans	(1)	kW	N/A	N/A	N/A
Nom Input -Cooling Only		kW	N/A	N/A	N/A
EER	(2)		N/A	N/A	N/A
ESEER	(3)		N/A	N/A	N/A
SEER	(3)		N/A	N/A	N/A
Nominal Output - Free Cooling	(4)	kW	N/A	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A	N/A
Capacity Steps	(6)	%	15-100%	15-100%	15-100%
Dimensions (H x W x L)	(9)	mm	2800 x 2200 x 6022	2800 x 2200 x 7154	2800 x 2200 x 8286
Machine Weight	(7)	kg	6730	7610	8520
Operating Weight	(7)	kg	7460	8440	9490
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)		
Evaporator - Type			Flooded - Shell and Tube Evaporator		
Insulation			Class O, UV stable Insulation		
Total Max. Water Flow		l/s	49.9	49.9	49.9
Total Min. Water Flow		l/s	16.7	16.7	16.7
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins		
Face Area Total		m²	23.7	28.42	33.2
Maximum Airflow - AC Fans		m³/s	38.9	46.6	54.4
Maximum Airflow - EC Fans		m³/s	38.9	46.6	54.4
Maximum Airflow - High Airflow EC Fans		m³/s	N/A	N/A	N/A
Condenser Fan & Motor			Sickle Bladed Axial Fan		
Quantity			10	12	14
Diameter		mm	800	800	800
Maximum Speed - AC Fans		rpm	710	710	710
Maximum Speed - EC Fans		rpm	715	715	715
Maximum Speed - High Airflow EC Fans		rpm	N/A	N/A	N/A
Compressor - Type			Turbocor - Oil Free Compressor		
Quantity			2	2	2
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation		
Refrigeration			Dual Circuit		
Refrigerant Pre-charged			R1234ze	R1234ze	R1234ze
Charge (Total) CCT1 + CCT2		kg	140 + 135	145 + 140	155 + 150
Refrigeration Control			Electronic Expansion Valve (EEV)		
Water System			Grooved Type Coupling and Pipe Assembly		
Water Inlet / Outlet			DN125	DN125	DN125
Water Drain / Bleed - Evap		inch	1/2	1/2	1/2
Water Volume		l	735	830	975
Minimum System Water Volume	(8)	l	1814	1979	2194
Max System Operating Pressure		Barg	10	10	10
Flow Rate		l/s	19.3	20.6	21.9
Pressure Drop		kPa	78.3	82.1	87.9

(1) Based on FC units performance at 16/10°C return/supply temperatures, 35°C ambient, 20% ethylene glycol. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCF22X10G-22, TCF22X12G-22, TCF22X14G-22

Electrical Data

Electrical Data	Units	TCF22X10G-22	TCF22X12G-22	TCF22X14G-22
Unit Data				
Full Load Amps (1)	A	325	330	335
Maximum Start Amps	A	177	182	187
Mains Supply	VAC		400V (±10%) 3PH 50Hz	
Recommended Mains Fuse Size	A	355	355	355
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm²		2x 300mm² (Torque >20Nm)	
Independent Permanent Supply Recommended Fuse Size	A	25	25	25
Independent Permanent Supply	VAC		230V 1PH 50Hz (±10%)	
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm²		6mm² / 8 AWG	
Control Circuit	VAC		24 VAC & 230VAC (±10%)	
Evaporator				
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)	500 (2x 250)
External Trace Heating				
Available (fitted by others)	W	500	500	500
Condenser Fan - Per Fan (AC)				
Quantity		10	12	14
Full Load Amps	A	2.5	2.5	2.5
Locked Rotor Amps	A	8.8	8.8	8.8
Motor Rating	kW	1.3	1.3	1.3
Condenser Fan - Per Fan (EC)				
Quantity		10	12	14
Full Load Amps	A	3.9	3.9	3.9
Locked Rotor Amps	A	N/A	N/A	N/A
Motor Rating	kW	2.56	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)				
Quantity		N/A	N/A	N/A
Full Load Amps	A	N/A	N/A	N/A
Locked Rotor Amps	A	N/A	N/A	N/A
Motor Rating	kW	N/A	N/A	N/A
Compressor - Per Compressor				
Nominal Run Amps	A	150	150	150
Quantity		1 / 1	1 / 1	1 / 1
Motor Rating	kW	92	92	92
Start Amps	A	2	2	2
Type Of Start			Electronic Soft Start	

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Technical Data

TCF23X12G-24, TCF23X14G-24

Mechanical Data

Mechanical Data	Notes	Units	TCF23X12G-24	TCF23X14G-24
Cooling Duty - AC Fans	(1)	kW	520	640
Nom Input -Cooling Only		kW	150.5	180.8
EER	(2)		3.46	3.54
ESEER	(3)		4.51	4.51
SEER	(3)		4.35	4.37
Nominal Output - Free Cooling	(4)	kW	208.2	536.4
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	-0.1	-0.7
Cooling Duty - EC Fans	(1)	kW	520	640
Nom Input -Cooling Only		kW	145.1	174.5
EER	(2)		3.58	3.67
ESEER	(3)		5.00	5.06
SEER	(3)		4.79	4.87
Nominal Output - Free Cooling	(4)	kW	199.5	536.4
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	-0.1	-0.7
Cooling Duty - High Airflow EC Fans	(1)	kW	N/A	N/A
Nom Input -Cooling Only		kW	N/A	N/A
EER	(2)		N/A	N/A
ESEER	(3)		N/A	N/A
SEER	(3)		N/A	N/A
Nominal Output - Free Cooling	(4)	kW	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A
Capacity Steps	(6)	%	10-100%	10-100%
Dimensions (H x W x L)	(9)	mm	2800 x 2200 x 7154	2800 x 2200 x 8286
Machine Weight	(7)	kg	8880	9780
Operating Weight	(7)	kg	9900	10910
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)	
Evaporator - Type			Flooded - Shell and Tube Evaporator	
Insulation			Class O, UV stable Insulation	
Total Max. Water Flow		l/s	70.2	70.2
Total Min. Water Flow		l/s	23.5	23.5
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins	
Face Area Total		m²	28.4	33.2
Maximum Airflow - AC Fans		m³/s	46.6	54.4
Maximum Airflow - EC Fans		m³/s	46.6	54.4
Maximum Airflow - High Airflow EC Fans		m³/s	N/A	N/A
Condenser Fan & Motor			Sickle Bladed Axial Fan	
Quantity			12	14
Diameter		mm	800	800
Maximum Speed - AC Fans		rpm	710	710
Maximum Speed - EC Fans		rpm	715	715
Maximum Speed - High Airflow EC Fans		rpm	N/A	N/A
Compressor - Type			Turbocor - Oil Free Compressor	
Quantity			3	3
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation	
Refrigeration			Dual Circuit	
Refrigerant Pre-charged			R1234ze	R1234ze
Charge (Total) CCT1 + CCT2		kg	290 + 170	300 + 180
Refrigeration Control			Electronic Expansion Valve (EEV)	
Water System			Grooved Type Coupling and Pipe Assembly	
Water Inlet / Outlet			DN150	DN150
Water Drain / Bleed - Evap		inch	1/2	1/2
Water Volume		l	1026	1138
Minimum System Water Volume	(8)	l	1839	2138
Max System Operating Pressure		Barg	10	10
Flow Rate		l/s	21.9	26.9
Pressure Drop		kPa	55.4	73.5

(1) Based on FC units performance at 16/10°C return/supply temperatures, 35°C ambient, 20% ethylene glycol. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCF23X12G-24, TCF23X14G-24

Electrical Data

Electrical Data	Units	TCF23X12G-24	TCF23X14G-24
Unit Data			
Full Load Amps (1)	A	480	485
Maximum Start Amps	A	332	337
Mains Supply	VAC	400V (±10%) 3PH 50Hz	
Recommended Mains Fuse Size	A	560	560
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm²	2x 300mm² (Torque >20Nm)	
Independent Permanent Supply Recommended Fuse Size	A	25	25
Independent Permanent Supply	VAC	230V 1PH 50Hz (±10%)	
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm²	6mm² / 8 AWG	
Control Circuit	VAC	24 VAC & 230VAC (±10%)	
Evaporator			
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)
External Trace Heating			
Available (fitted by others)	W	500	500
Condenser Fan - Per Fan (AC)			
Quantity		12	14
Full Load Amps	A	2.5	2.5
Locked Rotor Amps	A	8.8	8.8
Motor Rating	kW	1.3	1.3
Condenser Fan - Per Fan (EC)			
Quantity		12	14
Full Load Amps	A	3.9	3.9
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)			
Quantity		N/A	N/A
Full Load Amps	A	N/A	N/A
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	N/A	N/A
Compressor - Per Compressor			
Nominal Run Amps	A	150	150
Quantity		2 / 1	2 / 1
Motor Rating	kW	92	92
Start Amps	A	2	2
Type Of Start		Electronic Soft Start	

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Technical Data

TCF23X16G-25, TCF23X18G-25

Mechanical Data

Mechanical Data	Notes	Units	TCF23X16G-25	TCF23X18G-25
Cooling Duty - AC Fans	(1)	kW	690	740
Nom Input -Cooling Only		kW	187.7	196.0
EER	(2)		3.68	3.78
ESEER	(3)		4.56	4.64
SEER	(3)		4.42	4.50
Nominal Output - Free Cooling	(4)	kW	602.4	667.8
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	-0.0	0.5
Cooling Duty - EC Fans	(1)	kW	690	740
Nom Input -Cooling Only		kW	180.5	187.8
EER	(2)		3.82	3.94
ESEER	(3)		5.17	5.29
SEER	(3)		4.98	5.09
Nominal Output - Free Cooling	(4)	kW	602.4	667.8
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	-0.0	0.5
Cooling Duty - High Airflow EC Fans	(1)	kW	N/A	N/A
Nom Input -Cooling Only		kW	N/A	N/A
EER	(2)		N/A	N/A
ESEER	(3)		N/A	N/A
SEER	(3)		N/A	N/A
Nominal Output - Free Cooling	(4)	kW	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A
Capacity Steps	(6)	%	10-100%	10-100%
Dimensions (H x W x L)	(9)	mm	2800 x 2200 x 9418	2800 x 2200 x 10550
Machine Weight	(7)	kg	10710	11510
Operating Weight	(7)	kg	11990	12850
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)	
Evaporator - Type			Flooded - Shell and Tube Evaporator	
Insulation			Class O, UV stable Insulation	
Total Max. Water Flow		l/s	77.9	77.9
Total Min. Water Flow		l/s	25.8	25.8
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins	
Face Area Total		m²	37.9	42.6
Maximum Airflow - AC Fans		m³/s	62.2	70.0
Maximum Airflow - EC Fans		m³/s	62.2	70.0
Maximum Airflow - High Airflow EC Fans		m³/s	N/A	N/A
Condenser Fan & Motor			Sickle Bladed Axial Fan	
Quantity			16	18
Diameter		mm	800	800
Maximum Speed - AC Fans		rpm	710	710
Maximum Speed - EC Fans		rpm	715	715
Maximum Speed - High Airflow EC Fans		rpm	N/A	N/A
Compressor - Type			Turbocor - Oil Free Compressor	
Quantity			3	3
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation	
Refrigeration			Dual Circuit	
Refrigerant Pre-charged			R1234ze	R1234ze
Charge (Total) CCT1 + CCT2		kg	300 + 180	300 + 190
Refrigeration Control			Electronic Expansion Valve (EEV)	
Water System			Grooved Type Coupling and Pipe Assembly	
Water Inlet / Outlet			DN150	DN150
Water Drain / Bleed - Evap		inch	1/2	1/2
Water Volume		l	1282	1343
Minimum System Water Volume	(8)	l	2361	2499
Max System Operating Pressure		Barg	10	10
Flow Rate		l/s	29.0	31.1
Pressure Drop		kPa	75.6	81.5

(1) Based on FC units performance at 16/10°C return/supply temperatures, 35°C ambient, 20% ethylene glycol. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCF23X16G-25, TCF23X18G-25

Electrical Data

Electrical Data	Units	TCF23X16G-25	TCF23X18G-25
Unit Data			
Full Load Amps (1)	A	490	495
Maximum Start Amps	A	342	347
Mains Supply	VAC	400V (±10%) 3PH 50Hz	
Recommended Mains Fuse Size	A	560	560
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm ²	2x 300mm ² (Torque >20Nm)	
Independent Permanent Supply Recommended Fuse Size	A	25	25
Independent Permanent Supply	VAC	230V 1PH 50Hz (±10%)	
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm ²	6mm ² / 8 AWG	
Control Circuit	VAC	24 VAC & 230VAC (±10%)	
Evaporator			
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)
External Trace Heating			
Available (fitted by others)	W	500	500
Condenser Fan - Per Fan (AC)			
Quantity		16	18
Full Load Amps	A	2.5	2.5
Locked Rotor Amps	A	8.8	8.8
Motor Rating	kW	1.3	1.3
Condenser Fan - Per Fan (EC)			
Quantity		16	18
Full Load Amps	A	3.9	3.9
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)			
Quantity		N/A	N/A
Full Load Amps	A	N/A	N/A
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	N/A	N/A
Compressor - Per Compressor			
Nominal Run Amps	A	150	150
Quantity		2 / 1	2 / 1
Motor Rating	kW	92	92
Start Amps	A	2	2
Type Of Start		Electronic Soft Start	

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Technical Data

TCF24X16G-26, TCF24X18G-26, TCF24X20G-26

Mechanical Data

Mechanical Data	Notes	Units	TCF24X16G-26	TCF24X18G-26	TCF24X20G-26
Cooling Duty - AC Fans	(1)	kW	780	820	860
Nom Input -Cooling Only		kW	231.6	232.6	236.9
EER	(2)		3.37	3.53	3.63
ESEER	(3)		4.61	4.66	4.68
SEER	(3)		4.43	4.51	4.52
Nominal Output - Free Cooling	(4)	kW	624.4	688.9	752.3
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	-1.5	-0.7	-0.0
Cooling Duty - EC Fans	(1)	kW	780	820	860
Nom Input -Cooling Only		kW	224.4	224.4	227.9
EER	(2)		3.48	3.65	3.77
ESEER	(3)		5.11	5.25	5.31
SEER	(3)		4.88	5.03	5.10
Nominal Output - Free Cooling	(4)	kW	624.4	688.9	752.3
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	-1.5	-0.7	-0.0
Cooling Duty - High Airflow EC Fans	(1)	kW	N/A	N/A	N/A
Nom Input -Cooling Only		kW	N/A	N/A	N/A
EER	(2)		N/A	N/A	N/A
ESEER	(3)		N/A	N/A	N/A
SEER	(3)		N/A	N/A	N/A
Nominal Output - Free Cooling	(4)	kW	N/A	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A	N/A
Capacity Steps	(6)	%	7.5-100%	7.5-100%	7.5-100%
Dimensions (H x W x L)	(9)	mm	2800 x 2200 x 9418	2800 x 2200 x 10550	2800 x 2200 x 11682
Machine Weight	(7)	kg	12090	13000	13990
Operating Weight	(7)	kg	13870	14950	16150
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)		
Evaporator - Type			Flooded - Shell and Tube Evaporator		
Insulation			Class O, UV stable Insulation		
Total Max. Water Flow		l/s	99.7	99.7	99.7
Total Min. Water Flow		l/s	33.2	33.2	33.2
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins		
Face Area Total		m²	37.9	42.63	47.4
Maximum Airflow - AC Fans		m³/s	62.2	70.0	77.7
Maximum Airflow - EC Fans		m³/s	62.2	70.0	77.7
Maximum Airflow - High Airflow EC Fans		m³/s	N/A	N/A	N/A
Condenser Fan & Motor			Sickle Bladed Axial Fan		
Quantity			16	18	20
Diameter		mm	800	800	800
Maximum Speed - AC Fans		rpm	710	710	710
Maximum Speed - EC Fans		rpm	715	715	715
Maximum Speed - High Airflow EC Fans		rpm	N/A	N/A	N/A
Compressor - Type			Turbocor - Oil Free Compressor		
Quantity			4	4	4
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation		
Refrigeration			Dual Circuit		
Refrigerant Pre-charged			R1234ze	R1234ze	R1234ze
Charge (Total) CCT1 + CCT2		kg	315 + 315	325 + 315	335 + 330
Refrigeration Control			Electronic Expansion Valve (EEV)		
Water System			Grooved Type Coupling and Pipe Assembly		
Water Inlet / Outlet			DN200	DN200	DN200
Water Drain / Bleed - Evap		inch	1/2	1/2	1/2
Water Volume		l	1785	1954	2160
Minimum System Water Volume	(8)	l	2638	2851	3101
Max System Operating Pressure		Barg	10	10	10
Flow Rate		l/s	32.8	34.5	36.2
Pressure Drop		kPa	61.5	62.5	64.3

(1) Based on FC units performance at 16/10°C return/supply temperatures, 35°C ambient, 20% ethylene glycol. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCF24X16G-26, TCF24X18G-26, TCF24X20G-26

Electrical Data

Electrical Data	Units	TCF24X16G-26	TCF24X18G-26	TCF24X20G-26
Unit Data				
Full Load Amps (1)	A	640	645	650
Maximum Start Amps	A	492	497	502
Mains Supply	VAC		400V (±10%) 3PH 50Hz	
Recommended Mains Fuse Size	A	670	670	670
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm²		2x 300mm² (Torque >20Nm)	
Independent Permanent Supply Recommended Fuse Size	A	25	25	25
Independent Permanent Supply	VAC		230V 1PH 50Hz (±10%)	
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm²		6mm² / 8 AWG	
Control Circuit	VAC		24 VAC & 230VAC (±10%)	
Evaporator				
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)	500 (2x 250)
External Trace Heating				
Available (fitted by others)	W	500	500	500
Condenser Fan - Per Fan (AC)				
Quantity		16	18	20
Full Load Amps	A	2.5	2.5	2.5
Locked Rotor Amps	A	8.8	8.8	8.8
Motor Rating	kW	1.3	1.3	1.3
Condenser Fan - Per Fan (EC)				
Quantity		16	18	20
Full Load Amps	A	3.9	3.9	3.9
Locked Rotor Amps	A	N/A	N/A	N/A
Motor Rating	kW	2.56	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)				
Quantity		N/A	N/A	N/A
Full Load Amps	A	N/A	N/A	N/A
Locked Rotor Amps	A	N/A	N/A	N/A
Motor Rating	kW	N/A	N/A	N/A
Compressor - Per Compressor				
Nominal Run Amps	A	150	150	150
Quantity		2 / 2	2 / 2	2 / 2
Motor Rating	kW	92	92	92
Start Amps	A	2	2	2
Type Of Start			Electronic Soft Start	

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Technical Data

TCF24X22G-27, TCF24X24G-27

Mechanical Data

Mechanical Data	Notes	Units	TCF24X22G-27	TCF24X24G-27
Cooling Duty - AC Fans	(1)	kW	910	960
Nom Input -Cooling Only		kW	244.1	252.9
EER	(2)		3.73	3.80
ESEER	(3)		4.71	4.73
SEER	(3)		4.56	4.59
Nominal Output - Free Cooling	(4)	kW	817.7	882.7
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	0.4	0.8
Cooling Duty - EC Fans	(1)	kW	910	960
Nom Input -Cooling Only		kW	234.2	242.1
EER	(2)		3.89	3.97
ESEER	(3)		5.39	5.47
SEER	(3)		5.18	5.25
Nominal Output - Free Cooling	(4)	kW	817.7	882.7
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	0.4	0.8
Cooling Duty - High Airflow EC Fans	(1)	kW	N/A	N/A
Nom Input -Cooling Only		kW	N/A	N/A
EER	(2)		N/A	N/A
ESEER	(3)		N/A	N/A
SEER	(3)		N/A	N/A
Nominal Output - Free Cooling	(4)	kW	N/A	N/A
Ambient when Free Cooling = 100% Nominal DX	(5)	°C	N/A	N/A
Capacity Steps	(6)	%	7.5-100%	7.5-100%
Dimensions (H x W x L)	(9)	mm	2800 x 2200 x	2800 x 2200 x
Machine Weight	(7)	kg	14810	15800
Operating Weight	(7)	kg	17100	18340
Construction Material			Base: Plain Galvanised Steel, Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)	
Evaporator - Type			Flooded - Shell and Tube Evaporator	
Insulation			Class O, UV stable Insulation	
Total Max. Water Flow		l/s	104.2	104.2
Total Min. Water Flow		l/s	34.6	34.6
Condenser - Type			Epoxy Coated Aluminium Microchannel & Aluminium Fins	
Face Area Total		m²	52.1	56.8
Maximum Airflow - AC Fans		m³/s	85.5	93.3
Maximum Airflow - EC Fans		m³/s	85.5	93.3
Maximum Airflow - High Airflow EC Fans		m³/s	N/A	N/A
Condenser Fan & Motor			Sickle Bladed Axial Fan	
Quantity			22	24
Diameter		mm	800	800
Maximum Speed - AC Fans		rpm	1100	1100
Maximum Speed - EC Fans		rpm	1025	1025
Maximum Speed - High Airflow EC Fans		rpm	905	905
Compressor - Type			Turbocor - Oil Free Compressor	
Quantity			4	4
Capacity Control			Variable Frequency Drive (VFD) for Linear Capacity Modulation	
Refrigeration			Dual Circuit	
Refrigerant Pre-charged			R1234ze	R1234ze
Charge (Total) CCT1 + CCT2		kg		
Refrigeration Control			Electronic Expansion Valve (EEV)	
Water System			Grooved Type Coupling and Pipe Assembly	
Water Inlet / Outlet			DN200	DN200
Water Drain / Bleed - Evap		inch	1/2	1/2
Water Volume		l	2298	2544
Minimum System Water Volume	(8)	l	3294	3594
Max System Operating Pressure		Barg	10	10
Flow Rate		l/s	38.3	40.4
Pressure Drop		kPa	66.2	70.3

(1) Based on FC units performance at 16/10°C return/supply temperatures, 35°C ambient, 20% ethylene glycol. All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = DX cooling output / (compressor input power + fan input power)

(3) ESEER / SEER based upon unit operating at 12 / 7 °C return / supply temperature, 35°C ambient.

(4) Nominal Free Cooling output at 16/10°C return/supply temperatures, 2°C ambient, 20% ethylene glycol.

(5) Ambient temperature that maximum nominal DX duty can be achieved using Free Cooling only.

(6) This is a nominal figure based on full compressor duty, actual turndown depends on both condensing and evaporating temperatures.

(7) Based on standard unit without options, machine weight includes refrigerant charge, operating weight includes refrigerant charge and water volume.

For unit weights with waterside options fitted please contact Airedale.

(8) For minimum system water volume calculation, refer to Design Features & Information - Minimum System Water Volume Calculations.

(9) Height based on standard fan, for optional fan dimensions please contact Airedale

Technical Data

TCF24X22G-27, TCF24X24G-27

Electrical Data

Electrical Data	Units	TCF24X22G-27	TCF24X24G-27
Unit Data			
Full Load Amps (1)	A	655	660
Maximum Start Amps	A	507	512
Mains Supply	VAC	400V (±10%) 3PH 50Hz	
Recommended Mains Fuse Size	A	670	750
Max Mains Incoming Cable Size (Direct to 3 Phase Mains Isolator)	mm²	2x 300mm² (Torque >20Nm)	
Independent Permanent Supply Recommended Fuse Size	A	25	25
Independent Permanent Supply	VAC	230V 1PH 50Hz (±10%)	
Max Permanent Incoming Cable Size (Direct to Control Panel Isolator)	mm²	6mm² / 8 AWG	
Control Circuit	VAC	24 VAC & 230VAC (±10%)	
Evaporator			
Immersion Heater Rating	W	500 (2x 250)	500 (2x 250)
External Trace Heating			
Available (fitted by others)	W	500	500
Condenser Fan - Per Fan (AC)			
Quantity		22	24
Full Load Amps	A	2.5	2.5
Locked Rotor Amps	A	8.8	8.8
Motor Rating	kW	1.3	1.3
Condenser Fan - Per Fan (EC)			
Quantity		22	24
Full Load Amps	A	3.9	3.9
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	2.56	2.56
Condenser Fan - Per Fan (EC High Air Volume)			
Quantity		N/A	N/A
Full Load Amps	A	N/A	N/A
Locked Rotor Amps	A	N/A	N/A
Motor Rating	kW	N/A	N/A
Compressor - Per Compressor			
Nominal Run Amps	A	150	150
Quantity		2 / 2	2 / 2
Motor Rating	kW	92	92
Start Amps	A	2	2
Type Of Start		Electronic Soft Start	

(1) Based at full load Conditions and AC Standard Fans

Pump electrical data is available from Airedale upon request.

Sound Data - TCF

TCF - AC Fans

		Single-Octave Sound								Overall [dB(A)]
		63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
TCF11R06G-07	Power	87	86	86	82	83	77	76	80	87
	Sound Pressure @10m	55	54	53	49	51	44	44	52	51
TCF11R08G-07	Power	88	88	87	83	84	77	76	80	88
	Sound Pressure @10m	56	55	54	50	51	45	44	49	49
TCF12R08G-09	Power	88	88	87	84	86	79	79	83	90
	Sound Pressure @10m	56	55	54	51	53	47	46	56	55
TCF12R10G-05	Power	89	88	88	84	86	80	79	83	90
	Sound Pressure @10m	56	56	55	51	53	47	46	54	54
TCF12R12G-05	Power	90	89	89	85	86	80	79	83	90
	Sound Pressure @10m	57	56	55	52	53	47	46	53	52
TCF12R14G-05	Power	91	90	89	85	86	80	79	83	90
	Sound Pressure @10m	57	57	56	52	53	47	46	52	51
TCF22R10G-22	Power	89	88	88	84	86	80	79	83	90
	Sound Pressure @10m	56	56	55	51	53	47	46	54	54
TCF22R12G-22	Power	90	89	89	85	86	80	79	83	90
	Sound Pressure @10m	57	56	55	52	53	47	46	53	52
TCF22R14G-22	Power	91	90	89	85	86	80	79	83	90
	Sound Pressure @10m	57	57	56	52	53	47	46	52	51
TCF23R12G-24	Power	90	89	89	85	87	81	81	84	91
	Sound Pressure @10m	57	56	55	52	54	48	48	56	55
TCF23R14G-24	Power	91	90	89	86	88	81	81	84	92
	Sound Pressure @10m	57	57	56	52	54	48	48	55	54
TCF23R16G-25	Power	91	91	90	86	88	81	81	84	92
	Sound Pressure @10m	58	57	56	53	54	48	47	54	54
TCF23R18G-25	Power	92	91	90	86	88	82	81	84	92
	Sound Pressure @10m	58	57	57	53	54	48	47	54	53
TCF24R16G-26	Power	91	91	90	87	89	82	82	86	93
	Sound Pressure @10m	58	57	56	53	55	49	49	56	55
TCF24R18G-26	Power	92	91	90	87	89	82	82	86	93
	Sound Pressure @10m	58	57	57	53	55	49	48	56	55
TCF24R20G-26	Power	92	91	91	87	89	83	82	86	93
	Sound Pressure @10m	58	58	57	53	55	49	48	55	54
TCF24R22G-27	Power	93	92	91	87	89	83	82	86	93
	Sound Pressure @10m	59	58	57	53	55	49	48	54	54
TCF24R24G-27	Power	93	92	92	88	89	83	82	86	93
	Sound Pressure @10m	59	58	57	53	55	49	48	54	54

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

(2) All sound data measured at nominal conditions: Water in/out 16/10°C at 35°C ambient.

(3) Based on standard unit, for units fitted with optional extras, please contact Airedale.

Sound Data - TCF

TCF - AC Fans

		Single-Octave Sound								Overall [dB(A)]
		63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
TCF11X06G-07	Power	82	83	81	79	82	75	76	80	86
	Sound Pressure @10m	50	51	49	46	49	43	44	50	47
TCF11X08G-07	Power	83	84	82	79	82	75	76	80	86
	Sound Pressure @10m	51	52	50	47	49	43	43	51	47
TCF12X08G-09	Power	83	84	82	81	85	78	79	83	88
	Sound Pressure @10m	51	52	50	48	52	45	46	51	48
TCF12X10G-05	Power	84	85	83	81	85	78	79	83	89
	Sound Pressure @10m	51	52	50	48	52	45	46	52	49
TCF12X12G-05	Power	85	86	84	82	85	78	79	83	89
	Sound Pressure @10m	52	53	51	49	52	45	46	53	49
TCF12X14G-05	Power	86	87	85	82	85	78	79	83	89
	Sound Pressure @10m	52	53	51	49	51	45	46	53	50
TCF22X10G-22	Power	84	85	83	81	85	78	79	83	89
	Sound Pressure @10m	51	52	50	48	52	45	46	52	49
TCF22X12G-22	Power	85	86	84	82	85	78	79	83	89
	Sound Pressure @10m	52	53	51	49	52	45	46	53	49
TCF22X14G-22	Power	86	87	85	82	85	78	79	83	89
	Sound Pressure @10m	52	53	51	49	51	45	46	53	50
TCF23X12G-24	Power	72	65	84	81	86	79	81	84	90
	Sound Pressure @10m	39	31	51	48	53	46	48	31	36
TCF23X14G-24	Power	86	87	85	83	86	80	81	84	90
	Sound Pressure @10m	52	53	51	50	53	46	47	53	50
TCF23X16G-25	Power	86	87	85	83	86	80	81	84	90
	Sound Pressure @10m	53	54	52	50	53	46	47	53	50
TCF23X18G-25	Power	87	88	86	83	86	80	81	84	90
	Sound Pressure @10m	53	54	52	50	53	46	47	54	50
TCF24X16G-26	Power	86	87	85	84	88	81	82	86	91
	Sound Pressure @10m	53	54	52	51	54	47	48	53	50
TCF24X18G-26	Power	87	88	86	84	88	81	82	86	92
	Sound Pressure @10m	53	54	52	50	54	47	48	54	50
TCF24X20G-26	Power	87	88	86	84	88	81	82	86	92
	Sound Pressure @10m	53	54	52	50	54	47	48	54	51
TCF24X22G-27	Power	88	89	87	85	88	81	82	86	92
	Sound Pressure @10m	54	55	53	50	54	47	48	54	51
TCF24X24G-27	Power	88	89	87	85	88	81	82	86	92
	Sound Pressure @10m	54	55	53	50	53	47	48	54	51

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

(2) All sound data measured at nominal conditions: Water in/out 16/10°C at 35°C ambient.

(3) Based on standard unit, for units fitted with optional extras, please contact Airedale.

Sound Data - TCF

TCF - EC Fans

		Single-Octave Sound								Overall [dB(A)]
		63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
TCF11R06G-07	Power	86	85	84	81	83	77	76	80	87
	Sound Pressure @10m	54	52	51	48	51	44	44	47	55
TCF11R08G-07	Power	82	82	82	79	82	75	76	80	86
	Sound Pressure @10m	50	49	49	47	50	43	43	47	53
TCF12R08G-09	Power	92	89	88	85	87	81	79	83	91
	Sound Pressure @10m	59	56	55	52	54	48	47	50	58
TCF12R10G-05	Power	89	87	86	84	86	80	79	83	90
	Sound Pressure @10m	56	54	54	51	53	47	46	50	57
TCF12R12G-05	Power	87	86	86	83	86	79	79	83	89
	Sound Pressure @10m	54	53	52	50	53	46	46	50	56
TCF12R14G-05	Power	86	85	85	83	85	79	79	83	89
	Sound Pressure @10m	52	52	51	49	52	45	46	49	56
TCF22R10G-22	Power	89	87	86	84	86	80	79	83	90
	Sound Pressure @10m	56	54	54	51	53	47	46	50	57
TCF22R12G-22	Power	87	86	86	83	86	79	79	83	89
	Sound Pressure @10m	54	53	52	50	53	46	46	50	56
TCF22R14G-22	Power	86	85	85	83	85	79	79	83	89
	Sound Pressure @10m	52	52	51	49	52	45	46	49	56
TCF23R12G-24	Power	91	89	88	85	88	81	81	84	92
	Sound Pressure @10m	58	56	55	52	55	48	48	51	59
TCF23R14G-24	Power	90	88	88	85	88	81	81	84	91
	Sound Pressure @10m	56	55	54	52	54	48	48	51	58
TCF23R16G-25	Power	89	88	87	85	88	81	81	84	91
	Sound Pressure @10m	56	54	54	51	54	47	47	51	58
TCF23R18G-25	Power	88	88	87	85	87	81	81	84	91
	Sound Pressure @10m	55	54	53	51	54	47	47	51	57
TCF24R16G-26	Power	91	90	89	86	89	82	82	86	93
	Sound Pressure @10m	58	56	55	53	56	49	49	52	59
TCF24R18G-26	Power	91	89	89	86	89	82	82	86	93
	Sound Pressure @10m	57	56	55	52	55	48	48	52	59
TCF24R20G-26	Power	90	89	88	86	89	82	82	86	92
	Sound Pressure @10m	56	55	54	52	55	48	48	52	59
TCF24R22G-27	Power	89	88	88	86	89	82	82	86	92
	Sound Pressure @10m	55	54	54	52	55	48	48	52	58
TCF24R24G-27	Power	89	88	88	86	89	82	82	86	92
	Sound Pressure @10m	55	54	54	51	54	47	48	51	58

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

(2) All sound data measured at nominal conditions: Water in/out 16/10°C at 35°C ambient.

(3) Based on standard unit, for units fitted with optional extras, please contact Airedale.

Sound Data - TCF

TCF - EC Fans

		Single-Octave Sound								Overall [dB(A)]
		63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
TCF11X06G-07	Power	84	83	79	79	82	75	76	80	86
	Sound Pressure @10m	51	50	47	46	49	43	44	47	53
TCF11X08G-07	Power	84	83	80	79	82	75	76	80	86
	Sound Pressure @10m	52	51	47	47	49	42	43	47	53
TCF12X08G-09	Power	85	84	81	81	85	78	79	83	88
	Sound Pressure @10m	52	51	48	49	52	45	46	50	56
TCF12X10G-05	Power	86	85	82	82	85	78	79	83	89
	Sound Pressure @10m	53	52	49	49	52	45	46	50	56
TCF12X12G-05	Power	87	86	82	82	85	78	79	83	89
	Sound Pressure @10m	53	53	49	49	52	45	46	50	56
TCF12X14G-05	Power	87	86	83	82	85	78	79	83	89
	Sound Pressure @10m	54	53	50	49	52	45	46	49	55
TCF22X10G-22	Power	86	85	82	82	85	78	79	83	89
	Sound Pressure @10m	53	52	49	49	52	45	46	50	56
TCF22X12G-22	Power	87	86	82	82	85	78	79	83	89
	Sound Pressure @10m	53	53	49	49	52	45	46	50	56
TCF22X14G-22	Power	87	86	83	82	85	78	79	83	89
	Sound Pressure @10m	54	53	50	49	52	45	46	49	55
TCF23X12G-24	Power	65	65	69	81	86	79	81	84	90
	Sound Pressure @10m	31	31	36	48	53	46	48	51	57
TCF23X14G-24	Power	87	86	83	83	87	80	81	84	90
	Sound Pressure @10m	54	53	50	50	53	46	47	51	57
TCF23X16G-25	Power	88	87	84	83	87	80	81	84	90
	Sound Pressure @10m	54	53	50	50	53	46	47	51	57
TCF23X18G-25	Power	88	87	84	84	87	80	81	84	90
	Sound Pressure @10m	55	54	50	50	53	46	47	51	57
TCF24X16G-26	Power	88	87	84	84	88	81	82	86	91
	Sound Pressure @10m	54	53	50	51	54	47	48	52	58
TCF24X18G-26	Power	88	87	84	84	88	81	82	86	92
	Sound Pressure @10m	55	54	50	51	54	47	48	52	58
TCF24X20G-26	Power	89	88	85	85	88	81	82	86	92
	Sound Pressure @10m	55	54	51	51	54	47	48	52	58
TCF24X22G-27	Power	89	88	85	85	88	81	82	86	92
	Sound Pressure @10m	55	54	51	51	54	47	48	52	58
TCF24X24G-27	Power	90	89	85	85	88	81	82	86	92
	Sound Pressure @10m	55	54	51	51	54	47	48	51	57

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

(2) All sound data measured at nominal conditions: Water in/out 16/10°C at 35°C ambient.

(3) Based on standard unit, for units fitted with optional extras, please contact Airedale.

Sound Data - TCF

TCF - HAEC Fans

		HAEC								Overall [dB(A)]
		63	125	250	500	1000	2000	4000	8000	
TCF11R06G-07	Power	94	92	90	83	84	78	77	80	89
	Sound Pressure @10m	62	60	58	51	51	46	44	47	56
TCF11R08G-07	Power	91	89	87	81	83	76	76	80	87
	Sound Pressure @10m	58	56	55	48	50	44	44	47	54
TCF12R08G-09	Power	99	97	94	87	87	83	80	83	92
	Sound Pressure @10m	66	64	61	55	55	50	48	50	60
TCF12R10G-05	Power	97	95	93	86	87	81	80	83	91
	Sound Pressure @10m	64	62	60	53	54	48	47	50	59
TCF12R12G-05	Power	96	93	92	85	86	80	79	83	91
	Sound Pressure @10m	63	60	58	52	53	47	46	50	58
TCF12R14G-05	Power	94	92	91	84	86	79	79	83	90
	Sound Pressure @10m	61	59	57	51	53	46	46	49	57
TCF22R10G-22	Power	97	95	93	86	87	81	80	83	91
	Sound Pressure @10m	64	62	60	53	54	48	47	50	59
TCF22R12G-22	Power	96	93	92	85	86	80	79	83	91
	Sound Pressure @10m	63	60	59	52	53	47	46	50	58
TCF22R14G-22	Power	94	92	91	84	86	79	79	83	90
	Sound Pressure @10m	61	59	57	51	53	46	46	49	57
TCF23R12G-24	Power	99	97	94	88	88	83	81	84	93
	Sound Pressure @10m	66	63	61	54	55	50	48	51	60
TCF23R14G-24	Power	98	96	94	87	88	82	81	84	93
	Sound Pressure @10m	65	62	60	54	55	49	48	51	59
TCF23R16G-25	Power	98	95	93	87	88	82	81	84	93
	Sound Pressure @10m	64	62	60	53	54	48	48	51	59
TCF23R18G-25	Power	97	95	93	86	88	82	81	84	92
	Sound Pressure @10m	63	61	59	53	54	48	47	51	59
TCF24R16G-26	Power	100	97	95	89	89	84	83	86	94
	Sound Pressure @10m	66	64	62	55	56	50	49	52	61
TCF24R18G-26	Power	99	97	95	88	89	83	82	86	94
	Sound Pressure @10m	65	63	61	54	56	50	49	52	60
TCF24R20G-26	Power	99	96	94	88	89	83	82	86	94
	Sound Pressure @10m	65	62	60	54	55	49	49	52	60
TCF24R22G-27	Power	98	96	94	87	89	83	82	86	93
	Sound Pressure @10m	64	62	60	53	55	49	48	52	59
TCF24R24G-27	Power	98	95	94	87	89	83	82	86	93
	Sound Pressure @10m	63	61	59	53	55	48	48	51	59

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

(2) All sound data measured at nominal conditions: Water in/out 16/10°C at 35°C ambient.

(3) Based on standard unit, for units fitted with optional extras, please contact Airedale.

Hydronic Data

TCC Waterside Pressure Drop kPa (100% Water)

		Water flow rate l/s																																	
		8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74
TCC11R04G-01	20	28	39	51	64	79	96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCC11R06G-01	20	28	39	51	64	79	96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCC11R08G-01	20	28	39	51	64	79	96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCC12R08G-04	-	-	-	16	20	24	29	34	40	46	52	59	66	74	82	90	99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCC12R10G-04	-	-	-	16	20	24	29	34	40	46	52	59	66	74	82	90	99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCC12R12G-04	-	-	-	16	20	24	29	34	40	46	52	59	66	74	82	90	99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCC12R14G-04	-	-	-	16	20	24	29	34	40	46	52	59	66	74	82	90	99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCC22R08G-14	-	-	-	19	22	26	31	35	40	46	51	57	63	70	76	83	91	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCC22R10G-14	-	-	-	19	22	26	31	35	40	46	51	57	63	70	76	83	91	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCC22R12G-14	-	-	-	19	22	26	31	35	40	46	51	57	63	70	76	83	91	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCC22R14G-14	-	-	-	19	22	26	31	35	40	46	51	57	63	70	76	83	91	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCC23R12G-17	-	-	-	-	-	-	-	-	17	19	22	25	27	31	34	37	41	44	48	52	56	61	65	70	75	79	85	90	95	101	-	-	-	-	-
TCC23R14G-17	-	-	-	-	-	-	-	-	17	19	22	25	27	31	34	37	41	44	48	52	56	61	65	70	75	79	85	90	95	101	-	-	-	-	-
TCC23R16G-17	-	-	-	-	-	-	-	-	17	19	22	25	27	31	34	37	41	44	48	52	56	61	65	70	75	79	85	90	95	101	-	-	-	-	-
TCC23R18G-17	-	-	-	-	-	-	-	-	17	19	22	25	27	31	34	37	41	44	48	52	56	61	65	70	75	79	85	90	95	101	-	-	-	-	-
TCC24R16G-18	-	-	-	-	-	-	-	-	-	14	16	18	21	23	25	28	30	33	36	39	42	45	48	52	55	59	63	67	71	75	79	83	88	92	
TCC24R18G-18	-	-	-	-	-	-	-	-	-	14	16	18	21	23	25	28	30	33	36	39	42	45	48	52	55	59	63	67	71	75	79	83	88	92	
TCC24R20G-18	-	-	-	-	-	-	-	-	-	14	16	18	21	23	25	28	30	33	36	39	42	45	48	52	55	59	63	67	71	75	79	83	88	92	
TCC24R22G-18	-	-	-	-	-	-	-	-	-	14	16	18	21	23	25	28	30	33	36	39	42	45	48	52	55	59	63	67	71	75	79	83	88	92	
TCC24R24G-18	-	-	-	-	-	-	-	-	-	14	16	18	21	23	25	28	30	33	36	39	42	45	48	52	55	59	63	67	71	75	79	83	88	92	
TCC11X04G-01	20	28	39	51	64	79	96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCC11X06G-01	20	28	39	51	64	79	96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCC11X08G-01	20	28	39	51	64	79	96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCC12X08G-04	-	-	-	16	20	24	29	34	40	46	52	59	66	74	82	90	99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCC12X10G-04	-	-	-	16	20	24	29	34	40	46	52	59	66	74	82	90	99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCC12X12G-04	-	-	-	16	20	24	29	34	40	46	52	59	66	74	82	90	99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCC12X14G-04	-	-	-	16	20	24	29	34	40	46	52	59	66	74	82	90	99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCC22X08G-14	-	-	-	-	19	22	26	31	35	40	46	51	57	63	70	76	83	91	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCC22X10G-14	-	-	-	-	19	22	26	31	35	40	46	51	57	63	70	76	83	91	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCC22X12G-14	-	-	-	-	19	22	26	31	35	40	46	51	57	63	70	76	83	91	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCC22X14G-14	-	-	-	-	19	22	26	31	35	40	46	51	57	63	70	76	83	91	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCC23X12G-17	-	-	-	-	-	-	-	-	17	19	22	25	27	31	34	37	41	44	48	52	56	61	65	70	75	79	85	90	95	101	-	-	-	-	-
TCC23X14G-17	-	-	-	-	-	-	-	-	17	19	22	25	27	31	34	37	41	44	48	52	56	61	65	70	75	79	85	90	95	101	-	-	-	-	-
TCC23X16G-17	-	-	-	-	-	-	-	-	17	19	22	25	27	31	34	37	41	44	48	52	56	61	65	70	75	79	85	90	95	101	-	-	-	-	-
TCC23X18G-17	-	-	-	-	-	-	-	-	17	19	22	25	27	31	34	37	41	44	48	52	56	61	65	70	75	79	85	90	95	101	-	-	-	-	-
TCC24X16G-18	-	-	-	-	-	-	-	-	-	14	16	18	21	23	25	28	30	33	36	39	42	45	48	52	55	59	63	67	71	75	79	83	88	92	
TCC24X18G-18	-	-	-	-	-	-	-	-	-	14	16	18	21	23	25	28	30	33	36	39	42	45	48	52	55	59	63	67	71	75	79	83	88	92	
TCC24X20G-18	-	-	-	-	-	-	-	-	-	14	16	18	21	23	25	28	30	33	36	39	42	45	48	52	55	59	63	67	71	75	79	83	88	92	
TCC24X22G-18	-	-	-	-	-	-	-	-	-	14	16	18	21	23	25	28	30	33	36	39	42	45	48	52	55	59	63	67	71	75	79	83	88	92	
TCC24X24G-18	-	-	-	-	-	-	-	-	-	14	16	18	21	23	25	28	30	33	36	39	42	45	48	52	55	59	63	67	71	75	79	83	88	92	

Hydronic Data

TCF Waterside Pressure Drop kPa (20% Ethylene Glycol)

		Water flow rate l/s																																		
		8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	
TCF11R06G-07	-	74	99	127	160	195	234	277	323	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
TCF11R08G-07	-	65	88	115	145	178	214	254	297	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
TCF12R08G-09	-	-	-	-	-	75	89	105	122	140	159	179	201	224	248	274	300	328	357	387	419	452	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCF12R10G-05	-	-	-	-	-	72	86	101	117	135	153	173	194	216	239	263	289	316	344	373	403	435	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCF12R12G-05	-	-	-	-	-	67	80	94	110	126	144	162	182	203	225	248	272	298	324	352	381	411	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCF12R14G-05	-	-	-	-	-	64	77	91	105	121	138	157	176	196	218	240	264	289	314	341	369	398	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCF22R10G-22	-	-	-	-	-	72	85	100	115	132	150	169	189	211	233	256	281	307	333	361	390	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCF22R12G-22	-	-	-	-	-	67	80	94	108	124	141	160	179	199	220	242	266	290	316	342	370	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCF22R14G-22	-	-	-	-	-	64	77	90	105	120	137	154	173	193	213	235	258	282	307	333	360	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCF23R12G-24	-	-	-	-	-	-	-	-	66	75	85	95	106	118	130	143	156	170	185	200	215	231	248	266	284	302	321	341	361	382	404	426	-	-	-	
TCF23R14G-24	-	-	-	-	-	-	-	-	61	70	79	89	99	110	121	133	146	159	172	187	201	216	232	249	266	283	301	320	339	358	379	399	-	-	-	
TCF23R16G-25	-	-	-	-	-	-	-	-	-	63	71	80	89	99	110	121	132	144	157	170	183	197	212	227	243	259	275	292	310	328	347	366	385	406	-	
TCF23R18G-25	-	-	-	-	-	-	-	-	-	60	68	76	85	95	105	115	126	138	150	162	175	189	203	217	232	248	264	280	297	315	332	351	370	389	-	
TCF24R16G-26	-	-	-	-	-	-	-	-	-	-	-	-	-	65	72	78	86	93	101	109	118	126	135	145	154	164	175	185	196	207	219	231	243	255		
TCF24R18G-26	-	-	-	-	-	-	-	-	-	-	-	-	61	67	73	80	87	94	102	110	118	127	136	145	154	164	174	184	195	206	217	228	240	-		
TCF24R20G-26	-	-	-	-	-	-	-	-	-	-	-	-	57	63	69	76	83	90	97	104	112	120	129	138	147	156	165	175	185	196	206	217	228	-		
TCF24R22G-27	-	-	-	-	-	-	-	-	-	-	-	-	-	59	65	71	77	84	91	98	105	113	121	129	137	146	155	164	174	184	194	204	214	-		
TCF24R24G-27	-	-	-	-	-	-	-	-	-	-	-	-	-	57	63	68	75	81	88	95	102	109	117	125	133	142	150	159	169	178	188	198	208	-		
TCF11X06G-07	-	74	99	127	160	195	234	277	323	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
TCF11X08G-07	-	65	88	115	145	178	214	254	297	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
TCF12X08G-09	-	-	-	-	-	75	89	105	122	140	159	179	201	224	248	274	300	328	357	387	419	452	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCF12X10G-05	-	-	-	-	-	72	86	101	117	135	153	173	194	216	239	263	289	316	344	373	403	435	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCF12X12G-05	-	-	-	-	-	67	80	94	110	126	144	162	182	203	225	248	272	298	324	352	381	411	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCF12X14G-05	-	-	-	-	-	64	77	91	105	121	138	157	176	196	218	240	264	289	314	341	369	398	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Hydronic Data

TCF Waterside Pressure Drop kPa (20% Ethylene Glycol)

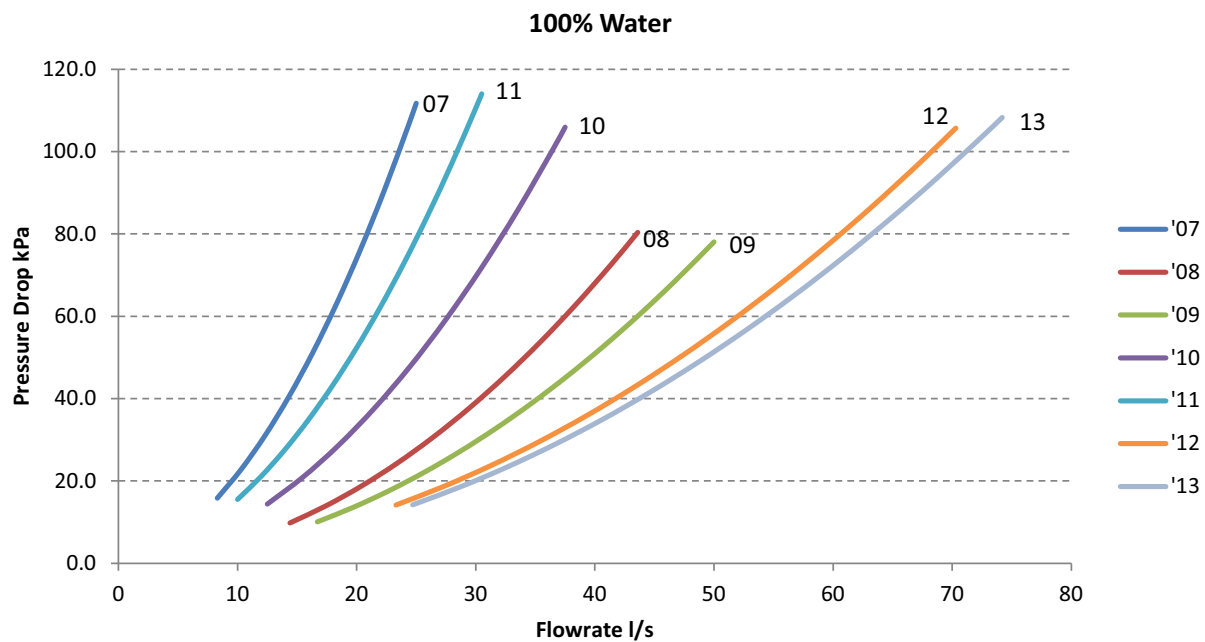
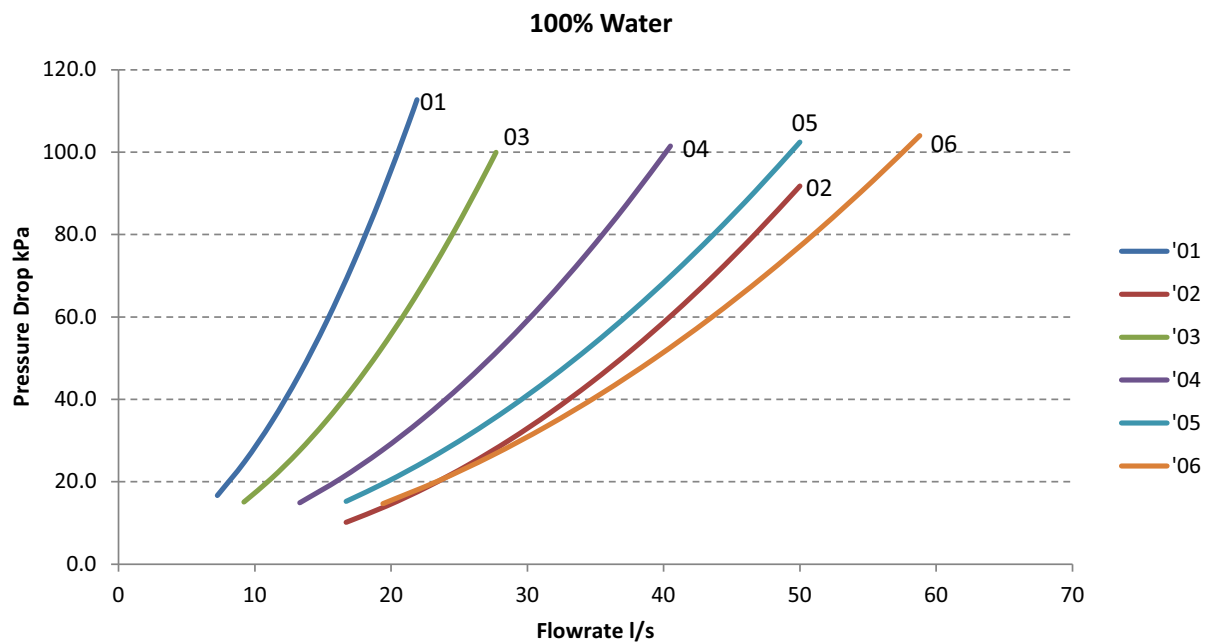
			Water flow rate l/s																																			
			8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74		
TCF22X10G-22			-	-	-	-	-	72	85	100	115	132	150	169	189	211	233	256	281	307	333	361	390	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCF22X12G-22			-	-	-	-	-	67	80	94	108	124	141	160	179	199	220	242	266	290	316	342	370	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCF22X14G-22			-	-	-	-	-	64	77	90	105	120	137	154	173	193	213	235	258	282	307	333	360	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCF23X12G-24			-	-	-	-	-	-	-	-	66	75	85	95	106	118	130	143	156	170	185	200	215	231	248	266	284	302	321	341	361	382	404	426	-	-		
TCF23X14G-24			-	-	-	-	-	-	-	-	61	70	79	89	99	110	121	133	146	159	172	187	201	216	232	249	266	283	301	320	339	358	379	399	-	-		
TCF23X16G-25			-	-	-	-	-	-	-	-	-	63	71	80	89	99	110	121	132	144	157	170	183	197	212	227	243	259	275	292	310	328	347	366	385	406		
TCF23X18G-25			-	-	-	-	-	-	-	-	-	60	68	76	85	95	105	115	126	138	150	162	175	189	203	217	232	248	264	280	297	315	332	351	370	389		
TCF24X16G-26			-	-	-	-	-	-	-	-	-	-	-	-	-	65	72	78	86	93	101	109	118	126	135	145	154	164	175	185	196	207	219	231	243	255		
TCF24X18G-26			-	-	-	-	-	-	-	-	-	-	-	-	-	61	67	73	80	87	94	102	110	118	127	136	145	154	164	174	184	195	206	217	228	240		
TCF24X20G-26			-	-	-	-	-	-	-	-	-	-	-	-	-	57	63	69	76	83	90	97	104	112	120	129	138	147	156	165	175	185	196	206	217	228		
TCF24X22G-27			-	-	-	-	-	-	-	-	-	-	-	-	-	-	59	65	71	77	84	91	98	105	113	121	129	137	146	155	164	174	184	194	204	214		
TCF24X24G-27			-	-	-	-	-	-	-	-	-	-	-	-	-	-	57	63	68	75	81	88	95	102	109	117	125	133	142	150	159	169	178	188	198	208		

Hydraulic

Technical

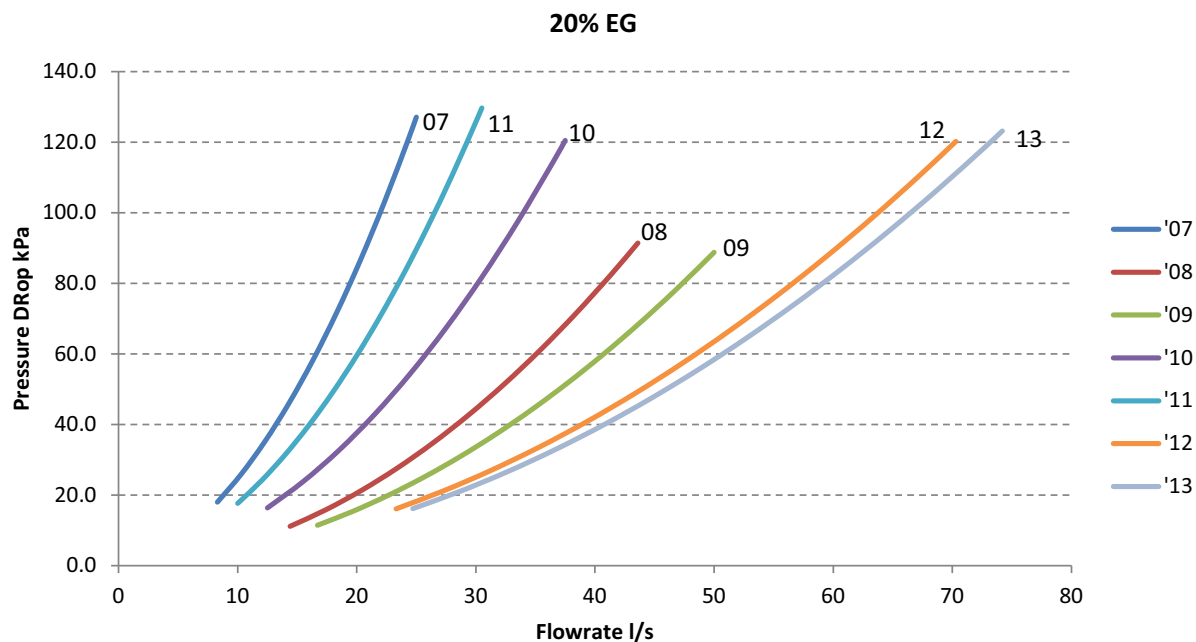
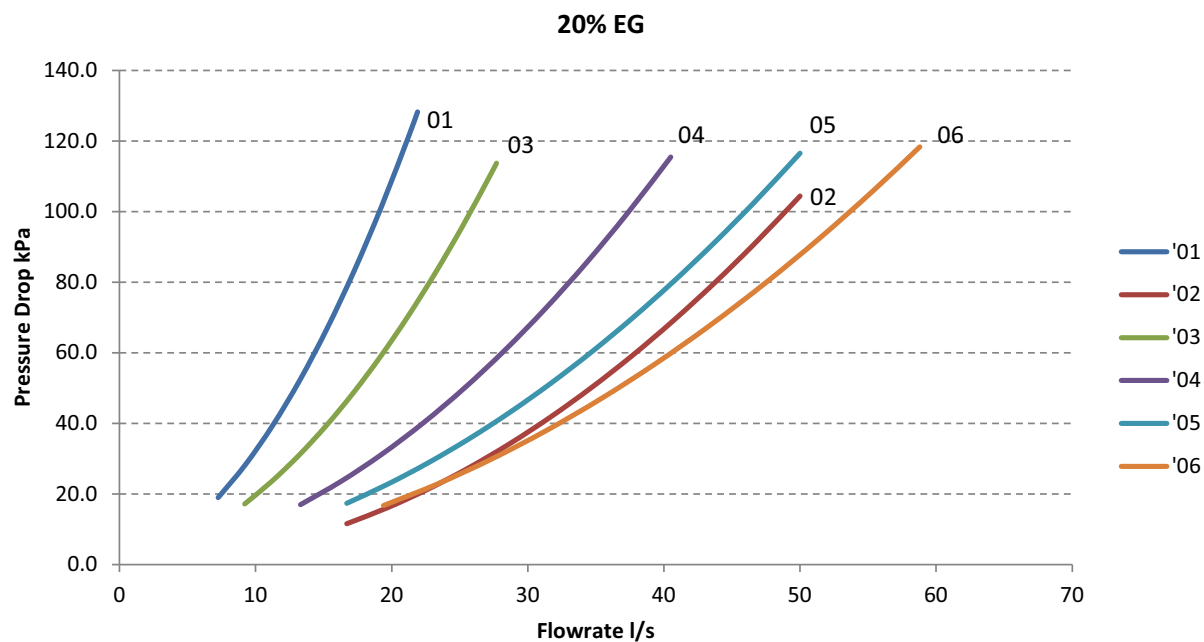
Hydronic Data

Evaporator Pressure Drop - 100% Water



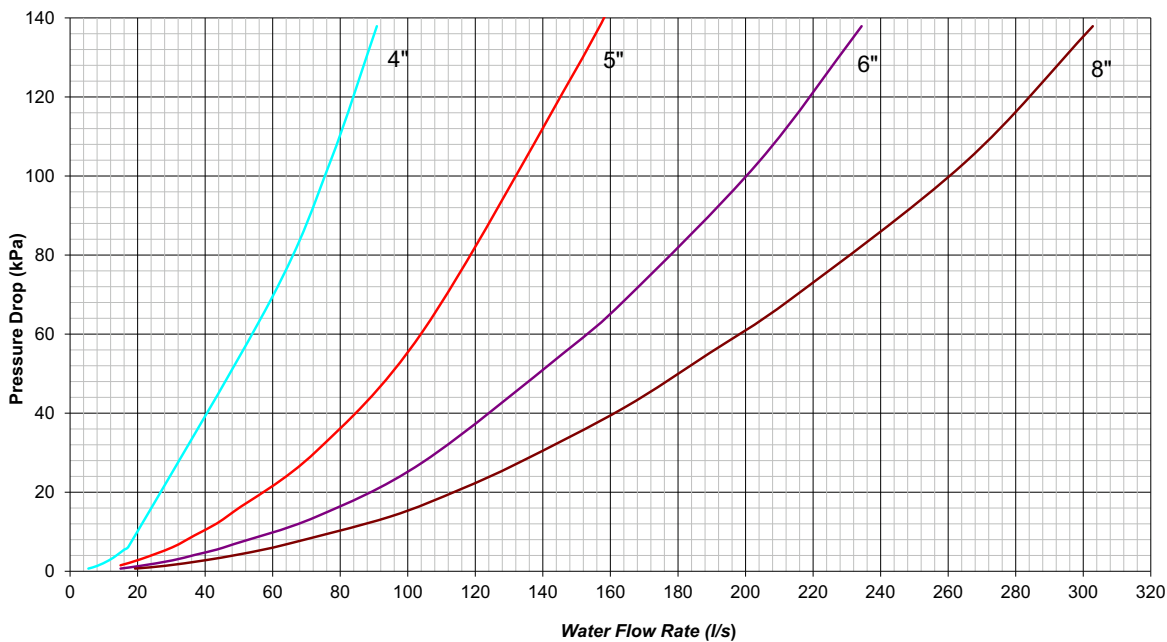
Hydronic Data

Evaporator Pressure Drop - 20% Ethylene Glycol

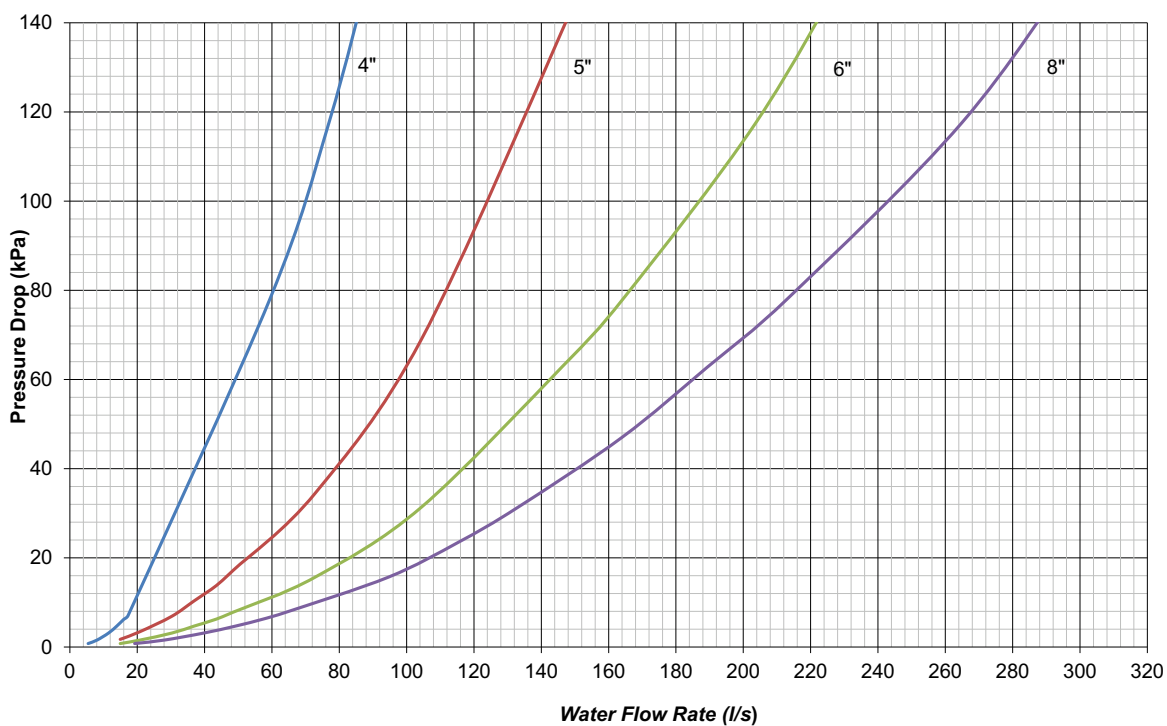


Hydronic Data

Strainer Pressure Drop - 100% Water

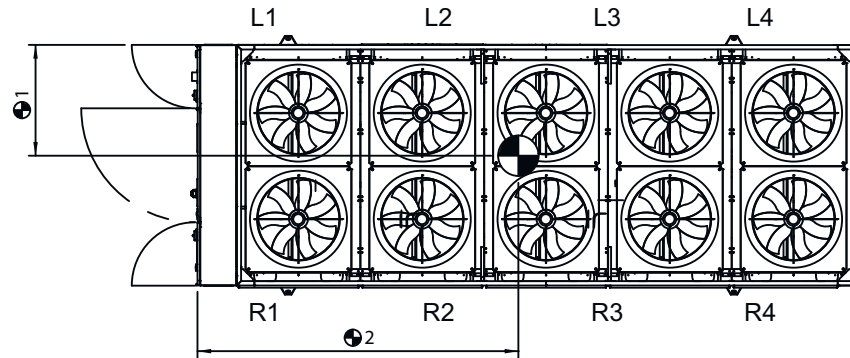


Strainer Pressure Drop - 20% Ethylene Glycol



Installation Data

Air Cooled Masses & Centre of Gravity (C of G)



Unit Nomenclature	Machine Weight (kg)	Operating Weight (kg)	CofG 2	CofG 1
TCC11R04G-01	2765	2865	1350	1150
TCC11R06G-01	3390	3490	1760	1140
TCC11R08G-01	3980	4080	2280	1130
TCC12R08G-04	4795	4935	2360	1160
TCC12R10G-04	5405	5545	2750	1150
TCC12R12G-04	6025	6165	3140	1150
TCC12R14G-04	6640	6780	3640	1140
TCC22R08G-14	4800	4940	2350	1160
TCC22R10G-14	5430	5570	2710	1150
TCC22R12G-14	6050	6190	3090	1150
TCC22R14G-14	6680	6820	3810	1140
TCC23R12G-17	7000	7230	3240	1160
TCC23R14G-17	7620	7850	3890	1160
TCC23R16G-17	8260	8490	4250	1150
TCC23R18G-17	8880	9110	4940	1150
TCC24R16G-18	8670	8920	4370	1170
TCC24R18G-18	9300	9550	4860	1170
TCC24R20G-18	9930	10180	5540	1160
TCC24R22G-18	10560	10810	6360	1160
TCC24R24G-18	11190	11440	6620	1160
TCC11X04G-01	2765	2865	1350	1150
TCC11X06G-01	3390	3490	1760	1140
TCC11X08G-01	3980	4080	2280	1130
TCC12X08G-04	4795	4935	2360	1160
TCC12X10G-04	5405	5545	2750	1150
TCC12X12G-04	6025	6165	3140	1150
TCC12X14G-04	6640	6780	3640	1140
TCC22X08G-14	4800	4940	2350	1160
TCC22X10G-14	5430	5570	2710	1150
TCC22X12G-14	6050	6190	3090	1150
TCC22X14G-14	6680	6820	3810	1140
TCC23X12G-17	7000	7230	3240	1160
TCC23X14G-17	7620	7850	3890	1160
TCC23X16G-17	8260	8490	4250	1150
TCC23X18G-17	8880	9110	4940	1150
TCC24X16G-18	8670	8920	4370	1170
TCC24X18G-18	9300	9550	4860	1170
TCC24X20G-18	9930	10180	5540	1160
TCC24X22G-18	10560	10810	6360	1160
TCC24X24G-18	11190	11440	6620	1160

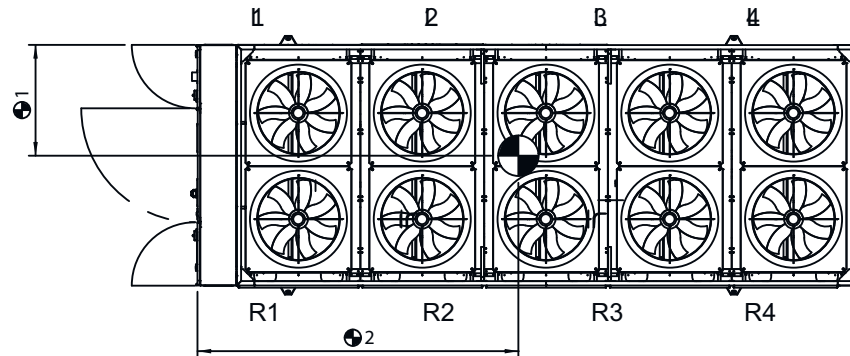
Centre of gravity is always measured from the control panel end.

B

Above refers to standard configurations, contact Airedale for other options.

Installation Data

Freecool Masses & Centre of Gravity (C of G)



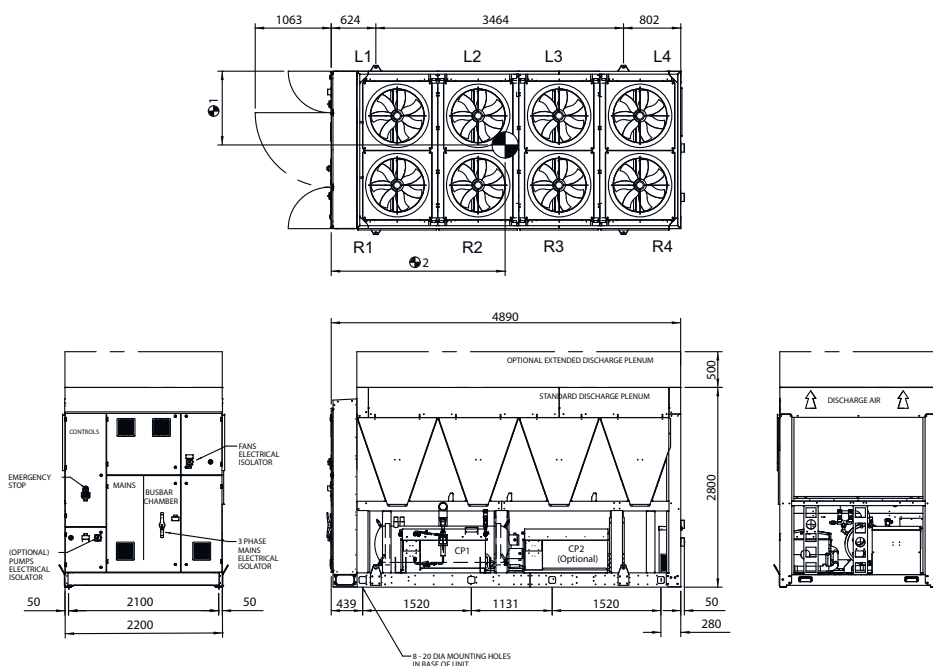
Unit Nomenclature	Machine Weight (kg)	Operating Weight (kg)	CofG 2	CofG 1
TCF11R06G-07	4145	4565	1850	1170
TCF11R08G-07	4960	5470	2360	1110
TCF12R08G-09	5610	6010	2390	1130
TCF12R10G-05	6700	7395	2830	1120
TCF12R12G-05	7585	8400	3240	1120
TCF12R14G-05	8450	9390	3900	1110
TCF22R10G-22	6730	7460	2820	1090
TCF22R12G-22	7610	8440	3230	1090
TCF22R14G-22	8520	9490	3970	1080
TCF23R12G-24	8880	9900	3380	1080
TCF23R14G-24	9780	10910	4050	1080
TCF23R16G-25	10710	11990	4450	1070
TCF23R18G-25	11510	12850	5100	1070
TCF24R16G-26	12090	13870	4610	1070
TCF24R18G-26	13000	14950	5090	1060
TCF24R20G-26	13990	16150	5780	1050
TCF24R22G-27	14810	17100	6610	1040
TCF24R24G-27	15800	18340	6880	1040
TCF11X06G-07	4145	4565	1850	1170
TCF11X08G-07	4960	5470	2360	1110
TCF12X08G-09	5610	6010	2390	1130
TCF12X10G-05	6700	7395	2830	1120
TCF12X12G-05	7585	8400	3240	1120
TCF12X14G-05	8450	9390	3900	1110
TCF22X10G-22	6730	7460	2820	1090
TCF22X12G-22	7610	8440	3230	1090
TCF22X14G-22	8520	9490	3970	1080
TCF23X12G-24	8880	9900	3380	1080
TCF23X14G-24	9780	10910	4050	1080
TCF23X16G-25	10710	11990	4450	1070
TCF23X18G-25	11510	12850	5100	1070
TCF24X16G-26	12090	13870	4610	1070
TCF24X18G-26	13000	14950	5090	1060
TCF24X20G-26	13990	16150	5780	1050
TCF24X22G-27	14810	17100	6610	1040
TCF24X24G-27	15800	18340	6880	1040

Centre of gravity is always measured from the control panel end.

Above refers to standard configurations, contact Airedale for other options.

Installation Data

Point Loadings - Air Cooled

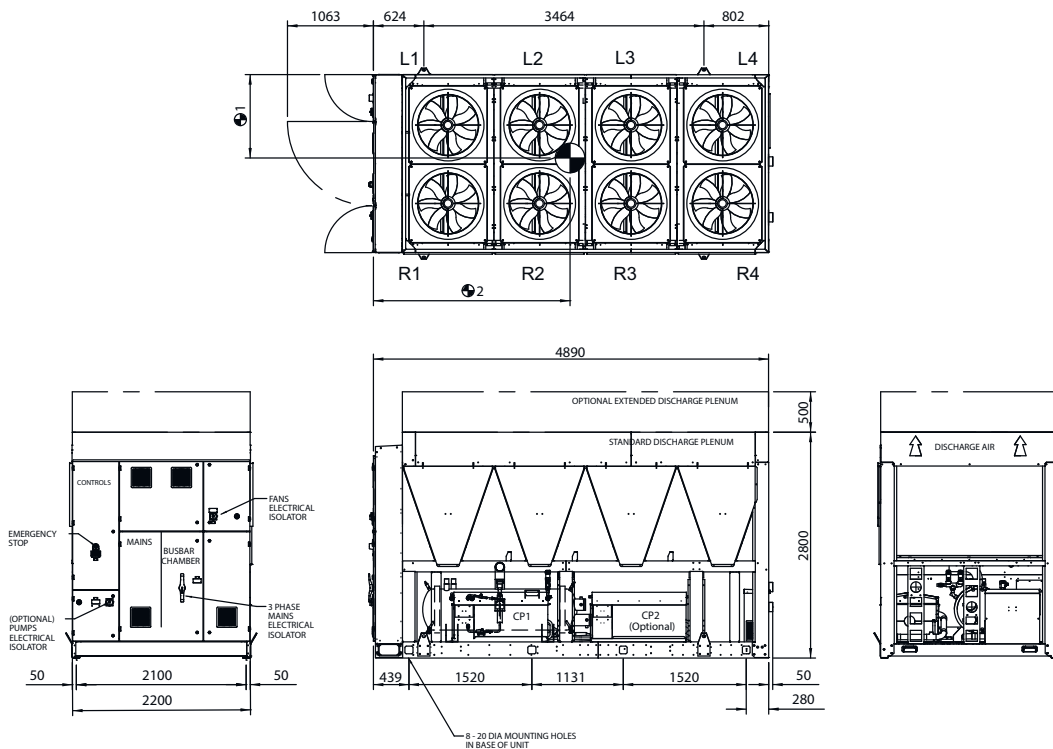


Unit Nomenclature	Standard Unit Point loads												CofG 2	CofG 1
	L1 (kg)	L2 (kg)	L3 (kg)	L4 (kg)	L5 (kg)	L6 (kg)	R7 (kg)	R2 (kg)	R3 (kg)	R4 (kg)	R5 (kg)	R6 (kg)		
TCC11R04G-01	710	660	NA	NA	NA	NA	760	735	NA	NA	NA	NA	1350	1150
TCC11R06G-01	645	585	450	NA	NA	NA	690	640	480	NA	NA	NA	1760	1140
TCC11R08G-01	610	500	450	415	NA	NA	645	540	485	435	NA	NA	2280	1130
TCC12R08G-04	665	585	570	505	NA	NA	725	665	655	565	NA	NA	2360	1160
TCC12R10G-04	745	680	630	575	NA	NA	815	765	705	630	NA	NA	2750	1150
TCC12R12G-04	840	760	700	640	NA	NA	915	845	775	690	NA	NA	3140	1150
TCC12R14G-04	805	730	665	585	460	NA	900	860	750	565	460	NA	3640	1140
TCC22R08G-14	655	605	575	490	NA	NA	715	695	665	540	NA	NA	2350	1160
TCC22R10G-14	750	710	635	545	NA	NA	820	805	715	585	NA	NA	2710	1150
TCC22R12G-14	855	790	705	600	NA	NA	925	880	790	645	NA	NA	3090	1150
TCC22R14G-14	790	710	645	585	535	NA	850	780	715	640	570	NA	3810	1140
TCC23R12G-17	870	900	875	750	NA	NA	970	1030	1000	830	NA	NA	3240	1160
TCC23R14G-17	825	800	770	695	625	NA	915	910	875	770	670	NA	3900	1160
TCC23R16G-17	910	870	830	755	665	NA	995	975	935	840	720	NA	4260	1150
TCC23R18G-17	790	730	740	745	695	640	865	815	825	825	760	680	4940	1150
TCC24R16G-18	895	855	865	810	720	NA	1010	1005	1010	945	805	NA	4370	1170
TCC24R18G-18	835	780	770	750	690	635	940	905	900	865	785	690	4860	1170
TCC24R20G-18	870	805	825	810	760	705	960	925	950	930	865	775	5540	1160
TCC24R22G-18	915	845	870	875	815	770	995	955	1005	1000	915	850	6360	1160
TCC24R24G-18	980	905	925	920	865	810	1065	1020	1060	1045	965	880	6620	1160

Above refers to standard configurations, No bypass pipework option, contact Airedale for other options.

Installation Data

Point Loadings - Air Cooled

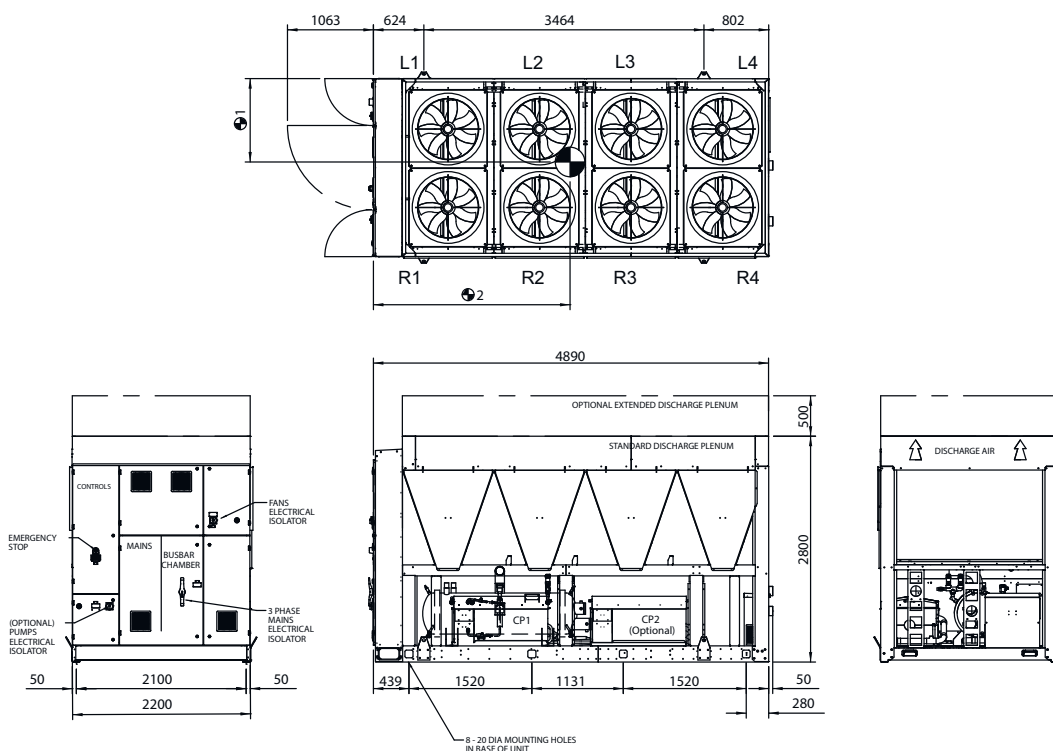


Unit Nomenclature	Standard Unit Point loads												CofG 2	CofG 1
	L1 (kg)	L2 (kg)	L3 (kg)	L4 (kg)	L5 (kg)	L6 (kg)	R7 (kg)	R2 (kg)	R3 (kg)	R4 (kg)	R5 (kg)	R6 (kg)		
TCC11X04G-01	710	660	NA	NA	NA	NA	760	735	NA	NA	NA	NA	1350	1150
TCC11X06G-01	645	585	450	NA	NA	NA	690	640	480	NA	NA	NA	1760	1140
TCC11X08G-01	610	500	450	415	NA	NA	645	540	485	435	NA	NA	2280	1130
TCC12X08G-04	665	585	570	505	NA	NA	725	665	655	565	NA	NA	2360	1160
TCC12X10G-04	745	680	630	575	NA	NA	815	765	705	630	NA	NA	2750	1150
TCC12X12G-04	840	760	700	640	NA	NA	915	845	775	690	NA	NA	3140	1150
TCC12X14G-04	805	730	665	585	460	NA	900	860	750	565	460	NA	3640	1140
TCC22X08G-14	655	605	575	490	-	-	715	695	665	540	-	-	2350	1160
TCC22X10G-14	750	710	635	545	-	-	820	805	715	585	-	-	2710	1150
TCC22X12G-14	855	790	705	600	-	-	925	880	790	645	-	-	3090	1150
TCC22X14G-14	790	710	645	585	535	-	850	780	715	640	570	-	3810	1140
TCC23X12G-17	870	900	875	750	-	-	970	1030	1000	830	-	-	3240	1160
TCC23X14G-17	825	800	770	695	625	-	915	910	875	770	670	-	3900	1160
TCC23X16G-17	910	870	830	755	665	-	995	975	935	840	720	-	4260	1150
TCC23X18G-17	790	730	740	745	695	640	865	815	825	825	760	680	4940	1150
TCC24X16G-18	895	855	865	810	720	-	1010	1005	1010	945	805	-	4370	1170
TCC24X18G-18	835	780	770	750	690	635	940	905	900	865	785	690	4860	1170
TCC24X20G-18	870	805	825	810	760	705	960	925	950	930	865	775	5540	1160
TCC24X22G-18	915	845	870	875	815	770	995	955	1005	1000	915	850	6360	1160
TCC24X24G-18	980	905	925	920	865	810	1065	1020	1060	1045	965	880	6620	1160

Above refers to standard configurations, No bypass pipework option, contact Airedale for other options.

Installation Data

Point Loadings Freecool



Unit Nomenclature	Standard Unit Point loads												CofG 2	CofG 1
	L1 (kg)	L2 (kg)	L3 (kg)	L4 (kg)	L5 (kg)	L6 (kg)	R7 (kg)	R2 (kg)	R3 (kg)	R4 (kg)	R5 (kg)	R6 (kg)		
TCF11R06G-07	770	735	615	NA	NA	NA	850	860	735	NA	NA	NA	1850	1170
TCF11R08G-07	765	685	660	595	NA	NA	785	710	670	600	NA	NA	2360	1110
TCF12R08G-09	800	730	720	655	NA	NA	845	790	780	690	NA	NA	2390	1130
TCF12R10G-05	955	925	910	835	NA	NA	1000	975	940	855	NA	NA	2830	1120
TCF12R12G-05	1090	1050	1025	945	NA	NA	1145	1110	1065	970	NA	NA	3240	1120
TCF12R14G-05	955	1000	990	935	760	NA	1045	1095	1030	860	720	NA	3900	1110
TCF22R10G-22	945	985	985	840	NA	NA	980	995	940	790	NA	NA	2820	1090
TCF22R12G-22	1080	1110	1105	950	NA	NA	1115	1115	1065	895	NA	NA	3230	1090
TCF22R14G-22	1015	1005	1000	955	850	NA	1030	995	955	890	795	NA	3970	1080
TCF23R12G-24	1115	1285	1390	1235	NA	NA	1160	1280	1305	1125	NA	NA	3380	1080
TCF23R14G-24	1075	1145	1200	1140	1000	NA	1105	1140	1140	1045	915	NA	4050	1080
TCF23R16G-25	1200	1250	1320	1280	1095	NA	1215	1230	1240	1160	995	NA	4450	1070
TCF23R18G-25	1050	1055	1135	1200	1140	1020	1065	1040	1080	1105	1030	925	5100	1070
TCF24R16G-26	1260	1375	1560	1610	1355	NA	1290	1355	1450	1415	1195	NA	4610	1070
TCF24R18G-26	1195	1250	1355	1420	1350	1175	1210	1230	1275	1275	1180	1030	5090	1060
TCF24R20G-26	1265	1335	1480	1590	1505	1320	1240	1265	1350	1375	1285	1135	5780	1050
TCF24R22G-27	1330	1410	1585	1715	1570	1430	1285	1315	1420	1465	1340	1235	6610	1040
TCF24R24G-27	1455	1530	1705	1830	1710	1505	1395	1415	1515	1550	1440	1290	6880	1040

Above refers to standard configurations, No bypass pipework option, contact Airedale for other options.

Installation Data

Unit Lifting

- Employ lifting specialists
- Local codes and regulations relating to the lifting of this type of equipment should be observed
- Use the lifting eye bolts/lifting lugs provided
- Attach lifting chains to each of the lifting eye bolts/lifting lugs provided; each chain and eye bolt must be capable of lifting the whole chiller
- Lifting hole / lug dimension: 40mm
- Use the appropriate spreader bars/lifting slings with the holes/lugs provided
- Lift the unit slowly and evenly
- If the unit is dropped, it should immediately be checked for damage and reported to Airedale

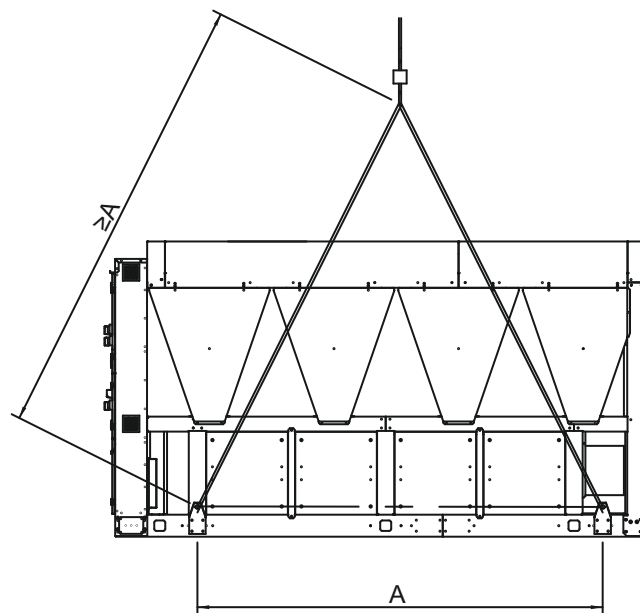
CAUTION

Only use lifting points provided.

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

Lifting Dimensions

4 Point

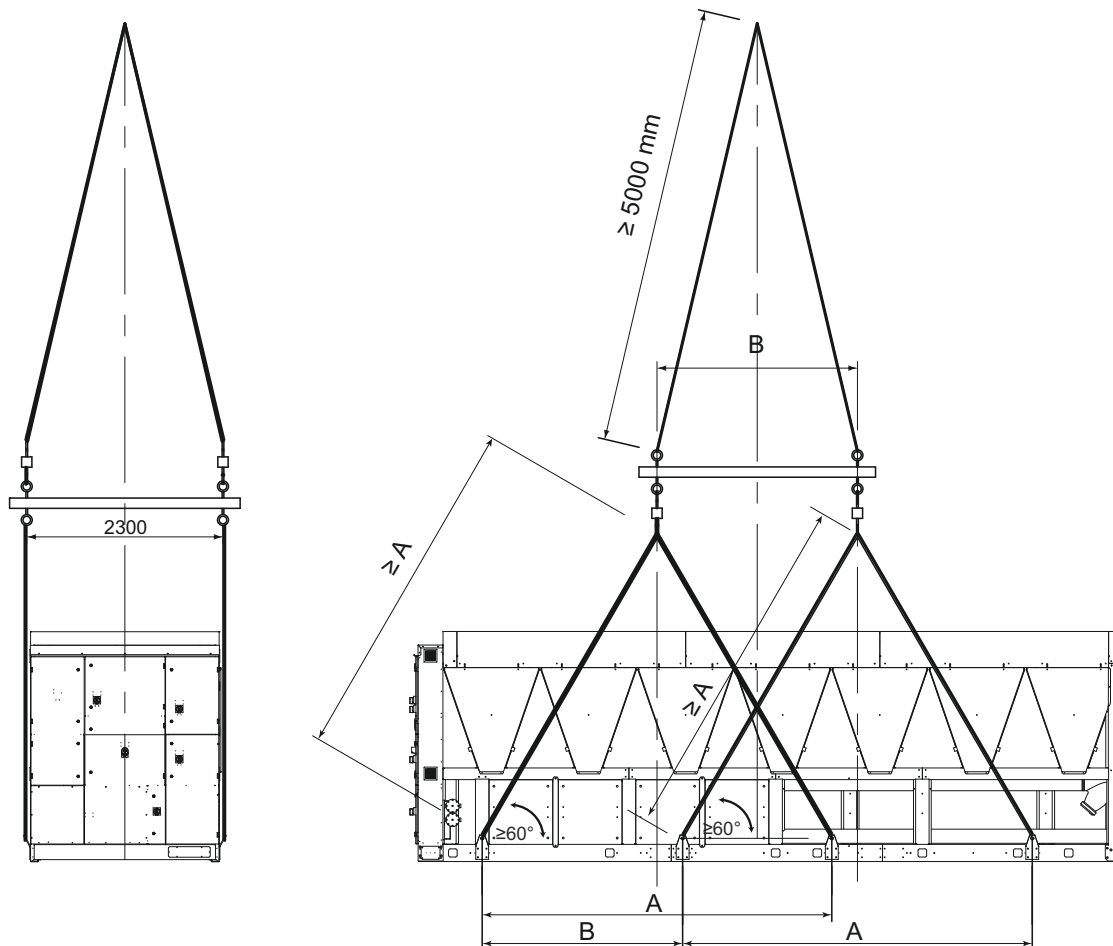


Number of Fans	A (mm)
4	1533
6	2332
8	3464
10	4077

Installation Data

Lifting Dimensions

8 Point

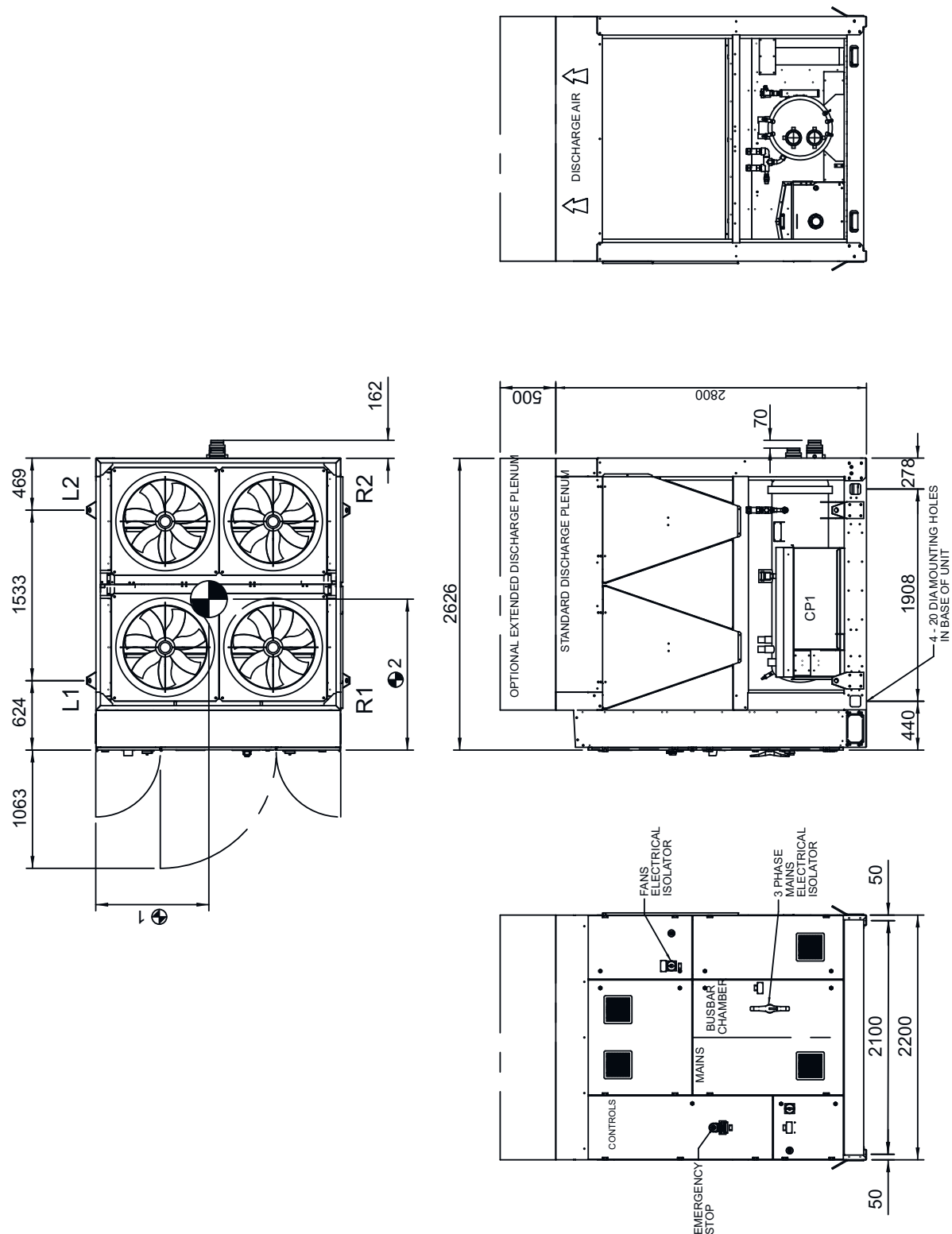


Number of Fans	Single Circuit Machines		Dual Circuit Machines	
	A (mm)	B (mm)	A (mm)	B (mm)
12	3600	1536	3600	1490
14	4500	1536	4500	1536
16	4300	3100	4300	3100
18	5500	2800	5200	2968
20	6500	3164	6500	3139
22	—	—	6650	3966
24	—	—	6650	4950

Installation Data

General Arrangement Drawings

4 Fan



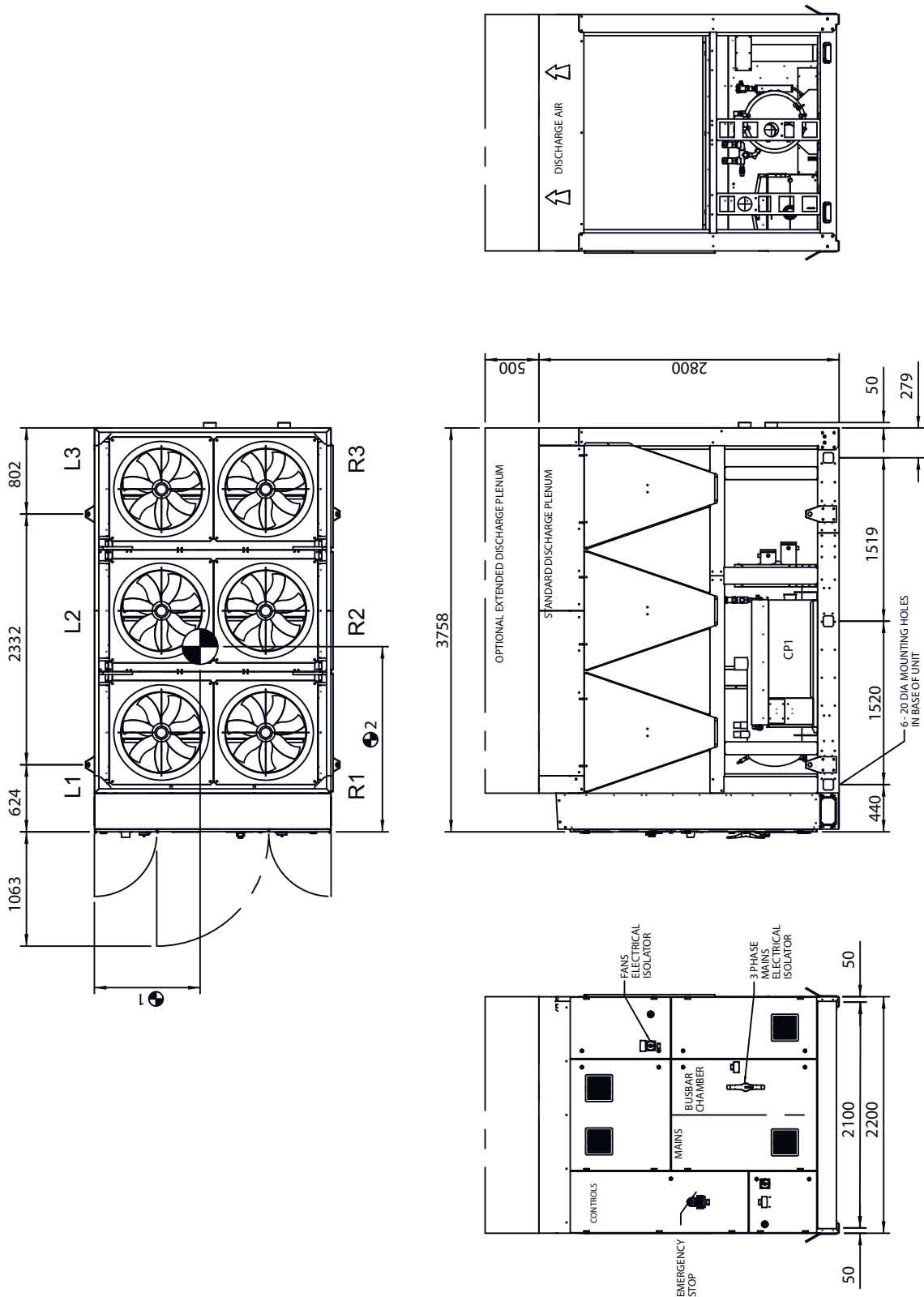
Installation

Installation Data

General Arrangement Drawings

6 Fan

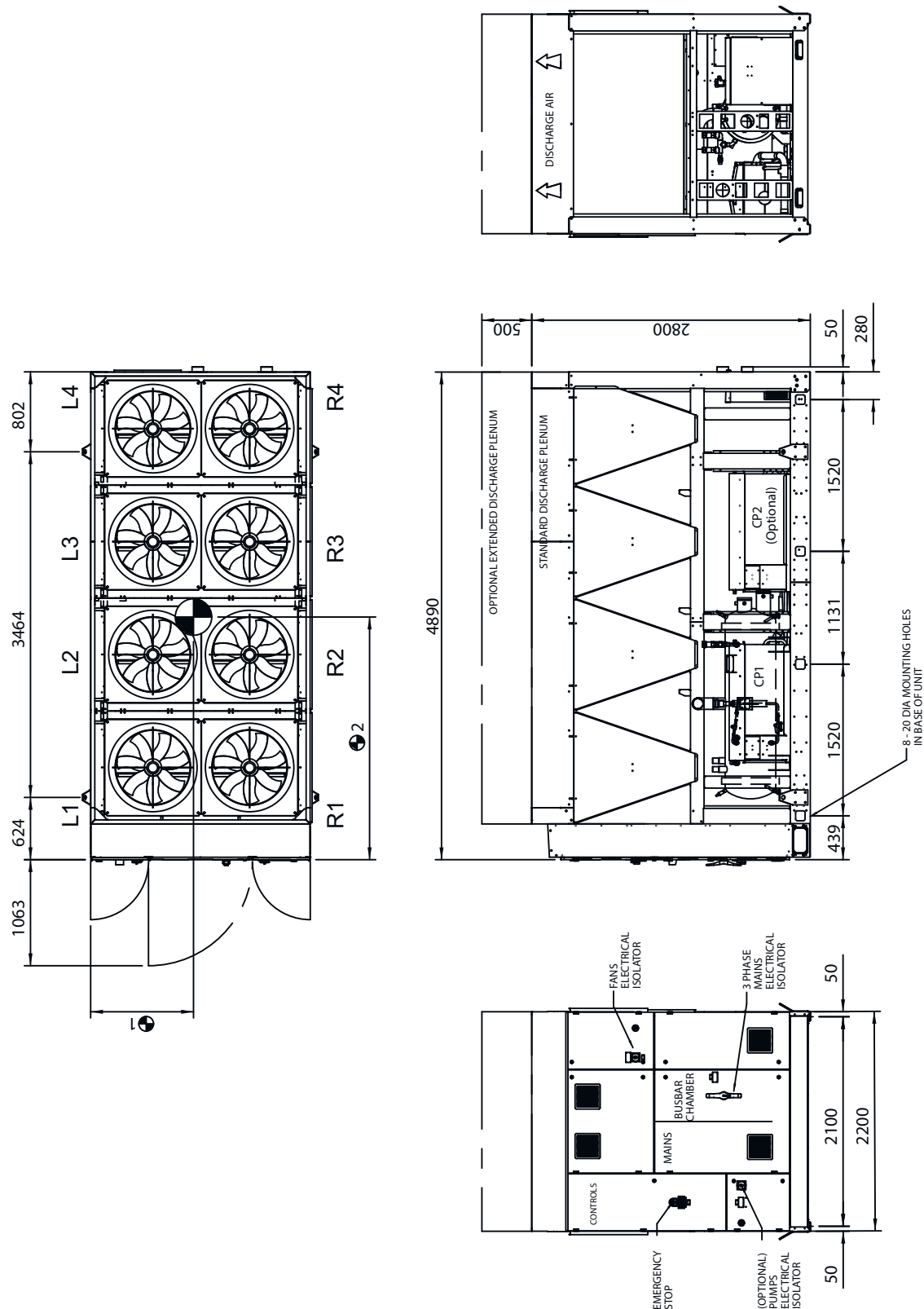
Installation



Installation Data

General Arrangement Drawings

8 Fan



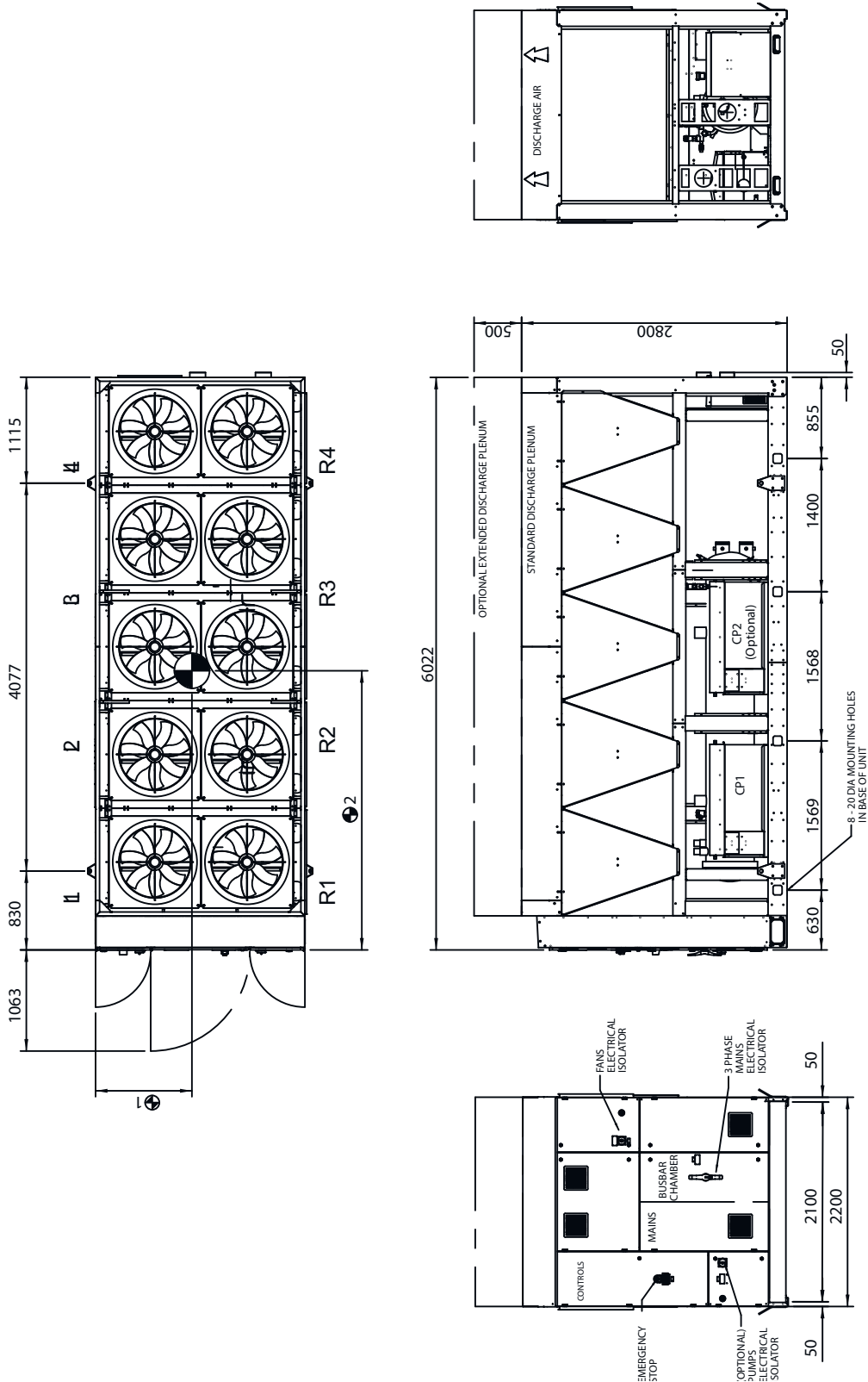
Installation

Installation Data

General Arrangement Drawings

10 Fan

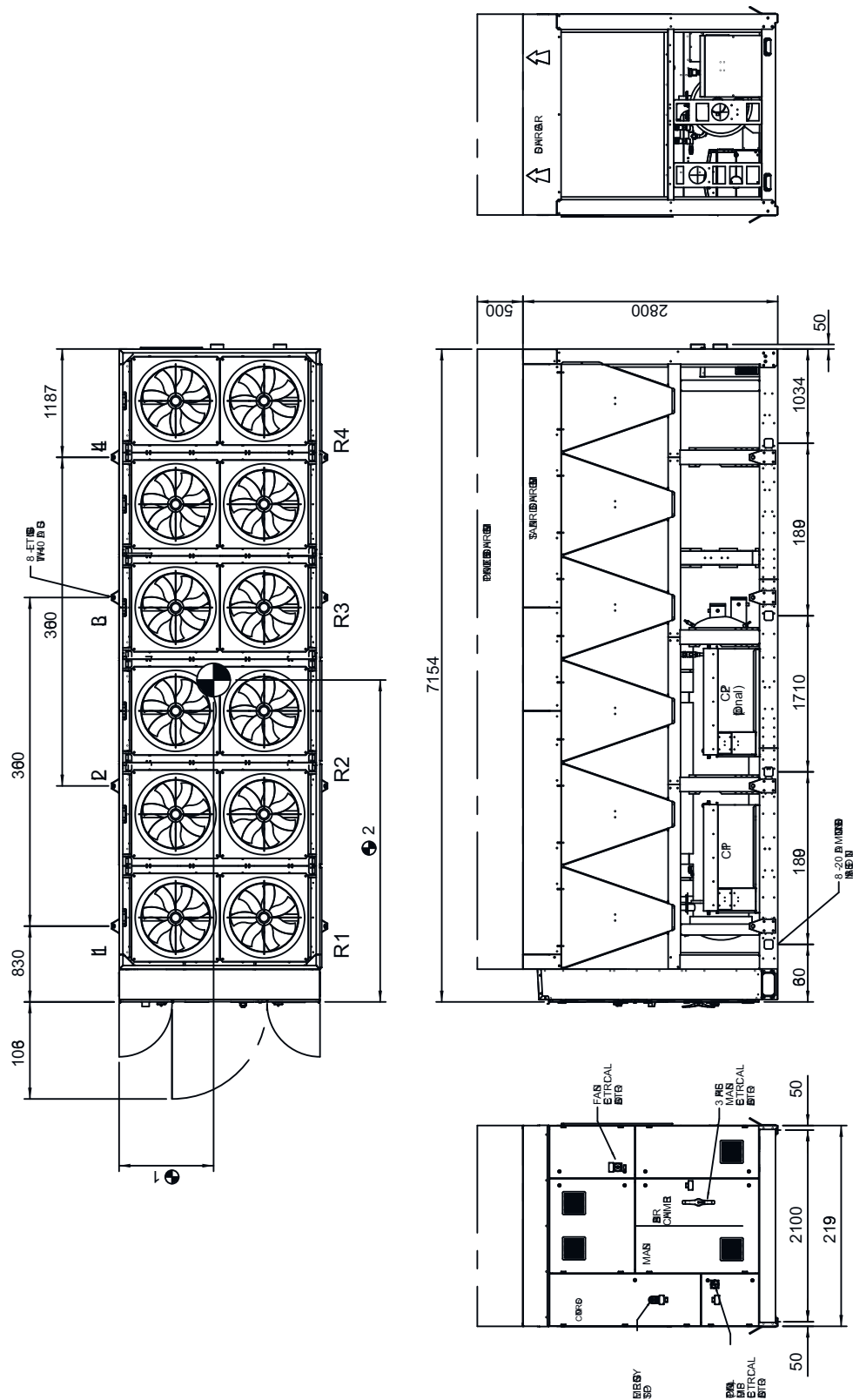
Installation



Installation Data

General Arrangement Drawings

12 Fan



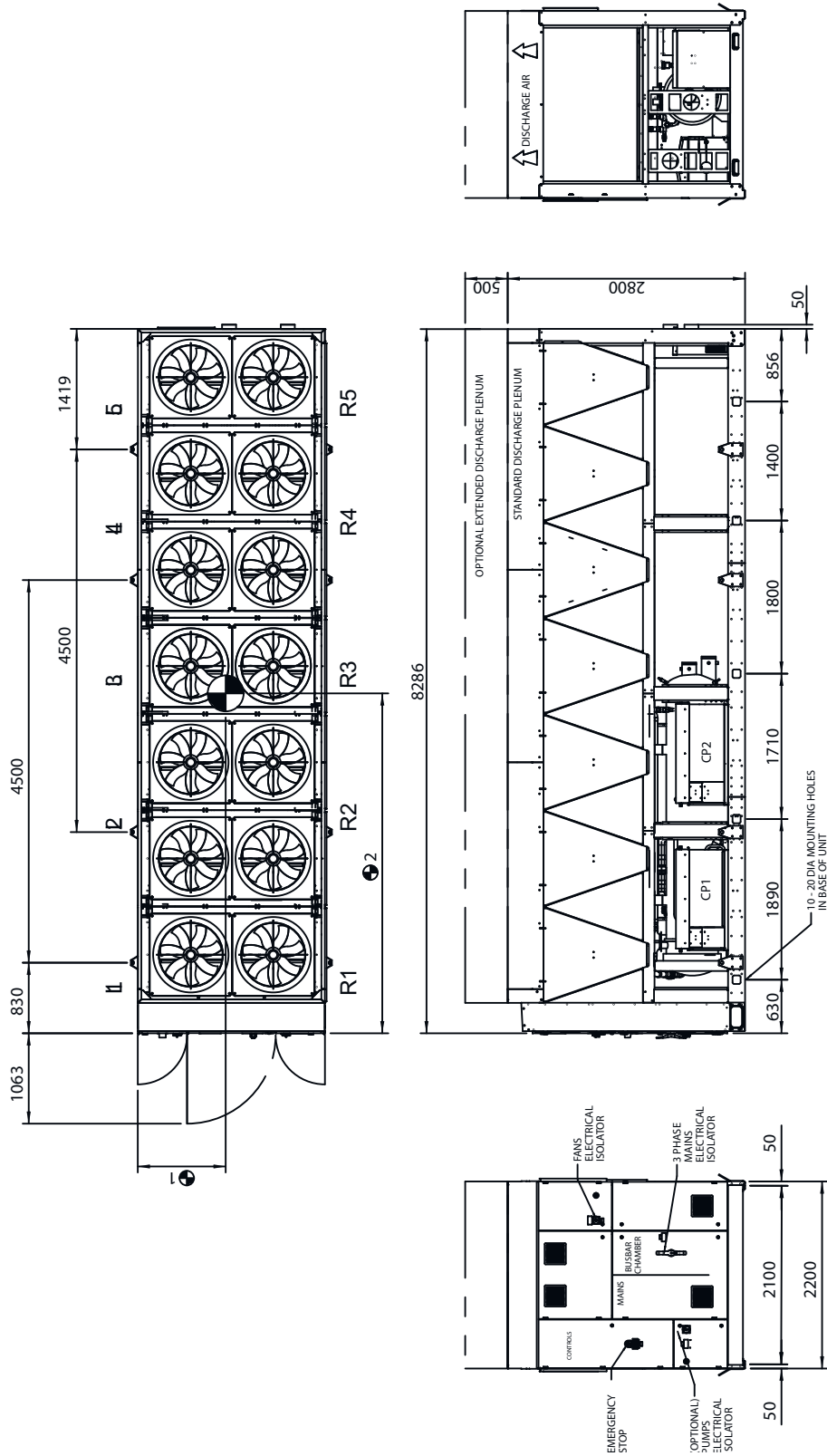
Installation

Installation Data

General Arrangement Drawings

14 Fan Single circuit

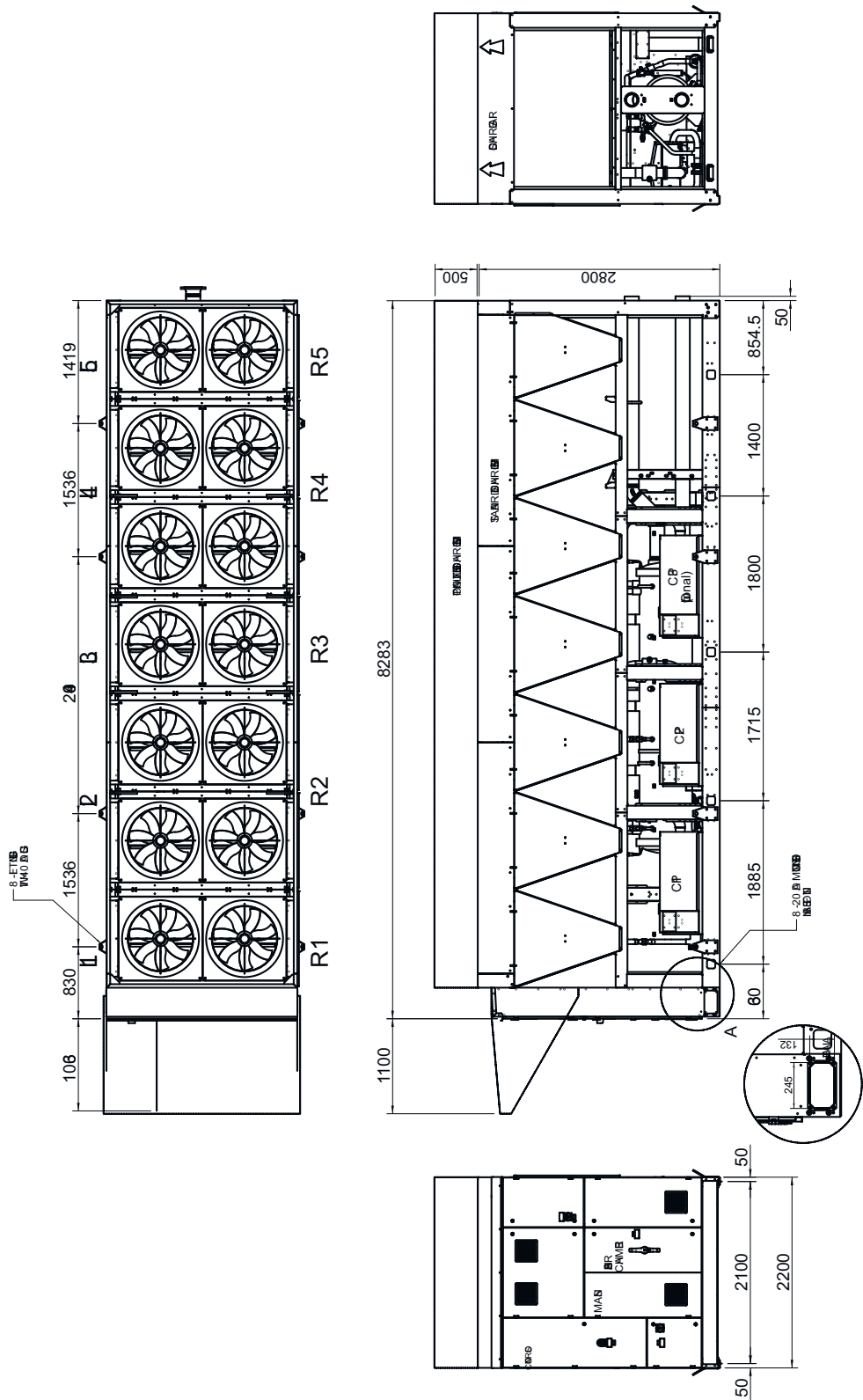
Installation



Installation Data

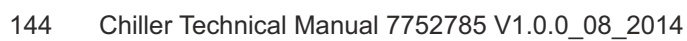
General Arrangement Drawings

14 Fan Dual Circuit



General Arrangement Drawings

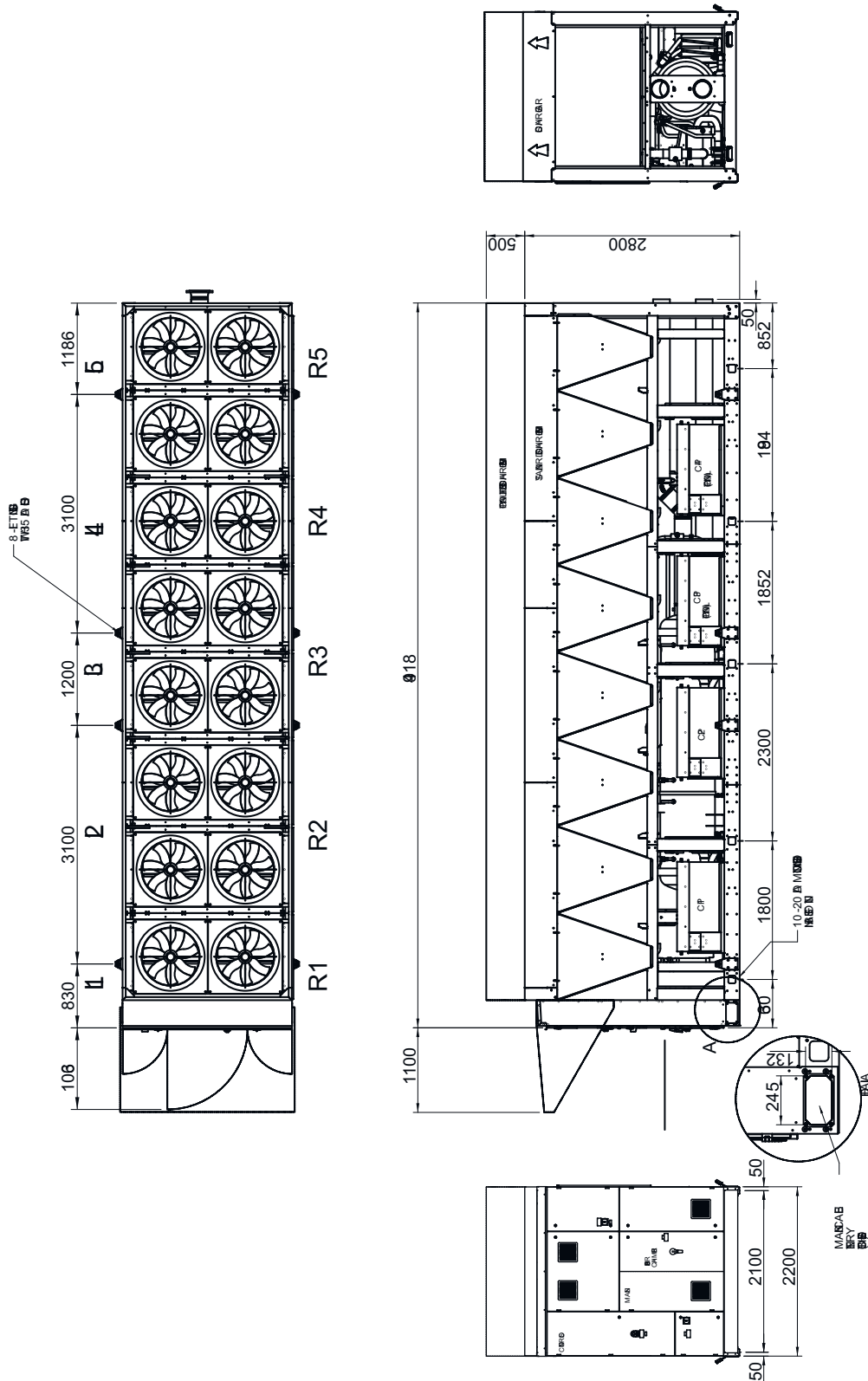
Installation



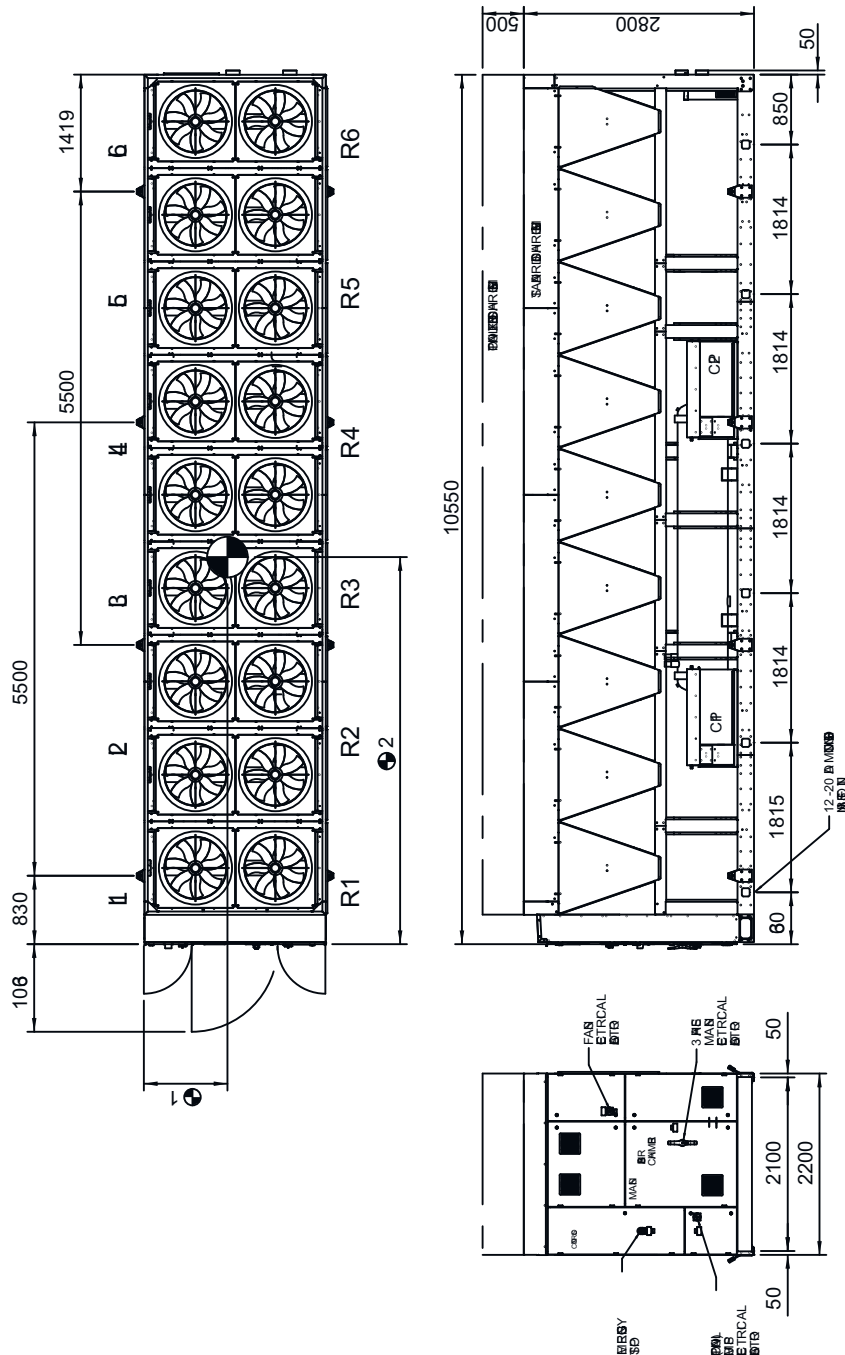
Installation Data

General Arrangement Drawings

16 Fan Dual Circuit



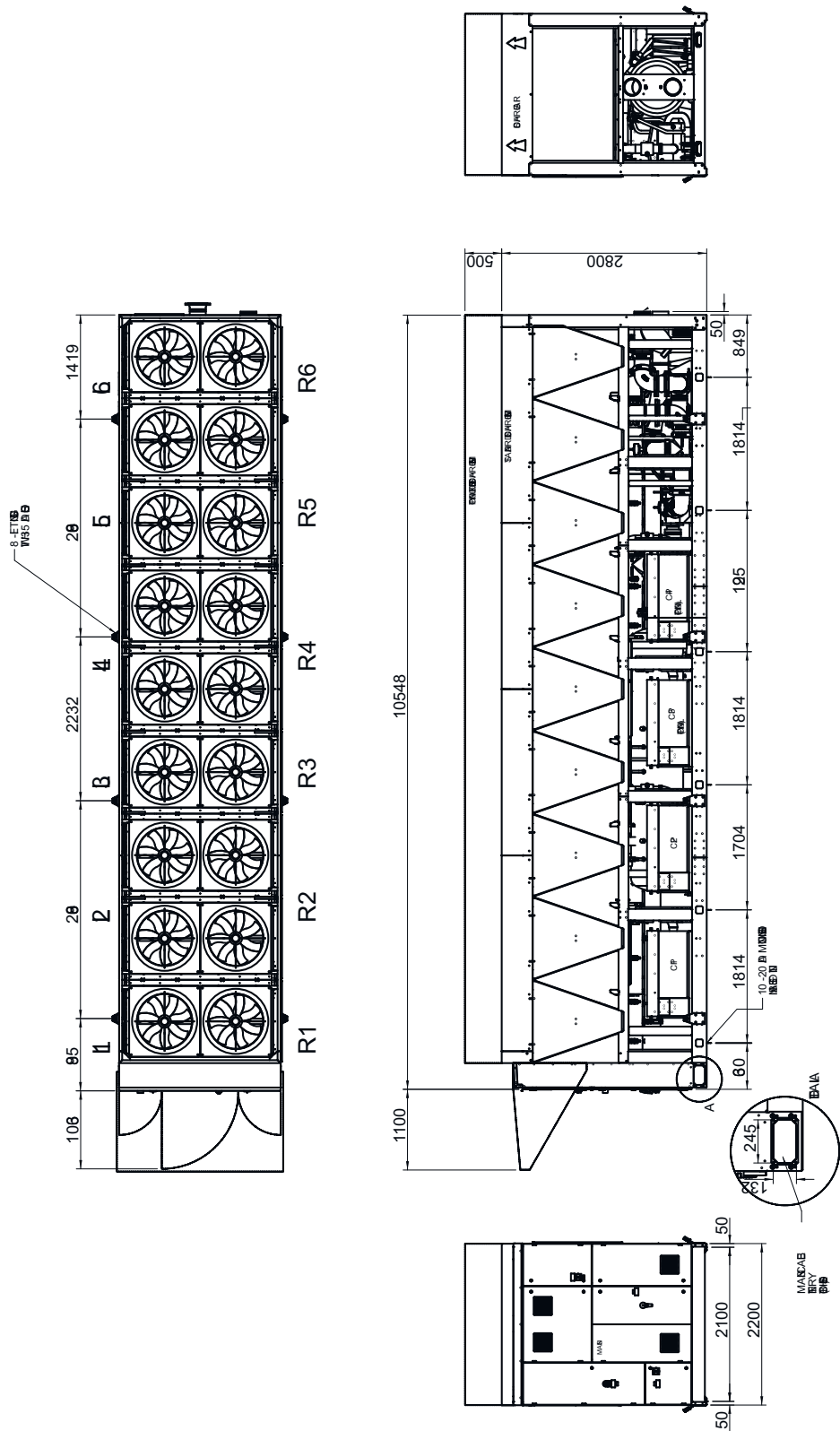
General Arrangement Drawings



Installation Data

General Arrangement Drawings

18 Fan Dual Circuit



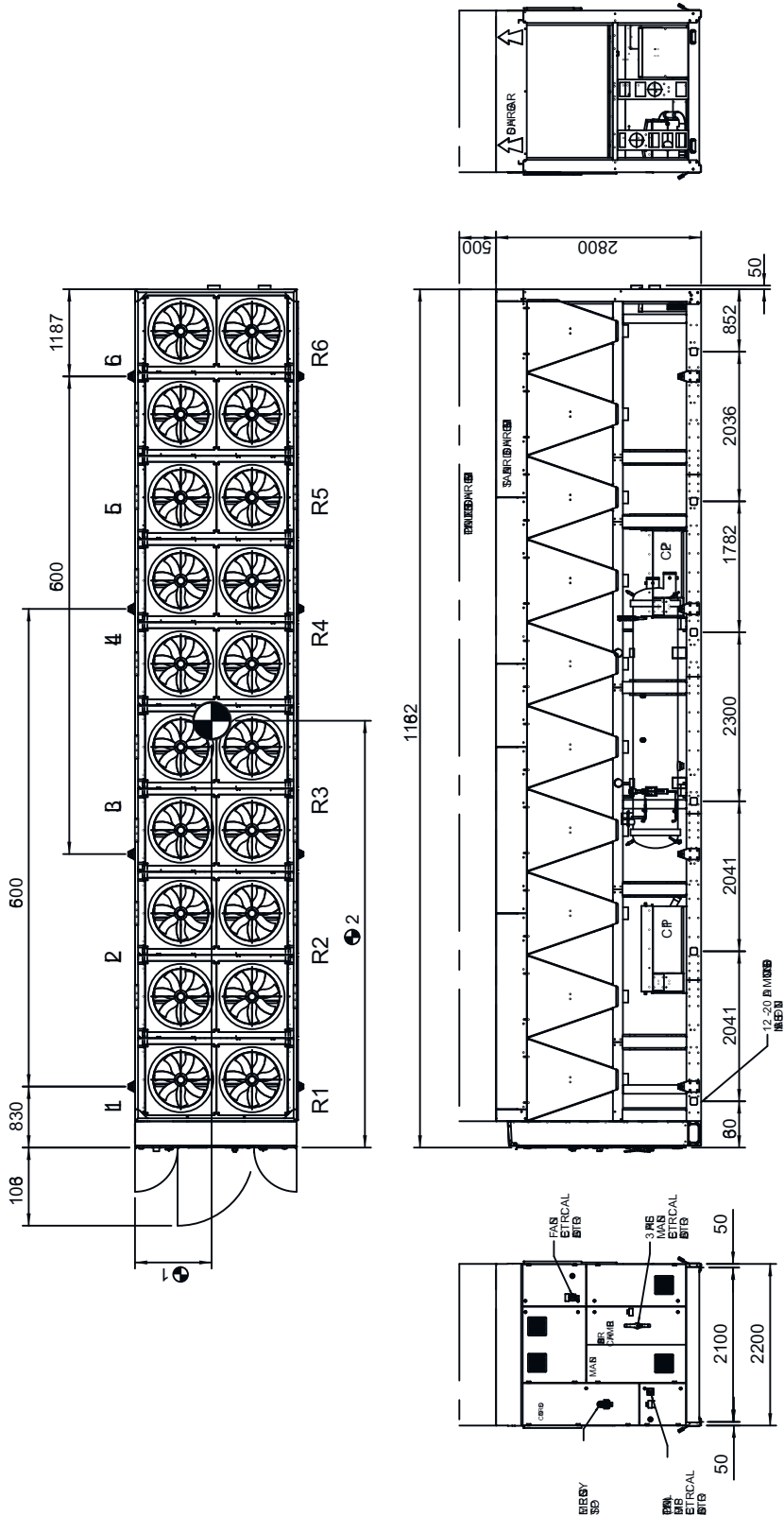
Installation

Installation Data

General Arrangement Drawings

20 Fan Single Circuit

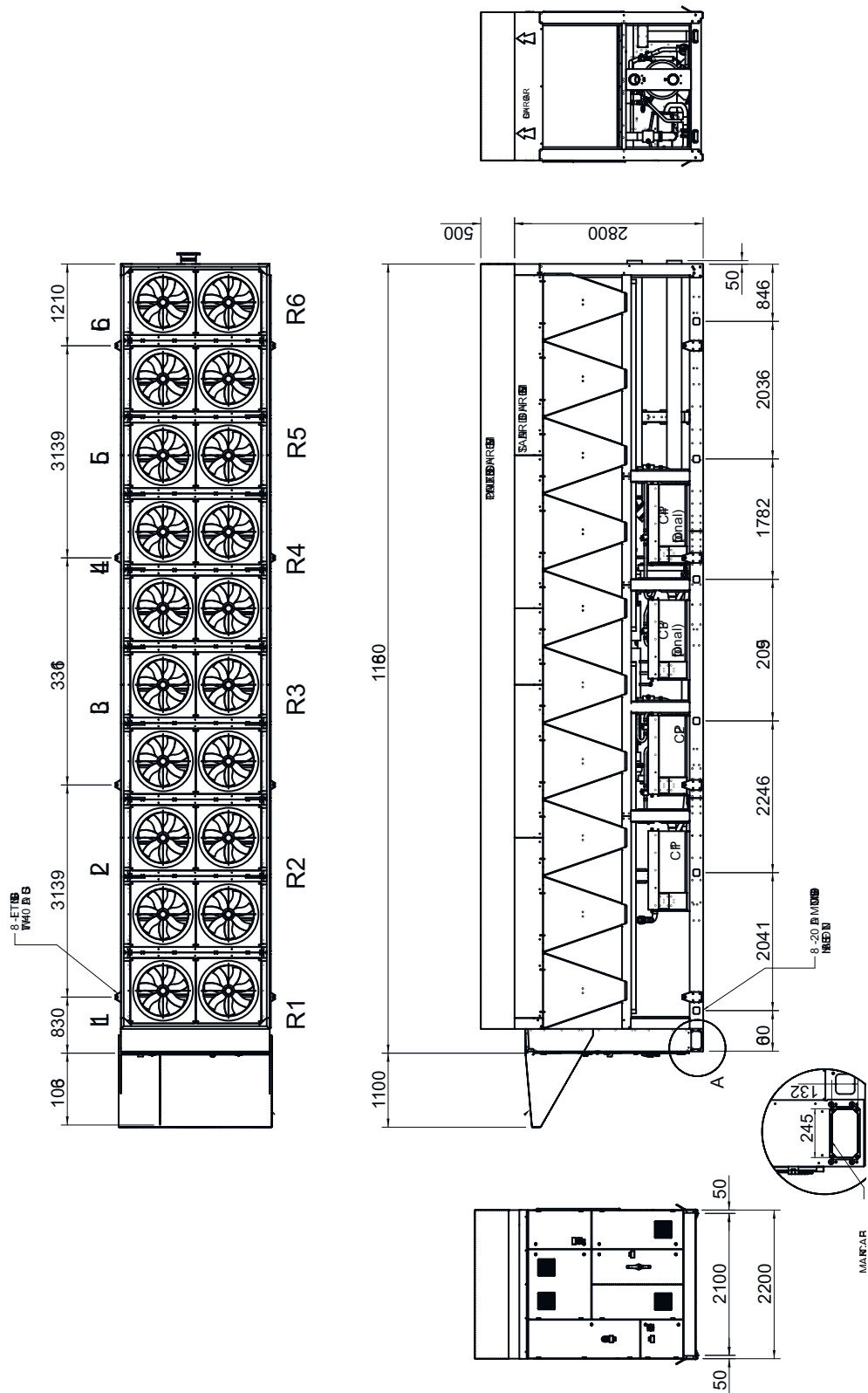
Installation



Installation Data

General Arrangement Drawings

20 Fan Dual Circuit



Installation

22 Fan



24 Fan



Installation Data

Positioning

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

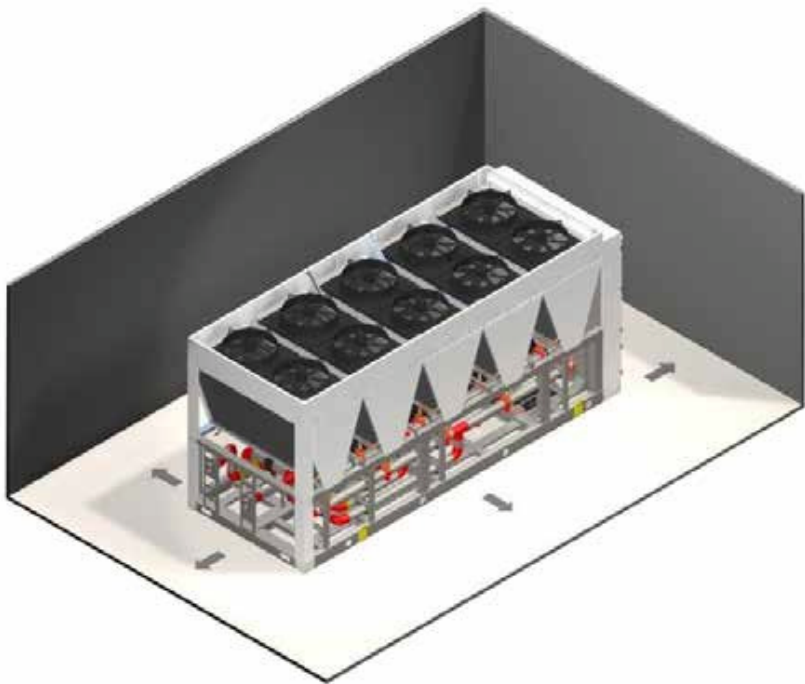
- Position on a stable and even base, levelled to ensure that the compressor operates correctly
- Levelling should be to +/- 5mm
- Where vibration transmission to the building structure is possible, fit spring anti-vibration mounts and flexible water connections
- Observe airflow and maintenance clearances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



The chiller must not be located near any fresh air vents to buildings to ensure that in the event of a refrigerant leak no risk exists. Care must also be taken near drains.
The pressure relief valve discharge must be away from high voltage equipment.

Airflow & Maintenance Clearances

Installation



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

Installation Data

Anti Vibration Mounting (Optional)

Spring Type

Each mount is coloured to indicate the different loads, refer to instructions supplied for correct allocation.

Dimensions

	A(1)	B	C	D	E	F
TCC / TCF Units	180	130	225	186	20	16

(1) Unloaded dimension

Components

- 1

Locating Screw
- 2

Retaining Nut & Washer
- 3

Levelling Screw
- 4

Levelling Lock Nut
- 5

Retaining Studs
- 6a

Upper Retaining Nuts
- 6b

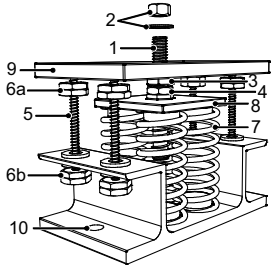
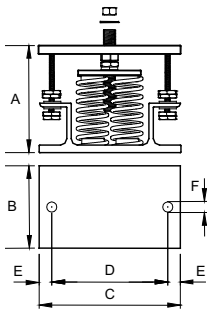
Lower Retaining Nuts
- 7

Spring Assembly
- 8

Pressure Plate
- 9

Top Plate
- 10

Bolting-down Holes



Installation

1. Locate and secure mount using bolting down holes (10) in base plate.
2. Ensure mounts are located in line with the unit base.
3. If applicable, remove compressor enclosure covers to allow access to mount fixing holes in the unit base.
4. Lock the upper retaining nuts (6a) to the underside of the top plate (9) before a load is applied.
5. Slacken levelling lock nut (4). (the levelling screw will not move if this is not slackened)
6. Remove retaining nut and washer (2), lower the unit onto the mounts and replace retaining nut and washer.

Beginning with the mount with the largest deflection adjust the height of each mount using the levelling screw (3).

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

WHEN ALL MOUNTS ARE LEVEL, LOCK EACH INTO PLACE USING THE LEVELLING LOCK NUT (4)

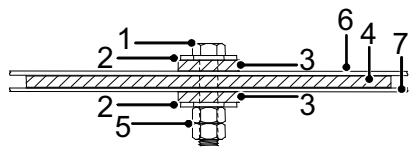
7. Lock all retaining nuts (6a and 6b) to the extreme ends of the retaining studs (5)

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

Pad Type

Components/Installation

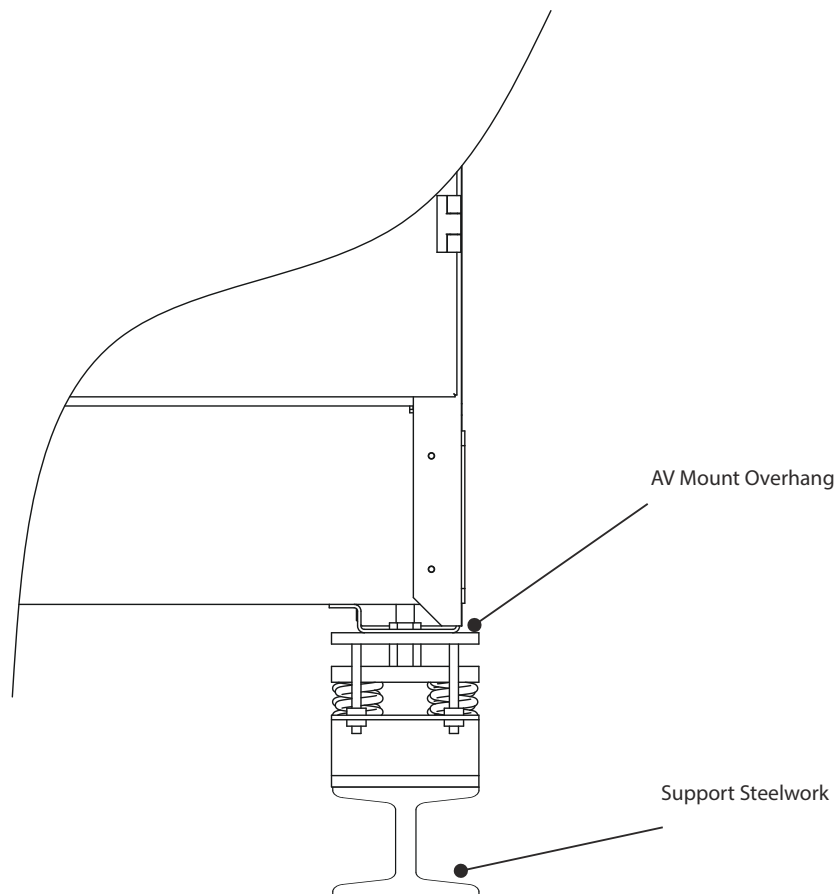
1. M16 Bolt (Not Supplied)
2. Washer (Not Supplied)
3. Fixing Pad 6173231
4. A V Pad 6173223
5. 2 x M16 Nut (Not Supplied)
6. Unit Base
7. Unit Mounting Plinth



Anti Vibration Mount location to Unit and Plinth

The Anti Vibration mount is larger than the unit base. Consideration must be made with regard to steelwork / concrete plinth sizes. Full information is available on the approved General Arrangement drawings.

The base of the unit is open. Considerations must be made for service and maintenance requirements if the unit is installed on a gantry.



Installation Data

Interconnecting Wiring

General

As standard the equipment is designed for 400V, 3 phase, 3 wire 50Hz and a separate permanent 230V, 1 phase, 50Hz supply, to all relevant IEE regulations, British standards and IEC requirements.

The control voltage to the interlocks is 24V, always size the low voltage interlock and protection cabling for a maximum voltage drop of 2V.

Avoid large voltage drops on cable runs, particularly low voltage wiring.

CAUTION

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

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

A separately fused permanent single phase and neutral supply **MUST BE FITTED** for the evaporator trace heating and control circuits and for the leak detection and ventilation systems to work in the event of a leak being detected.

FAILURE to do so will INVALIDATE WARRANTY.

CAUTION

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



Isolate **REMOTELY** the mains incoming supply to the BUSBAR chamber prior to maintenance or repair work.

TURBOCHILL		L1	○	←	Mains Incoming 3 pply 400V/3PH/50Hz (Direct to 3 Phase Isolator)
		L2	○	←	
		L3	○	←	
		E	○	←	
		L4	○	←	Separate Permanent Supply 230V/1PH/50Hz (UPS backup by others Direct to Control Panel Isolator)
		N	○	←	
		E	○	←	External Trace Heating Connections 240V/500W max
		L4	○	→	
		N	○	→	
		502	○	→	(1) Remote Pump Interlock 24VAC
		508	○	←	
		502	○	→	(1) Evaporator Pump Water Flow Switch 24VAC
		506	○	←	
		502	○	→	Unit Remote On/Off 24VAC
		507	○	←	
		502	○	→	Setback Setpoint Temperature Switch
		510	○	←	
		581	○	←	Non-Critical Alarm
		580	○	→	
		582	○	→	
		561	○	←	Critical Alarm
		560	○	→	
		562	○	→	
		RX-/Tx-	○	←	IN
		RX+/Tx+	○	←	
		GND	○	←	
		RX-/Tx-	○	→	OUT
		RX+/Tx+	○	→	
		GND	○	→	

Power Quality & Harmonics

Variable speed drives are now common place due to their efficiency and versatility. Not ignoring these facts, care must be taken when installing VSD technology into new and existing installations. This is due to the effect the introduction of such technology may have on line harmonics of a buildings electrical system. VSDs by their nature cause distortion of the AC line by drawing current in pulses, rather than continuously from the supply resulting in harmonic generation. The useful power to a motor is that obtained from the fundamental frequency of 50Hz. The additional currents at the higher frequencies are not useful to the appliance and are therefore transmitted back onto the line.

Examples of other non-linear loads that cause harmonics are:-

Single phase loads

- Switched mode power supplies
- Personal computers
- HF fluorescent ballasts
- Compact fluorescent lamps

Three phase loads

- Variable frequency drives
- Inverters
- Large UPS systems

The distortion of the line caused by harmonics can cause the following associated issues:-

- Erroneous operation of control systems
- Nuisance tripping of circuit breakers
- Overloading of transformers
- Overloading of capacitors
- Overvoltage problems
- Excessive currents in neutral conductor

The 3rd, 5th, 7th and 9th harmonics are considered to be the predominant frequencies produced by non-linear loads. To minimize the harmonic effect, each Turbocor compressor is fitted with a 5% line reactor to help reduce the harmonics and improve the displacement power factor above 0.95⁽¹⁾. However, to further reduce the effects and to help meet limits for engineering recommendation (ER) G5/4, the following guidelines can be followed.

Current Harmonics

Harmonic currents contribute to system losses. Mitigation measures can be implemented in the following ways:

- a) Install passive/active harmonic filters
- b) Install the unit as far from the source transformer as possible

Voltage Harmonics

Harmonic voltage distortion causes disturbance to other loads and increases losses in them. Methods for harmonic voltage reduction can be achieved in the following ways:

- a) Increase the size of the supply transformer
- b) Connect the unit to a point with a high fault level (low impedance)
- c) Keep the unit as far from the point of common coupling (PCC) as possible

Engineering Recommendation G5/4

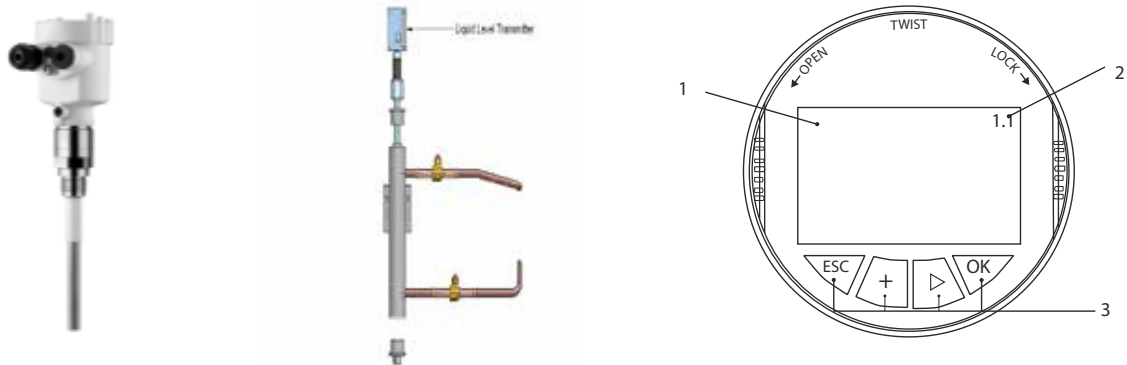
It is important to understand that G5/4 is effectively an "Installation Standard" and applies to the total harmonic generating equipment installed by a consumer. G5/4 identifies consumers by their PCC to the supply and applies limits at that point. G5/4 is not a product or equipment standard and therefore no single item of equipment can be said to comply.

Note: (1) Based at full load conditions.

Liquid Level Sensor

The liquid level sensor is designed to measure the amount of refrigerant inside the flooded evaporator of a Turbochill and send a current signal between 4 and 20mA to the microprocessor.

This signal is used by the controller to control the flow of refrigerant into the evaporator for optimal and energy efficient performance. The liquid level sensor will be calibrated and located on the evaporator upon dispatch of the unit. However in the following section there is a quick guide on how to reset and recalibrate the sensor.



OK key

- Move to the menu overview
- Confirm selected menu
- Edit parameter
- Save Values

▷ key to select

- Menu Change
- List entry
- Select editing position

+ key

- Change value of the parameter

ESC key

- Interrupt input
- Jump to the next higher menu

Setup instructions / guide	The liquid level sensor is used to monitor the level of refrigerant inside the evaporator by sending a 4 to 20mA signal to the controller. The transmitter then governs the amount of refrigerant in the evaporator.
Step 1 Apply power	To set-up the sensor, power needs to be applied. This can be done by turning on the breaker within the control panel. After power is applied the level sensor does an internal check for 30 seconds. This check includes the internal electronics, the sensor type etc. The output signal jumps briefly to the fault condition (10 seconds.)
Step 2 Minimum adjustment	Through the menu structure "Basic adjustment", select the "min adjustment". Set to 0.00% (55.30 pF)
Step 3 Maximum adjustment	Set the maximum adjustment Set to 100.00% (135.10 pF)
Step 4 Damping	Set the damping to "0". This suppresses any fluctuation in the display level.
Further information	Further information is available from Airedale upon request.

Intentionally Blank

Pre Start Checks

CAUTION

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.

Water Flow

Make sure that you have the correct water flow rate before turning the unit on. (Refer to commissioning documentation)

CAUTION

If the unit is operated without water the unit will be damaged.

Shut Off Valves

All shut off valves must be opened prior to starting unit.

Electrical Power Supply

The power supply to the unit must be correct to design. The three phase power must be of correct phase orientation. A permanent single phase supply (L4) provides power to the microprocessor and evaporator trace heater. This must be supported by a UPS.



The L4 permanent supply also provides power to the leak detector and compressor ventilation fans.

IMPORTANT

Check phase rotation of electrical supply prior to running the compressor as it's direction sensitive.

Visual Inspection

Check that the unit is of satisfactory condition and that it's not damaged.

CAUTION

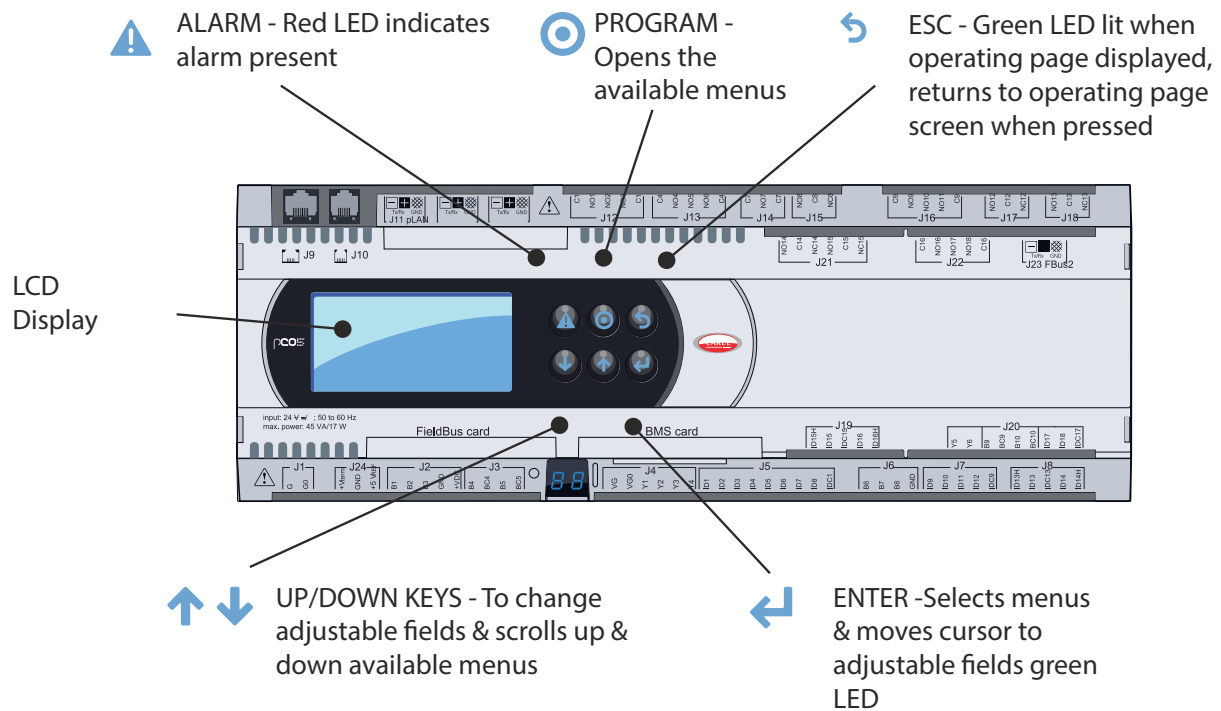
A damaged component could indicate a reason why the unit is not operating. For example: A refrigerant leak etc.

Electrical Overloads

Check that circuit breakers are all turned on. If not investigate why they have tripped. This could be the reason why the unit has turned off.

pCO₂ Built In Display and Keypad

The in-built display is equipped with LCD display (8 rows x 22 columns) with 6 buttons.

**Display/Keypad**

- 1 UP/DOWN KEYS - To change adjustable fields & scrolls up & down available menus
- 2 ENTER - Selects menus & moves cursor to adjustable fields blue led
- 3 ESC - Green LED lit when operating page displayed, returns to operating page screen when pressed
- 4 PROGRAM - Opens the available menus
- 5 ALARM - Red LED indicates alarm present
- 6 8 ROW LCD DISPLAY
- 7 CURSOR (FLASHING) Top left position = "HOME" indicates adjustable fields

Monitoring

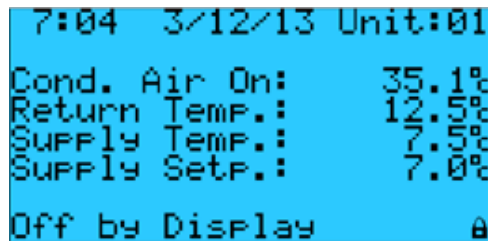
The microprocessor also monitors and displays the following measured parameters:

- Supply water temperature
- Return water temperature
- Suction pressure of each circuit
- Liquid pressure of each circuit
- Suction temperature at each circuit
- Superheat for each circuit

Unit Operation

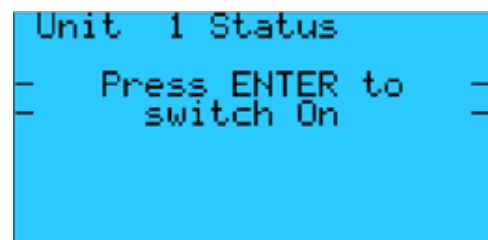
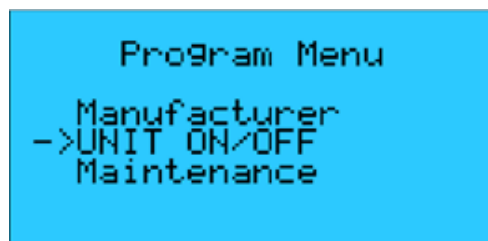
The unit must not be started unless the pre start checks have been carried out.

Restarting the Unit



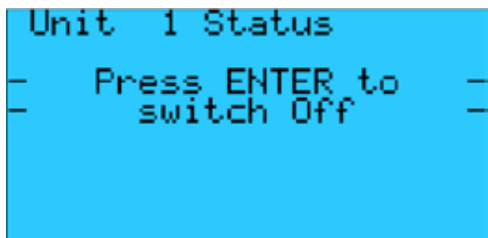
To turn the unit on press the  key to enter the program menu.

Using the  or  keys select the Unit On/Off option and press :



When  is pressed the above screen will be shown.

To turn the unit on simply press the  key again and the screen will change:



CAUTION

The chiller will be going through its start-up sequence.

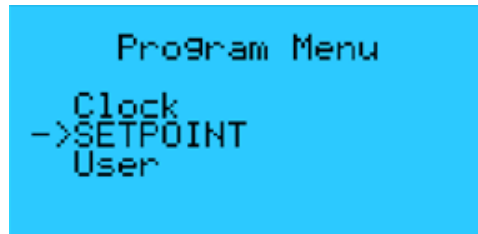
Pressing  will turn the unit off.

Once the screen has changed to the above press the  key which will return back to the main screen

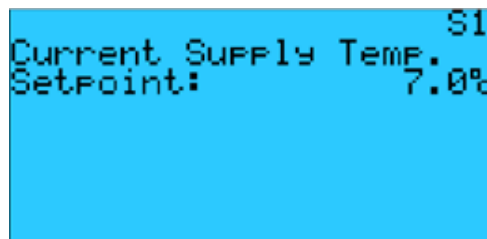
Changing the Setpoint

To change the set point of the unit from the main screen press the  button.

Use the  and  to scroll to the set point option as shown below and press 



The following screen will be shown:

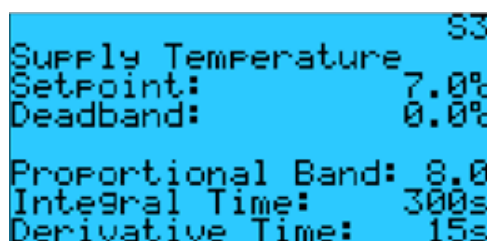


Using the  or  button scroll to the password screen



Enter the password 4648 using the  and  keys and press  after each number is entered. (The numbers start at 5555. So down one to 4, up one to 6 etc).

When the final number is entered the screen will jump to the set point adjustment screen:



To adjust the set point press the  key to highlight the set point, using the  and  keys enter the required set point and press the  key until the cursor returns to the top of the screen.

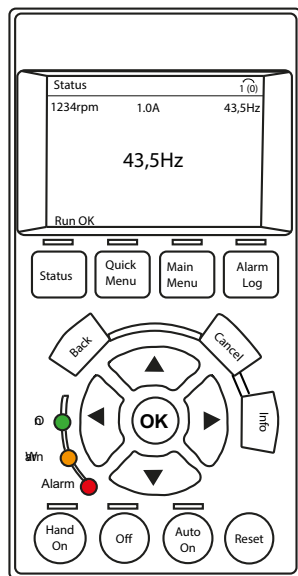
Enabling Pumps

Pump Start-Up

Use the start-up guide for the general setting of the pump controller including the setting of the correct direction of rotation.

The start-up guide will be initiated automatically the first time when its connected to a supply voltage.

It can be restarted in the menu under GENERAL. Please note that in this case all previous settings will be erased.



Editing Buttons

- OK** Select parameter entered by cursor and enables the change of parameters
- Hand On** Enables control of drive via the GLCP. Start the motor and allows speed setting using arrow keys.
- Off** Stops the motor.
- Auto On** Enables drive control via controls input(s)
- Reset** Resets the drive after an alarm/trip

Indicator Lights

- Green**
 - The pump is running or has stopped by a stop function
 - If flashing the pump has been stopped by the user (Cancel), external start/stop or bus.
- Yellow (orange)**
 - The pump has been stopped with the on/off button.
- Alarm (red)**
 - Indicates an alarm or warning

Navigation Buttons

- Navigation arrows** Navigates from one menu to another. When the menu is changed, the display shows always be the top display of the new menu.
- Up/Down arrows** Navigates up and down in the individual menu.
- Back** Reverts to the previous step or layer in the navigation structure.
- Cancel** Last change or command will be cancelled as long as the display has not been changed.
- Info** Displays info about a command, parameter of function.
- Status** Indicates the status of the drive and / or motor.
- Quick Menu** Allows quick setup of the drive, most common parameters and functions can be accessed here.
- Main Menu** Used to access all parameters for programming.
- Alarm Log** Displays a list of the 10 latest alarms, Extra info can be obtained by selecting the alarms.

Running the pump alone for low ambient flow protection or during commissioning.

To run the pumps alone without operating the compressors, the following procedure is carried out:

1. Set the remote unit ON / OFF to the OFF position (Open Circuit).
2. Remote pump ON / OFF to ON position (Closed Circuit).
3. Turn the unit ON by display through the microprocessor.

The pumps on the chiller will start. Cooling will not be enabled until the remote unit ON / OFF is to the ON position.

This method is used to ensure that there is water flow through the chiller during periods of unit shut down.

To reinstate cooling the unit remote ON / OFF is to be Closed.

Operational Maintenance Checks

Owners Responsibility

To ensure that the chiller can be maintained correctly ensure the following requirements are met.

Maintain a safe working environment around the chiller, free from obstructions and debris.

The unit shall follow the maintenance schedule below as a minimum.

CAUTION

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

Ensure lock off procedures are carried out accordingly.

If inverter driven pumps are used ensured at least 5 minutes is allowed for them to discharge any electrical charge.

Maintenance

General Inspections

	Task	Frequency		
		3 Mths	12 Mths	60 Mths
General Inspections	Check for visible mechanical damage to unit.	•		
	Visually inspect the unit for general wear and tear, treat metalwork.	•		
	Rust should be inhibited, primed and touched up with matching paint.			
	Check for excess vibration from other rotating equipment.	•		
	Clean Microchannel condenser coil	•		
	Ensure no debris has collected under compressor housing	•		

Service Tools / Test Equipment

- Touch-up Paint
- Stiff Brush

Safety Equipment

- Safety Glasses / Goggles



Procedures

Coil Cleaning

To clean micro channel condenser coils use detergent and a stiff bristled brush.

For heavy dirt, use either a high pressure water with a broad spray pattern or a non acidic cleaner (Ph ≥ 7 <10.5).

Do not steam clean.

Debris under compressor housing

Debris under the compressor housing can cause the refrigeration ventilation fan to underperform.

Maintenance

Electrical Inspection

Electrical Inspection	Task	Frequency		
		3 Mths	12 Mths	60 Mths
	Check mains power supply voltages		•	
	Check electrical terminals are tight.		•	
	Check for signs of hot spots/ discolouration on power cables.		•	
	Check amperages are as per design.	•		



Service Tools / Test Equipment

- Voltmeter
- Screwdrivers / Allen Keys
- Ammeter

Safety Equipment

- Safety Glasses / Goggles

Procedures

Electrical Connections

Ensure all electrical connections are tight and correctly terminated.

Electrical Earthing

Check that the unit is correctly earthed.

Voltage

Measure the voltage at the following points and record on the maintenance sheet:

- Voltage at Isolator
- Voltage at permanent supply
- Control voltage at transformer (min 22.5V, max 25V)

The voltage measurements should be carried out with the unit MCB's turned off.

EC Fan Interrogation

The EC fans can be interrogated by connecting a hardware interface kit from the fan to a PC. The kit comprises of a USB to RS232 9-pin "D-type" adapter. This should be installed on the PC with the software supplied with the kit.

The "COM" port of the USB to RS232 adapter should be assigned to a free COM port between COM 1 and 4 via the system device manager.

Connect the RS232 to RS485 interface converter to the USB port of your PC via the USB to RS232 serial interface lead and connect the RS485 output to the fan.

Tx += RS A Tx - = RS B

(Except high airflow fans. Interrogation is via a separate module available from Airedale)

Maintenance

Refrigeration

	Task	Frequency		
		3 Mths	12 Mths	60 Mths
Refrigeration	Compare the following and compare results with commissioning records:			
	Suction, liquid and discharge pressures.	•		
	Refrigeration system temperatures, suction, liquid and discharge. Record superheat and sub cooling temperatures.	•		
	Check each circuit sight glass for dryness and bubbles for indication of leaks.	•		
	Inspect the leak detector in accordance to EN378.		•	
	Head pressure control is maintained.	•		
	Check and record filter drier pressure drop.	•		
	Record details on F-Gas record.	•		
	Pressure relief valves. (replace in accordance to building insurance)			•
	Inspect Pressure relief rupture discs			•



Service Tools / Test Equipment

- Refrigerant Manifold Gauges
- Spanners
- Voltmeter

Safety Equipment

- Safety Glasses / Goggles
- Gloves
- Overalls

Procedures

HP / LP Safety Pressure Switch Settings

Check operation of HP / LP cut-out.

Settings

LP cut-out – (Auto reset for 3 times when the Low Pressure is detected over a period of 1 hour)

Has a 2 minute delay on start-up (similar to a Low ambient kit)

Low pressure cut-out 1.0 +/- 0.3 Barg

HP switch (Auto reset): High pressure switch 12.5 Barg +/- 0.5 Barg

HP limiting function 10.7 Barg / 1.5 Barg differential

Maintenance

Waterside

	Task	Frequency		
		3 Mths	12 Mths	60 Mths
Waterside	Check pressure drop of water strainer against graphs. If excessive clean the strainer.		•	
	Visually inspect pipe and pipework insulation.		•	
	Ensure pipework clamps are secure.			
	Inspect for water leakage.	•		
	Check pressure drop of evaporator against graphs. Clean evaporator if excessive.	•		
	Check condition of Water / Glycol solution to ensure that the system is protected against corrosion, scale and microbiological fouling, ensuring maximum heat transfer efficiency.	•		



Service Tools / Test Equipment

- Spanners
- Manometer
- Thermometer
- Refractometer

Safety Equipment

- Safety Glasses / Goggles
- Gloves
- Overalls

Procedures

Water Strainer

A water strainer must be fitted to the inlet side of the chiller evaporator.
Failure to do so may result in severe damage and will void the AIREDALE warranty.

Water Flow Rate

Check that the design water flow rate is available to the unit. If not available do not turn unit on.

Waterside Pressure Drop

Measure the waterside pressure drop of the unit ensuring that the pump (if fitted) is operating.

Glycol Strength

Check and record the glycol type and strength. Low levels of glycol can cause freeze up problems when operating at low temperatures or during the unit off state during cold ambient conditions.

Glycol concentration is measured by use of a Refractometer.

Differential Pressure Sensor

Ensure that the differential pressure sensor operates satisfactorily; the best way to do this is to carefully reduce the flow to the chiller to simulate a flow fail.

CAUTION

The compressor cannot operate without the correct water flow rate and will invalidate warranty.

Disable compressor operation whilst simulating a low flow.

Procedure

- From pressure curves determine the design flow rate / pressure drop
- Make sure that any effects of glycol in the system are taken into account (flow rate and pressure drop).
- Input into the controller the reduced pressure drop (kPa) value (normally 80% of design flow rate)
- Once this value is programmed into the controller the water flow rate can be carefully reduced to verify that the low flow alarm is activated.

IMPORTANT

Ensure that the tubes connected to the sensor are insulated.

Ensure correct flow rate is available to the chiller before compressors are reinstated.

Flow Switch

A “paddle” type flow switch is fitted, wired to the chiller control panel and tested. This should be fitted on the outlet of the evaporator and before isolation valves.

Pump Interlock

Check that the pump interlock is fitted and functioning correctly.

Maintenance

Controls

	Task	Frequency		
		3 Mths	12 Mths	60 Mths
Controls	Change controller battery.		•	

The controller will keep the strategy for a short period of time with no battery.



Service Tools / Test Equipment

- Small Terminal Screwdriver

Safety Equipment

- Electrostatic Wristband

Procedures

The following controller settings are to be recorded on the maintenance sheet:

- Head pressure differential (bar)
- Minimum suction pressure (bar)
- Supply water set point (Summer / Day) (°C)
- Supply water set point (Winter / Night) (°C)
- Minimum supply water temperature (°C)

Maintenance

System

	Task	Frequency		
		3 Mths	12 Mths	60 Mths
System	Check the following against the commissioning records:			
	Record operating conditions.	•		
	Water on / off temperatures.	•		
	Water pressure drop.	•		

Unit Operation Checks

Record the following operating conditions of the unit at stable conditions:

- Suction pressure (bar)
- Liquid pressure (Bar)
- Discharge pressure (Bar)
- Suction temperature (°C)
- Liquid temperature (°C)
- Discharge temperature (°C)
- Superheat (K)
- Sub cooling (K)
- Water return temperature (°C)
- Water supply temperature (°C)

Low supply water trip

To check operation of the low temperature trip the following procedure can be carried out.

With the unit running increase the low temperature limit to the actual supply water temperature.

This will trip the unit in a safe manner without risk of freezing the evaporator.

Return the low temperature limit to correct value after test (this will allow the unit to operate correctly).

Liquid line sight glass

Record the status of the liquid line sight glass:

- Clear / Flashing
- Wet / Dry

The sight glass is used to indicate:

- The condition of the refrigerant in the system
- Lack of refrigerant
- Moisture content of the refrigerant

The colour of the sight glass depends on the moisture content of the refrigerant. The recommended moisture levels of a system should be below 75ppm.

An indication of green / dry are to be considered as perfect conditions meaning full protection by the filter drier against effects from moisture.

If the green colour starts to fade, the colour change from green to yellow has begun and the indicator should therefore be watched carefully. If the colour changes to yellow it is a clear signal that the capacity of the filter drier is exceeded and should be replaced as soon as possible.

F-Gas Leak Detection Checks

Perform an F-Gas refrigerant leak detection on the unit and ensure no refrigerant leaks are found.

Checks must also be carried out on the operation of the refrigerant leak detector in accordance to manufacturers instructions.

Troubleshooting

	Fault	Possible Cause	Remedy / Action
General	Unit will not start	No power.	Check power supply to the controller.
		Wired incorrectly. Loose wires. Remote on/off.	Check wire connections in accordance with wiring diagram. Check all wires, connections, terminals etc. Check that the remote on/ off is at the on position.
Refrigeration	Compressor not operating	No power to compressor. Low pressure cut-out operated (large or complete loss of refrigerant charge). Compressor showing fault on controller.	Check isolator, fuses, MCBs, contactor and control circuit wiring. Recover refrigerant, repair, pressure test, evacuate and recharge system. Determine fault, refer to alarm codes for further information.
	Head pressure too high / HP cut-out operated	Condenser coil clogged or dirty. Overcharge of refrigerant. Normally troublesome in warm weather. Air or other non-condensable gas in system. Head pressure controller faulty. Fan not operating or operating inefficiently.	Clean condenser. Remove excess refrigerant from system using correct refrigerant handling techniques. Evacuate system and re-charge with new refrigerant. Check EC fan control module - if faulty - replace. Check motor - if faulty - replace.
	Head pressure too low	Fan operating too fast in low ambient conditions.	Check EC fan control module - if faulty - replace.
	Suction pressure too low	Flash gas (bubbles in sight glass) at liquid line. Clogged filter drier (pressure / temperature drop across it).	Investigate for refrigerant leaks, repair, pressure test, evacuate and re-charge system. Replace drier cores.
Condenser	Condenser fan not operating - power on	Power supply failure. Wiring to motors. Motor / fan assembly jammed.	Check power supply at circuit breaker. Check voltage at motor terminals. Isolate unit and check free rotation of motor/fan assembly. If faulty - replace. Carry out continuity check at terminals "TK" in motor terminal box. If tripped and motor hot - check to see if the motor bearings have seized / fan difficult to turn. If tripped and motor cold - replace motor. Motor humming would indicate fault in motor or capacitor. Check windings for continuity and if OK replace capacitor.
		Motor internal overheat protector tripped. Faulty motor windings / capacitor. Minimum speed set too low.	Adjust head pressure controller to suit.
	Condenser fan runs too fast	High ambient condition or excessive re-circulation of air around condenser coil. Minimum set speed setting incorrect. Incorrect pressure sensor setting. Faulty EC fan. Faulty pressure sensor.	Check installation against design. Adjust as necessary. Adjust via microprocessor. Replace fan. Replace sensor.
	Condenser fans runs only slowly	Incorrect pressure setting. Faulty EC fan. Faulty pressure sensor. Motor / capacitor faulty. Motor wired incorrectly.	Adjust via microprocessor. Replace fan. Replace sensor. Replace. Check against wiring diagram - correct as required.

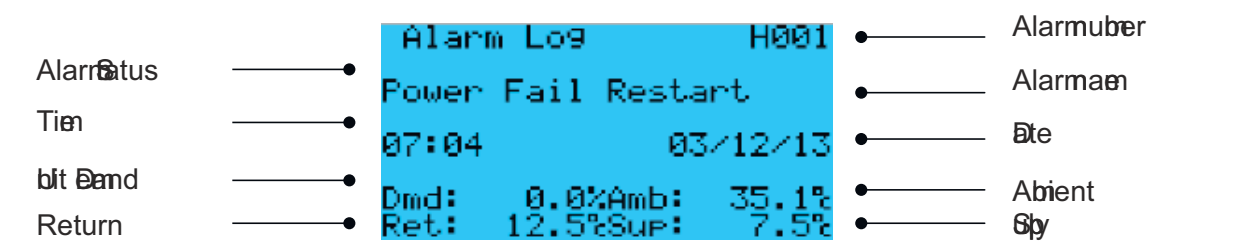
Troubleshooting

	Fault	Possible Cause	Remedy / Action
Waterside	Pump not operating	No power to pump. Inverter tripped and does not auto reset (the microprocessor will try and auto reset 3 times)	Check isolator, fuses, MCBs, contactor and control circuit wiring. Reset inverter drive via microprocessor.
	No water flow	Strainer blocked.	Clean strainer
	Pump noisy	Air in water system. Pump cavitations.	Purge air from water system. Ensure there is 0.5m NPSH suction head to avoid cavitations.
	Unit not operating due to water pressure sensor low limit alarm.	Low flow alarm operating.	Check that the low flow pressure variable is set correctly. If too high the unit may have nuisance trips.
	Low temp limit alarm	Partial blockage in evaporator causing low flow.(1) No heatload on system	Clean evaporator Ensure heatload is available for unit to operate
	Water/ Glycol freezing up (crystallizes)	Insufficient glycol / water concentration for operating temperatures.	Check glycol concentration and add accordingly.

(1) The water flow is reduced however the differential pressure switch may still remains healthy as the pressure would increase.

Alarms

Alarm Menu Display



Alarm Log

The alarm page offers a log of the last 150 alarm messages in a scrolling log, pressing the alarm button will enter the alarm page. Consequently the most recent alarm has the lowest log number (001) and will be displayed upon entering the alarm page. As another alarm occurs, the alarm number increases until 150 alarms have occurred. From this point on, alarm 001 moves to 002 and any new alarm will reside in position 001.

As new alarms are generated and cleared, the highest number logs (150) in the scroll will be lost.

Viewing the Alarm Log

By using the arrow keys, the last 150 alarms generated can be reviewed in chronological order. The display provides the alarm type information and the time and date of each alarm occurrence.

Alarm Detection

When the controller detects an alarm an output is generated to the relevant alarm relay which in turn illuminates the button. To see which alarm has accrued press the  button and the most recent alarm will be displayed. If the alarm light is on, the alarm page can be interrogated to identify which alarm is active.

Resetting the Alarm

The auto reset alarms will automatically reset once the conditions are within the set parameters. To clear a manual alarm press the  button twice and the red LED will disappear.

Alarms

Code	Description	Auto Reset	Unit Disabled	Component Disabled	Cause	Action	Default Alarm Type
AL001	Comp1 MB Comms.Offline	•		•	Communication to the compressor has failed	Check: Wiring / Modbus connection / Compressor communication board / Compressor Fuses and Power	1 = Non Critical
AL002	Comp2 MB Comms.Offline						1 = Non Critical
AL003	Comp3 MB Comms.Offline						1 = Non Critical
AL004	Comp4 MB Comms.Offline						1 = Non Critical
AL005	Power Meter MB Offline	•	•	•	Communication to the Power Meter has been lost	Check: Wiring / Modbus connection / Power Meter	1 = Non Critical
AL006	Cond. Pressure1 Fault	•	•	•	The Sensor has gone out of its operating range	Check: Wiring / Sensor	1 = Non Critical
AL007	Evap.Diff.Press. Fault		•	•			1 = Non Critical
AL008	Evap.Flow Sensor Fault		•	•			1 = Non Critical
AL009	Return Temp. Fault		•	•			1 = Non Critical
AL010	Supply Temp. Fault		•	•			1 = Non Critical
AL011	Temp. Setpoint Fault			•			1 = Non Critical
AL012	Cond.Air On Temp Fault			•			1 = Non Critical
AL013	Clock Alarm	•		•	The internal clock has malfunctioned	Replace Battery	1 = Non Critical
AL014	Phase Failure	•	•	•	The 3 phase power supply crossed / loss (wait 30s with a power meter on power up)	Check 3 phase connection	2 = Critical
AL015	Emergency Stop	•	•	•	The emergency stop button has been pressed	Release the emergency stop button	2 = Critical
AL016	Evaporator Flow Alarm	•	•	•	No evaporator flow has been detected	Check: pumps are running / flow	2 = Critical
AL017	Low Pressure 1 Switch	•	•	•	The pressure in the system is below 0.5 bar	Check: Refrigerant charge / EEV operation	2 = Critical
AL018	Comp1 Status Alarm	•		•	Contactor has been switched on but has failed to operate	Check: High Pressure Switch / contactor. / Wiring.	1 = Non Critical
AL019	Comp2 Status Alarm			•			1 = Non Critical
AL020	Comp3 Status Alarm			•			1 = Non Critical
AL021	Comp4 Status Alarm			•			1 = Non Critical
AL022	Mains Failure	•	•	•	The permanent L4 supply has failed to the control panel	Check: L4 supply	2 = Critical
AL023	Pump1 Status Alarm		•	•	Contactor has been switched on but has failed to operate	Check: Contactor / Wiring	1 = Non Critical
AL024	Pump2 Status Alarm		•	•			1 = Non Critical
AL025	Low Supply Temperature	•	•	•	The supply water temperature is too low	Check: Flow Rate / Unit TD	1 = Non Critical

Alarms

Code	Description	Auto Reset	Unit Disabled	Component Disabled	Cause	Action	Default Alarm Type
AL026	High Cond. Pressure 1	•	•	•	The condensing pressure is higher than 11.9 Bar	Check: Condenser / Condenser Fans	1 = Non Critical
AL027	pCOe Module Offline	•		•	Communication to the pCOe expansion module has been lost	Check: Communications link / Wiring	1 = Non Critical
AL028	Leak Detector 1 Fault	•		•	The output from the leak detector is out of range	Check: Leak detector / Wiring	1 = Non Critical
AL029	Leak Detector 2 Fault			•			1 = Non Critical
AL030	Leak Detector 3 Fault			•			1 = Non Critical
AL031	Leak Detector 4 Fault			•			1 = Non Critical
AL032	Possible Leak Comp.1	•			The reading from the leak detector is above the threshold	Check: Pipe work around the leak detector	1 = Non Critical
AL033	Possible Leak Comp.2						1 = Non Critical
AL034	Possible Leak Comp.3						1 = Non Critical
AL035	Possible Leak Comp.4						1 = Non Critical
AL036	Inverter Temp. Comp.1	•		•	The temperature of the compressor inverter is high	Check: liquid line to the compressor / solenoid valves	1 = Non Critical
AL037	Discharge Temp. Comp.1	•		•	The temperature of the discharge gas is high	Check: Refrigerant charge / discharge temperature sensor	1 = Non Critical
AL038	Suction Press. Comp.1	•		•	The suction pressure is too high / low at the compressor	Check: charge / System load / sensor / suction strainer	1 = Non Critical
AL039	Discharge Press.Comp.1	•		•	The Discharge pressure has exceeded it limit	Check: The sensor / Condenser/ Shut off valves	1 = Non Critical
AL040	3Ph. Current Comp.1	•		•	Indicates there maybe an excessive load on the system		1 = Non Critical
AL041	Cavity Temp. Comp.1	•		•	The Cavity temperature inside the compressor is high	Check: the liquid cooling line / solenoid valve	1 = Non Critical
AL042	Air/Water Temp. Comp.1	•		•	There maybe insufficient water flow due to air gaps	Check: Sensor limits	1 = Non Critical
AL043	Compress. Ratio Comp.1	•		•	The compression ratio of the compressor is out of range	Check: Condenser / Evaporator loads and settings	1 = Non Critical
AL044	Bearing Reset Comp.1	•		•	Low Suction Pressure / Liquid	Check: Refrigerant Circuit	1 = Non Critical
AL045	SCR Temp. Comp.1	•		•	Indicates insufficient cooling to the SCR plate	Check: Alarms limits in the compressor	1 = Non Critical

Alarms

Code	Description	Auto Reset	Unit Disabled	Component Disabled	Cause	Action	Default Alarm Type
AL046	System Lockout Comp.1			•	When a SCR/Inverter/Cavity temperature fault occurs more than 3 time in 30minutes	Check: Motor cooling line and solenoids valves / Cycle Compressor Power	1 = Non Critical
AL047	Inverter Temp. Comp.2	•		•	The temperature of the compressor inverter is high	Check: liquid line to the compressor / solenoid valves	1 = Non Critical
AL048	Discharge Temp. Comp.2	•		•	The temperature of the discharge gas is high	Check: Refrigerant charge / discharge temperature sensor	1 = Non Critical
AL049	Suction Press. Comp.2	•		•	The suction pressure is too high / low at the compressor	Check: charge / System load / sensor / suction strainer	1 = Non Critical
AL050	Discharge Press.Comp.2	•		•	The Discharge pressure has exceeded it limit	Check: The sensor / Condenser/ Shut off valves	1 = Non Critical
AL051	3Ph. Current Comp.2	•		•	Indicates there maybe an excessive load on the system		1 = Non Critical
AL052	Cavity Temp. Comp.2	•		•	The Cavity temperature inside the compressor is high	Check: the liquid cooling line / solenoid valve	1 = Non Critical
AL053	Air/Water Temp. Comp.2	•		•	There maybe insufficient water flow due to air gaps	Check: Sensor limits	1 = Non Critical
AL054	Compress. Ratio Comp.2	•		•	The compression ratio of the compressor is out of range	Check: Condenser / Evaporator loads and settings	1 = Non Critical
AL055	Bearing Reset Comp.2	•		•	Low Suction / Liquid	Check: Refrigerant Circuit	1 = Non Critical
AL056	SCR Temp. Comp.2	•		•	Indicates insufficient cooling to the SCR plate	Check: Alarms limits in the compressor	1 = Non Critical
AL057	System Lockout Comp.2			•	When a SCR/Inverter/Cavity temperature fault occurs more than 3 time in 30minutes	Check: Motor cooling line and solenoids valves / Cycle Power	1 = Non Critical
AL058	Inverter Temp. Comp.3	•		•	The temperature of the compressor inverter is high	Check: liquid line to the compressor / solenoid valves	1 = Non Critical
AL059	Discharge Temp. Comp.3	•		•	The temperature of the discharge gas is high	Check: Refrigerant charge / discharge temperature sensor	1 = Non Critical
AL060	Suction Press. Comp.3	•		•	The suction pressure is too high / low at the compressor	Check: charge / System load / sensor / suction strainer	1 = Non Critical
AL061	Discharge Press.Comp.3	•		•	The Discharge pressure has exceeded it limit	Check: The sensor / Condenser/ Shut off valves	1 = Non Critical
AL062	3Ph. Current Comp.3	•		•	Indicates there maybe an excessive load on the system		1 = Non Critical

Alarms

Code	Description	Auto Reset	Unit Disabled	Component Disabled	Cause	Action	Default Alarm Type
AL063	Cavity Temp. Comp.3	•		•	The Cavity temperature inside the compressor is high	Check: the liquid cooling line / solenoid valve	1 = Non Critical
AL064	Air/Water Temp. Comp.3	•		•	There maybe insufficient water flow due to air gaps	Check: Sensor limits	1 = Non Critical
AL065	Compress. Ratio Comp.3	•		•	The compression ratio of the compressor is out of range	Check: Condenser / Evaporator loads and settings	1 = Non Critical
AL066	Bearing Reset Comp.3	•		•	Low Suction / Liquid	Check: Refrigerant Circuit	1 = Non Critical
AL067	SCR Temp. Comp.3	•		•	Indicates insufficient cooling to the SCR plate	Check: Alarms limits in the compressor	1 = Non Critical
AL068	System Lockout Comp.3			•	When a SCR/Inverter/Cavity temperature fault occurs more than 3 time in 30minutes	Check: Motor cooling line and solenoids valves / Cycle Power	1 = Non Critical
AL069	Inverter Temp. Comp.4	•		•	The temperature of the compressor inverter is high	Check: liquid line to the compressor / solenoid valves	1 = Non Critical
AL070	Discharge Temp. Comp.4	•		•	The temperature of the discharge gas is high	Check: Refrigerant charge / discharge temperature sensor	1 = Non Critical
AL071	Suction Press. Comp.4	•		•	The suction pressure is too high / low at the compressor	Check: charge / System load / sensor / suction strainer	1 = Non Critical
AL072	Discharge Press.Comp.4	•		•	The Discharge pressure has exceeded it limit	Check: The sensor / Condenser/ Shut off valves	1 = Non Critical
AL073	3Ph. Current Comp.4	•		•	Indicates there maybe an excessive load on the system		1 = Non Critical
AL074	Cavity Temp. Comp.4	•		•	The Cavity temperature inside the compressor is high	Check: the liquid cooling line / solenoid valve	1 = Non Critical
AL075	Air/Water Temp. Comp.4	•		•	There maybe insufficient water flow due to air gaps	Check: Sensor limits	1 = Non Critical
AL076	Compress. Ratio Comp.4	•		•	The compression ratio of the compressor is out of range	Check: Condenser / Evaporator loads and settings	1 = Non Critical
AL077	Bearing Reset Comp.4	•		•	Low Suction / Liquid	Check: Refrigerant Circuit	1 = Non Critical
AL078	SCR Temp. Comp.4	•		•	Indicates insufficient cooling to the SCR plate	Check: Alarms limits in the compressor	1 = Non Critical
AL079	System Lockout Comp.4			•	When a SCR/Inverter/Cavity temperature fault occurs more than 3 time in 30minutes	Check: Motor cooling line and solenoids valves / Cycle Power	1 = Non Critical

Alarms

Code	Description	Auto Reset	Unit Disabled	Component Disabled	Cause	Action	Default Alarm Type
AL080	Hours Limit Comp.1	•		•	The hours run for the compressor has exceeded the threshold	If component is functioning correctly perform maintenance and reset hours	1 = Non Critical
AL081	Hours Limit Comp.2			•			1 = Non Critical
AL082	Hours Limit Comp.3			•			1 = Non Critical
AL083	Hours Limit Comp.4			•			1 = Non Critical
AL084	Hours Limit Pump 1	•		•	The hours run for the pumps has exceeded the threshold	If component is functioning correctly perform maintenance and reset hours	1 = Non Critical
AL085	Hours Limit Pump 2			•			1 = Non Critical
AL086	Liquid Level 1 Fault	•		•	The liquid level sensor has gone out of range	Check: The sensor / Wiring	1 = Non Critical
AL087	CW Valve Feedback	•		•	Valve Failed to open	Check: Valve operation / Wiring	1 = Non Critical
AL088	Cond. Pressure2 Fault	•	•	•	The Sensor has gone out of its operating range	Check: Wiring / Sensor	1 = Non Critical
AL089	Low Pressure 2 Switch			•	The pressure in the system is below 0.5 bar	Check: Refrigerant charge / EEV operation	2 = Critical
AL090	High Cond. Pressure 2			•	The condensing pressure is higher than 11.9 Bar	Check: Condenser / Condenser Fans	1 = Non Critical
AL091	Liquid Level 2 Fault	•	•	•	The Sensor has gone out of its operating range	Check: Wiring / Sensor	1 = Non Critical
AL092	Evap.Inlet Temp. Fault	•	•	•	The Sensor has gone out of its operating range	Check: Wiring / Sensor	1 = Non Critical
AL093	Serious Alarm Comp.1			•	The compressor has been in alarm more than 5 times in 2 hours	Check the operation of the compressor / circuit	1 = Non Critical
AL094	Serious Alarm Comp.2			•			1 = Non Critical
AL095	Serious Alarm Comp.3			•			1 = Non Critical
AL096	Serious Alarm Comp.4			•			1 = Non Critical
AL097	Evap. Low Flowrate		•	•	The evaporator flow rate is equal to or less than 20% of design	Check the evaporator strainer or for any other blockages	1 = Non Critical
AL098	Liq. Valve EVD1 Alarm			•	The electronic expansion valve driver used to position the flooded evaporator liquid level control valve is in alarm	Check the wiring between the EVD and the liquid level control valve / check the operation of the control valve stepper motor	2 = Critical
AL099	Liq. Valve EVD2 Alarm			•			2 = Critical
AL100	High Liquid Level Cct1	•			High level of refrigerant in flooded evaporator	Check the operation of the liquid level control valve	1 = Non Critical
AL101	Low Liquid Level Cct1	•			Low level of refrigerant in flooded evaporator	Check the operation of the liquid level control valve / refrigerant leak	1 = Non Critical

Alarms

Code	Description	Auto Reset	Unit Disabled	Component Disabled	Cause	Action	Default Alarm Type
AL102	High Liquid Level Cct2	•			High level of refrigerant in flooded evaporator	Check the operation of the liquid level control valve	1 = Non Critical
AL103	Low Liquid Level Cct2	•			Low level of refrigerant in flooded evaporator	Check the operation of the liquid level control valve / refrigerant leak	1 = Non Critical
AL104	Cond.Return Temp.Fault	•	•	•	The Sensor has gone out of its operating range	Check: Wiring / Sensor	1 = Non Critical
AL105	Cond.Supply Temp.Fault	•	•	•	The Sensor has gone out of its operating range	Check: Wiring / Sensor	1 = Non Critical
AL106	Cond.Diff.Press. Fault	•	•	•	The Sensor has gone out of its operating range	Check: Wiring / Sensor	1 = Non Critical
AL107	Condenser Flow Alarm	•			No condenser flow has been detected	Check: condenser pump is running / flow	2 = Critical
AL108	Unit Pump Down Cct1			•	The circuit has been partially pump down and disabled	Check for refrigerant loss and reset	2 = Critical
AL109	Unit Pump Down Cct2			•			2 = Critical
AL110	Possible Unit Ref.Leak	•			A possible unit refrigerant leak has been detected	Check for refrigerant loss	1 = Non Critical
AL111	Mains Isolator Status	•	•	•	Mains isolator has been switched off	Check with maintenance personnel before switching back on	2 = Critical
AL112	Cond. Fan Trip Cct1	•		•	Isolator for circuit 1 condenser fan has been switched off		1 = Non Critical
AL113	Cond. Fan Trip Cct2	•		•	Isolator for circuit 2 condenser fan has been switched off		1 = Non Critical
AL114	Fan Isolator Status	•		•	Common isolator for circuit 1 and 2 condenser fan has been switched off		1 = Non Critical
AL115	Pump Isolator Status	•		•	Pump isolator has been switched off		1 = Non Critical
AL116	Leak1 MB Comms.Offline	•			Communication to the compressor 1 refrigerant leak detector has been lost	Check: Wiring / Modbus connection / Leak detector	1 = Non Critical
AL117	Leak2 MB Comms.Offline	•			Communication to the compressor 2 refrigerant leak detector has been lost		1 = Non Critical
AL118	Leak3 MB Comms.Offline	•			Communication to the compressor 3 refrigerant leak detector has been lost		1 = Non Critical
AL119	Leak4 MB Comms.Offline	•			Communication to the compressor 4 refrigerant leak detector has been lost		1 = Non Critical
AL120	Leak Alarm		•	•	One or more refrigerant leaks have been detected	Check for refrigerant loss	2 = Critical

Pump Alarms

Code and display text	Warning	Status			Operating Mode	Re-setting
		Warning	Alarm	Locked Alarm		
1	Too high leakage current			•	Stop	Man.
2	Mains phase failure		•		Stop	Auto
3	External fault		•		Stop	Man.
16	Other fault		•		Stop	Auto
				•	Stop	Man.
30	Replace motor bearing	•			-	Man. (3)
32	Overvoltage	•			-	Auto
			•		Stop	Auto
40	Undervoltage	•			-	Auto
			•		Stop	Auto
48	Overload		•		Stop	Auto
				•	Stop	Man.
49	Overload		•		Stop	Auto
55	Overload	•			-	Auto
					Stop	Auto
57	Dry running	•			Stop	Auto
64	Too high CUE temperature	•			Stop	Auto
70	Too high motor temperature	•			Stop	Auto
		•			-	Auto
77	Communication fault, duty / standby					
89	Sensor 1 outside range		•		(1)	Auto
91	Temperature sensor 1 outside range	•			-	Auto
93	Sensor 2 outside range	•			-	Auto
96	Setpoint signal outside range	•			(1)	Auto
		•				Auto
148	Too high bearing temperature		•		Stop	Auto
		•				Auto
149	Too high bearing temperature		•			Auto
			•			Auto
155	Inrush fault		•			Auto
175	Temperature sensor 2 outside range	•			-	Auto
240	Re-lubricate motor bearings	•			-	Man. (3)
241	Motor phase failure	•			-	Auto
			•		Stop	Auto
242	AMA did not succeed (2)	•			-	Man.

(1) in case of an alarm, the CUE will change the operating mode depending on the pump type

(2) AMA, Automatic Motor Adaption

(3) Warning is reset in display 3.20



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