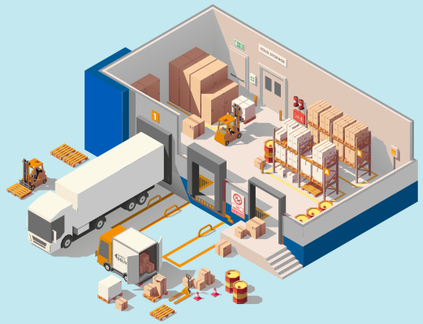
Product Guide 2022

# Refrigeration

tf solutions



Cold store

Forecourt

Supermarket

TF Solutions offers a comprehensive tier-one refrigeration product range and an extensive stock of service spares in every branch, alongside the support of a dedicated refrigeration technical team and the market leading service levels we are renowned for across the industry.

- Market-leading product range across equipment and ancillaries
- Full range of spares in stock in every branch
- Same day trade counter collection or next day delivery
- In-house technical expertise to design and support your bespoke builds and projects from conception to commissioning and beyond.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# Custom **Build**

When a project brief falls out of standard packaged system scope, our technical team can produce tailor made solutions to all applications.

Bespoke solutions engineered to individual requirements with TF Solutions in house Technical Team to provide pre and after sales support to all customers.

### Key Points

- Scroll and semi hermetic condensing units or packs, single or multi compressor
- Housed or Unhoused
- Plug and play design - minimal on site work
- Multiple refrigerant options (A1 & A2L)
- Options for remote or water cooled condensers
- Flexible controls tailored to each systems design
- Valves and accessories selection to create turnkey full system design.

# Case **Study**

**JOB TITLE:** T Quality Fareham
**LOCATION:** Fareham
**DATE WORK COMPLETED:** April 2022
**DURATION OF PROJECT:** 4 weeks

**NAME OF CONTRACTOR / INSTALLER:** Cooling FX
**VALUE OF PROJECT:** £100,000+

**TYPE OF JOB:** New build
**No. OF FLOORS:** 1
**No OF UNITS:** 3

### Background:

Cooling FX are the refrigeration service and installation partner for T Quality. T Quality predominately supply the restaurant trade with quality fish and chips. They are undergoing rapid expansion. This site is a new one for T Quality to expand their offering and service to their customers in the South of England.

### Product used:

Due to a large duty at the specified conditions, TF Build housed and dressed custom built units were selected to serve the room. Each unit comprised of a semi hermetic reciprocating compressor, oil separator and return with oil diff safety switch, speed controlled EC Condenser fans, LP control and HP safety pressure switch, liquid receiver, drier and sight glass, as well as compressor start and control panel wired.

These air-cooled condensing units where matched to Guntner GACV evaporators, with electric defrost to coil and tray as well as fan peripheral heaters. Due to the fans throwing the air down a 34m length, fan streamers were added to the fans to help throw the air further.

Danfoss expansion valves and solenoid valves were spec'd and supplied.

Evaporator control panels were also spec'd and supplied, ensuring interlocks between defrost contactors and compressor contactors to ensure site power would not become overloaded.

### Challenges:

To provide a solution that was commercially acceptable to the client as well as ensuring a quick lead time. Site power was also restricted, so an energy efficient solution was needed that could control the systems to ensure an overload to site power was not going to occur.

### Requirements:

A 1,870m$^3$ freezer, to store frozen packaged fish which will then be distributed to local customers.

Also a small 52m$^3$ chiller.

### Solution:

Heat load calculations were undertaken which gave required duty. After discussions with the Cooling FX, 2 systems were selected to serve the Freezer and a single system for the chiller.

# Custom **Build**

## Performance data

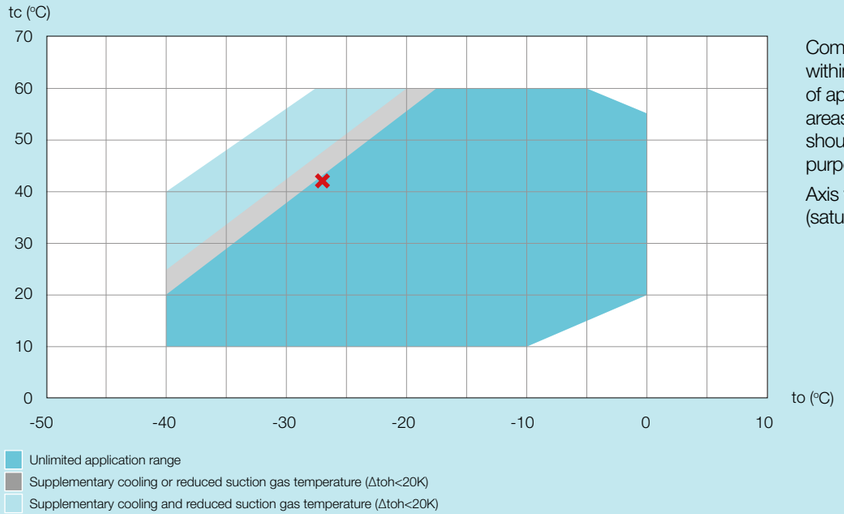
Example:

| Application: Refrigeration & AC | | | |
|---|---|---|---|
| Refrigerant | 100% | Usable superheat | 100% |
| Reference temperature | Dew point | Compressor refrigeration capacity | 27.60 kW |
| Power supply | 50 Hz, 400 V | Evaporator refrigeration capacity | 27.60 kW |
| Supply frequency | 50 Hz | Power consumption | 16.30 kW |
| Evaporating temperature | -27.0 °C | Current draw (400 V) | 32.70 A |
| Evaporating pressure (abs.) | 1.82 bar | Coefficient of performance (COP/EER) | 1.69 |
| Condensing temperature | 42.0 °C | Condensing capacity | 43.90 kW |
| Condensing pressure (abs.) | 17.45 bar | Mass flow | 0.198 kg/s |
| Suction gas superheat | 10 K | Discharge end temperature | 94.1 °C [1] |
| Subcooling (outside cond.) | 0 K | | |

Preliminary capacity data.

[1] The stated value of the discharge end temperature is a mere calculated value. Additional cooling and heat dissipation are not considered. Deviations (particularly in deep freezing applications) from the real measured discharge temperature during operation are possible.

## Operating limits




Compressor operation is possible within the limits shown on the diagrams of application. Please note the coloured areas. Compressor application limits should not be chosen for design purposes or continuous operation.

Axis values refer to dew point (saturated vapour line).

## Evaporator (dx)

| Details | |
|---|---|
| Capacity: | 26.90 kW [1] |
| Surface reserve: | 0.00 % |
| Air flow: | 20,424.00 m3 /h |
| Air inlet: | -20.00 ° C |
| Air outlet: | -23.20 ° C |
| Air pressure: | 1,013.00 mbar |
| Refrigerant: | R449A[2] |
| Evaporation temp. (dew point): | -27.00 ° C |
| Superheating: | 5.00 K |
| Condensation temp. (dew pt.): | 42.0 °C |
| Subcooled temp.: | 35.9 ° C |

| Details | |
|---|---|
| Casing: | AlMg, RAL 9003 |
| Surface: | 94.00 m² |
| Tube volume: | 30.8 l |
| Fin spacing: | 7 mm |
| Dry weight: | 186.00 kg[9] |
| Max. operating pressure: | 32.00 bar |
| Distributions: | 21 |
| Circuits: | 1N |
| Tubes: | Copper[7] |
| Fins: | Aluminum[7] |
| Distr.press.drop: | 1.60 bar |
| Outlet connection: | 54.0 * 2.40 mm |
| Inlet: | 22.0 * 1.00 mm |
| PED classification: | Category I, module A[8] |
| Passes: | 4 |
| Connections in air direction: | Right side |

| Accessories | Piece(s) |
|---|---|
| Mounting and wiring (Control cabinet, Fan) | 1 |
| Terminal box Fans grouped [11]<br>1 x (5209324) Terminal block for fan TB Fan 3ph 2.5 mini x3<br>1 x (5209834) Terminal block for fan 03xTK<br>1 x (5209443) Terminal box (plastic) 130x130x99mm | 1 |
| El. defrost coil standard for t0≥-40°C 400V 3~N+PE - 9,6kW [12] | 1 |
| El. defrost tray standard for t0≥-40°C 230/400V+N+PE - 3,8kW [12] | 1 |
| Fan ring heater - Heating rod without Heat Shield 230V1~N+PE - 0,2kW [12] | 3 |
| Güntner Streamer (for an increased air throw) | 3 |

| Details | |
|---|---|
| Fans (AC): | 3 Piece(s) 3~400V 50HzΔ/(Y) |
| Data per motor (nominal data):<br>Speed:<br>Capacity(mech./el.):<br>Current: | <br>1340 min-1 / (990 min-1)<br>0.50 kW / 0.62 kW<br>1.10 A[3] |
| ErP: | Compliant[6] |
| Noise pressure level: | 61.00 dB(A) in 3.00 m[4] |
| Noise power level: | 84.00 dB(A) |
| Air throw: approx. | 44 m[5] |
| Frost: | 0.00 mm |

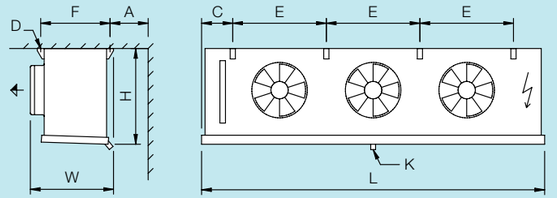
| Power | |
|---|---|
| Total el. power consumption: | 1.66 kW |
| Energy efficiency class: | D (2014) |

### Dimensions: (9)

L = 3691 mm
W = 745 mm
H = 763 mm

E = 1000 mm
F = 598 mm
C = 360 mm

A = 550 mm
D = 14 mm
K = G1¼”




Drain according to DIN ISO 228-1 with G-thread (flat gasket).
Attention: Drawing and dimensions not valid for all accessory options!

# Cold **Rooms**

Based on the needs of our customers, we have developed the new Optima cold room.

The Optima is equipped with innovative features whose purpose is to improve and facilitate the work of both the installers and the final customer.

### Easier to assemble due to its modular system with 4 angles

This new system, with 4 white coloured, RAL 9010 / Ref.ª 1006 (option), injected vertical angles, offers more flexibility and better space optimization for the design of small cold rooms, as well as allowing layouts of large cold rooms, as possible with our Matrix cold room.

### New optional lighting system

For the new Optima cold room we have created an LED lighting system integrated in the coving profile, whose energy consumption is minimal. In addition to its aesthetic innovation, it is easy to clean and avoids the accumulation of dirt on the lamps.

Coldkit Cold Room

Lighting System

### Key Points

- Easy to assemble, camlock style rooms
- Floored or non floored options
- Multiple footprint options
- Multiple height options: 2.03m/ 2.23m/ 2.43m/ 2.63m (External)
- Hinged personnel door as standard with lock and panic bar
- Option for monobloc or remote refrigeration system
- 85mm white (RAL 9010) Panels
- Optional lighting system
- Optional PRV.

### With flooring

The floor panels are reinforced and have resistant anti-slip phenolic resin coating and with Class 3 Anti-Slip Classification Certificate (the same required in outdoor swimming pool areas).

Optionally: Anti-slip flooring with stainless steel finish or super-reinforced flooring in both finishes recommended for especially high service traffic. It has an interior 10mm plywood (CTBX) lining, reinforced with a 0,6mm anti-slip stainless steel sheet on another 0,50mm thick lacquered sheet adhered to the inner face of the plywood.

### Panel Features

Available thicknesses: 85, 105 and 120mm
Colour: White, RAL 9010 / Ref. 1006 (Option)

### Negative Temperatures

In 4 exterior heights:
2m*, 2,20m, 2,40m, 2,60m

*Only 85 and 105.

### Without flooring

Supplied with a special U-shaped PVC profile that facilitates quick installation and fixing. This part provides an interior and exterior skirting profile, ensuring simple assembly and an impeccable technical and aesthetic finish.

### Panel Features

Available thicknesses: 85mm
Colour: White, RAL 9010 / Ref. 1006 (Option)

### Positive Temperatures

In 4 exterior heights:
2,03m, 2,23m, 2,43m, 2,63m

# iNVERTER Fusion Scroll **Commercial Condensing Unit**

With an increased demand for higher energy efficiency refrigeration systems at part load, J & E Hall now introduce the first of our Fusion Scroll Inverter condensing unit models.

### Key Points

- Highly reliable scroll compressors
- Full inverter control giving 1.5kW to 25.7kW range
- Oil return cycle
- Liquid line drier and sight glass
- External service valves
- Hinged access doors.

### Digital Single Scroll

| Part Number | Unit Model | Compressor Model | Phase | Electrical Data | | | SPL @ 10m dB(A) | Unit Connections | | Dry Weight (kgs) | Unit Dimensions (mm) (WxDxH) | Mounting Dimensions (mm) (WxD) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | NC | MCC | LRC | | Liquid | Suction | | | |
| N04120150 | JEHSI-033-B3-M-3 | AGK33FDAMTS | 3 | 3.9 | 10.8 | n/a | 31 | 1/2" | 5/8" | 116 | 1334x546x872 | 945x500 |
| N04120151 | JEHSI-066-B3-M-3 | AGK66FDAMTS | 3 | 7.0 | 17.5 | n/a | 40 | 1/2" | 3/4" | 134 | 1334x546x872 | 945x500 |
| N04120152 | JEHSI-087-B4-M-3 | AGK87FDAMTS | 3 | 8.8 | 24.0 | n/a | 44 | 3/4" | 7/8" | 212 | 1348x600x1727 | 940x560 |

NC = Nominal Current at -10°Cte/+32°Cta MT conditions @ 60rps with R448A refrigerant
MCC = Maximum Continuous Current
LRC = Locked Rotor Current

Sound Pressure Level (SPL) measured in an anechoic room at -10°Cte/+32°Cta MT conditions @ 60rps. Alternative conditions may produce different results

| Casing | Unit Model | Comp. Speed (rps) | SEPR | R448A/R449A Cooling Capacity (Watts) @ Te | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | -20°C | -15°C | -10°C | -5°C | 0°C | 5°C |
| N04120150 N04120151 | JEHSI-033-B3-M-3 | 30 | 3.03 | 1497 | 1795 | 2142 | 2542 | 2999 | 3517 |
| | | 60 | | 3058 | 3665 | 4348 | 5110 | 5951 | 6875 |
| | | 80 | | 3908 | 4659 | 5503 | 6446 | 7496 | 8657 |
| | | 100 | | 4826 | 5713 | 6704 | 7807 | 9030 | 10380 |
| | JEHSI-066-B3-M-3 | 30 | 3.39 | 2827 | 3897 | 4966 | 6036 | 7105 | 8175 |
| | | 60 | | 4787 | 6694 | 8600 | 10507 | 12413 | 14320 |
| | | 80 | | 7723 | 9386 | 11049 | 12712 | 14375 | 16038 |
| | | 100 | | 9037 | 11117 | 13196 | 15276 | - | - |
| N04120152 | JEHSI-087-B4-M-3 | 30 | 3.60 | 3328 | 4220 | 5112 | 6310 | 7508 | 8706 |
| | | 60 | | 6609 | 8644 | 10680 | 13449 | 16217 | 18986 |
| | | 80 | | 9416 | 11589 | 13762 | 16480 | 19198 | 21916 |
| | | 100 | | 11703 | 13906 | 16109 | 19296 | 22483 | 25670 |

Rating Condition MT: Suction Gas Superheat 10K / Subcooling 0K / 32°C Ambient
Capacity data presented in accordance with BS EN 13215:2016

# Commercial
# **Condensing Unit**

## End User Benefits

- Energy efficient features reduce energy bills
- Quiet units blend into the local environment
- Quality components for reliability and longer life.

## Installer Benefits

- Simple access for service and maintenance
- Factory fitted components for quick and easy installation
- Microchannel condenser coil is easy to clean and smaller refrigerant charge.

## Key Points

- Weather resistant housing
- Reciprocating compressor (small and medium) / scroll compressor (medium and large)
- Flexible hoses to maximise leak tightness
- Front and side hinged doors for easy access
- External Service Valves
- Liquid line with sight glass and filter drier
- IP rated control panel with isolator
- Adjustable LP/HP on easily removable bracket
- Fan speed controller (medium and large)
- Microchannel condenser coils for reduced refrigerant charge (small and medium).

**Medium temperature**

| Casing | Part No. | Unit Model | Compressor Model | Phase | Electrical Data (A) | | | SPL @ 10m dB(A) | Unit Connections | | Dry Weight (kgs) | Dimensions (mm) (W x D x H) | Mounting Dimensions (mm) (W x D) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | NC | MCC | LRC | | Liquid | Suction | | | |
| Small | N04120079 | JEHR-0050-B1-M-1 | AE 4460Z-FZ1C | 1 | 3.6 | 5.9 | 19.4 | 28 | 1/4 | 3/8 | 49 | 876 x 430 x 606 | 545 x 400 |
| | N04120080 | JEHR-0067-B1-M-1 | CAJ 9480Z | 1 | 3.3 | 6.7 | 24.1 | 28 | 3/8 | 1/2 | 56 | | |
| | N04120081 | JEHR-0100-B1-M-1 | CAJ 9510Z | 1 | 4.1 | 8.4 | 29.5 | 28 | 3/8 | 1/2 | 57 | | |
| | N04120082 | JEHR-0113-B1-M-1 | CAJ 9513Z | 1 | 5.1 | 11.3 | 33.5 | 28 | 3/8 | 1/2 | 58 | | |
| Medium | N04120083 | JEHR-0140-B2-M-1 | CAJ 4517Z | 1 | 5.9 | 12.7 | 38.5 | 32 | 3/8 | 1/2 | 67 | 1101 x 444 x 662 | 703 x 408 |
| | N04120084 | JEHR-0140-B2-M-3 | TAJ 4517Z | 3 | 2.9 | 4.0 | 18.0 | 32 | 3/8 | 1/2 | 67 | | |
| | N04120140 | JEHR-0170-B2-M-1 | CAJ 4519Z | 1 | 7.0 | 15.2 | 45.0 | 33 | 3/8 | 5/8 | 68 | | |
| | N04120141 | JEHR-0170-B2-M-3 | TAJ 4519Z | 3 | 3.7 | 4.8 | 22.0 | 33 | 3/8 | 5/8 | 68 | | |
| | N04120087 | JEHS-0200-B2-M-1 | ZB15KQE-PFJ | 1 | 7.9 | 18.5 | 58.0 | 33 | 3/8 | 3/4 | 70 | | |
| | N04120088 | JEHS-0200-B2-M-3 | ZB15KQE-TFD | 3 | 3.5 | 7.0 | 26.0 | 33 | 3/8 | 3/4 | 70 | | |
| | N04120089 | JEHS-0250-B2-M-1 | ZB19KQE-PFJ | 1 | 9.9 | 20.5 | 61.0 | 34 | 3/8 | 3/4 | 72 | | |
| | N04120090 | JEHS-0250-B2-M-3 | ZB19KQE-TFD | 3 | 4.8 | 7.0 | 32.0 | 34 | 3/8 | 3/4 | 72 | | |
| | N04120091 | JEHS-0300-B2-M-1 | ZB21KQE-PFJ | 1 | 12.8 | 21.5 | 82.0 | 36 | 3/8 | 3/4 | 74 | | |
| | N04120092 | JEHS-0300-B2-M-3 | ZB21KQE-TFD | 3 | 5.0 | 10.3 | 40.0 | 36 | 3/8 | 3/4 | 74 | | |
| | N04120093 | JEHS-0350-B2-M-1 | ZB26KQE-PFJ | 1 | 15.4 | 25.0 | 97.0 | 39 | 3/8 | 3/4 | 74 | | |
| | N04120094 | JEHS-0350-B2-M-3 | ZB26KQE-TFD | 3 | 6.4 | 9.0 | 46.0 | 39 | 3/8 | 3/4 | 74 | | |
| Large | N04120099 | JEHS-0350-B3-M-1 | ZB26KQE-PFJ | 1 | 14.8 | 25.0 | 97.0 | 37 | 1/2 | 3/4 | 112 | 1353 x 575 x 872 | 945 x 500 |
| | N04120100 | JEHS-0350-B3-M-3 | ZB26KQE-TFD | 3 | 6.8 | 9.0 | 46.0 | 37 | 1/2 | 3/4 | 112 | | |
| | N04120101 | JEHS-0400-B3-M-1 | ZB29KQE-PFJ | 1 | 17.0 | 28.0 | 114.0 | 37 | 1/2 | 7/8 | 119 | | |
| | N04120102 | JEHS-0400-B3-M-3 | ZB29KQE-TFD | 3 | 8.2 | 11.0 | 50.0 | 37 | 1/2 | 7/8 | 119 | | |
| | N04120103 | JEHS-0500-B3-M-3 | ZB38KQE-TFD | 3 | 9.1 | 13.5 | 65.5 | 38 | 1/2 | 7/8 | 123 | | |
| | N04120104 | JEHS-0600-B3-M-3 | ZB45KQE-TFD | 3 | 9.6 | 14.2 | 74.0 | 40 | 1/2 | 1 1/8 | 125 | | |
| | N04120105 | JEHS-0680-B3-M-3 | ZB48KQE-TFD | 3 | 12.3 | 19.1 | 101.0 | 40 | 1/2 | 1 1/8 | 126 | | |
| Twin | N04120106 | JEHS-0800-B4-M-3 | ZB57KCE-TFD | 3 | 11.4 | 21.3 | 102.0 | 43 | 3/4 | 1 1/8 | 204 | 1348 x 612 x 1727 | 940 x 560 |
| | N04120107 | JEHS-1000-B4-M-3 | ZB76KCE-TFD | 3 | 16.2 | 28.0 | 118.0 | 43 | 3/4 | 1 3/8 | 226 | | |
| | N04120137 | JEHS-1300-B4-M-3 | ZB95K5E-TFD | 3 | 22.0 | 34.0 | 140.0 | 46 | 3/4 | 1 3/8 | 238 | | |
| SP | N04120138 | JEHS-1500-B6-M-3 | ZB114K5E-TFD | 3 | 27.4 | 38.0 | 174.4 | 48 | 3/4 | 1 3/8 | 332 | 1735 x 854 x 1727 | 1240 x 808 |

**Low temperature**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Small | N04120135 | JEHR-0115-B1-L-1 | CAJ2446Z | 1 | 3.0 | 8.2 | 30.0 | 27 | 3/8 | 1/2 | 59 | 876 x 430 x 606 | 545 x 400 |
| | N04120136 | JEHR-0135-B1-L-1 | CAJ2464Z | 1 | 4.8 | 10.0 | 40.0 | 27 | 3/8 | 1/2 | 61 | | |
| Medium | N04120142 | JEHR-0180-B2-L-1 | FH2480Z XC3A | 1 | 6.7 | 12.0 | 65.0 | 35 | 3/8 | 5/8 | 81 | 1101 x 444 x 662 | 703 x 408 |
| | N04120143 | JEHR-0180-B2-L-3 | FH2480Z XG1A | 3 | 3.1 | 6.4 | 31.0 | 35 | 3/8 | 5/8 | 80 | | |
| | N04120144 | JEHR-0210-B2-L-1 | FH2511Z XC3A | 1 | 7.3 | 24.0 | 71.0 | 38 | 3/8 | 5/8 | 83 | | |
| | N04120145 | JEHR-0210-B2-L-3 | FH2511Z XG1A | 3 | 4.0 | 8.3 | 60.0 | 38 | 3/8 | 5/8 | 81 | | |
| | N04120113 | JEHS-0300-B2-L-3 | ZF09KQE-TFD | 3 | 4.4 | 6.5 | 40.0 | 33 | 3/8 | 3/4 | 78 | | |
| Large | N04120114 | JEHS-0400-B3-L-3 | ZF13KQE-TFD | 3 | 5.8 | 10.0 | 51.5 | 37 | 1/2 | 7/8 | 132 | 1353 x 575 x 872 | 945 x 500 |
| | N04120115 | JEHS-0500-B3-L-3 | ZF15KQE-TFD | 3 | 7.6 | 12.0 | 64.0 | 39 | 1/2 | 7/8 | 132 | | |
| | N04120116 | JEHS-0600-B3-L-3 | ZF18KQE-TFD | 3 | 8.5 | 12.5 | 74.0 | 41 | 1/2 | 7/8 | 133 | | |
| Twin | N04120117 | JEHS-0750-B4-L-3 | ZF25K5E-TFD | 3 | 8.1 | 16.6 | 102.0 | 41 | 1/2 | 1 1/8 | 203 | 1348 x 612 x 1727 | 940 x 560 |
| | N04120118 | JEHS-0950-B4-L-3-EVI | ZF18KVE-TFD-EVI | 3 | 8.5 | 13.0 | 74.0 | 37 | 1/2 | 7/8 | 200 | | |
| | N04120133 | JEHS-1150-B4-L-3-EVI | ZFI36KQE-TFD-EVI | 3 | 10.7 | 20.5 | 102.0 | 42 | 1/2 | 1 1/8 | 211 | | |
| | N04120146 | J EHS-1400-B4-L-3-EVI | ZF34K5E TFD EVI | 3 | 15.5 | 24.0 | 100.0 | 44 | 1/2 | 1 3/8 | 235 | | |

**NC** = Nominal Current at -10°Cte/+32°Cta MT and -35°Cte/+32°Cta LT conditions with R448A refrigerant. **MCC** = Maximum Continuous Current. **LRC** = Locked Rotor Current.
Sound Pressure Level **(SPL)** measured in an anechoic room at -10°Cte/+32°Cta MT and -25°Cte/+32°Cta LT conditions. Alternative conditions may produce different results.

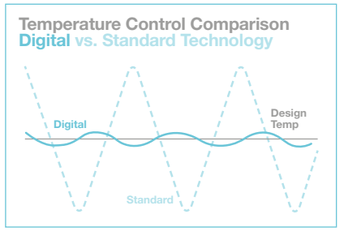
# Digital Scroll **Commercial Condensing Unit**

Digital scroll compressor capacity control matches varying display case loads and provides an energy efficient solution for commercial refrigeration applications.

The units are suitable for multi cabinet systems and multiple evaporators for coldrooms.

The J & E Hall single scroll digital range is an ideal solution for convenience stores, small supermarkets and petrol forecourts.

Twin scroll condensing units are suitable for larger convenience stores and supermarkets, and are a packaged alternative to multi-compressor racks.



Digital Twin Scroll

Digital Single Scroll

## Applications

Ideal for multiple cabinet installations;

- Convenience stores
- Larger convenience stores
- Supermarkets
- Petrol forecourts.

## Key Points

- **3 year manufacturer's parts warranty**
  Total peace of mind, maximising profit and minimising risk
- **Quality components**
  Ensures reliability and long life to save money against repairs and replacement
- **Copeland scroll compressors**
  Saves energy by accurately matching varying cooling demand 18 -100%
- **Hinged doors**
  Provides easy access for service and maintenance
- **Ease of installation**
  Plug and play concept complete with external service valves for ease of piping
- **Packaged**
  All necessary components fitted and control panel pre-wired
- **Compact**
  Can fit in areas where space is limited
- **Multi refrigerant options**
  R407A, R407F, R448A and R449A
- **Back up system**
  In the event of a controller failure the manual back up is available to eliminate downtime
- **Alarm**
  The VFC relay can be used to initiate a remote alarm reducing potential for product loss.

## Digital Single Scroll

| Part Number | Unit Model | Refrigerant | SEPR | Cooling Capacity (Watts) @ Te | | | | | | | 20°C RGT Cooling Capacity (Watts)* | SPL @ 10m dB(A) | Unit Connections | | Dry Weight (Kgs) | Dimensions (mm) (W x D x H) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | -20°C | -15°C | -10°C | -5°C | 0°C | 5°C | 10°C | | | Liquid | Suction | | |
| N04120120 | JEHSD-0400-B3-M-3 | R407A | 3.26 | 4210 | 5270 | 6440 | 7790 | 9380 | 11250 | - | 6620 | 39 | 1/2 | 7/8 | 128 | 1353 x 575 x 872 |
| | | R407F | 3.23 | - | 5660 | 6910 | 8350 | 10050 | 12150 | - | 7030 | | | | | |
| | | R448A | 3.15 | 4320 | 5280 | 6380 | 7610 | 9010 | 10600 | 12450 | 6590 | | | | | |
| | | R449A | 3.15 | 4320 | 5280 | 6380 | 7610 | 9010 | 10600 | 12450 | 6590 | | | | | |
| N04120121 | JEHSD-0600-B3-M-3 | R407A | 3.24 | 6030 | 7470 | 9150 | 11050 | 13200 | 15550 | - | 9450 | 40 | 1/2 | 7/8 | 134 | 1353 x 575 x 872 |
| | | R407F | 3.08 | 6410 | 7990 | 9730 | 11650 | 13700 | 15950 | - | 9950 | | | | | |
| | | R448A | 2.93 | 6220 | 7700 | 9320 | 11050 | 13000 | 15100 | 17450 | 9640 | | | | | |
| | | R449A | 2.93 | 6220 | 7700 | 9320 | 11050 | 13000 | 15100 | 17450 | 9640 | | | | | |
| N04120122 | JEHSD-0800-B4-M-3 | R407A | 2.75 | 8120 | 10000 | 12200 | 14750 | 17650 | 20900 | - | 12650 | 44 | 3/4 | 1 1/8 | 213 | 1348 x 612 x 1727 |
| | | R407F | 2.84 | 8300 | 10250 | 12450 | 15000 | 17850 | 21000 | - | 12750 | | | | | |
| | | R448A | 2.75 | 8370 | 10200 | 12300 | 14650 | 17300 | 20400 | 23900 | 12700 | | | | | |
| | | R449A | 2.75 | 8370 | 10200 | 12300 | 14650 | 17300 | 20400 | 23900 | 12700 | | | | | |

Rating Condition: Suction Gas Superheat 10K / Subcooling 0K / 32°C Ambient
Capacity data presented in accordance with BS EN 13215:2016

Sound Pressure Level (SPL) measured in an anechoic room (-10/+32°C) MT conditions. Alternative conditions may produce different results. *Alternative cooling capacity condition: -10°Cte/+32°Cta MT with 0K SC

## Digital Single Scroll

| Part Number | Unit Model | Refrigerant | SEPR | Cooling Capacity (Watts) @ Te | | | | | | | 20°C RGT Cooling Capacity (Watts)* | SPL @ 10m dB(A) | Unit Connections | | Dry Weight (Kgs) | Dimensions (mm) (W x D x H) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | -20°C | -15°C | -10°C | -5°C | 0°C | 5°C | 10°C | | | Liquid | Suction | | |
| N04120128 | JEHSDT-1200-B5-M-3 | R407A | 2.70 | - | 14300 | 17480 | 21200 | 25400 | 30200 | - | - | 42 | 3/4 | 1 3/8 | 315 | 1387 x 851 x 1697 |
| | | R407F | 2.79 | - | 15760 | 19440 | 23500 | 27900 | 32800 | - | 19860 | | | | | |
| | | R448A | 2.71 | - | 15480 | 18800 | 22600 | 26900 | 31900 | 37800 | 19440 | | | | | |
| | | R449A | 2.71 | - | 15480 | 18800 | 22600 | 26900 | 31900 | 37800 | 19440 | | | | | |
| N04120134 | JEHSDT-1600-B6-M-3 | R407A | 2.66 | - | 19480 | 23800 | 28300 | 33600 | - | - | - | 44 | 3/4 | 1 3/8 | 380 | 1735 x 854 x 1727 |
| | | R407F | 2.70 | - | 19650 | 24250 | 28950 | 34300 | 40300 | - | - | | | | | |
| | | R448A | 2.72 | - | 19570 | 23700 | 28050 | 33200 | 39250 | 46100 | 24550 | | | | | |
| | | R449A | 2.72 | - | 19570 | 23700 | 28050 | 33200 | 39250 | 46100 | 24550 | | | | | |

Rating condition: Suction gas superheat 10K / subcooling 0K / 32°C ambient
Capacity data presented in accordance with BS EN 13215:2016

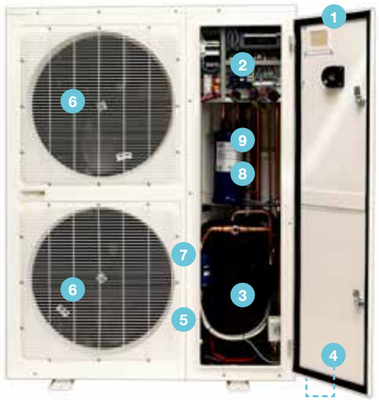
Sound Pressure Level (SPL) measured in an anechoic room (-10/+32°C) MT conditions. Alternative conditions may produce different results. *Alternative cooling capacity condition: -10°Cte/+32°Cta MT with 0K SC

## Refrigerants

| Refrigerants | GWP | TCO²eq (Tonnes CO²equivalent) |
|---|---|---|
| R407A | 2107 | GWP x total system refrigerant charge (Kgs) 1000 |
| R407F | 1825 | |
| R448A | 1387 | |
| R449A | 1397 | |

# Condensing Unit
# Copeland Eazycool ZX

Ease of install, proven Copeland scroll technology packaged with the units compact design and latest control technology.




1. Front Door with Quick Check Window
2. Universal controller with status display and adjustable settings
3. Copeland Scroll™ compressor with crankcase heater and sound jacket
4. Easy, accessible suction and liquid line connections – slanted for compact design
5. Liquid line isolating valve for drier replacement
6. Low speed fan motors with sickle blades
7. Filter drier and sight glass
8. Oil separator (LT version only)
9. Suction accumulator (LT version only)

## Key Points

- Energy saving, scroll compressor has higher efficiency than traditional piston compressors in the target applications
- Enhanced condenser coil and fan combination adjusts condensing temperature to ambient conditions
- Vapour injection technology on LT Models further increases efficiency
- Unit meet the requirements of eco-design directive (2009/125/EC)
- Maximum space saving unit design
- Low noise units, integration of low speed fan motors with fan speed controller as standard.

| Medium Temperature Models | Capacity (kW*) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | R134a | R404A | R407A | R 407F | R448A | R449A | R450A | R513A |
| ZXME-020E | 2.25 | 3.58 | 3.48 | 3.37 | 3.42 | 3.42 | 1.97 | 2.34 |
| ZXME-025E | 2.65 | 4.24 | 4.02 | 4.20 | 3.83 | 3.89 | 2.28 | 2.71 |
| ZXME-030E | 3.24 | 5.24 | 4.92 | 4.92 | 5.05 | 5.05 | 2.91 | 3.44 |
| ZXME-040E | 4.36 | 6.99 | 6.26 | 6.52** | 6.58 | 6.58 | 3.94 | 4.63 |
| ZXME-050E | 5.49 | 9.12 | 8.65 | 8.64 | 8.77 | 8.77 | 4.96 | 5.89 |
| ZXME-060E | 6.51 | 10.40 | 9.75 | 9.74 | 10.05 | 10.05 | 5.78 | 6.84 |
| ZXME-075E | 7.46 | 11.90 | 11.25 | 11.20 | 11.55 | 11.60 | 6.48 | 7.65 |

*EN 13215 Conditions: Te -10°C, Ta = 32°C, SGT 20°C
** Conditions: EN13215: Suction Superheat 10K

| Low Temperature Models | Capacity (kW*) | | | | |
|---|---|---|---|---|---|
| | R404A | R407A | R407F | R448A | R449A |
| ZXLE-020E | 1.79 | 1.39 | 1.46 | 1.45 | 1.45 |
| ZXLE-030E | 2.55 | 1.98 | 2.08 | 2.06 | 2.06 |
| ZXLE-040E | 3.96 | 3.04 | 3.19 | 3.16 | 3.16 |
| ZXLE-050E | 4.50 | 3.50 | 3.67 | 3.62 | 3.62 |
| ZXLE-060E | 5.65 | 4.16 | 4.35 | 4.56 | 4.56 |
| ZXLE-075E | 6.35 | 4.68 | 4.91 | 5.11 | 5.11 |

*EN 13215 Conditions: Te -35°C, Ta = 32°C, SGT 20°C

# Condensing Unit
# EazyCool ZX Digital

'Copeland EazyCool™ ZX Digital refrigeration units represent the top level of the ZX product platform. The advantages of the standard models compactness, silence and efficiency are further extended by the capability of continuous capacity modulation.

1. Front Door with Quick Check Window
2. Universal controller with status display and adjustable settings
3. Copeland Scroll Digital™ compressor with crankcase heater and sound jacket
4. Easy, accessible suction and liquid line connections – slanted for compact design
5. Liquid line isolating valve for drier replacement
6. Low speed fan motors with sickle blades
7. Filter drier and sight glass
8. Oil separator

Suction accumulator (LT version only)

## Key Points

- Continuous modulation from 10% to 100% capacity
- No restrictions to the operating envelope
- Immediate load adjustment
- Reduced compressor cycling with high current starting periods to a minimum
- Precise temperature control that allows lifting the evaporating temperature thus saving energy
- Superior energy efficiency through low condensing temperatures in capacity modulation mode
- Less mechanical stress on the unit due to fewer start/stop cycles
- Selection of adjusted quality components including the controller
- Proven Digital Scroll technology
- Equipped with oil separator to guarantees constant oil levels
- Oil Separator to guarantee constant oil levels.

| Medium Temperature Models | Capacity (kW*) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | R134a | R404A | R407A | R 407F | R448A | R449A | R450A | R513A |
| ZXDE-030E | 3.33 | 5.27 | 5.08 | 4.94 | 5.13 | 5.13 | 2.93 | 3.47 |
| ZXDE-040E | 4.29 | 7.58 | 7.28 | 7.20 | 7.21 | 7.21 | 3.99 | 4.78 |
| ZXDE-050E | 5.26 | 9.03 | 8.65 | 8.64 | 8.65 | 8.65 | 4.88 | 5.81 |
| ZXDE-060E | 6.34 | 10.45 | 9.75 | 8.96 | 10.10 | 10.10 | 5.74 | 6.83 |
| ZXDE-075E | 7.21 | 11.80 | 11.25 | 10.20 | 11.40 | 11.40 | 6.47 | 7.70 |

*EN 13215 Conditions, Te -10°C, Ta = 32°C, SGT 20°C

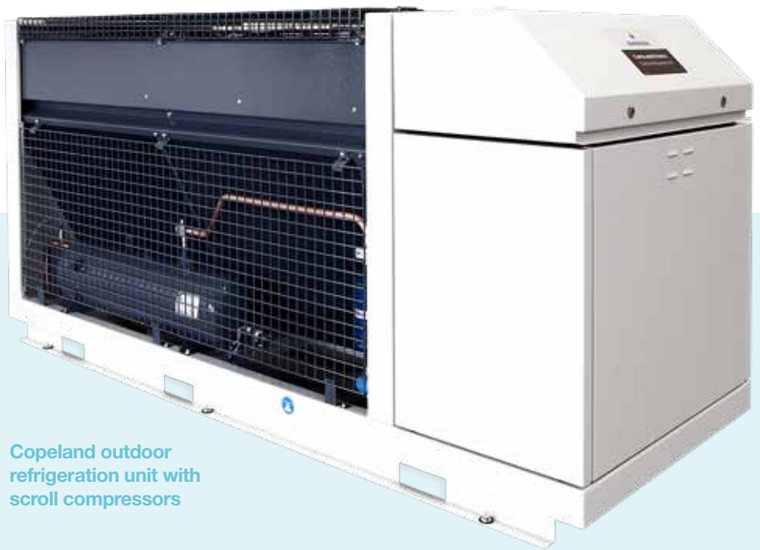
# EazyCool **Large Outdoor Condensing Unit**

Copeland air-cooled outdoor refrigeration units for medium temperature and low-temperature applications.

Emerson has developed this series of refrigeration units especially for outdoor use. They feature the latest technology in an assembly of high quality components which are adjusted for efficient and reliable operation.

The line-up offers state-of-the-art technology and models featuring stepless capacity control, vapor injection and fan speed control. This makes it the first choice for target applications in food retail and food service:

- Proximity and convenience stores
- Mini markets and supermarkets
- Bars, restaurants and kitchens
- Beer cellars and beverage coolers.



Copeland outdoor refrigeration unit with scroll compressors

## Key Points

- Standard equipment: scroll compressor, crankcase heater, condenser with thermally protected fan, fan speed control, HP and LP switch, liquid receiver, Filter drier and sight glass, weather-resistant housing
- Suitable for multiple refrigerants: R407A/F, R448A/ R449A, R404A, R134a, R450A and R513A.
- Wide range of quality accessories
- Excellent efficiency
- Filter Drier, Liquid sight glass and solenoid valve in liquid line.

## Maximum Allowable Pressure (PS)

- Low Side PS 22.5 bar (g)
- High Side PS 28 bar (g)

## Technical Overview

| Models | Displacement (m3/h) | Receiver Capacity (l) | Receiver Capacity (l) | Total Fan Motor Power (W) | Suction Line Diameter (inch) | Liquid Line Diameter (inch) | Width/Depth/ Height (mm) | Net Weight (kg) | Motor Version/ Code | Maximum Operating Current (A) | Locked Rotor Current (A) | Sound Pressure |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 3 Ph** | 3 Ph** | 3 Ph** | @10m - d(BA)*** |
| **Digital Medium Temperature Models** | | | | | | | | | | | | |
| OMTE-76D | 28.7 | 20.0 | 1 | 480 | 1 3/8 | 5/8 | 1574/920/1135 | 345 | TFD | 11+13 | 64+66 | 45 |
| OMTE-90D | 34.1 | 20.0 | 1 | 480 | 1 3/8 | 5/8 | 1574/920/1135 | 348 | TFD | 12+13 | 2x74 | 45 |
| OMTE-152D | 57.6 | 30.0 | 2 | 826 | 1 5/8 | 7/8 | 2300/920/1135 | 508 | TFD | 24+20 | 2x118 | 47 |
| **Low Temperature Models** | | | | | | | | | | | | |
| OLE-49 | 42.4 | 20.0 | 1 | 410 | 1 3/8 | 1/2 | 1574/920/1135 | 318 | TFD | 30.0 | 139 | 46 |
| **Low Temperature Digital Models** | | | | | | | | | | | | |
| OLTE-82D | 70.7 | 30.6 | 2 | 684 | 1 5/8 | 7/8 | 2300/920/1135 | 511 | TFD | 2x29 | 2x118 | 47 |

Conditions EN13215: R448A/R449A, Evaporating Temperature MT -10°C/ LT - 35°C, Ambient Temperature 32°C, Suction Gas Return 20° C
** 3 Ph: 380-420V/ 50Hz
*** @ 10m: sound pressure level at 10m distance from the compressor, free field condition

| Ambient Temperature: 32°C | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R448A / R449A | Cooling Capacity (kW) | | | | | | | R448A / R449A | Power Input (kW) | | | | | | |
| | Evaporating Temperature (°C) | | | | | | | | Evaporating Temperature (°C) | | | | | | |
| | -45 | -35 | -30 | -20 | -10 | -5 | +5 | | -45 | -35 | -30 | -20 | -10 | -5 | +5 |
| **Digital Medium Temperature Models** | | | | | | | | | | | | | | | |
| OMTE-76D | | | | 11.05 | 16.60 | 19.70 | 26.80 | OMTE-76D | | | | 7.27 | 8.25 | 8.80 | 10.10 |
| OMTQ-90D | | | | 12.95 | 19.50 | 23.20 | 31.50 | OMTQ-90D | | | | 8.20 | 9.32 | 9.94 | 11.40 |
| OMTE-152D | | | | | 34.70 | 41.50 | 56.80 | OMTE-152D | | | | | 16.20 | 17.10 | 19.40 |
| **Low Temperature Models** | | | | | | | | | | | | | | | |
| OLE-49 | | 9.35 | 11.96 | 18.87 | 27.21 | | | OLE-49 | | 7.70 | 7.78 | 8.42 | 9.41 | | |
| **Low Temperature Digital Models** | | | | | | | | | | | | | | | |
| OLTE-82D | | 13.50 | 17.00 | 25.60 | 35.90 | | | OLTE-82D | | 13.90 | 15.05 | 18.00 | 21.90 | | |

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K
* Conditions: EN13215: Suction Superheat 10K
Preliminary Data

For detailed capacity data please refer to Emerson's Select software

| Ambient Temperature: 32°C | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R134a | Cooling Capacity (kW) | | | | | | | R134a | Power Input (kW) | | | | | | |
| | Evaporating Temperature (°C) | | | | | | | | Evaporating Temperature (°C) | | | | | | |
| | -45 | -35 | -30 | -20 | -10 | -5 | +5 | | -45 | -35 | -30 | -20 | -10 | -5 | +5 |
| **Digital Medium Temperature Models** | | | | | | | | | | | | | | | |
| OMTE-76D | | | | | 10.75 | 13.05 | 18.55 | OMTE-76D | | | | | 4.96 | 5.20 | 5.77 |
| OMTE-90D | | | | | 12.50 | 15.15 | 21.60 | OMTE-90D | | | | | 5.79 | 6.11 | 6.85 |
| OMTE-152D | | | | | 21.80 | 26.60 | 22.30 | OMTE-152D | | | | | 10.10 | 10.50 | 11.45 |

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K
Preliminary Data

For detailed capacity data please refer to Emerson's Select software

# Refrigeration
# Condensing Unit

The Marstair range of refrigeration condensing units are an effective cooling solution for food display cabinets and many other refrigeration applications designed specifically for outdoor use.

Standard equipment for all models includes; fixed HP & adjustable LP switch for system protection and fan speed head pressure control for operation in low-ambient temperatures.

This quiet, efficient and wide range of units will operate free standing or wall mounted.

**5 YEAR PARTS WARRANTY AS STANDARD**

## Key Points

- Electric access door for ease of installation
- Internal sight glass for added protections
- Adjustable low pressure switch for improved pump down operation
- Gomax pressure couplers to prevent damage
- Reorganised electrics for neater finish
- Crank case heater for extra compressor protection
- Self retaining door access screws for easier maintenance
- A-grade quality components, with one size fits all spares
- Green heat ready
- Tier II Eco-design
- Available in an extensive low temp range (MCR+LT)
- 3 minute start delay timer
- Fan speed head pressure control
- BS EN 60947-3-1 isolator
- Refrigeration filter/ drier.

| Model | Ambient Temp | ELECTRICAL SUPPLY | | HP | EVAPORATING TEMPERATURE °C | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1Ph | 3Ph | | -40 | | -35 | | -30 | | -25 | | -20 | |
| | | | | | Cap. | Power | Cap. | Power | Cap. | Power | Cap. | Power | Cap. | Power |
| MRC+ 50 | 27 | ✶ | ✶ | 2 | - | - | 1.12 | 1.15 | 1.57 | 1.35 | 2.10 | 1.56 | 2.71 | 1.77 |
| | 32 | | | | - | - | 0.96 | 1.12 | 1.39 | 1.34 | 1.89 | 1.56 | 2.46 | 1.79 |
| MRC+ 60 | 27 | ✶ | ✶ | 2 1/2 | - | - | 1.39 | 1.38 | 1.99 | 1.63 | 2.69 | 1.96 | 3.54 | 2.39 |
| | 32 | | | | - | - | 1.20 | 1.36 | 1.75 | 1.62 | 2.42 | 1.90 | 3.23 | 2.21 |
| MRC+ 80 | 27 | | ✶ | 4 | 1.87 | 2.08 | 2.38 | 2.11 | 3.03 | 2.13 | 3.75 | 2.29 | 4.59 | 2.30 |
| | 32 | | | | 1.76 | 2.34 | 2.23 | 2.36 | 2.79 | 2.38 | 3.46 | 2.48 | 4.22 | 2.62 |
| MRC+ 90 | 27 | | ✶ | 5 | 2.53 | 2.85 | 3.22 | 2.87 | 3.99 | 3.21 | 4.90 | 3.42 | 5.93 | 3.70 |
| | 32 | | | | 2.38 | 3.13 | 3.01 | 3.14 | 3.77 | 3.48 | 4.58 | 3.77 | 5.51 | 4.15 |
| MRC+ 100 | 27 | | ✶ | 6 | 2.89 | 3.44 | 3.70 | 3.53 | 4.61 | 3.80 | 5.29 | 4.01 | 5.49 | 4.26 |
| | 32 | | | | 2.64 | 3.94 | 3.58 | 3.92 | 4.42 | 4.14 | 5.36 | 4.52 | 5.18 | 4.87 |

## MRC+ 15 – 180 CAPACITIES – 1 & 3 Phase

(Return gas temperature 20°C, 0°K sub cooling)

| Medium Temperature – R404A | | | |
|---|---|---|---|
| MODEL | Ambient Temp °C | -10 | |
| | | CAP. | POWER |
| MRC+ 15 | 32 | 1.1 | 0.67 |
| MRC+ 20 | 32 | 1.43 | 0.88 |
| MRC+ 30 | 32 | 2.04 | 1.2 |
| MRC+ 40 | 32 | 2.94 | 1.77 |
| MRC+ 45 | 32 | 2.91 | 1.33 |
| MRC+ 50 | 32 | 3.91 | 1.96 |
| MRC+ 60 | 32 | 4.59 | 2.18 |
| MRC+ 80 | 32 | 5.46 | 2.52 |
| MRC+ 90 | 32 | 6.38 | 2.92 |
| MRC+ 100 | 32 | 7.06 | 3.73 |
| MRC+ 130 | 32 | 8.09 | 4.24 |
| MRC+ 150 | 32 | 8.83 | 4.29 |
| MRC+ 165 | 32 | 10.53 | 5.02 |
| MRC+ 180 | 32 | 11.64 | 5.52 |

## MRC+-LT 40 – 100 CAPACITIES – 1 & 3 Phase

(Return gas temperature 20°C, 0°K sub cooling)

| Low Temperature – R404A | | | |
|---|---|---|---|
| MODEL | Ambient Temp °C | -10 | |
| | | CAP. | POWER |
| MRC+ LT40 | 32 | 0.87 | 0.84 |
| MRC+ LT50 | 32 | 1.23 | 1.25 |
| MRC+ LT60 | 32 | 1.61 | 1.6 |
| MRC+ LT60 | 32 | 2.46 | 2.32 |
| MRC+ LT90 | 32 | 3.32 | 3.1 |
| MRC+ LT100 | 40 | 3.3 | 4.9 |

## MRC+ 15 – 180 CAPACITIES – 1 & 3 Phase

(Return gas temperature 20°C, 0°K sub cooling)

| Medium Temperature – R448A – R449A | | | |
|---|---|---|---|
| MODEL | Ambient Temp °C | -10 | |
| | | CAP. | POWER |
| MRC+ 15 | 32 | 1 | 0.61 |
| MRC+ 20 | 32 | 1.3 | 0.8 |
| MRC+ 30 | 32 | 1.86 | 1.09 |
| MRC+ 40 | 32 | 2.68 | 1.61 |
| MRC+ 45 | 32 | 2.65 | 1.21 |
| MRC+ 50 | 32 | 3.56 | 1.79 |
| MRC+ 60 | 32 | 4.18 | 1.99 |
| MRC+ 80 | 32 | 4.97 | 2.3 |
| MRC+ 90 | 32 | 5.94 | 2.69 |
| MRC+ 100 | 32 | 6.53 | 3.42 |
| MRC+ 130 | 32 | 7.84 | 3.92 |
| MRC+ 150 | 32 | 8.56 | 3.96 |
| MRC+ 165 | 32 | 10.18 | 4.58 |
| MRC+ 180 | 32 | 11.16 | 5.1 |

## MRC+-LT 50 – 100 CAPACITIES – 1 & 3 Phase

(Return gas temperature 20°C, 0°K sub cooling)

| Low Temperature – R448A – R449A | | | |
|---|---|---|---|
| MODEL | Ambient Temp °C | -10 | |
| | | CAP. | POWER |
| MRC+ LT50 | 32 | 0.96 | 0.94 |
| MRC+ LT60 | 32 | 1.2 | 1.2 |
| MRC+ LT60 | 32 | 2.23 | 2.36 |
| MRC+ LT90 | 32 | 3.01 | 3.14 |
| MRC+ LT100 | 32 | 3.58 | 3.92 |

# Traditional
# Condensing Unit

The Tecumseh traditional condensing units are reliable performance and ready to install. Tecumseh continues to pioneer the design and development of condensing units for various applications.

### Cooling Capacity

-30 degrees evap: from 0.2 to 5.9 KW

-10 degrees evap: from 0.1 to 17 KW

### Key Points

**1. Refrigeration Circuit**

- Adjustable HBP / LBP pressure switch
- Condensor up to 46 degrees
- Liquid reciever
- Service valves.

**2. Pre-equipped**

- Filter drier and sight glass
- Reduction in installation time
- Increased safety by factory assembly and test.

**3. Robust Design**

- Rigid base plate
- Anti-rust coated brazed connections
- Protected painted condenser
- Robust compresser.

**4. Electrical Components**

- AC or EC fans, Compatible with variable speed
- IP 44 electrical box
- Crankcase heater
- Compressor electrical protection.

| MODEL | REFRIG. PROD., 32° amb., 10K superheat, 3K subcool, Mid/Mid Evaporation temperature (°C): | | | | | | REFRIG. PROD. EN13215 To -35 °C | | Acou. Pressure dB(A) at 10m frefield | Air flow rate m3/h | Liq. Rec. L | Pipe diam. | | Fan Diam. mm | Max. current A | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | -35° | -30° | -25° | -20° | -15° | -10° | Perf. W | COP W/W | | | | Suction | Liq. disch. | | FZ (or XC) | TZ (or XG) |
| AET2415ZBR | 159 | 209 | 267 | 331 | 402 | 479 | 195 | 0.83 | 28 | 340 | 0.75 | 3/8” | 1/4” | 200 | 3.2 | na |
| AET2420ZBR | 201 | 268 | 345 | 434 | 533 | 643 | 247 | 0.91 | 27 | 410 | 0.75 | 3/8” | 1/4” | 200 | 4.6 | na |
| CAJ/TAJN2428ZBR | 245 | 334 | 440 | 562 | 703 | 863 | 302 | 0.82 | 26 | 550 | 1.50 | 1/2” | 1/4” | 250 | 5.3 | 2.2 |
| AET2425ZBR | 266 | 354 | 454 | 568 | 695 | 836 | 328 | 0.89 | 34 | 500 | 0.75 | 3/8” | 1/4” | 250 | 4.6 | na |
| CAJN2432ZBR | 295 | 401 | 523 | 664 | 823 | 1003 | 365 | 0.89 | 28 | 550 | 1.50 | 1/2” | 1/4” | 250 | 6.0 | na |
| CAJT2432ZBR | 353 | 496 | 665 | 858 | 1078 | 1326 | 429 | 0.87 | 38 | 1130 | 1.50 | 1/2” | 1/4” | 300 | 6.5 | na |
| CAJN2440ZBR | 416 | 573 | 758 | 970 | 1213 | 1489 | 508 | 1.02 | 27 | 900 | 1.50 | 1/2” | 3/8” | 300 | 5.8 | na |
| CAJ/TAJN2446ZBR | 521 | 698 | 901 | 1129 | 1382 | 1659 | 639 | 1.05 | 31 | 900 | 2.35 | 1/2” | 3/8” | 300 | 8.4 | 3.2 |
| CAJ/TAJT2446ZBR | 548 | 742 | 959 | 1200 | 1467 | 1762 | 669 | 1.00 | 37 | 1130 | 1.50 | 1/2” | 3/8” | 300 | 8.8 | 3.1 |
| CAJ/TAJN2464ZBR | 662 | 868 | 1103 | 1366 | 1657 | 1978 | 816 | 0.98 | 33 | 900 | 2.35 | 5/8” | 3/8” | 300 | 10.2 | 4.0 |
| CAJ/TAJT2464ZBR | 740 | 982 | 1268 | 1598 | 1975 | 2400 | 898 | 0.96 | 45 | 2464 | 1.50 | 5/8” | 3/8” | 350 | 10.7 | 3.8 |
| FH/FHT2480ZBR | 987 | 1375 | 1819 | 2322 | 2888 | 3528 | 1210 | 1.14 | 43 | 1750 | 1.50 | 5/8” | 3/8” | 350 | 12.4 | 7.0 |
| FH/FHT2511ZBR | 1296 | 1848 | 2482 | 3195 | 3989 | 4871 | 1600 | 1.08 | 45 | 1750 | 1.50 | 5/8” | 3/8” | 350 | 24.4 | 8.7 |
| TAGT2513ZBR | 1472 | 2162 | 2959 | 3858 | 4856 | 5957 | 1788 | 0.99 | 51 | 3900 | 2.35 | 7/8” | 3/8” | 420 | na | 9.3 |
| TAGT2516ZBR | 1773 | 2543 | 3434 | 4446 | 5586 | 6870 | 2164 | 1.14* | 50 | 3300 | 2.35 | 7/8” | 3/8” | 420 | na | 10.2 |
| TAGT2519ZBR | 2066 | 2945 | 3968 | 5137 | 6464 | 7968 | 2514 | 1.25* | 51 | 2500 | 3.90 | 7/8” | 3/8” | 450 | na | 11.7 |
| TAGT2522ZBR | 2345 | 3271 | 4346 | 5573 | 6964 | 8540 | 2857 | 1.28* | 51 | 2500 | 3.90 | 1”1/8 | 3/8” | 450 | na | 14.2 |
| TAGT2525ZBR | 2598 | 3597 | 4728 | 5993 | 7401 | 8974 | 3167 | 1.26* | 54 | 2500 | 3.90 | 1”1/8 | 1/2” | 450 | na | 14.1 |
| TAGDT2532ZBR | 3586 | 5136 | 6909 | 8897 | 11100 | 13547 | 4371 | 1.15* | 53 | 7000 | 6.00 | 1”1/8 | 1/2” | 420 | na | 21.3 |
| TAGDT2538ZBR | 4111 | 5738 | 7598 | 9687 | 12012 | 14612 | 5021 | 1.17* | 53 | 7000 | 6.00 | 1”1/8 | 1/2” | 420 | na | 21.3 |
| TAGDT2544ZBR | 5069 | 6854 | 8918 | 11268 | 13932 | 16974 | 6205 | 1.28* | 54 | 7000 | 6.00 | 1”1/8 | 1/2” | 420 | na | 29.0 |
| TAGDT2550ZBR | 5010 | 6982 | 9290 | 11913 | 14792 | 17834 | 6138 | 1.16* | 57 | 7000 | 6.00 | 1”1/8 | 1/2” | 420 | na | 29.0 |

* SEPR instead COP / na: not applicable.

# Packaged
# Condensing Unit

Wintsys ‘packaged’ condensing unit for outdoor installation, offered as ‘entry level’ packaged condensing unit for quick and simple installation. Ease of installation for refrigeration and electrical connections.

### Cooling Capacity

-30 degrees evap: from 0.4 to 1.6 KW

-10 degrees evap: from 0.7 to 4.4 KW

### Key Points

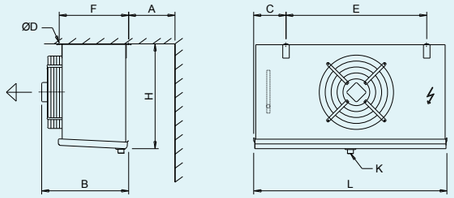
- WINTSYS ‘packaged’ condensing unit for Outdoor installation
- Lockable electrical panel with integrated isolator
- Thermostatic or Pressure control
- Includes receiver (B1) , HP/LP pressure switch (HBP1), liquid line dryer (D1) and sight glass (V1)
- LP- Auto reset; HP – auto or manual reset along with fault contacts for HP and LP.
- Additional DIN rail space provided in electrical compartment
- Cable gland connections for separate control and power wiring along with external suction and discharge connections
- Corrosion resistance to NF EN ISO9227
- Condenser rated to 46degC max ambient
- MHBP and LBP applications
- All components housed in weatherproof, corrosion and UV resistant enclosure with foot mountings
- 500 hour neutral salt spray test performance. Ideal for coastal or industrial installation
- Reduces site time and lowers cost of installation.

# Evaporators

### Casing size one

**Dimensions:**

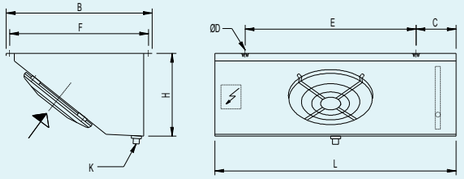
L = 752 mm
B = 430 mm
H = 455 mm
E = 460 mm
F = 332 mm
C = 165 mm
A = 300 mm
D = 11 mm
K = G¾”




### Casing size two

**Dimensions:**

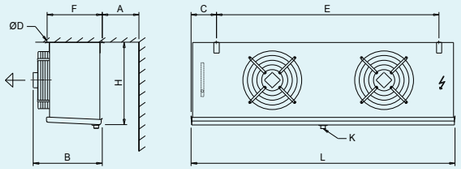
L = 964 mm
B = 580 mm
H = 337 mm
E = 680 mm
F = 552 mm
C = 160 mm
D = 11 mm
K = G¾”




### Casing size three

**Dimensions:**

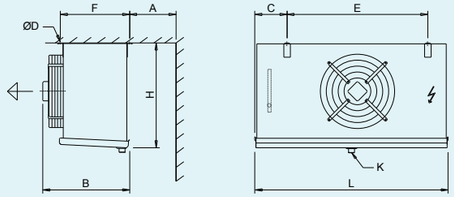
L = 1212 mm
B = 430 mm
H = 455 mm
E = 920 mm
F = 332 mm
C = 165 mm
A = 300 mm
D = 11 mm
K = G¾”




### Casing size four

**Dimensions:**

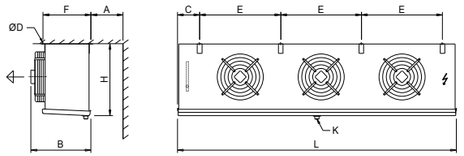
L = 752 mm
B = 430 mm
H = 455 mm
E = 460 mm
F = 332 mm
C = 165 mm
A = 300 mm
D = 11 mm
K = G¾”




### Casing size five

**Dimensions:**

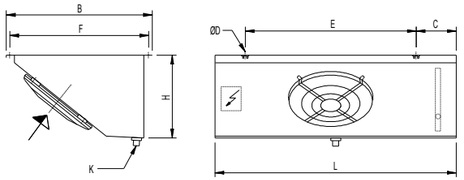
L = 2366 mm
B = 560 mm
H = 565 mm
E = 680 mm
F = 406 mm
C = 177 mm
A = 400 mm
D = 11 mm
K = G1¼”




### Casing size six

**Dimensions:**

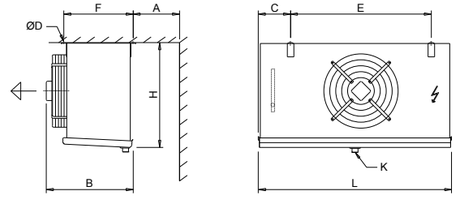
L = 964 mm
B = 580 mm
H = 234 mm
E = 680 mm
F = 552 mm
C = 160 mm
D = 11 mm
K = G¾”




### Casing size seven

**Dimensions:**

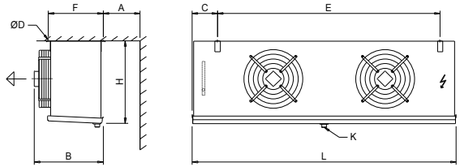
L = 752 mm
B = 430 mm
H = 455 mm
E = 460 mm
F = 332 mm
C = 165 mm
A = 300 mm
D = 11 mm
K = G¾”




### Casing size eight

**Dimensions:**

L = 1686 mm
B = 560 mm
H = 565 mm
E = 1360 mm
F = 406 mm
C = 177 mm
A = 400 mm
D = 11 mm
K = G1¼”

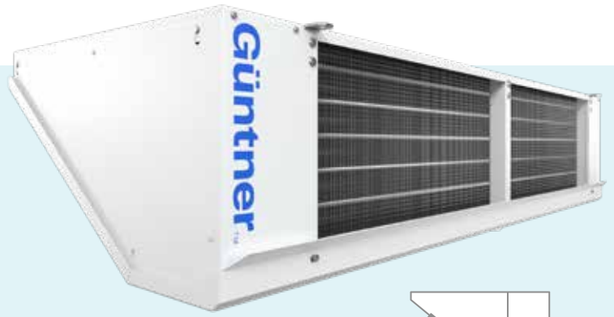


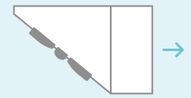

# Evaporators
# GASC – Slim compact

A great choice for saving space, the Slim COMPACT Air Cooler is the ideal solution for small and low cold stores – the flat design of the unit occupying very little space allowing optimal use of the cold room, such as in hospitality or convenience stores.

### Key Points

- High quality casing made from aluminium casing with a powder coating, which is anti-corrosive
- The entire drip tray unit and inner tray can be hinged down for easy cleaning and inspection
- Coil Defender options available
- Maintenance-free, durable fans available in AC and EC technology
- Works with all common refrigeration fluids
- HACCP Certification
- 3 Year warranty.



AIRFLOW DIRECTION

| GACC SERIES | | | | |
|---|---|---|---|---|
| Refrigerant | $t_0$ | Air inlet | Fin spacing 4 mm | Fin spacing 7mm |
| $CO_2$ | -8 °C<br>-25 °C | 0 °C<br>-18 °C | 0,8 - 14 kW | 0,6 - 12 kW<br>0,6 - 9 kW |
| Fluid | -8 °C | 0 °C | 0,8 - 16,5 kW | 0,6 - 14 kW |
| HFC / A2L | -8 °C<br>-25 °C | 0 °C<br>-18 °C | 0,8 - 13 kW | 0,6 - 10 kW<br>0,6 - 9 kW |

| MATERIALS | | | | |
|---|---|---|---|---|
| | Casing | Fin | Tray | Tube |
| AlMg | ✓ | | ✓ | |
| Aluminium | | ✓ | | |
| Aluminium - epoxy resin coating | | ✓ | | |
| Coil Defender | | ✓ | | ✓ |
| Copper | | | | ✓ |

✓ Standard ✓ Optional

| FANS | | | | |
|---|---|---|---|---|
| | 1 fan | 2 fans | 3 fans | 4 fans |
| Ø 200 mm | ✓ | ✓ | ✓ | |
| Ø 300 mm | ✓ | ✓ | ✓ | ✓ |
| Ø 315 mm | ✓ | ✓ | ✓ | ✓ |

| DEFROSTING TYPES | | |
|---|---|---|
| | Coil | Tray |
| Circulating Air | ✓ | ✓ |
| Electric | ✓ | ✓ |

✓ Standard ✓ Optional

| ACCESSORIES | | | | |
|---|---|---|---|---|
| | GACC CX | GACC FP | GACC PX | GACC RX |
| Coil Defender | ✓ | ✓ | ✓ | ✓ |
| Condensate pump | | | | |
| Epoxy coated fins | ✓ | ✓ | ✓ | ✓ |
| Streamer | | | | |
| Thread / Flange connctions | | ✓ | | |
| Wiring to terminal box | ✓ | ✓ | ✓ | ✓ |

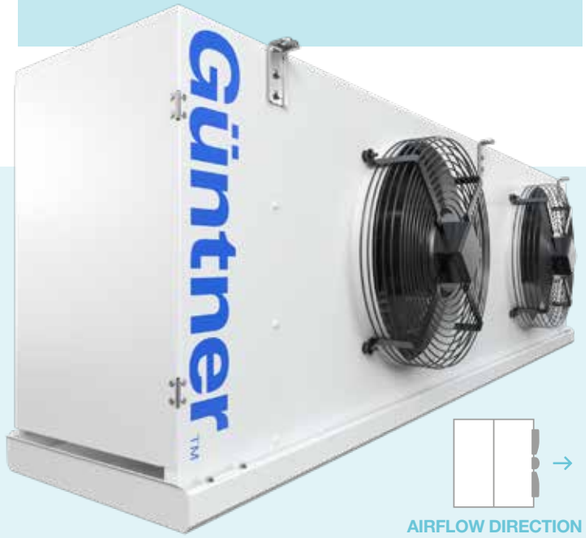
CX = CO2; FP = Fluid; PX = A2L; RX = HFC
✓ Standard ✓ Optional

# Evaporators
# GACC – Cubic Compact

The Cubic COMPACT Air Cooler is designed for high efficiency while boasting a cubic design to fit perfectly into medium-sized cold rooms like in supermarkets or catering businesses.

## Key Points

- High quality casing made from aluminium casing with a powder coating, which is anti-corrosive
- The entire drip tray unit and inner tray can be hinged down for easy cleaning and inspection
- Coil Defender options available
- Maintenance-free, durable fans available in AC and EC technology
- Works with all common refrigeration fluids
- HACCP Certification
- 3 Year warranty.






AIRFLOW DIRECTION

**GACC SERIES**

| Refrigerant | $t_0$ | Air inlet | Fin spacing 4 mm | Fin spacing 7mm |
|---|---|---|---|---|
| $CO_2$ | -8 °C<br>-25 °C | 0 °C<br>-18 °C | 1,5 - 68 kW | 1,5 - 65 kW<br>1,5 - 52 kW |
| Fluid | -8 °C | 0 °C | 2 - 82 kW | 1,5 - 79 kW |
| HFC / A2L | -8 °C<br>-25 °C | 0 °C<br>-18 °C | 1,5 - 61 kW | 1,5 - 55 kW<br>1,5 - 39 kW |

**MATERIALS**

| | Casing | Fin | Tray | Tube |
|---|---|---|---|---|
| AlMg | ✓ | | ✓ | |
| Aluminium | | ✓ | | |
| Aluminium - epoxy resin coating | | ✓ | | |
| Coil Defender | | ✓ | | ✓ |
| Copper | | | | ✓ |

✓ Standard ✓ Optional

**FANS**

| | 1 fan | 2 fans | 3 fans | 4 fans |
|---|---|---|---|---|
| Ø 200 mm | ✓ | ✓ | ✓ | |
| Ø 300 mm | ✓ | ✓ | ✓ | |
| Ø 315 mm | ✓ | ✓ | ✓ | |
| Ø 400 mm | ✓ | ✓ | ✓ | ✓ |
| Ø 500 mm | ✓ | ✓ | ✓ | ✓ |

**DEFROSTING TYPES**

| | Coil | Tray |
|---|---|---|
| Circulating Air | ✓ | ✓ |
| Electric | ✓ | ✓ |

✓ Standard ✓ Optional

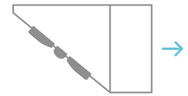
**ACCESSORIES**

| | GACC CX | GACC FP | GACC PX | GACC RX |
|---|---|---|---|---|
| Coil Defender | ✓ | ✓ | ✓ | ✓ |
| Condensate pump | | | | |
| Epoxy coated fins | ✓ | ✓ | ✓ | ✓ |
| Streamer | ✓ | ✓ | ✓ | ✓ |
| Thread / Flange connections | | ✓ | | |
| Wiring to terminal box | ✓ | ✓ | ✓ | ✓ |

CX = CO2; FP = Fluid; PX = A2L; RX = HFC
✓ Standard ✓ Optional

# Evaporators
# Mini Compact

The Mini COMPACT Air Cooler is our flattest air cooler yet. Its compact size combined with its simple yet effective design makes it a perfect fit for space-constrained environments – such as grocery shops, restaurants, or canteens – calling for a practical and cost-efficient cooling solution.



AIRFLOW DIRECTION

## Key Points

- Maximum storage space with the casing measuring only 124mm in height, mounted flush against the ceiling, it maximises the available storage space
- High quality aluminium casing with a powder coating, which is anti corrosive
- Fold away tray, smooth surfaces and plug connected fans for easy cleaning and inspection
- Energy efficient design including optimised defrost heating cuts costs by up to 30% for ventilation and 50% for defrosting
- Maintenance-free, durable fans available in EC technology
- Works with all common refrigeration fluids
- 3 year warranty
- Dual Compact – no technical details needed.
- Optimised for low draught, hardly noticeable air velocities to be expected in working areas, healthy working environment.
- Coil defender option available
- HACCP Certification.

# Cellar Cooling
# JCC Cellar Coolers

J & E Hall's standard JCC range is designed to withstand the demands of everyday cellar cooling requirements. An evaporator air straightener kit is available as a retrofit item for indoor unit models. When fitted, it pushes more air forwards and increases the airthrow distance.

Indoor Unit

Outdoor Unit

## Key Points

- Up to 25m pipe run capability for total flexibility
- Ease of installation keeps costs and time to a minimum
- 3 years warranty
- Low noise suitable for residential areas
- Operates down to 4'C and can be used for many types of product cooling
- Condensing unit comes pre-charged
- Electronic controller as standard giving accurate temperature control.

## Quick Selection Guide

| System | Quick Selection @ 12.7°C | | Cooling Capacities kW @ 32°C Ambient | | | | |
|---|---|---|---|---|---|---|---|
| | Above ground (max. room m³) | Below ground (max. room m³) | 4°C | 8°C | 10°C | 12.7°C | 16°C |
| JCC 25 | 25 | 45 | 2.36 | 2.60 | 2.74 | 2.86 | 3.06 |
| JCC 40 | 48 | 70 | 3.70 | 3.96 | 4.09 | 4.27 | 4.53 |
| JCC 50 | 56 | 90 | 4.47 | 4.59 | 4.65 | 4.74 | 4.84 |
| JCC 60 | 70 | 120 | 5.34 | 5.61 | 5.72 | 5.96 | 6.17 |

## General Specifications

| System | Model | Nominal Cooling Capacity | Unit Airflow | Noise Level | System Pipe Sizes | | Maximum Pipe Run | | Power Supply | FLA | LRA | Power To… | Inter Connecting Cable | Fuse Rating |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | kW | M³/h | dB(A) | Liquid | Suction | Length | Rise | (V/Ph/Hz) | (Amps) | (Amps) | | | (Amps) |
| JCC 25 | JCC2 25E | 2.86 | 2560 | 48 | 1/4" | 1/2" | 25m | 5m | 230/1/50 | 5.3 | N/A | Indoor | 3 Core | 16 |
| | J5LC15FV1 | | 1573 | 27 | | | | | | | 24 | | | |
| JCC 40 | JCC2 40E | 4.27 | 2270 | 48 | 1/4" | 1/2" | 25m | 8m | 230/1/50 | 7.1 | N/A | Indoor | 3 Core | 20 |
| | J5LC20CV1 | | 2225 | 32 | | | | | | | 32 | | | |
| JCC 50 | JCC2 50E | 4.74 | 2680 | 47 | 1/4" | 5/8" | 25m | 8m | 230/1/50 | 8.2 | N/A | Indoor | 3 Core | 25 |
| | J5LC25CV1 | | 2480 | 32 | | | | | | | 32 | | | |
| JCC 60 | JCC2 60E | 5.96 | 2560 | 47 | 3/8" | 5/8" | 25m | 8m | 230/1/50 | 13.3 | N/A | Indoor | 3 Core | 32 |
| | J5LC28CV1 | | 2984 | 33 | | | | | | | 63 | | | |

*Reducer required on indoor unit. Liquid line is the expansion line and as such requires insulating

## Weights & Dimensions

| Indoor Model | Width (mm) * | Depth (mm)** | Height (mm) | Weight (kg) | Outdoor Model | Width (mm) | Depth (mm) | Height (mm) | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|
| JCC2 25E | 865 | 372 | 489 | 31 | J5LC15FV1 | 658 | 273 | 550 | 26 |
| JCC2 40E | 865 | 372 | 489 | 33 | J5LC20CV1 | 855 | 328 | 651 | 47 |
| JCC2 50E | 904 | 370 | 546 | 36 | J5LC25CV1 | 855 | 328 | 651 | 50 |
| JCC2 60E | 904 | 370 | 546 | 38 | J5LC28CV1 | 855 | 328 | 651 | 57 |

**Note:** For installations that exceed 15m pipe runs then minimum room temperature achievable is 6°C. Also it is recommended that in these applications a condenser fan speed controller should be fitted within the system (available from the wholesaler).

# Cellar Cooling
# Cellar+ Systems

A powerful single indoor unit system giving exceptional cooling performance together with accurate temperature control, operating with low GWP refrigerants and capable of longer pipe runs. Ideal for the larger applications.

## Key Points

- Up to 50m pipe run capability for total flexibility
- Ease of installation
- Room temperature down to 4'C
- Operates with either R448A or R449A
- Single and three phase outdoor unit option
- Expansion valve kit included
- Air straighteners fitted as standard for increased air throw
- 3 year warranty
- All outdoor units with high quality copeland scroll compressors
- Blue fin coating on outdoor coils for added protection.

## Quick Selection Guide

| System | Indoor/Outdoor Unit | Quick Selection @ 10°C | | | Cooling Capacities kW @ 32°C Ambient | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Above ground (max. room m³) | Below ground (max. room m³) | 4°C | 6°C | 8°C | 10°C | 12°C | 12.7°C |
| Cellar Plus 70-S1/S3 | JCC2-80E / BSCU-30-M1/M3 | 100 | 155 | 5.5 | 6.0 | 6.4 | 6.9 | 7.4 | 7.5 |
| Cellar Plus 80-S1/S3 | JCC2-80E / BSCU-35-M1/M3 | 120 | 180 | 6.7 | 7.1 | 7.5 | 7.9 | 8.4 | 8.5 |

Above selections based on typical UK cellar construction: 32°C ambient (21°C for below ground). Product cooling time 24 hours, plant running time of 18 hours a day. Maximum product load of 16 l/m³ entering room at max temp of 21°C

## General Specifications

| System | Part Number | Evaporator Model | Power Supply V/Ph/Hz | FLC Amps | SFR Amps | Air Flow M³/h | Air Throw M | Noise Level @10m db(A) | Condensing Unit Model | Power Supply V/Ph/Hz | MCC Amps | LRC Amps | SFR Amps | Air Flow M³/h | Noise Level @10m dB(A) | Max Pipe Run |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cellar Plus 70-S1 | N04110043 | JCC2-80E | 230/1/50 | 1.9 | 6 | 4070 | 10 | 50 | BSCU-30-M1 | 230/1/50 | 21.5 | 82.0 | 25 | 2765 | 34 | 50 |
| Cellar Plus 70-S3 | N04110044 | JCC2-80E | 230/1/50 | 1.9 | 6 | 4070 | 10 | 50 | BSCU-30-M3 | 400/3/50 | 10.3 | 40.0 | 16 | 2765 | 34 | 50 |
| Cellar Plus 80-S1 | N04110045 | JCC2-80E | 230/1/50 | 1.9 | 6 | 4070 | 10 | 50 | BSCU-35-M1 | 230/1/50 | 25.0 | 97.0 | 32 | 3350 | 36 | 50 |
| Cellar Plus 80-S3 | N04110046 | JCC2-80E | 230/1/50 | 1.9 | 6 | 4070 | 10 | 50 | BSCU-35-M3 | 400/3/50 | 9.0 | 46.0 | 20 | 3350 | 36 | 50 |

Noise levels are measured in an anechoic chamber at nominal test conditions (Troom 10°C / 32°C Ta)
Air throws are based on a final velocity of 0.4m/s

SFR - Suggested Fuse Rating (Motor Rated for Outdoor Unit)

## Weights & Dimensions

| System | Indoor Model | Width (mm) * | Depth (mm)** | Height (mm) | Weight (kg) | Outdoor Model | Width (mm) | Depth (mm) | Height (mm) | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|
| Cellar Plus 70-S1/S3 | JCC2-80E | 1437 | 505 | 557 | 63 | BSCU-30-M1/M3 | 1108 | 478 | 649 | 77 |
| Cellar Plus 80-S1/S3 | JCC2-80E | 1437 | 505 | 557 | 63 | BSCU-35-M1/M3 | 1334 | 530 | 864 | 97 |

* Indoor unit width excludes pipe services - add approximately 70mm

** Indoor unit depth includes fan motor with air straightener

# Cellar Cooling
# **Ambient Beer Cooler**

It is estimated that up to a quarter of a pub's energy bill can be accounted for by its cellar cooling requirements, so publicans and breweries are often looking for a more cost effective way to cool their cellars. J & E Hall's ambient beer cooler has the answer.

When the outdoor temperature falls below 8°C, the ambient beer cooler uses the outdoor air to cool the cellar at a fraction of the cost.

### Key Points

- Energy efficient
- Can be integrated with any make of cellar cooler systems
- Can substantially reduce yearly cellar cooler running costs typically by 50%+
- Easy to install.

## Case **Study**

### J & E Hall cellar coolers installed at historic inn

J & E Hall cooling equipment is helping one of Britain's oldest pubs to reduce its carbon footprint as the owner looks to a greener future. Two cellar cooling systems and an ambient beer cooler have been installed at the Angel Inn which can trace its history back to the 11th Century and the time of the Domesday Book. The popular pub and restaurant in Blyth, Nottinghamshire, is located near the A1, within easy reach of Doncaster and Sheffield.

Owner Allan Jepson, whose family has run the Angel Inn for the past 27 years, said: "We have a Grade 2 Listed building but going forward I want the lowest green footprint possible. There are limitations to what we can do but if I can use high-efficiency units and an ambient cooler to cut the carbon footprint then that's the way forward."

Alan described the Angel Inn as "70 per cent food driven" with seating for 100 people inside and extra capacity outside during the warmer months. He turned to Bradford-based Pinder Cooling for the upgrade of the historic former coaching inn's two traditional underground cellars. One cellar is used to keep lagers, ciders and Guinness in tip-top condition while the other has a range of cask ales including Greene King IPA, Abbot, Timothy Taylor and Black Sheep.

J5LC 15C2 cellar coolers

Pinder Cooling has been trading for three years and employs eight people including five F-Gas qualified engineers. Owner Andrew Pinder said: "We deal with quite a few major pub groups in the UK. We are based in Bradford and cover the north of England. We do a lot of work in the food and brewing industries. We pride ourselves on customer service and using the best products. We don't cut corners."

"On this job we were initially asked if we could do some repairs but the existing equipment was quite old with one or two issues. One of the systems was not working particularly well, which was why Allan contacted us. The other one was not far behind so we decided that installing two new systems would be far more efficient, environmentally-friendly and a lot cheaper to run.

"Allan asked if there were any other things we could do to keep costs down, so we suggested a J & E Hall ambient beer cooler for the cellar where the lagers are kept. Whenever the temperature is below 6°C outside the unit will effectively provide free cooling as it will draw cold air in from outside.

"Overall the job was reasonably straightforward. The outdoor units are sat together on a wall at the back of the building. It is next to the guest accommodation but this is not an issue as when the units are running they are very quiet."

The Angel Inn, Blyth, Nottinghamshire

The J & E Hall equipment chosen for the job was two J5LC 15C2 cellar coolers, two JCC 25E evaporators and an ambient beer cooler. The JCC cellar cooler range provides cost-effective and reliable units designed to maintain temperatures required for beer and wine cellars.

The ability to maintain electronic control down to 4°C can also prolong the life of fresh fruit and vegetables, dairy products and other items requiring a temperature-controlled environment.

There are four models in the range which operate at capacities from 2.87kW to 5.82kW. The units have six fins per inch brewery specification evaporator coils and run on R410A.

Features include 25m pipe run capability for total flexibility. Ease of installation keeps costs and time to a minimum for the contractor and low noise means that the units are suitable for residential areas. The units operate down to a temperature of 4°C and an electronic controller fitted as standard provides accurate temperature control. A three-year manufacturer's warranty gives the installer and the end user total peace of mind.

Andrew Pinder concluded: "We fit two J & E Hall cellar coolers a week. Our engineers like them. The units have a three-year warranty and are very efficient and good value for money. There is always a plentiful supply and a good dealer network."

**All products featured are available at all TF Branches**

# Cellar Cooling
# R410A Cellar Cooling

## Specification

- New contemporary marble effect grey colour evaporator.
- Condensing units precharged with R410A
- The unit controls temperatures down to 8°C (dependent upon system match)
- De-ice stat is standard on CXE electronic units
- Antibacterial agent added to the chassis during the moulding process for complete mold protection throughout the material
- Waterproof power switch
- LP Switch (Indoor Unit)
- 3 minute timer
- Random start contactor
- Direct access to the electrics at the front of the unit
- ABS drain tray incorporating standard 22mm OD fitting drain stub
- Easy to install field electric heater kit with factory fit option
- Optional ducted condensing units for where external installations are not feasible
- Air throws to suit all applications.

## Key Points

- Up to 25m pipe run
- One piece molded body, impregnated with an anti bacterial additive, ideal for cellar cooling and food preparation areas
- Industrial standard 6 fins per inch evaporator coil
- 17 series with smaller 5mm tube sizes in both the evaporator and condensing coils gives reduced refrigerant requirements without compromising the system duty.
- Condensing unit pre charged for uo to 7.5m pipe run
- Capacity range 2.3kW-5.68kW @ 12.7'C
- Mounting brackets suitable for both wall and ceiling mounting.

## CX(E)A with electronic control

Lightweight indoor units for easy installation:

CX(E)A 30 - 18kg  CX(E)A 40 - 18kg
CX(E)A 50 - 20kg  CX(E)A 70 - 23kg

Dimensions:

CX(E)A 30 - 70 - 467mm x 845mm x 320mm

## Approximate Guide to Cellar Sizing in m³ at 27°C Ambient

| SYSTEM | Above Ground | | Below Ground | |
|---|---|---|---|---|
| | Cellar in m³ | | Cellar in m³ | |
| | 8°C | 12.7°C | 8°C | 12.7°C |
| CX(E)A 30 / CKA 35 | 20 | 26 | 25 | 36 |
| CX(E)A 50 / CKA 35 | 27 | 38 | 44 | 63 |
| CX(E)A 50 / CKA 50 | 38 | 54 | 62 | 89 |
| CX(E)A 70 / CKA 70 | 54 | 78 | 88 | 125 |

## Quick Selection Guide

| SYSTEM | DUTY @ 12.7°C 27°C AMBIENT | | | DUTY @ 12.7°C 35°C AMBIENT | | | DUTY @ 8°C 27°C AMBIENT | | | DUTY @ 8°C 35°C AMBIENT | | | INTERCONNECTING PIPEWORK | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TD (kW) | SD (kW) | INPUT (kW) | TD (kW) | SD (kW) | INPUT (kW) | TD (kW) | SD (kW) | INPUT (kW) | TD (kW) | SD (kW) | INPUT (kW) | Suction | Liquid/ Expansion |
| CX(E)A 30 / CKA 35 | 2.28 | 1.98 | 1.17 | 2.20 | 1.77 | 1.30 | 1.79 | 1.69 | 1.15 | 1.73 | 1.20 | 1.25 | 1/2" | 1/4" |
| CX(E)A 50 / CKA 35 | 3.25 | 2.48 | 1.19 | 2.83 | 2.15 | 1.25 | 3.06 | 2.36 | 1.15 | 2.66 | 1.80 | 1.25 | 1/2" | 1/4" |
| CX(E)A 50 / CKA 50 | 4.25 | 2.90 | 1.62 | 3.50 | 2.45 | 1.60 | 3.44 | 2.40 | 1.51 | 2.83 | 2.00 | 1.50 | 1/2" | 1/4" |
| CX(E)A 70 / CKA 70 | 5.60 | 3.83 | 2.31 | 4.62 | 3.24 | 2.46 | 4.54 | 3.17 | 2.16 | 3.74 | 2.60 | 2.30 | 5/8" | 3/8" |

Allow a 3.5% reduction in capacity for pipe runs above 15m

## Sound Pressure Levels

| INDOOR UNIT | |
|---|---|
| MODEL | SOUND PRESSURE LEVELS dB(A) |
| CX(E)A 30 | 39.0 |
| CX(E)A 50 | 40.5 |
| CX(E)A 70 | 39.9 |

| OUTDOOR UNIT | |
|---|---|
| MODEL | SOUND PRESSURE LEVELS dB(A) |
| CKA 35 | 41.5 |
| CKA 50 | 44.5 |
| CKA 70 | 44.5 |

Sound Pressure Levels in dB(A) at 10m distance in free field conditions. (Reference $2x10^{-5}$ N/m²)

## Unpacked Dimensions

| CX(E)A INDOOR UNIT | | | | |
|---|---|---|---|---|
| SYSTEM | HEIGHT mm | HEIGHT mm | DEPTH mm | WEIGHT kg |
| CX(E)A 30 | 467 | 845 | 320 | 18 |
| CX(E)A 50 | 467 | 845 | 320 | 20 |
| CX(E)A 70 | 467 | 845 | 320 | 23 |

| CKA OUTDOOR UNIT | | | | |
|---|---|---|---|---|
| SYSTEM | HEIGHT mm | HEIGHT mm | DEPTH mm | WEIGHT kg |
| CKA 35 | 552 | 760 | 256 | 34 |
| CKA 50 | 552 | 760 | 256 | 42 |
| CKA 70 | 660 | 860 | 307 | 56 |

# Controls

## Electronic Controllers & Controls Panels

| Make | Model | Voltage | Compressor Relay | Defrost Relay | Fan Relay |
|---|---|---|---|---|---|
| Danfoss | ERC211 including 1 x Probes | 230v | 16A | N/A | |
| | ERC213 including 2 x Probes | 230v | 16A | 8A | 3A |
| | EKS221 3.5m Probe (spare) | | | | |
| Eliwell | ID Cool including 1 x Probes | 230v | 8A | N/A | |
| | ID Chill'n'Freeze including 2 x Probes | 230v | 8A | 3A | 2A |
| | NTC 1.5m Probe | | | | |
| | PTC 1.5m Probe | | | | |
| Danfoss | Optyma Control Panels | | | | |
| | AKRC111 including 2 x Probes | 230v 1ph | 16A | 16A | 2.7A |
| | AKRC113 including 2 x Probes | 400v 3ph | 7-10A | 6 kW | 500W |
| | EKS221 3.5m Probe (spare) | | | | |

## Ranco / Elliwell Pressure Switch Range

Switching 16A inductive in 240V on the main contact (NO. or NF) and 1A inductive in 240V on the opposite contact

| Single Model | Pressure Range | Reset | Ranco Code |
|---|---|---|---|
| LP Auto | -0.3-7 bar | Automatic | 016H6703 |
| LP Man | -0.3-7 bar | Manual | 016H6705 |
| HP Auto | 7-30 bar | Automatic | 016H6750 |
| HP Man | 7-30 bar | Manual | 016H6751 |

| Dual Model | Ranco Code |
|---|---|
| LP Auto/HP Auto | 017H4701 |
| LP Man/HP Auto | 017H4703 |
| LP Auto/HP Man | 017H4705 |
| Same pressure ratings as the singles | |

| Ancillaries |
|---|
| 1m Pressure Coupler with Depresser |
| 1m Pressure Coupler without Depresser |
| Flat Bracket |
| Angled Bracket |

# Valves

## Henry Ball Valves*

| Size | Connection |
|---|---|
| 1/4" | Solder |
| 3/8" | Solder |
| 1/2" | Solder |
| 5/8" | Solder |
| 3/4" | Solder |
| 7/8" | Solder |
| 1-1/8" | Solder |
| 1-3/8" | Solder |

| Size | Connection |
|---|---|
| 1-5/8" | Solder |
| 2-1/8" | Solder |
| 2-5/8" | Solder |

*Available with or without access ports.

# Valves

## TE2 Expansion Valves

| Model | Refrigerant | Equalization Type | Connection Type | Danfoss Code |
|---|---|---|---|---|
| TE2 | R448A R449A | External | Solder | 068Z3730 |
| TE2 | R448A R449A | External | Flare | 068Z3728 |
| T2 | R448A R449A | Internal | Solder | 068Z3729 |
| T2 | R448A R449A | Internal | Flare | 068Z3727 |
| TE2 | R452A | External | Solder | 068Z3807 |
| TES2 | R404A | External | Solder | 068Z3415 |
| TES2 | R404A | External | Flare | 068Z3403 |
| TS2 | R404A | Internal | Flare | 068Z3400 |
| TEN2 | R134a | External | Solder | 068Z3385 |
| TN2 | R134a | Internal | Solder | 068Z3383 |
| TEN2 | R134a | External | Flare | 068Z3348 |
| TN2 | R134a | Internal | Flare | 068Z3346 |
| TEX2 | R22/R407C | External | Solder | 068Z3284 |
| TX2 | R22/R407C | Internal | Flare | 068Z3206 |
| TEZ2 | R407C | External | Flare | 068Z3501 |
| TE2 | R407A/R407F | External | Solder | 068Z3713 |

## TE2 Orifices

| Size | Connection Type | Danfoss Code |
|---|---|---|
| No: 0 | Flare | 068-2003 |
| No: 0 | Solder | 068-2090 |
| No: 1 | Flare | 068-2010 |
| No: 1 | Solder | 068-2091 |
| No: 2 | Flare | 068-2015 |
| No: 2 | Solder | 068-2092 |
| No: 3 | Flare | 068-2006 |
| No: 3 | Solder | 068-2093 |
| No: 4 | Flare | 068-2007 |
| No: 4 | Solder | 068-2094 |
| No: 5 | Flare | 068-2008 |
| No: 5 | Solder | 068-2095 |
| No: 6 | Flare | 068-2009 |
| No: 6 | Solder | 068-2096 |

## TE2 Solder Adapter

| Connection Size | Connection Type | Danfoss Code |
|---|---|---|
| 1/4" | Solder | 068-2062 |
| 3/8" | Solder | 068-2060 |

## TE5 Power Elements

| Model | Refrigerant | Danfoss Code |
|---|---|---|
| TE5 | R448A R449A | 067B3252 |
| TES5 | R404A | 067B3342 |
| TEN5 | R134a | 067B3297 |
| TEZ5 | R407C | 067B3278 |

## TE5 Orifices

| Size | Danfoss Code |
|---|---|
| No: 0.5 | 067B2788 |
| No: 1 | 067B2789 |
| No: 2 | 067B2790 |
| No: 3 | 067B2791 |
| No: 4 | 067B2792 |

## TE5 Valve Bodies

| Model | Orientation | Sizes | Type | Danfoss Code |
|---|---|---|---|---|
| TE5 | Angled | 1/2" x 5/8" | Solder | 067B4009 |
| TE5 | Angled | 1/2" x 5/8" | Flare | 067B4013 |
| TE5 | Angled | 1/2" x 7/8" | Solder | 067B4011 |

## TE12 Power Elements

| Model | Refrigerant | Danfoss Code |
|---|---|---|
| TE12 | R448A R449A | 067B2512 |
| TES12 | R404A | 067B3347 |

## TE12 Orifices

| Size | Danfoss Code |
|---|---|
| No: 5 | 067B2708 |
| No: 6 | 067B2709 |
| No: 7 | 067B2710 |

## TE12 Valve Bodies

| Model | Orientation | Sizes | Type | Danfoss Code |
|---|---|---|---|---|
| TE12 | Angled | 5/8" x 7/8" | Solder | 067B4022 |
| TE12 | Angled | 7/8" x 1 1/8" | Solder | 067B4023 |
| TE12 | Straight | 7/8" x 1 1/8" | Solder | 067B4021 |

# Refrigerants

**Reclaim high GWP refrigerants also available**

## HFCs

9.1/25 Kg

9/46 Kg

12/13.6/25/57 Kg
800 Kg Drum, ISO Tank

9/20/46 Kg
720 Kg Drum

9/20/46 Kg
720 Kg Drum

9/20/46 Kg
720 Kg Drum

9/20/46 Kg
720 Kg Drum

9/20/46 Kg
720 Kg Drum, ISO Tank

12/20/46 Kg
720 Kg Drum

12/46 Kg
800 Kg Drum

12/46 K
720 Kg Drum

3.2/7.2 Kg

## HFO/ HFC Mixture

9/46

9/46 Kg

9/46 Kg

9/46 Kg

9/46 Kg

9/46 Kg

9/46 Kg

9/46 Kg

9/46 Kg

12/46 Kg

## HFOs

9/20/46kg

9/57 Kg

**12 MONTHS FREE RENTAL**

## Natural Refrigerants

5 / 11.5 Kg

56 Kg
530 Kg Drum

7.6 / 22.8 / 38 Kg

5 Kg

**12 MONTHS FREE RENTAL**

# Ancillaries

Our ancillaries are market leading brands

armacell

Danfoss

eliwell by Schneider Electric

HENRY TECHNOLOGIES

LAWTON TUBES
The nations copper specialist

ARANCO

SPORLAN

# Line **components**

## Danfoss Solenoid Valves & Coils

| Model | Size |
|---|---|
| EVR 3 | 1/4" |
| EVR 3 | 3/8" |
| EVR 6 | 3/8" |
| EVR 6 | 1/2" |
| EVR 10 | 1/2" |
| EVR 10 | 5/8" |
| EVR 15 | 7/8" |
| 10W Terminal box 230V | |

Other sizes are available on request.

## Drier Cores

| Type | Line | Size |
|---|---|---|
| S-484-CM | Liquid | 48" |
| S-848-C | Liquid | 48" |
| S-848-CC | Liquid | 48" |
| S-848-F | Suction | 48" |

Drier Housing Shells also available

## Sporlan Sight Glass

| Size | Connection Type | | |
|---|---|---|---|
| | Solder | M x M Flare | M x F Flare |
| 1/4" | ✓ | ✓ | ✓ |
| 3/8" | ✓ | ✓ | ✓ |
| 1/2" | ✓ | ✓ | ✓ |
| 5/8" | ✓ | ✓ | N/A |
| 7/8" | ✓ | N/A | N/A |

## Sporlan Filter Driers

| Type | Connection Size | Connection Type | Part Number |
|---|---|---|---|
| C032 | 1/4" | FLARE | 400000C |
| C032 | 1/4" | SOLDER | 400052C |
| C052 | 1/4" | FLARE | 400200C |
| C052 | 1/4" | SOLDER | 400249C |
| C053 | 3/8" | FLARE | 400288C |
| C053 | 3/8" | SOLDER | 400329C |
| C082 | 1/4" | SOLDER | 400429C |
| C082 | 1/4" | FLARE | 400416C |
| C083 | 3/8" | FLARE | 400472C |
| C083 | 3/8" | SOLDER | 400503C |
| C084 | 1/2" | FLARE | 400536C |
| C084 | 1/2" | SOLDER | 400585-001 |
| C163 | 3/8" | FLARE | 401048C |
| C163 | 3/8" | SOLDER | 401021C |
| C164 | 1/2" | FLARE | 401128C |
| C164 | 1/2" | SOLDER | 401023C |
| C165 | 5/8" | FLARE | 401216C |
| C165 | 5/8" | SOLDER | 401035C |
| C307 | 7/8" | SOLDER | 401505 |

# Quick **selection**

## 2'C CHILLER (FLOORLESS) - J&E Hall - R448A/R449A

| Room | | | | System Selection | | |
|---|---|---|---|---|---|---|
| BOM Code | Max Size (m3) | Req. Duty (Watts) | Power Supply | Condenser | Evaporator | Heater Kit |
| 1CFL JEH | 6 | 1000 | 1Ph, N & E - 230V | JEHR-0050-B1-M-1 | GASC - 1821041 | AY7.001474 |
| 2CFL JEH | 9 | 1310 | 1Ph, N & E - 230V | JEHR-0067-B1-M-1 | GASC - 1821041 | AY7.001474 |
| 3CFL JEH | 11 | 1580 | 1Ph, N & E - 230V | JEHR-0100-B1-M-1 | GASC - 1821068 | AY7.001474 |
| 4CFL JEH | 16 | 1950 | 1Ph, N & E - 230V | JEHR-0113-B1-M-1 | GASC - 1821071 | AY7.001474 |
| 5CFL JEH | 23 | 2510 | 1Ph, N & E - 230V | JEHR-0140-B2-M-1 | GASC - 1821070 | AY7.001475 |
| 6CFL JEH | 30 | 2950 | 1Ph, N & E - 230V | JEHR-0170-B2-M-1 | GASC - 1821065 | AY7.001475 |
| 7CFL JEH | 42 | 3900 | 1Ph, N & E - 230V | JEHS-0200-B2-M1 | GACC-1845996 | Included |
| 8CFL JEH | 42 | 3900 | 3Ph, N & E - 400V | JEHS-0200-B2-M-3 | | |
| 9CFL JEH | 50 | 4460 | 1Ph, N & E - 230V | JEHS-0250-B2-M-1 | GACC - 1846007 | Included |
| 10CFL JEH | 50 | 4460 | 3Ph, N & E - 400V | JEHS-0250-B2-M-3 | | |
| 11CFL JEH | 64 | 5450 | 1Ph, N & E - 230V | JEHS-0300-B2-M-1 | GACC - 1846000 | Included |

| Casing | TEV | | | Solenoid | | | Controllers | Piping Information | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sizes | Valve | Orifice Size | Solder Adaptor | Valve (EVR) | Connection | Coil | Evaporator | Max Run (m) | Liquid | Suction (Requires 13mm Insulation) |
| 6 | DANFOSS TE2 SOLDER R448A/R449A | No. 00 | 1/4" | 032F1206 (EVR 3) | 1/4" ODS (SOLDER) | 230V 10W Terminal Box | AKRC-111 - 16A RCBO | 15 | 1/4" | 1/2" |
| 6 | | | 3/8" | 032F1204 (EVR 3) | 3/8" ODS (SOLDER) | | | | 3/8" | |
| 2 | | | | | | | | | | 5/8" |
| 2 | | No. 01 | | | | | | | | |
| 2 | | | | | | | | | | 3/4 |
| 2 | | | | | | | | | | |
| 3 | | No. 03 | | | | | | | | 7/8" |
| 3 | | | | | | | | | | |
| 3 | | | | | | | | | | |

## 2'C CHILLER (FLOORLESS) - Copeland - R448A/R449A

| Room | | | | System Selection | | |
|---|---|---|---|---|---|---|
| BOM Code | Max Size (m3) | Req. Duty (Watts) | Power Supply | Condenser | Evaporator | Heater Kit |
| 1CFL C | 20 | 2300 | 1Ph, N & E - 230v | ZXME-013E-PFJ | GASC - 1821071 | AY7.001474 |
| 2CFL C | 25 | 2680 | 1Ph, N & E - 230v | ZXME-015E-PFJ | GASC - 1821070 | AY7.001475 |
| 3CFL C | 30 | 3040 | 1Ph, N & E - 230v | ZXME-018E-PFJ | GASC - 1821065 | AY7.001475 |
| 4CFL C | 40 | 3900 | 1Ph, N & E - 230v | ZXME-020E-PFJ | GACC - 1820848 | BG351035-00002 |
| 5CFL C | 45 | 4130 | 1Ph, N & E - 230v | ZXME-020E-PFJ | GACC - 1845996 | Included |
| 6CFL C | 45 | 4130 | 3Ph, N & E - 400v | ZXME-020E-TFD | GACC - 1845996 | Included |
| 7CFL C | 58 | 4850 | 1Ph, N & E - 230v | ZXME-025E-PFJ | GACC - 1846007 | Included |
| 8CFL C | 58 | 4850 | 3Ph, N & E - 400v | ZXME-025E-TFD | | |
| 9CFL C | 72 | 6000 | 1Ph, N & E - 230v | ZXME-030E-PFJ | GACC - 1846000 | |
| 10CFL C | 72 | 6000 | 3Ph, N & E - 400v | ZXME-030E-TFD | | |

| Casing | TEV | | | Solenoid | | | Controllers | Piping Information | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sizes | Valve | Orifice Size | Solder Adaptor | Valve (EVR) | Connection | Coil | Evaporator | Max Run (m) | Liquid | Suction (Requires 13mm Insulation) |
| 2 | DANFOSS TE2 SOLDER R448A/R449A | No. 01 | 3/8" | 032F1204 (EVR 3) | 3/8" ODS (SOLDER) | 230V 10W Terminal Box | AKRC-111 - 16A RCBO | 15 | 3/8" | 5/8" |
| 2 | | | | | | | | | | |
| 2 | | No. 02 | | | | | | | | |
| 1 | | No. 03 | | | | | | | | 3/4" |
| 3 | | | | | | | | | | |
| 3 | | | | | | | | | | |
| 3 | | | | | | | | | | 7/8" |
| 3 | | | | | | | | | | |

## 2'C CHILLER (FLOORLESS) - Marstair - R448A/R449A

| Room | | | | System Selection | | |
|---|---|---|---|---|---|---|
| BOM Code | Max Size (m3) | Req. Duty (Watts) | Power Supply | Condenser | Evaporator | Heater Kit |
| 1CFL M | 7 | 1230 | 1Ph, N & E - 230V | MRC+15 1PHASE | GASC - 1821041 | AY7.001474 |
| 2CFL M | 12 | 1630 | 1Ph, N & E - 230V | MRC+20 1PHASE | GASC - 1821068 | AY7.001474 |
| 3CFL M | 20 | 2300 | 1Ph, N & E - 230V | MRC+30 1PHASE | GASC - 1821071 | AY7.001474 |
| 4CFL M | 32 | 3250 | 1Ph, N & E - 230V | MRC+40 1PHASE | GASC - 1821065 | AY7.001475 |
| 5CFL M | 40 | 3900 | 1Ph, N & E - 230V | MRC+50 1PHASE | GACC - 1820848 | BG351035-00002 |
| 6CFL M | 45 | 4130 | 1Ph, N & E - 230V | MRC+50 1PHASE | GACC - 1845996 | Included |
| 7CFL M | 45 | 4130 | 3Ph, N & E - 400V | MRC+50 3PHASE | | Included |
| 8CFL M | 58 | 4850 | 1Ph, N & E - 230V | MRC+60 1PHASE | GACC - 1846007 | Included |
| 9CFL M | 58 | 4850 | 3Ph, N & E - 400V | MRC+60 3PHASE | | |
| 10CFL M | 70 | 5860 | 3Ph, N & E - 400V | MRC+80 3PHASE | | Included |
| 11CFL M | 87 | 6980 | 3Ph, N & E - 400V | MRC+90 3PHASE | GACC - 1846000 | Included |

| Casing | TEV | | | Solenoid | | | Controllers | Piping Information | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sizes | Valve | Orifice Size | Solder Adaptor | Valve (EVR) | Connection | Coil | Evaporator | Max Run (m) | Liquid | Suction (Requires 13mm Insulation) |
| 6 | DANFOSS TE2 SOLDER R448A/R449A | No. 00 | 1/4" | 032F1206 (EVR 3) | 1/4" ODS (SOLDER) | 230V 10W Terminal Box | AKRC-111 - 16A RCBO | 15 | 1/4" | 1/2" |
| 2 | | | 3/8" | 032F1204 (EVR 3) | 3/8" ODS (SOLDER) | | | | 3/8" | |
| 2 | | No. 01 | | | | | | | | 5/8" |
| 2 | | No. 02 | | | | | | | | 3/4" |
| 1 | | | | | | | | | | |
| 3 | | No. 03 | | | | | | | | |
| 3 | | | | | | | | | | 7/8" |
| 3 | | | | | | | | | | |
| 3 | | No. 04 | | 032L1209 (EVR6) | 1/2" ODS SOLDER | | | | 1/2" | 1-1/8" |

# Quick selection – **Freezers**

## -20'C FREEZER - J&E Hall - R452A & R448A/R449A

| Room | | | | System Selection | | |
|---|---|---|---|---|---|---|
| BOM Code | Max Size (m3) | Req. Duty (Watts) | Power Supply | Condenser | Evaporator | Heater Kit |
| 1F JEH | 3 | 880 | 1Ph, N & E - 230v | JEHR-0115-B1-L-1 | GASC - 1821068 | AY7.001474 |
| 2F JEH | 6 | 1000 | 1Ph, N & E - 230v | JEHR-0135-B1-L-1 | GASC - 1821071 | |
| 3F JEH | 16 | 1800 | 1Ph, N & E - 230v | JEHR-0180-B2-L-1 | GASC - 1821070 | AY7.001475 |
| 4F JEH | 23 | 2300 | 1Ph, N & E - 230v | JEHR-0210-B2-L-1 | | |
| 5F JEH | 25 | 2400 | 3Ph, N & E - 400v | JEHS-0300-B2-L-3 | | |
| 6F JEH | 45 | 3650 | 3Ph, N & E - 400v | JEHS-0400-B3-L-3 | GACC - 1846007 | Included |

| Casing | TEV | | | Solenoid | | | Controllers | Piping Information | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sizes | Valve | Orifice Size | Solder Adaptor | Valve (EVR) | Connection | Coil | Evaporator | Max Run (m) | Liquid | Suction (Requires 19mm Insulation) |
| 2 | DANFOSS TE2 SOLDER R448A/R449A | No. 01 | 3/8" | 032F1204 (EVR 3) | 3/8" ODS (SOLDER) | 230V 10W Terminal Box | AKRC-111 - 16A RCBO | 15 | 3/8" | 5/8" |
| | | | | | | | | | | 3/4" |
| 2 | | No. 03 | | | | | | | | 7/8" |
| 3 | | | | | | | | | | 1-1/8" |

## -20'C FREEZER - Copeland - R449A/R448A

| Room | | | | System Selection | | |
|---|---|---|---|---|---|---|
| BOM Code | Max Size (m3) | Req. Duty (Watts) | Power Supply | Condenser | Evaporator | Heater Kit |
| 1F C | 18 | 1980 | 1Ph, N & E - 230v | ZXLE-018E-PFJ | GASC - 1821070 | AY7.001475 |
| 2F C | 21 | 2180 | 1Ph, N & E - 230v | ZXLE-020E-PFJ | GASC - 1821070 | |
| 3F C | 21 | 2180 | 3Ph, N & E - 400v | ZXLE-020E-TFD | GASC - 1821070 | |
| 4F C | 26 | 2480 | 1Ph, N & E - 230v | ZXLE-028E-PFJ | GASC - 1821070 | |
| 5F C | 27 | 2580 | 1Ph, N & E - 230v | ZXLE-025E-PFJ | GACC - 1821070 | |
| 6F C | 33 | 2960 | 1Ph, N & E - 230v | ZXLE-030E-PFJ | GACC - 1845996 | Included |
| 7F C | 33 | 2960 | 3Ph, N & E - 400v | ZXLE-030E-TFD | GACC - 1845996 | Included |
| 8F C | 59 | 4400 | 3Ph, N & E - 400v | ZXLE-040E-TFD | GACC - 1846007 | Included |

| Casing | TEV | | | Solenoid | | | Controllers | Piping Information | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sizes | Valve | Orifice Size | Solder Adaptor | Valve (EVR) | Connection | Coil | Evaporator | Max Run (m) | Liquid (Requires 13mm Insulation) | Suction (Requires 19mm Insulation) |
| 2 | DANFOSS TE2 SOLDER R448A/R449A | No. 01 | 3/8" | 032F1204 (EVR 3) | 3/8" ODS | 10W Term Box | AKRC 111 - 16A RCBO | 25 | 3/8" | 3/4" |
| 2 | | | | | | | | | | 7/8" |
| 2 | | | | | | | | | | |
| 2 | | No. 02 | | | | | | | | |
| 2 | | | | | | | | | | |
| 3 | | | | | | | | 30 | | |
| 3 | | | | | | | | | | |
| 3 | | No. 03 | | | | | | | | 1-1/8" |

## -20'C FREEZER - Marstair - R448A/R449A

| Room | | | | System Selection | | |
|---|---|---|---|---|---|---|
| BOM Code | Max Size (m3) | Req. Duty (Watts) | Power Supply | Condenser | Evaporator | Heater Kit |
| 1F M | 5 | 1000 | 1Ph, N & E - 230v | MRC+LT40 1 PHASE | GASC - 1821068 | AY7.001474 |
| 2F M | 13 | 1600 | 1Ph, N & E - 230v | MRC+LT50 1 PHASE | GASC - 1821071 | |
| 3F M | 21 | 2190 | 1Ph, N & E - 230v | MRC+LT60 1 PHASE | GASC - 1821070 | AY7.001475 |
| 4F M | 38 | 3240 | 3Ph, N & E - 400v | MRC+LT80 1 PHASE | GACC - 1845996 | Included |
| 5F M | 56 | 4295 | 3Ph, N & E - 400v | MRC+LT90 1 PHASE | GACC - 1846000 | Included |
| 6F M | 68 | 4960 | 3Ph, N & E - 400v | MRC+LT100 1 PHASE | GACC - 1846000 | Included |

| Casing | TEV | | | Solenoid | | | Controllers | Piping Information | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sizes | Valve | Orifice Size | Solder Adaptor | Valve (EVR) | Connection | Coil | Evaporator | Max Run (m) | Liquid | Suction (Requires 19mm Insulation) |
| 2 | DANFOSS TE2 SOLDER R448A/R449A | No. 00 | 1/4" | 032F1206 (EVR 3) | 1/4" ODS (SOLDER) | 230V 10W Terminal Box | AKRC-111 - 16A RCBO | 15 | 3/8" | 5/8" |
| | | No. 01 | 3/8" | 032F1204 (EVR 3) | 3/8" ODS (SOLDER) | | | | | 3/4" |
| 2 | | No. 02 | | | | | | | | 7/8" |
| 3 | | No. 03 | | | | | | | | |
| 3 | | No. 04 | | | | | | | | |
| 3 | | No. 05 | | | | | | | | 1-1/8" |

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