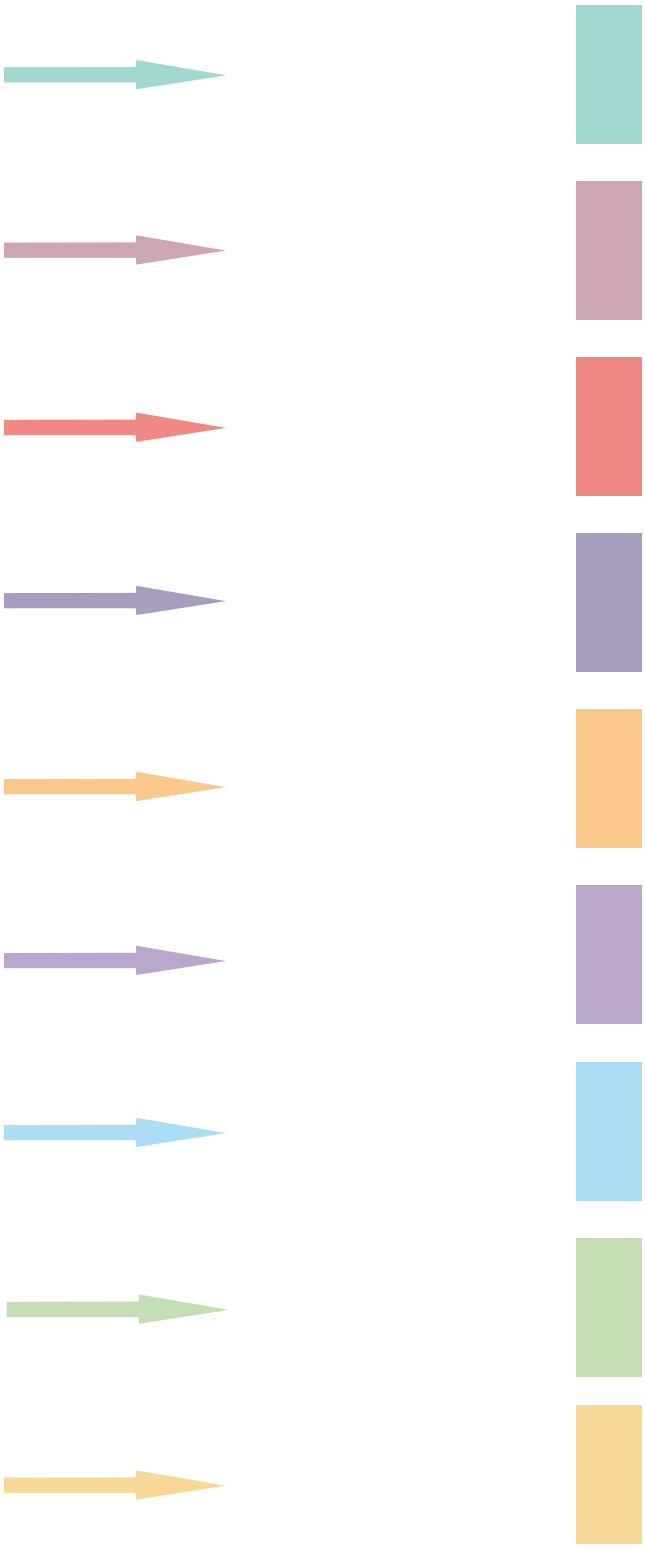
Product Range
Fresh ideas from Searle

GEA Heat Exchangers

GEA Searle

Content



Products and Services

GEA Searle is one of the longest established and principal manufacturers of heat exchange products for the refrigeration and air conditioning industry in Europe. Established in 1921, GEA Searle boasts a comprehensive range of condensers, coolers and condensing units. GEA Searle products are utilised across many industries. Applications include supermarket cabinets and cold rooms, large scale food freezing plants, food storage and distribution centres, beer cellars, industrial process cooling, combined heat and power installations and air-conditioning equipment for hospitals, offices, schools and museums.

making the difference

Research and Development

In order to guarantee the continued excellence of its products in terms of innovation, design and performance, GEA Searle has invested in one of the most comprehensive Research & Development facilities in the European refrigeration industry. GEA Searle also undertakes special projects on behalf of other manufacturers, customers and end-users. In our R&D testing facility we are able to test for the following performance characteristics:

- Duty (kW)
- Air flow (m^3/s)
- Motor performance
- Noise

Engineering Facilities

The advanced Computer Aided Design system interfaces directly with production machinery allowing customer "special" products to be designed and manufactured in the shortest possible time. In addition, the production processes are fully computerised, being driven by the latest MRPII practices. GEA Searle also operates a number of other World Class systems to reduce lead times and provide customers with better Information :-

- 3D Design - Autodesk Inventor 11
- CAD-CAM
- Product Data Management (PDM) Technical

Support

Trained staff will advise you through every step of the selection process, our customer service continues past the product delivery, and we are always on hand to advise on any issues.

Replacement Parts & Spares

GEA Searle can supply spare or replacement parts for any of our existing product ranges. Many parts are available for discontinued ranges.

Products and Services

Air Coolers

With the increasing importance of energy efficiency, the new GEA Searle coolers utilise fansets which offer significant energy savings over traditional motor assemblies. The KEC & TEC coolers have high efficiency EC fans as standard across the range. All our commercial unit coolers have white powder coated galvanised steel casing (JG and NS are aluminum) and are available in high or low temperature versions, with CO2 and glycol circuiting options.

Many of the models in the commercial unit cooler ranges are available ex-stock from your local distributor, with backup stocks held at the UK manufacturing plant centre.

Air Cooled Condensers

Our range has literally 1000s of models, created through a modular design and variety of fan sizes, offering a greater choice to match your requirements. Our condensers can meet even the most stringent noise restrictions using the latest 6, 8 & 12 pole fansets. In addition, we offer EC technology across the standard range, which offers variable speed control and high efficiency.

Due to rising energy costs, efficiency is becoming a key industry issue and is increasingly important on end-user criteria. Our new units use the latest technology to ensure greater energy efficiency. GEA Searle has extensive experience in the design of controls either using the GEA Searle controller or 'industry standard' controllers such as Millennium 2 or RDM.

Dry Air Coolers

The range has literally 1000s of models, created through a modular design and variety of fan sizes, offering a greater range of solutions to match your requirements. Our Dry Coolers can meet even the most stringent noise restrictions using the latest 6, 8,12 & 16 pole fansets. In addition, we offer EC technology across the standard range, which offers full variable speed control.

Condensing Units

GEA Searle Condensing Units are supplied as standard to a high specification with a complete control package, incorporating:

- Mains Isolator,
- Compressor Motor Starter/Overloads or
- MCB's for single phase models,
  Fan speed control & anti-cycle timer
- Compressor Contactors
- Fitted pressure relief valve (PRV)
- Compressor Crankcase Heaters

GEA Searle units range from the NRE with hermetic reciprocating compressors, the NSQ using scroll compressors to the NDQ using the latest digital scroll compressors. There are twin compressor variants of the NSQ and NDQ.

Products and Services

making the difference

Quality and Performance

Eurovent Certification

All applicable products are certified under the Eurovent CERTIFY-ALLprogram, with performances rated in accordance with BS EN 327, 328, 1048 and sound with EN13487. Data covered includes: performance, sound power, mean sound pressure, power input and surface area.

Quality Assured

GEA Searle is a quality assured company to ISO 9001: encompassing Performance Testing, Manufacturing Systems and Inspection Procedures.

CE Marking

GEA Searle's products are CE marked under the. 'Low Voltage Directive'. Under the 'Pressure Equipment Directive', as and when appropriate.

Product Selection Software

This document contains screenshots of selected features of the latest version of the Searle Product Selection software. This release retains the familiar interface which our customers tell us they like, but adds a number of new features requested by customers. The new introductory screen places Searle within the context of our new parent group, GEA Heat Exchangers.

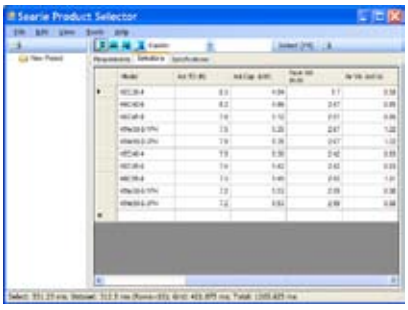
The main screen incorporates the traditional layout and appearance of the existing program, but now includes all product types within one program. The customer can select the type of product by clicking an icon or selecting from a drop-down list; which ever they find most convenient. The box to the left of the Select button allows the customer to enter a filter (for example MM for a models considered.

The product specification of one or more models is presented in the traditional way. Although not visible on this screenshot, the specification screen allows the customer to select optional extras (by ticking checkboxes at the bottom of the specification). The net price of the unit (including extras and taking into account customer discounts) is immediately calculated and displayed.

Introductory Screen

Main Screen

Specification of selection models



A new feature of this version is that the specification can be presented as a PDF file. The appearance of the specification document will be enhanced to include company logos, contact information and anything else required to create a professional proposal document. The specification document can include one or more specification pages and the relevant drawings .

Note: also in the above screenshot that bookmarks in the PDF file allow quick navigation to the relevant part of a large specification document.

Website

Keep up to date with our products and latest news by visiting the website, www.searle.co.uk.

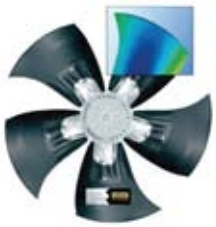
Air Cooled Condensers

GEA Searle's new range of condensers means you've more choice than ever before, comprising of both flat-bed and V-bank units, arranged in single and double bank configurations, with multiple module lengths. The wide range is suitable for most refrigeration and air conditioning condenser applications. Range benefits: Meeting your specification, Assured performance, Designed to be quiet and Energy efficient.

Fresh ideas from Searle

Control Options

There are various optional GEA Searle control packages available, including variable speed controlled products using Searle inverter control or the latest EC fan control system. The control options include:



- EC speed control
- Inverter speed control
- Triac speed control
- Dual speed step control
- Single speed step control

If a speed control method is utilised, Searle recommends adding the option of internal motor protection.

Other Options

GEA Searle offers a wide range of accessories and additional options, including: anti-vibration mounts and leg extensions - to enhance air flow in difficult locations and Adiabatic cooling System (Please see Searle's Adiabatic Section for further details or contact your Searle representative).

Vertical Mounting

Units maybe specified as horizontal (standard) or vertical orientation.

Sub-Cooling

Sub-cooling is achieved by the use of an integrated sub-cooling section which utilises approximately 10% of the coil surface. This provides up to 7K of sub-cooling at the standard rating condition of 15K DT1.Operating below 15K DT1, the amount of sub-cooling is reduced. The total heat of rejection capacity, inclusive of sub-cooling, will be reduced by 5%.

Blygold® Coating

GEA Searle's specialist coating facility, where a Blygold® coating is applied and cured to protect the finned coils against harsh environmental conditions such as erosion by sand or salt. It provides a barrier and avoids the risk of electrolytic reactions between the two metals involved. The coating contains aluminium, in order to maintain the thermal performance of the coil, resulting in an extension of the lifetime, maximum cooling capacity and reduction of energy costs. The coating is oriented in such a way that it creates a very high chemical resistance at low layer thickness.

Energy Labelling

Energy Labelling is now part of the Eurovent Certify-All scheme. Rating is based on the ratio of nominal duty to power input with banding as in the table below

A	Extremely low	R > 11.0
B	Very low	7.0 < R < 11.0
C	Low	5 < R < 7.0
D	Medium	3.0 < R < 4.5
E	High	< 3.0

Where R= Nominal Capacity / Total fan power input

Capacity Data

Dewpoint

The capacities shown in this brochure are rated at dew point. This is the pressure/temperature condition at which a refrigerant gas begins to condense on the surface. As some refrigerants have significant glide (e.g. R407A/ 407C), the saturated gas and saturated liquid temperatures are not necessarily the same. It is important to ensure that all the components of a system are selected using the same rating method.

Whilst the use of mid-point does make selection easier, it is difficult to measure on site. At the catalogue rating point of 15K DT1, mid point capacities would be approximately 9% higher for R407C than the equivalent dew point figures shown in the tables.

Correction Factors

Multiply the capacity tables by the following factors depending on the DT1 temperature difference:

	DT1					
	8K	10K	12K	15K	17K	20K
R507A, R404A	0.53	0.67	0.80	1.00	1.13	1.33
R134a	0.49	0.62	0.74	0.93	1.05	1.24

Noise Data

The mean unit sound pressure data at 10m is given for each model in the catalogue and is certified as part of the Eurovent scheme. Sound power testing and sound pressure calculation are carried out in accordance with EN13487. Mean sound pressure levels are for a parallel piped surface surrounding the unit on a reflective plane. Power levels and sound spectrum are available on request.

GEA Searle Air Cooled Condensers

Range benefits

- **Meeting your specification -**
  Our range has literally 1000s of models, created through a modular design and a variety of fan sizes, offering a greater choice to match your requirements.

Assured performance -

- All our Air Cooled Condensers are certified, under the Eurovent "Certify All" programme to guarantee that every unit will perform as specified.

Designed to be quiet -

- Our condensers can meet even the most stringent noise restrictions using the latest 4 , 6, 8 & 12 pole fansets. In addition, we offer EC technology across the standard range which offers variable speed control and high efficiency.

- **Energy efficient -**
  Due to rising energy costs, efficiency is becoming a key industry issue and is increasingly important on end-user criteria. Our new units use the latest technology to ensure greater energy efficiency.

- **Backing our beliefs -**
  We offer two years warranty on all Condensers and an additional one year warranty on all ebmpapst fans from dispatch (subject to our standard Terms & Conditions of Sale and excluding corrosion through misapplication).

Fansets

The fansets chosen for the range offer the best combined performance for air volume, noise and efficiency available in the refrigeration industry, customers can select the latest EC technology, offering high efficiency and speed controllability.

Coils

Coils are manufactured from high-quality materials ensuring a quality product without compromise. These coils have been tested extensively in Searle's Research & Development facility to ensure performance.

Standard coils are manufactured from copper tubes, which are mechanically expanded into fully collared holes in the fins. This ensures an effective and permanent bond between the tube and the fin, maximising heat transfer characteristics.

Within the coil casework surround, each fan chamber is separated by internal baffle plates to prevent windmilling of off-cycle fans. Alternative fin materials are available to give added protection in polluted or saline atmospheres: -

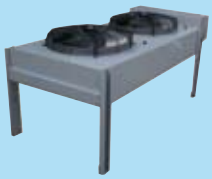
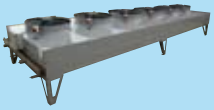
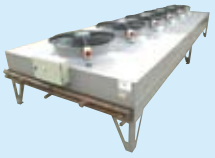
- Cu/Av- Copper tube / vinyl coated aluminium fins
- Cu/Cu - Copper tubes / copper fins
- Cu/Et - Copper tubes / electro tinned copper fins
- Cu/Al/Bg- Copper tubes / aluminium fins Blygold coated

All standard coils are fully leak and strength tested to 36 bar for a maximum operating pressure of 27 bar.

Multi-sectioning

All models are suitable for multi-sectioning, permitting more than one refrigeration system to operate with a single condenser.

All V-bank, MGA2xx and MX units are twin section as standard. Larger V-bank models are manufactured in 4 sections, 2 per coil to ensure they conform to category 1 of the 'Pressure Equipment Directive'.

	Models	Eurovent	No. Fans
Coming soon	MS	✔	1 - 3
	ME	✔	1 - 8
	MG	✔	1 - 16
	MM	✔	1 - 8
	MX	✔	1 - 8
	MVM	✔	2 - 16
	MVL	✔	2 - 16

✔ Yes X No O Option

General Range Features

	Options				Capacity kW @ 15 DT1		
Rows of Fans	Supply	EC Fans	Adiabatic Cooling System	Fin Materials	10	100	1000
1	1 & 3ph	✔	X	Al Av Cu Et Bg			
1 or 2	1 & 3ph	✔	X	Al Av Cu Et Bg		11 - 384 kW	
1 or 2	3ph	✔	O	Al Av Cu Et Bg		15 - 960 kW	
1	3ph	✔	O	Al Av Cu Et Bg		18 - 573 kW	
1	3ph	✔	O	Al Av Cu Et Bg		22 - 702 kW	
2	3ph	✔	O	Al Av Cu Et Bg		36 - 863 kW	
2	3ph	✔	O	Al Av Cu Et Bg		40 - 976 kW	

ME Condenser

The ME range of air-cooled condensers is based upon the well established E fin heat exchange matrix, combined with the HyBlade® range of fans from ebmpapst. This combination offers a versatile and economical solution to many refrigeration and air conditioning applications.

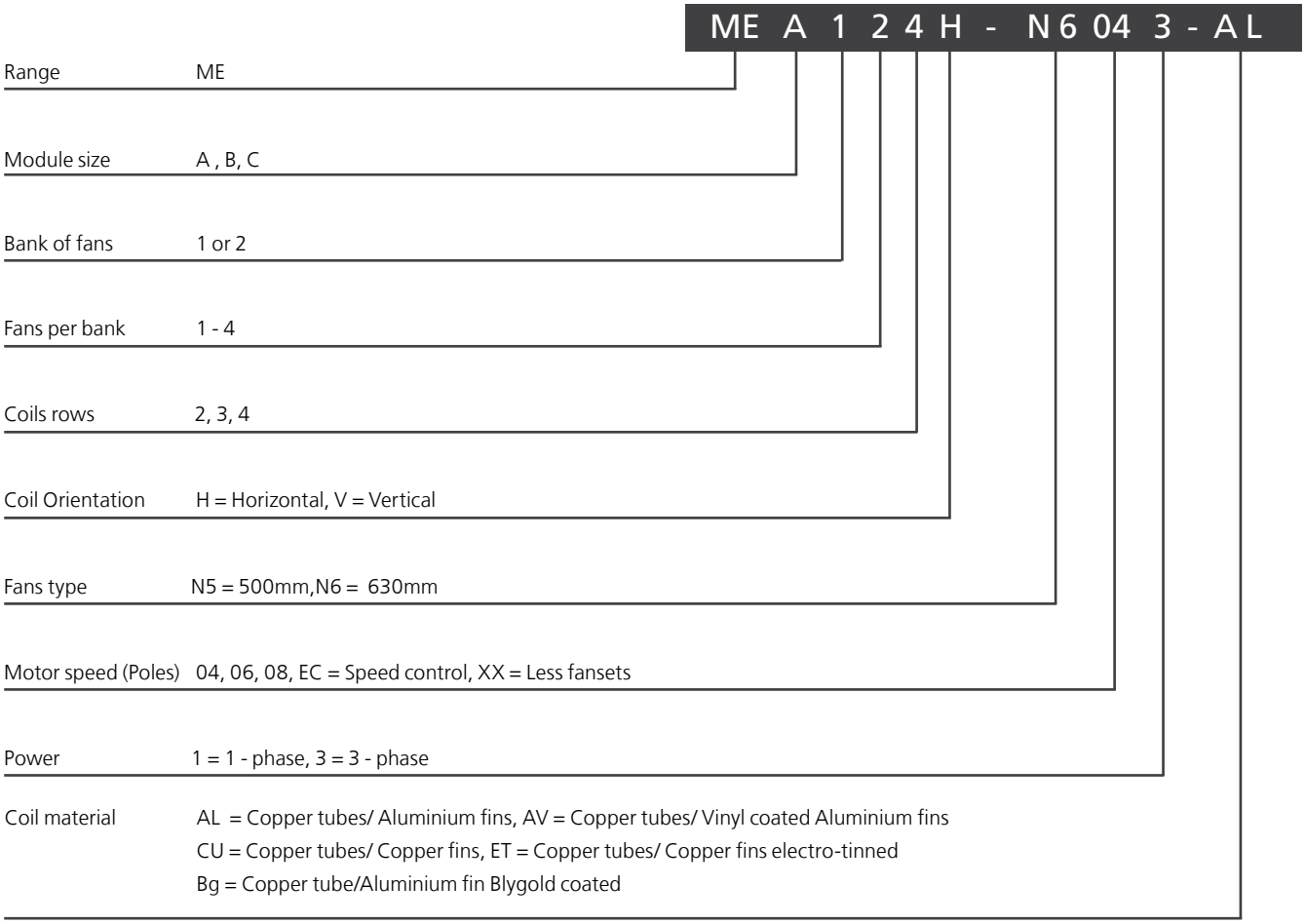
The range consists of one to eight fans in three coil depths and modules with 500 and 630 mm 4, 6 and 8 pole fans. This results in a wide range of capacities, noise levels and footprints to meet the diverse requirements of the industry.

Optional extras for the ME range include vertical orientation (1 to 4 fan), multi circuiting, integral sub cooling section, alternative fin materials and coating. Control options include fan cycling, variable speed (including EC) and individual fan isolators.

The model selections can be made either directly from the catalogue or by using the popular Searle selection software available on CD, as a download from the website or at www.searle.co.uk.

ME Features

- 3 Module sizes (A,B,C)
- 500mm or 630mm HyBlade® fansets
- 4,6,8 pole or EC
- Optional coil fin materials and coating
- Powder coated robust casework
- Factory fitted or separate control options
- Compact design Vertical coil (1-4 fans) or Horizontal coil (1-8 fans)
- Wall mounting kits available for Vertical coil 1-4 fan units



Fan Data Table

Fan type & Pole	Diameter	Module	Delta			Star		
			Speed (rpm)	FLC (Amp)	SC (Amp)	Speed (rpm)	FLC (Amp)	SC (Amp)
N504 4 Pole	500mm	A,B	1225	2.8	4.7	Single Phase		
N506 6 Pole		A,B	915	1.2	2.3	Single Phase		
N508 8 Pole		A,B	680	0.4	1	560	0.2	0.3
N604 4 Pole	630mm	B,C	1330	5	20	1035	3.1	14
N606 6 Pole		B,C	900	1.8	5.4	700	1.1	1.7
N608 8 Pole		B,C	640	1	1.9	440	0.5	0.6

ME Selection Data

Model	DELTA (High Speed)					STAR (Low Speed)					Total Surface	Internal Volume	R404A Charge
	Capacity * R404A & R507A	Air Volume	Sound Level **	Power Input	Energy Rating	Capacity * R404A & R507A	Air Volume	Sound Level **	Power Input	Energy Rating			
	kW	m^3/s	dB(A)	W		kW	m^3/s	dB(A)	W		m^2	dm^3	kg
500mm 4 pole 1 phase													
MEA112-N504-1	16.3	1.90	45	540	D	-	-	-	-	-	26	5	1.6
MEB112-N504-1	20.1	2.06	46	530	D	-	-	-	-	-	38	7	2.2
MEA113-N504-1	20.5	1.78	45	560	D	-	-	-	-	-	38	7	2.2
MEA114-N504-1	23.3	1.68	44	570	D	-	-	-	-	-	51	9	2.8
MEB113-N504-1	25.5	2.00	46	530	C	-	-	-	-	-	58	10	3.2
MEB114-N504-1	28.8	1.92	45	540	C	-	-	-	-	-	77	12	3.8
MEA122-N504-1	32.6	3.82	48	1090	D	-	-	-	-	-	51	9	2.8
MEB122-N504-1	40.2	4.14	49	1060	D	-	-	-	-	-	77	12	3.8
MEA123-N504-1	41.0	3.58	48	1120	D	-	-	-	-	-	77	12	3.8
MEA124-N504-1	46.6	3.36	47	1150	D	-	-	-	-	-	102	17	5.4
MEA132-N504-1	48.9	5.72	50	1630	D	-	-	-	-	-	77	13	4.1
MEB123-N504-1	51.0	4.00	49	1070	C	-	-	-	-	-	115	18	5.7
MEB124-N504-1	57.6	3.86	48	1080	C	-	-	-	-	-	154	24	7.6
MEB132-N504-1	60.3	6.20	51	1580	D	-	-	-	-	-	115	18	5.7
MEA133-N504-1	61.5	5.36	49	1680	D	-	-	-	-	-	115	18	5.7
MEA142-N504-1	65.2	7.62	51	2170	D	-	-	-	-	-	102	16	5.1
MEA134-N504-1	69.9	5.04	49	1720	D	-	-	-	-	-	154	24	7.6
MEB133-N504-1	76.5	5.98	50	1600	C	-	-	-	-	-	173	26	8.2
MEB142-N504-1	80.4	8.26	52	2110	D	-	-	-	-	-	154	23	7.3
MEA143-N504-1	82.0	7.14	50	2230	D	-	-	-	-	-	154	23	7.3
MEB134-N504-1	86.4	5.78	50	1620	C	-	-	-	-	-	230	34	10.7
MEA144-N504-1	93.2	6.74	50	2290	D	-	-	-	-	-	205	31	9.8
MEB143-N504-1	102.0	7.98	51	2130	C	-	-	-	-	-	230	34	10.7
MEB144-N504-1	115.2	7.72	51	2160	C	-	-	-	-	-	307	44	13.9
630mm 4 pole 3 phase													
MEB112-N604-3	28.2	3.76	61	2500	E	24.8	2.98	52	1640	E	38	7	2.2
MEC112-N604-3	32.8	3.90	61	2460	E	28.5	3.10	52	1640	E	48	9	2.8
MEB113-N604-3	37.5	3.58	60	2540	E	32.4	2.82	52	1660	E	58	10	3.2
MEC113-N604-3	42.5	3.76	61	2500	E	36.3	2.98	52	1640	E	72	12	3.8
MEB114-N604-3	43.3	3.42	60	2580	E	36.8	2.66	52	1680	E	77	13	4.1
MEC114-N604-3	48.9	3.62	60	2530	E	41.4	2.86	52	1650	E	96	17	5.4
MEB122-N604-3	56.4	7.54	63	4990	E	49.6	5.96	54	3290	E	77	13	4.1
MEC122-N604-3	65.6	7.80	63	4930	E	57.0	6.20	54	3280	E	96	16	5.1
MEB123-N604-3	75.0	7.16	63	5080	E	64.8	5.62	54	3320	E	115	18	5.7
MEB132-N604-3	84.6	11.30	65	7490	E	74.4	8.94	56	4930	E	115	19	6
MEC123-N604-3	85.0	7.54	63	4990	E	72.6	5.98	54	3290	E	144	23	7.3
MEB124-N604-3	86.6	6.84	63	5160	E	73.6	5.34	54	3360	E	154	24	7.6
MEC124-N604-3	97.8	7.26	63	5060	E	82.8	5.74	54	3310	E	192	30	9.5
MEC132-N604-3	98.4	11.70	65	7390	E	85.5	9.30	56	4920	E	144	23	7.3
MEB133-N604-3	112.5	10.74	65	7630	E	97.2	8.44	56	4980	E	173	26	8.2
MEB142-N604-3	112.8	15.08	66	9990	E	99.2	11.92	57	6580	E	154	24	7.6
MEC133-N604-3	127.5	11.30	65	7490	E	108.9	8.96	56	4930	E	216	33	10.4
MEB134-N604-3	129.9	10.26	65	7740	E	110.4	8.00	56	5030	E	230	34	10.7
MEC142-N604-3	131.2	15.60	66	9850	E	114.0	12.40	57	6560	E	192	30	9.5
MEC134-N604-3	146.7	10.88	65	7590	E	124.2	8.60	56	4960	E	288	44	13.9
MEB143-N604-3	150.0	14.30	66	10170	E	129.6	11.24	57	6630	E	230	35	11.1
MEC143-N604-3	170.0	15.06	66	9990	E	145.2	11.94	57	6570	E	288	45	14.2
MEB144-N604-3	173.2	13.68	66	10320	E	147.2	10.66	57	6710	E	307	46	14.5
MEC144-N604-3	195.6	14.50	66	10120	E	165.6	11.46	57	6610	E	384	58	18.3

Note: * Capacity quoted at 15 K DT1 Dew Point, ** Sound level quoted as mean pressure level at 10m

Model	DELTA (High Speed)					STAR (Low Speed)					Total Surface	Internal Volume	R404A Charge
	Capacity * R404A & R507A	Air Volume	Sound Level **	Power Input	Energy Rating	Capacity * R404A & R507A	Air Volume	Sound Level **	Power Input	Energy Rating			
	kW	m³/s	dB(A)	W		kW	m³/s	dB(A)	W		m²	dm³	kg
500mm 6 pole 1 phase													
MEA112-N506-1	13.6	1.40	37	230	C	-	-	-	-	-	26	5	1.6
MEB112-N506-1	16.7	1.54	38	230	B	-	-	-	-	-	38	7	2.2
MEA113-N506-1	17.1	1.32	36	240	B	-	-	-	-	-	38	7	2.2
MEA114-N506-1	18.8	1.24	36	250	B	-	-	-	-	-	51	9	2.8
MEB113-N506-1	20.6	1.48	37	230	B	-	-	-	-	-	58	9	2.8
MEB114-N506-1	22.9	1.42	37	230	B	-	-	-	-	-	77	12	3.8
MEA122-N506-1	27.2	2.82	40	470	C	-	-	-	-	-	51	9	2.8
MEB122-N506-1	33.4	3.06	41	450	B	-	-	-	-	-	77	12	3.8
MEA123-N506-1	34.2	2.64	39	480	B	-	-	-	-	-	77	12	3.8
MEA124-N506-1	37.6	2.48	39	490	B	-	-	-	-	-	102	16	5.1
MEA132-N506-1	40.8	4.22	41	700	C	-	-	-	-	-	77	12	3.8
MEB123-N506-1	41.2	2.96	40	460	B	-	-	-	-	-	115	17	5.4
MEB124-N506-1	45.8	2.86	40	470	B	-	-	-	-	-	154	24	7.6
MEB132-N506-1	50.1	4.60	42	680	B	-	-	-	-	-	115	18	5.7
MEA133-N506-1	51.3	3.98	41	720	B	-	-	-	-	-	115	18	5.7
MEA142-N506-1	54.4	5.62	42	940	C	-	-	-	-	-	102	16	5.1
MEA134-N506-1	56.4	3.72	41	740	B	-	-	-	-	-	154	24	7.6
MEB133-N506-1	61.8	4.44	42	690	B	-	-	-	-	-	173	26	8.2
MEB142-N506-1	66.8	6.14	43	910	B	-	-	-	-	-	154	23	7.3
MEA143-N506-1	68.4	5.30	42	970	B	-	-	-	-	-	154	23	7.3
MEB134-N506-1	68.7	4.28	41	700	B	-	-	-	-	-	230	34	10.7
MEA144-N506-1	75.2	4.96	42	990	B	-	-	-	-	-	205	30	9.5
MEB143-N506-1	82.4	5.90	43	920	B	-	-	-	-	-	230	34	10.7
MEB144-N506-1	91.6	5.70	42	930	B	-	-	-	-	-	307	44	13.9
630mm 6 pole 3 phase													
MEB112-N606-3	23.3	2.72	46	700	D	20.8	2.06	39	470	D	38	7	2.2
MEC112-N606-3	26.6	2.90	46	700	D	23.5	2.20	39	460	C	48	9	2.8
MEB113-N606-3	29.4	2.52	46	710	D	25.3	1.90	39	480	C	58	10	3.2
MEB114-N606-3	33.1	2.36	47	730	C	27.6	1.76	39	490	C	77	12	3.8
MEC113-N606-3	33.1	2.74	46	700	C	28.4	2.06	39	470	C	72	12	3.8
MEC114-N606-3	37.5	2.58	46	710	C	31.4	1.96	39	480	C	96	15	4.7
MEB122-N606-3	46.6	5.44	49	1410	D	41.6	4.12	42	940	D	77	13	4.1
MEC122-N606-3	53.2	5.80	49	1390	D	47.0	4.42	42	920	C	96	16	5.1
MEB123-N606-3	58.8	5.04	49	1420	D	50.6	3.80	42	970	C	115	18	5.7
MEB124-N606-3	66.2	4.72	50	1450	C	55.2	3.54	42	980	C	154	24	7.6
MEC123-N606-3	66.2	5.46	49	1410	C	56.8	4.14	42	930	C	144	23	7.3
MEB132-N606-3	69.9	8.16	50	2110	D	62.4	6.18	43	1400	D	115	18	5.7
MEC124-N606-3	75.0	5.18	49	1420	C	62.8	3.90	42	960	C	192	29	9.2
MEC132-N606-3	79.8	8.68	50	2090	D	70.5	6.62	44	1380	C	144	23	7.3
MEB133-N606-3	88.2	7.56	51	2130	D	75.9	5.70	43	1450	C	173	26	8.2
MEB142-N606-3	93.2	10.88	51	2810	D	83.2	8.24	44	1870	D	154	24	7.6
MEB134-N606-3	99.3	7.08	52	2180	C	82.8	5.30	44	1470	C	230	34	10.7
MEC133-N606-3	99.3	8.20	50	2110	C	85.2	6.20	43	1400	C	216	33	10.4
MEC142-N606-3	106.4	11.58	51	2790	D	94.0	8.82	45	1840	C	192	30	9.5
MEC134-N606-3	112.5	7.76	50	2120	C	94.2	5.86	43	1440	C	288	43	13.6
MEB143-N606-3	117.6	10.08	52	2840	D	101.2	7.58	44	1940	C	230	34	10.7
MEB144-N606-3	132.4	9.44	53	2910	C	110.4	7.08	45	1960	C	307	44	13.9
MEC143-N606-3	132.4	10.94	51	2810	C	113.6	8.28	44	1870	C	288	42	13.3
MEC144-N606-3	150.0	10.36	51	2830	C	125.6	7.82	44	1920	C	384	57	18

Note: * Capacity quoted at 15 K DT1 Dew Point, ** Sound level quoted as mean pressure level at 10m

ME Selection Data

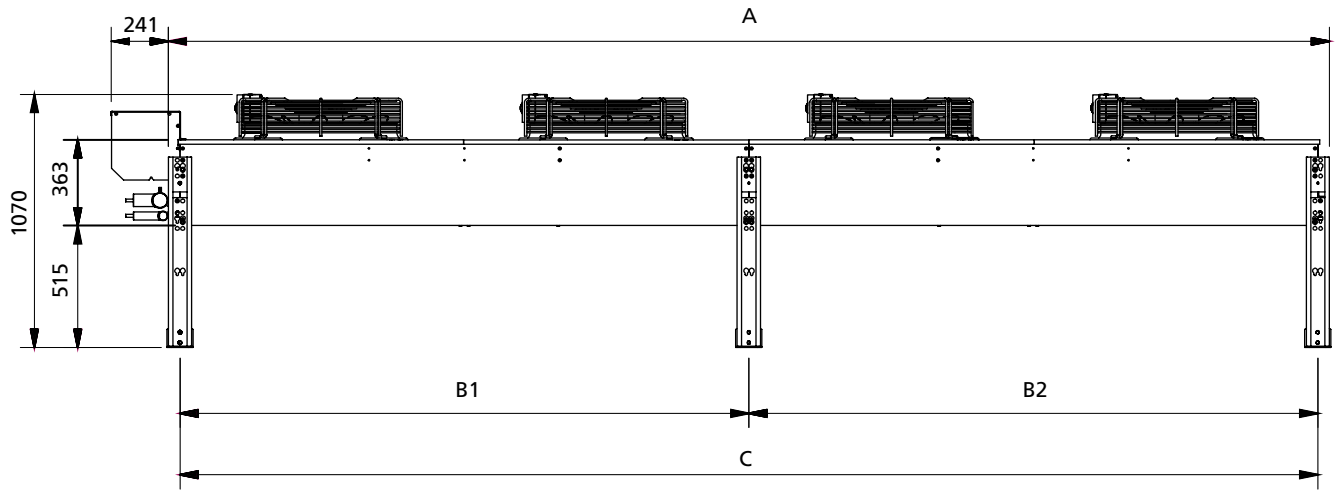
Model	DELTA (High Speed)					STAR (Low Speed)					Total Surface	Internal Volume	R404A Charge
	Capacity * R404A & R507A	Air Volume	Sound Level **	Power Input	Energy Rating	Capacity * R404A & R507A	Air Volume	Sound Level **	Power Input	Energy Rating			
	kW	m^3/s	dB(A)	W		kW	m^3/s	dB(A)	W		m^2	dm^3	kg
500mm 8 pole 3 phase													
MEA112-N508-3	11.2	1.04	29	120	B	10.1	0.86	25	80	A	26	4	1.3
MEA113-N508-3	13.7	0.96	29	120	A	12.1	0.80	25	80	A	38	7	2.2
MEB112-N508-3	13.8	1.14	29	120	A	12.4	0.96	26	80	A	38	7	2.2
MEA114-N508-3	14.8	0.90	28	130	A	13.0	0.76	24	80	A	51	9	2.8
MEB113-N508-3	16.6	1.10	29	120	A	14.8	0.92	25	80	A	58	9	2.8
MEB114-N508-3	18.0	1.06	29	120	A	15.8	0.88	25	80	A	77	12	3.8
MEA122-N508-3	22.4	2.08	32	250	B	20.2	1.74	28	160	A	51	8	2.5
MEA123-N508-3	27.4	1.94	32	250	A	24.2	1.60	27	160	A	77	12	3.8
MEB122-N508-3	27.6	2.28	32	250	A	24.8	1.94	29	150	A	77	12	3.8
MEA124-N508-3	29.6	1.80	31	260	A	26.0	1.50	27	160	A	102	16	5.1
MEB123-N508-3	33.2	2.18	32	250	A	29.6	1.84	28	160	A	115	17	5.4
MEA132-N508-3	33.6	3.10	34	370	B	30.3	2.60	30	240	A	77	12	3.8
MEB124-N508-3	36.0	2.10	32	250	A	31.6	1.74	28	160	A	154	23	7.3
MEA133-N508-3	41.1	2.90	33	370	A	36.3	2.40	29	240	A	115	17	5.4
MEB132-N508-3	41.4	3.42	34	370	A	37.2	2.90	30	230	A	115	17	5.4
MEA134-N508-3	44.4	2.68	33	400	A	39.0	2.26	29	240	A	154	24	7.6
MEA142-N508-3	44.8	4.14	35	500	B	40.4	3.46	31	320	A	102	16	5.1
MEB133-N508-3	49.8	3.28	34	370	A	44.4	2.76	30	230	A	173	26	8.2
MEB134-N508-3	54.0	3.16	33	370	A	47.4	2.62	30	240	A	230	34	10.7
MEA143-N508-3	54.8	3.86	34	500	A	48.4	3.20	30	320	A	154	23	7.3
MEB142-N508-3	55.2	4.56	35	490	A	49.6	3.86	31	310	A	154	23	7.3
MEA144-N508-3	59.2	3.58	34	530	A	52.0	3.02	30	320	A	205	30	9.5
MEB143-N508-3	66.4	4.38	35	500	A	59.2	3.68	31	310	A	230	34	10.7
MEB144-N508-3	72.0	4.20	35	500	A	63.2	3.50	31	320	A	307	44	13.9

Note: * Capacity quoted at 15 K DT1 Dew Point, ** Sound level quoted as mean pressure level at 10m

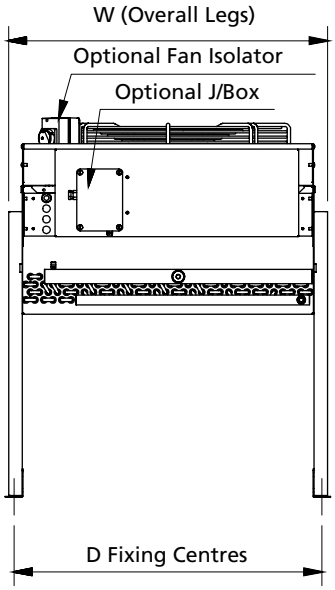
Model	DELTA (High Speed)					STAR (Low Speed)					Total Surface	Internal Volume	R404A Charge
	Capacity * R404A & R507A	Air Volume	Sound Level **	Power Input	Energy Rating	Capacity * R404A & R507A	Air Volume	Sound Level **	Power Input	Energy Rating			
	kW	m^3/s	dB(A)	W		kW	m^3/s	dB(A)	W		m^2	dm^3	kg
630mm 8 pole 3 phase													
MEB112-N608-3	19.7	1.98	37	350	C	16.3	1.34	28	200	B	38	7	2.2
MEC112-N608-3	22.1	2.10	37	340	C	18.1	1.44	28	200	B	48	8	2.5
MEB113-N608-3	24.2	1.84	37	360	C	19.1	1.26	29	200	B	58	10	3.2
MEB114-N608-3	26.4	1.72	38	370	B	20.4	1.18	29	200	B	77	12	3.8
MEC113-N608-3	27.1	1.98	37	350	B	21.5	1.36	28	200	B	72	12	3.8
MEC114-N608-3	30.0	1.90	37	360	B	23.1	1.30	29	200	A	96	15	4.7
MEB122-N608-3	39.4	3.96	40	700	C	32.6	2.70	31	400	B	77	12	3.8
MEC122-N608-3	44.2	4.22	40	680	C	36.2	2.88	31	390	B	96	16	5.1
MEB123-N608-3	48.4	3.68	40	720	C	38.2	2.50	32	400	B	115	18	5.7
MEB124-N608-3	52.8	3.44	41	740	B	40.8	2.36	32	410	B	154	24	7.6
MEC123-N608-3	54.2	3.98	40	700	B	43.0	2.72	31	400	B	144	23	7.3
MEB132-N608-3	59.1	5.94	41	1050	C	48.9	4.04	33	600	B	115	18	5.7
MEC124-N608-3	60.0	3.78	40	710	B	46.2	2.58	32	400	A	192	29	9.2
MEC132-N608-3	66.3	6.32	41	1030	C	54.3	4.32	33	590	B	144	23	7.3
MEB133-N608-3	72.6	5.52	41	1080	C	57.3	3.76	34	610	B	173	26	8.2
MEB142-N608-3	78.8	7.92	42	1400	C	65.2	5.40	34	790	B	154	23	7.3
MEB134-N608-3	79.2	5.16	42	1110	B	61.2	3.52	34	610	B	230	34	10.7
MEC133-N608-3	81.3	5.96	41	1050	B	64.5	4.08	33	600	B	216	32	10.1
MEC142-N608-3	88.4	8.44	43	1370	C	72.4	5.76	34	780	B	192	30	9.5
MEC134-N608-3	90.0	5.68	41	1070	B	69.3	3.88	33	600	A	288	43	13.6
MEB143-N608-3	96.8	7.36	42	1440	C	76.4	5.02	35	810	B	230	34	10.7
MEB144-N608-3	105.6	6.86	43	1480	B	81.6	4.70	35	820	B	307	44	13.9
MEC143-N608-3	108.4	7.96	42	1400	B	86.0	5.44	34	790	B	288	42	13.3
MEC144-N608-3	120.0	7.56	42	1430	B	92.4	5.16	34	800	A	384	55	17.4

Note: * Capacity quoted at 15 K DT1 Dew Point, ** Sound level quoted as mean pressure level at 10m

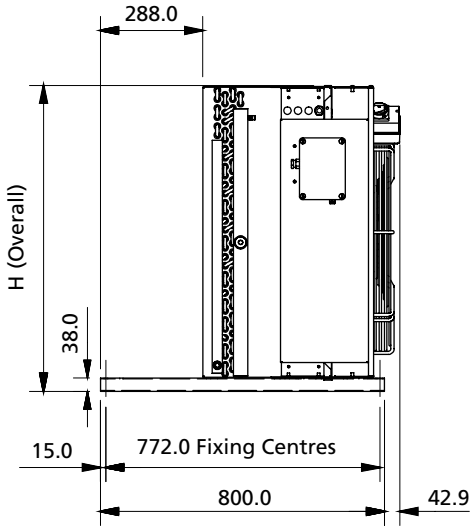
ME Model Drawings



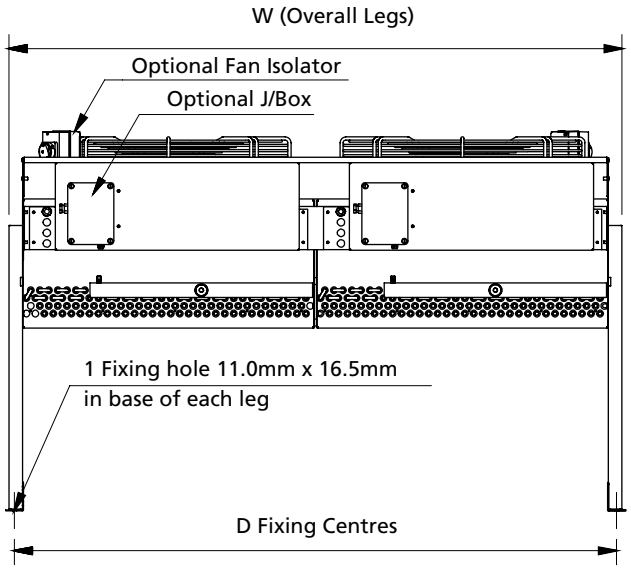
ME Single Bank Horizontal Unit



ME Vertical Unit



ME Double Bank Horizontal Unit



Dimensions

Model	Banks	Fans per bank	A	B1	B2	C	D	W	H	Approx Dry Weight		Inlet	outlet
										AL/AV	CU/ET		
			mm	mm	mm	mm	mm	mm	mm	kg	kg		
MEA112	1	1	893	—	—	795	867	898	863	75	85	1.3/8"	7/8"
MEA113	1	1	893	—	—	795	867	898	863	80	97	1.1/8"	7/8"
MEA114	1	1	893	—	—	795	867	898	863	85	107	1.3/8"	7/8"
MEA122	1	2	1698	—	—	1600	867	898	863	120	142	1.3/8"	7/8"
MEA123	1	2	1698	—	—	1600	867	898	863	130	163	1.3/8"	7/8"
MEA124	1	3	1698	—	—	1600	867	898	863	140	184	1.3/8"	7/8"
MEA132	1	3	2501	—	—	2403	867	898	863	164	197	1.3/8"	7/8"
MEA133	1	3	2501	—	—	2403	867	898	863	183	233	1.5/8"	1.1/8"
MEA134	1	3	2501	—	—	2403	867	898	863	195	261	2.1/8"	1.3/8"
MEA142	1	4	3308	—	—	3210	867	898	863	209	254	1.5/8"	1.1/8"
MEA143	1	4	3308	—	—	3210	867	898	863	229	296	2.1/8"	1.1/8"
MEA144	1	4	3308	—	—	3210	867	898	863	249	338	2.1/8"	1.3/8"
MEA212	2	1	893	—	—	795	1695	1726	-	144	164	1.3/8"	7/8"
MEA213	2	1	893	—	—	795	1695	1726	-	154	187	1.1/8"	7/8"
MEA214	2	1	893	—	—	795	1695	1726	-	164	209	1.3/8"	7/8"
MEA222	2	2	1698	—	—	1600	1695	1726	-	233	278	1.3/8"	7/8"
MEA223	2	2	1698	—	—	1600	1695	1726	-	253	320	1.3/8"	7/8"
MEA224	2	2	1698	—	—	1600	1695	1726	-	273	362	1.3/8"	7/8"
MEA232	2	3	2501	—	—	2403	1695	1726	-	322	389	1.3/8"	7/8"
MEA233	2	3	2501	—	—	2403	1695	1726	-	360	460	1.5/8"	1.1/8"
MEA234	2	3	2501	—	—	2403	1695	1726	-	383	517	2.1/8"	1.3/8"
MEA242	2	4	3308	—	—	3210	1695	1726	-	413	502	1.5/8"	1.1/8"
MEA243	2	4	3308	—	—	3210	1695	1726	-	452	586	2.1/8"	1.1/8"
MEA244	2	4	3308	—	—	3210	1695	1726	-	492	670	2.1/8"	1.3/8"
MEB112	1	1	1293	—	—	1195	867	898	863	97	113	1.3/8"	7/8"
MEB113	1	1	1293	—	—	1195	867	898	863	104	129	1.3/8"	7/8"
MEB114	1	1	1293	—	—	1195	867	898	863	113	146	1.3/8"	7/8"
MEB122	1	2	2501	—	—	2403	867	898	863	163	196	1.3/8"	7/8"
MEB123	1	2	2501	—	—	2403	867	898	863	177	227	1.5/8"	7/8"
MEB124	1	3	2501	—	—	2403	867	898	863	192	259	2.1/8"	1.3/8"
MEB132	1	3	3703	—	—	3605	867	898	863	230	280	1.5/8"	1.1/8"
MEB133	1	3	3703	—	—	3605	867	898	863	252	327	2.1/8"	1.1/8"
MEB134	1	3	3703	—	—	3605	867	898	863	274	375	2.1/8"	1.3/8"
MEB142	1	4	4903	2403	2403	4805	867	898	863	322	389	1.5/8"	1.1/8"
MEB143	1	4	4903	2403	2403	4805	867	898	863	352	452	2.1/8"	1.3/8"
MEB144	1	4	4903	2403	2403	4805	867	898	863	381	515	2.1/8"	1.3/8"
MEB212	2	1	1293	—	—	1195	1695	1726	-	188	221	1.3/8"	7/8"
MEB213	2	1	1293	—	—	1195	1695	1726	-	203	252	1.1/8"	7/8"
MEB214	2	1	1293	—	—	1195	1695	1726	-	219	286	1.3/8"	7/8"
MEB222	2	2	2501	—	—	2403	1695	1726	-	319	386	1.3/8"	7/8"
MEB223	2	2	2501	—	—	2403	1695	1726	-	349	449	1.5/8"	1.1/8"
MEB224	2	2	2501	—	—	2403	1695	1726	-	379	512	2.1/8"	1.3/8"
MEB232	2	3	3703	—	—	3605	1695	1726	-	454	554	1.5/8"	1.1/8"
MEB233	2	3	3703	—	—	3605	1695	1726	-	498	648	2.1/8"	1.1/8"
MEB234	2	3	3703	—	—	3605	1695	1726	-	543	743	2.1/8"	1.3/8"
MEB242	2	4	4903	2403	2403	4805	1695	1726	-	632	766	2.1/8"	1.3/8"
MEB243	2	4	4903	2403	2403	4805	1695	1726	-	693	892	1.5/8"	1.1/8"
MEB244	2	4	4903	2403	2403	4805	1695	1726	-	751	1018	2.1/8"	1.3/8"
MEC112	1	1	1293	—	—	1195	1070	1101	1066	104	125	1.3/8"	7/8"
MEC113	1	1	1293	—	—	1195	1070	1101	1066	114	145	1.3/8"	7/8"
MEC114	1	1	1293	—	—	1195	1070	1101	1066	123	165	1.3/8"	7/8"
MEC122	1	2	2501	—	—	2403	1070	1101	1066	175	216	1.5/8"	1.1/8"
MEC123	1	2	2501	—	—	2403	1070	1101	1066	193	256	2.1/8"	1.1/8"
MEC124	1	3	2501	—	—	2403	1070	1101	1066	212	295	2.1/8"	1.3/8"
MEC132	1	3	3703	—	—	3605	1070	1101	1066	250	312	2.1/8"	1.1/8"
MEC133	1	3	3703	—	—	3605	1070	1101	1066	278	372	2.1/8"	1.3/8"
MEC134	1	3	3703	—	—	3605	1070	1101	1066	306	431	2.1/8"	1.3/8"
MEC142	1	4	4903	2403	2403	4805	1070	1101	1066	344	427	1.5/8"	1.3/8"
MEC143	1	4	4903	2403	2403	4805	1070	1101	1066	381	506	2.1/8"	1.3/8"
MEC144	1	4	4903	2403	2403	4805	1070	1101	1066	418	585	2.1/8"	1.3/8"
MEC212	2	1	1293	—	—	1195	2101	2132	-	197	238	1.3/8"	7/8"
MEC213	2	1	1293	—	—	1195	2101	2132	-	216	278	1.3/8"	7/8"
MEC214	2	1	1293	—	—	1195	2101	2132	-	234	317	1.5/8"	7/8"
MEC222	2	2	2501	—	—	2403	2101	2132	-	338	412	2.1/8"	1.1/8"
MEC223	2	2	2501	—	—	2403	2101	2132	-	375	500	2.1/8"	1.1/8"
MEC224	2	2	2501	—	—	2403	2101	2132	-	412	579	2.1/8"	1.3/8"
MEC232	2	3	3703	—	—	3605	2101	2132	-	488	613	2.1/8"	1.1/8"
MEC233	2	3	3703	—	—	3605	2101	2132	-	544	731	2.1/8"	1.3/8"
MEC234	2	3	3703	—	—	3605	2101	2132	-	499	850	2.1/8"	1.3/8"
MEC242	2	4	4903	2403	2403	4805	2101	2132	-	664	830	2.1/8"	1.1/8"
MEC243	2	4	4903	2403	2403	4805	2101	2132	-	738	988	2.1/8"	1.3/8"
MEC244	2	4	4903	2403	2403	4805	2101	2132	-	812	1145	2.1/8"	1.3/8"

MG Condenser

The MG range of fully weather-proofed air cooled condensers is suitable for a wide variety of applications, with a duty range of 15kW to 770kW. These capacities can be achieved both in flat-bed horizontal and vertical configurations. In addition, Searle has created the latest innovation of blow-through horizontal coil designs for high ambient temperature applications.

Due to the large number of options only a selection of the range is available in this catalogue, selection is best achieved using the Selection data tables or the Searle selection software, either online at www.searle.co.uk or via the Searle Selection CD.

GEA Searle achieves a close specification match through module length options of 1200mm, 1440mm and 1800mm in a single (1158mm) or double (2301mm) bank configuration. The range is up to 8 fans in length, combined with coil sizes between 2 to 4 row and multiple standard fan options up to 910mm. Searle is able to manufacture units up to 9.6m in length with 16 fans

For the ultimate in fan speed control, Searle offers the EC fan, a high efficiency and low noise, complete fan speed control package. For full details of the EC fanset and the suitable applications please refer to the front of this brochure.

MG C 1 3 3 H - Q8 12 D - AL

Range	MG
Module Size	A (1200mm), B (1440mm), C (1800mm)
Bank of fans	1 or 2
Fans per bank	1 - 8 (MGA), 1-6 (MGB), 1-5 (MGC)
Coils rows	2, 3, 4
Coil Orientation	H = Horizontal, V = Vertical
Fans type	N8 (800mm), Q8 (800mm), 09 (910mm), N9 (910mm), 99 (990mm)
Motor speed (Poles)	06, 08, 12, 09EC (Max 855rpm)
Power	D = Delta, S = Star, 2 = 2 Speed
Coil material	AL = Copper tubes/ Aluminium fins, AV = Copper tubes/ Vinyl coated Aluminium fins CU = Copper tubes/ Copper fins, ET = Copper tubes/ Copper fins electro-tinned Bg = Copper tube/Aluminium fin Blygold coated

Fan Data Table

Fan type & Pole	Diameter	Module	Delta			Star		
			Speed (rpm)	FLC (Amp)	SC (Amp)	Speed (rpm)	FLC (Amp)	SC (Amp)
N806 6 Pole	800mm	A,B,C	895	4.3	14	685	2.5	4
N808 8 Pole		A,B,C	665	2.5	6.2	495	1.3	2.2
N812 12 Pole		A,B,C	450	1.2	2.3	350	0.5	0.8
Q812 12 Pole		A,B,C	360	0.75	1	255	0.3	0.5
N906 6 Pole	910mm	A,B,C	870	5.7	19	650	3.3	1.1
09EC EC Technology		A,B,C	Variable 100 - 855	3.1	4.3			

MG 910mm 6 pole Selection data

Model	Delta (High Speed)					Star (Low Speed)					Total Surface	Internal Volume	R404A Charge
	Capacity * R404A & R507A	Air Volume	Sound level **	Power Input	Energy rating	Capacity * R404A & R507A	Air Volume	Sound level **	Power Input	Energy rating			
	kW	m^3/s	dB(A)	W		kW	m^3/s	dB(A)	W		m^2	dm^3	kg
MGA112	45.4	6.27	53	2270	E	39.4	4.83	45	1530	E	60	13	4.1
MGB112	52.2	6.83	52	2170	E	43.7	5.31	45	1490	E	72	17	5.4
MGA113	55.5	5.64	54	2370	E	45.0	4.15	46	1570	E	89	20	6.3
MGC112	60.0	7.34	52	2060	E	50.6	5.78	45	1450	D	89	20	6.3
MGA114	62.2	5.22	56	2420	E	48.5	3.74	47	1590	D	119	26	8.2
MGB113	64.1	6.26	53	2270	E	51.6	4.67	45	1540	D	107	23	7.3
MGB114	69.8	5.98	52	2340	E	56.2	4.25	46	1560	D	143	30	9.5
MGC113	74.2	6.86	52	2160	D	60.8	5.25	45	1500	D	134	28	8.8
MGC114	80.8	6.55	52	2220	D	65.7	4.85	45	1530	D	179	36	11.4
MGA212	90.9	12.54	56	4550	E	78.7	9.67	48	3060	E	119	26	8.2
MGB212	104.4	13.66	55	6510	E	87.3	10.63	48	4490	E	143	33	10.4
MGB122	104.8	13.66	55	4340	E	87.7	10.63	48	2990	E	143	30	9.5
MGA213	110.9	11.27	57	4740	E	88.4	8.30	49	3140	E	179	40	12.6
MGA123	111.2	11.27	57	4740	E	88.5	8.30	49	3140	E	179	36	11.4
MGC212	120.0	15.00	55	4130	E	101.3	94.0	48	2910	D	179	40	12.6
MGA214	124.4	10.00	58	4850	E	99.9	7.47	50	3180	D	239	51	16.1
MGB213	128.2	12.52	56	6830	E	103.2	9.34	48	4620	E	215	46	14.5
MGB214	144.3	11.96	55	7040	E	114.4	8.50	49	4700	E	286	60	19.0
MGB124	145.5	11.96	55	4690	D	116.0	8.50	49	3130	D	286	55	17.4
MGC213	148.4	14.00	55	4320	D	121.7	10.49	48	3000	D	268	56	17.7
MGB132	157.5	20.49	57	6510	E	131.5	15.94	49	4490	E	215	42	13.3
MGC214	166.5	13.10	55	4450	D	135.1	9.70	48	3060	D	358	72	22.8
MGC124	166.9	13.10	55	4450	D	135.4	9.70	48	3060	D	358	70	22.1
MGA133	168.9	16.91	59	7110	E	135.9	12.46	51	4710	E	268	54	17.1
MGB142	204.0	27.32	58	8680	E	168.9	21.25	50	5990	E	286	57	18.0
MGB222	209.6	27.32	58	8680	E	175.4	21.25	51	5990	E	286	59	18.6
MGB134	211.3	17.93	57	7040	D	169.5	12.74	51	4700	D	429	82	25.9
MGA223	222.4	22.54	60	9490	E	177.0	16.61	52	6290	E	358	72	22.8
MGA143	225.6	22.54	60	9490	E	180.7	16.61	52	6290	E	358	69	21.8
MGC134	243.2	19.64	57	6680	D	197.6	14.54	50	4590	D	537	101	31.9
MGB152	260.5	34.15	59	10850	E	216.6	26.57	51	7490	E	358	69	21.8
MGA153	281.3	28.18	61	11860	E	226.7	20.76	53	7860	E	447	86	27.2
MGB144	282.8	23.91	58	9390	D	225.9	16.99	51	6260	D	572	108	34.1
MGB224	291.0	23.91	58	9390	D	232.1	16.99	52	6260	D	572	110	34.8
MGC152	299.9	36.69	59	10320	E	253.2	28.88	52	7260	E	448	86	27.2
MGB162	313.1	40.98	60	13020	E	261.9	31.88	52	8990	E	429	82	25.9
MGB232	314.9	40.98	60	13020	E	263.0	31.88	52	8990	E	429	84	26.5
MGC144	323.1	26.19	58	8910	D	264.6	19.39	50	6120	D	715	133	42.0
MGC224	333.9	26.19	58	8910	D	270.7	19.39	51	6120	D	715	139	43.9
MGA163	334.1	33.81	62	14230	E	265.8	24.91	53	9430	E	537	102	32.2
MGA233	337.8	33.81	62	14230	E	271.9	24.91	54	9430	E	537	108	34.1
MGB154	351.0	29.89	59	11730	E	282.5	21.24	52	7830	D	715	133	42.0
MGA182	363.4	50.17	62	18220	E	314.8	38.66	54	12260	E	480	91	29.0
MGC153	371.1	34.30	59	10820	D	304.2	26.25	51	7520	E	671	117	39.9
MGB163	384.7	37.57	60	13670	E	309.6	28.01	53	9250	E	644	122	38.4
MGA173	388.3	39.45	63	16610	E	315.2	29.06	54	11000	E	627	119	37.4
MGC154	404.1	32.74	59	11140	D	328.6	24.24	51	7660	E	894	166	52.2
MGB242	408.1	54.64	61	17360	E	337.9	42.51	53	11990	E	572	113	35.7
MGB164	419.0	35.87	60	14080	E	337.4	25.49	53	9400	E	858	159	50.2
MGB234	430.3	35.22	61	14050	D	348.5	25.49	53	9400	D	858	164	51.8
MGA183	443.8	45.08	64	18980	E	360.3	33.21	55	12580	E	716	135	42.6
MGA243	451.2	45.08	63	18980	E	361.4	33.21	55	12580	E	715	139	43.9
MGA184	497.6	41.79	65	19410	E	388.3	29.94	57	12730	E	954	176	55.6
MGC234	501.2	39.29	60	13370	D	406.3	29.09	52	9190	D	1073	201	63.5
MGB252	521.0	68.30	61	21700	E	433.2	53.14	54	14980	E	715	138	43.6
MGA253	562.5	56.36	64	23720	E	453.3	41.52	55	15720	E	894	173	54.7
MGB244	576.4	46.96	62	18730	D	464.7	33.98	54	12530	D	1145	217	68.6
MGC252	599.9	73.38	61	20650	E	506.3	57.77	54	14530	E	894	172	54.2
MGB262	626.1	81.96	63	26040	E	523.8	63.76	55	26940	E	858	165	52.0
MGC244	665.2	52.39	60	17830	D	543.7	38.78	53	12250	D	1431	266	84.1
MGA263	668.2	67.63	64	28470	E	531.5	49.82	56	18870	E	1073	204	64.5
MGB254	714.9	58.70	63	23420	D	580.2	42.48	55	15670	D	1431	266	84.1
MGA282	726.8	100.35	65	36440	E	629.6	77.33	57	24530	E	953	183	58.2
MGC253	742.2	68.61	61	21640	D	608.4	52.50	54	9020	E	1342	253	80.0
MGB263	769.4	75.15	63	27340	E	619.3	56.02	55	18510	E	1280	243	76.8

Note: * Capacity quoted at 15 K DT1 Dew Point, ** Sound level quoted as mean pressure level at 10m

MG 800mm 6 pole Selection data

Model	Delta (High Speed)					Star (Low Speed)					Total Surface	Internal Volume	R404A Charge
	Capacity * R404A & R507A	Air Volume	Sound level **	Power Input	Energy rating	Capacity * R404A & R507A	Air Volume	Sound level **	Power Input	Energy rating			
	kW	m³/s	dB(A)	W		kW	m³/s	dB(A)	W		m²	dm³	kg
MGA112	39.8	5.31	49	1640	E	35.5	4.34	43	1090	D	60	13	4.1
MGB112	45.3	5.67	48	1590	E	40.3	4.61	44	1080	D	72	17	5.4
MGA113	50.8	4.81	50	1730	E	45.2	3.88	42	1110	D	89	20	6.3
MGC112	52.1	6.04	48	1540	D	46.0	4.84	44	1060	D	89	20	6.3
MGB113	57.9	5.22	49	1650	D	50.4	4.17	42	1100	C	107	23	7.3
MGA114	59.0	4.51	51	1800	D	50.7	3.56	43	1140	D	119	26	8.2
MGB114	65.9	4.91	50	1710	D	57.0	3.87	42	1100	C	143	30	9.5
MGC113	66.4	5.62	48	1590	D	57.6	4.50	43	1080	C	134	28	8.8
MGC114	75.5	5.33	49	1630	C	64.2	4.19	42	1090	C	179	36	11.4
MGA212	79.6	10.63	52	3280	E	71.0	8.68	45	2190	D	119	26	8.2
MGA212	90.6	11.34	51	4780	E	80.6	9.22	46	3240	E	143	33	10.4
MGB122	91.0	11.34	51	3180	E	81.2	9.22	46	2160	D	143	30	9.5
MGA213	101.6	9.62	53	3460	E	88.7	7.76	45	2220	D	179	40	12.6
MGA123	101.8	9.62	53	3460	E	88.9	7.76	45	2220	D	179	36	11.4
MGC212	104.1	12.07	51	3090	D	92.0	9.69	47	2120	D	179	40	12.6
MGB213	115.8	10.44	52	4960	E	100.7	8.33	45	3300	D	215	46	14.5
MGA214	117.9	9.03	54	3600	D	101.4	7.13	46	2290	D	239	51	16.1
MGB214	131.7	9.83	53	3420	D	112.6	7.73	45	2215	C	286	60	19.0
MGC213	132.8	11.24	51	3190	D	115.1	8.99	46	2170	C	268	56	17.7
MGB124	133.3	9.83	52	3420	D	114.3	7.73	45	2210	C	286	55	17.4
MGB132	136.6	17.00	53	4780	E	121.3	13.83	48	3240	D	215	42	13.3
MGC214	151.0	10.66	52	3260	C	128.3	8.37	45	2190	C	358	72	22.8
MGC124	151.3	10.66	51	3260	C	128.5	8.37	45	2190	C	358	70	22.1
MGA133	155.5	14.43	55	5200	E	136.5	11.64	47	3330	D	268	54	17.1
MGB142	175.2	22.67	54	6370	E	155.4	18.44	49	4320	D	286	57	18.0
MGB222	181.9	22.67	54	6370	E	162.3	18.44	49	4320	D	286	59	18.6
MGB134	199.6	14.74	54	5130	D	171.7	11.60	47	3320	C	429	82	25.9
MGA223	203.7	19.24	56	6930	E	177.8	15.52	48	4440	D	358	72	22.8
MGC142	205.5	24.15	54	6180	D	180.2	19.37	50	4250	D	358	68	21.8
MGA143	207.5	19.24	56	6930	E	181.5	15.52	48	4440	D	358	69	21.8
MGB153	286.5	26.10	55	8260	D	248.6	20.83	49	5510	C	537	102	32.2
MGC134	227.1	15.98	53	4900	C	192.9	12.56	47	3290	C	537	101	31.9
MGA162	239.9	31.88	56	9860	E	213.7	26.03	50	6590	D	358	69	21.8
MGA153	259.2	24.05	56	8660	E	227.7	19.40	49	5550	D	447	86	27.2
MGC143	260.2	22.48	54	6390	D	224.6	17.99	49	4340	C	537	102	32.2
MGB224	266.5	19.65	55	6840	D	228.6	15.47	48	4430	C	572	110	34.8
MGB144	267.0	19.65	55	6840	D	228.9	15.47	48	4430	C	572	108	34.1
MGB232	273.1	34.01	56	9560	E	242.7	27.66	51	6480	D	429	84	26.5
MGB153	286.5	26.10	55	8260	D	248.6	20.83	49	5510	C	537	102	32.2
MGC144	302.4	21.31	54	6530	C	258.4	16.75	48	4390	C	715	133	42 .0
MGC224	302.5	21.31	54	6530	C	257.0	16.75	48	4390	C	715	139	43.9
MGA163	305.9	28.86	57	10400	E	266.9	23.28	50	6660	D	537	102	32.2
MGA233	311.1	28.86	58	10400	E	273.1	23.28	50	6660	D	537	108	34.1
MGB154	331.5	24.56	56	8550	D	285.8	19.33	49	5540	C	715	133	42.0
MGB242	350.4	45.34	57	12750	E	310.8	36.88	52	8650	D	572	113	35.7
MGA164	353.7	27.09	59	10810	D	305.2	21.38	51	6870	D	715	133	42.0
MGB234	399.2	29.48	57	10270	D	343.5	23.20	50	6650	C	858	164	51.8
MGA243	415.0	38.48	58	13870	E	363.0	31.03	51	8880	D	715	139	43.9
MGB252	449.6	56.68	58	15940	E	399.0	46.10	53	10810	D	715	138	43.6
MGC234	454.1	31.97	56	9800	C	385.7	25.12	50	6590	C	1073	201	63.5
MGA253	518.3	48.10	59	17330	E	455.3	38.79	52	11110	D	894	173	54.7
MGC252	520.7	60.37	58	15450	D	460.1	48.43	54	10600	D	894	171	54.2
MGB244	534.1	39.30	58	13690	D	457.9	30.94	51	8870	C	1145	217	68.6
MGB262	543.7	68.01	59	28680	E	483.6	55.32	54	19440	E	858	164	52.01
MGC244	604.8	42.62	57	13070	C	516.7	33.50	51	8790	C	1431	266	84.1
MGA263	611.8	57.72	60	20800	E	533.8	46.55	53	13330	D	1073	204	64.5
MGA282	636.9	85.03	61	26240	E	567.7	69.41	55	17520	D	953	183	58.2
MGB254	663.1	49.13	59	17110	D	571.7	38.67	52	11090	C	1431	266	84.1
MGC253	664.1	56.21	58	15950	D	575.7	44.97	52	10850	C	1342	253	80.0
MGB263	694.9	62.64	59	29760	E	604.5	50.0	53	19800	D	1280	243	76.86
MGA273	711.4	67.34	61	24220	E	621.2	54.31	54	15540	D	1252	238	75.2
MGC254	754.8	53.28	58	16300	C	641.6	41.87	52	10950	C	1787	330	104
MGB264	790.4	58.95	60	20520	D	675.6	46.40	53	13290	C	1716	319	100.86
MGA283	813.0	76.95	62	27680	E	709.9	62.07	55	17760	D	1430	271	85.6
MGA284	943.5	72.23	64	28800	D	811.1	57.02	56	18320	D	1907	353	111.72

Note: * Capacity quoted at 15 K DT1 Dew Point, ** Sound level quoted as mean pressure level at 10m

MG 800mm 8 pole Selection data

Model	Delta (High Speed)					Star (Low Speed)					Total Surface	Internal Volume	R404A Charge
	Capacity * R404A & R507A	Air Volume	Sound level **	Power Input	Energy rating	Capacity * R404A & R507A	Air Volume	Sound level **	Power Input	Energy rating			
	kW	m^3/s	dB(A)	W		kW	m^3/s	dB(A)	W		m^2	dm^3	kg
MGA112	33.9	4.02	42	800	D	29.8	3.12	35	510	C	60	13	4.1
MGB112	38.7	4.31	41	790	C	32.8	3.30	35	500	C	72	17	5.4
MGA113	42.9	3.65	41	850	C	35.9	2.73	35	520	C	89	20	6.3
MGC112	44.2	4.57	40	780	C	37.5	3.50	34	490	B	89	20	6.3
MGA114	47.6	3.33	41	900	C	38.8	2.47	35	530	B	119	26	8.2
MGB113	48.5	3.98	42	820	C	40.8	3.0	35	510	B	107	23	7.3
MGB114	54.2	3.71	41	840	C	44.3	2.74	35	520	B	143	30	9.5
MGC113	55.2	4.32	41	790	C	46.0	3.23	35	500	B	134	28	8.8
MGC114	61.8	4.07	42	810	B	51.0	3.05	35	510	B	179	36	11.4
MGA212	67.8	8.05	45	1610	D	58.3	6.23	38	1020	C	119	26	8.2
MGB212	77.3	8.63	44	1590	C	65.7	6.61	37	1500	D	143	33	10.4
MGB122	77.9	8.63	44	1590	C	66.6	6.61	37	1000	C	143	30	9.5
MGA123	84.1	7.30	44	1700	C	70.0	5.45	38	1040	C	179	36	11.4
MGA213	85.8	7.30	44	1700	C	71.8	5.45	38	1040	C	179	40	12.6
MGC212	88.5	9.15	43	1560	C	75.0	7.00	37	980	B	179	40	12.6
MGA214	95.2	6.67	44	1800	C	77.7	4.95	37	1060	B	239	51	16.1
MGB213	97.0	7.97	45	1640	C	81.5	6.00	38	1035	B	215	46	14.5
MGB214	108.4	7.41	44	1690	C	88.6	5.49	38	1045	B	286	60	19.0
MGB124	108.6	7.41	44	1690	C	88.5	5.49	38	1040	B	286	55	17.4
MGC213	110.5	8.65	44	1690	C	92.0	6.46	38	1000	B	268	56	17.7
MGB132	116.4	12.94	46	2380	C	98.8	9.91	39	1500	C	215	42	13.3
MGC124	123.3	8.15	45	1620	B	101.3	6.10	38	1020	B	358	70	22.1
MGC214	123.5	8.15	45	1620	B	102.1	6.10	38	1020	B	358	72	22.8
MGA133	129.4	10.95	46	2550	C	108.1	8.18	40	1570	C	268	54	17.1
MGB142	148.9	17.25	47	3180	C	126.4	13.22	40	2000	C	286	57	18.0
MGB222	155.8	17.25	47	3180	C	133.2	13.22	40	2000	C	286	59	18.6
MGB134	163.3	11.12	46	2540	C	133.4	8.23	40	1570	B	429	82	25.9
MGA223	168.1	14.61	47	3400	C	140.0	10.91	41	2090	C	358	72	22.8
MGA143	172.0	14.61	47	3400	C	143.4	10.91	40	2090	C	358	69	21.8
MGC142	173.0	18.30	46	3130	C	145.9	13.99	40	1960	B	358	69	21.8
MGC134	185.0	12.22	47	2430	B	152.1	9.16	40	1540	B	537	101	31.9
MGB152	191.1	121.5	48	3980	C	161.9	16.52	41	2500	C	358	69	21.8
MGA162	204.0	24.14	50	4840	D	175.5	18.70	42	3070	C	358	69	21.8
MGC143	215.4	17.30	47	3190	C	179.2	12.92	40	2010	B	537	102	32.2
MGA153	216.0	18.26	48	4260	C	180.9	13.64	41	2620	C	447	86	27.2
MGB224	217.3	14.83	47	3380	C	177.0	10.97	41	2090	B	572	110	34.8
MGB144	217.6	14.83	47	3380	C	177.1	10.97	40	2090	B	572	108	34.1
MGB232	232.7	25.88	49	4770	C	197.6	19.82	42	3000	C	429	84	26.5
MGB153	237.6	19.92	48	4100	C	198.1	15.00	42	2590	B	537	102	32.2
MGC224	246.5	16.30	48	3240	B	202.7	12.21	41	2050	B	715	139	43.9
MGC144	248.2	16.30	48	3240	B	204.8	12.21	41	2050	B	715	133	42.0
MGA163	252.4	21.91	49	5110	C	210.2	16.36	42	3140	C	537	102	32.2
MGA233	258.7	21.91	49	5110	C	216.2	16.36	42	3140	C	537	108	34.1
MGB154	272.2	18.53	48	4230	C	222.8	13.72	41	2620	B	715	133	42.0
MGA164	287.1	20.00	49	5410	C	235.5	14.84	42	3180	B	715	133	42.0
MGB242	297.8	34.51	50	6370	C	252.7	26.43	43	4000	C	572	113	35.7
MGB234	326.6	22.24	49	5080	C	266.7	16.46	42	3140	B	858	164	51.8
MGA243	343.9	29.21	50	6810	C	286.7	21.82	43	4190	C	715	139	43.9
MGC234	369.9	24.45	50	4860	B	304.1	18.31	43	3080	B	1073	201	63.5
MGB252	382.3	23.13	51	7960	C	323.8	33.04	44	5000	C	715	138	43.6
MGA253	432.0	36.51	51	8520	C	361.7	27.27	44	5240	C	894	173	54.7
MGB244	435.1	29.65	50	6770	C	354.2	21.95	43	4190	B	1145	217	68.6
MGC252	442.4	45.75	50	7800	C	375.2	34.98	44	4900	B	894	171	54.2
MGB262	463.9	51.76	52	9540	C	394.2	39.65	45	9000	D	858	164	52.0
MGC244	496.4	32.60	50	6480	B	409.6	24.42	43	4110	B	1431	266	84.1
MGA263	504.8	43.82	52	10220	C	420.4	32.72	45	6290	C	1073	204	64.5
MGA263	542.2	64.38	55	12880	D	466.7	49.86	47	8160	C	953	183	58.3
MGB254	544.5	37.07	51	8470	C	445.6	27.43	44	5240	B	1431	266	84.1
MGC253	552.5	43.2	51	8450	C	460.0	32.30	44	5000	B	1342	253	80.0
MGB263	581.8	47.81	52	9840	C	489.0	36.00	46	6210	B	1280	243	76.9
MGA273	600.3	51.12	53	11900	C	502.6	38.18	46	7280	C	1252	238	75.3
MGC254	617.7	40.75	52	8100	B	510.4	30.52	45	5100	B	880	165	52.4
MGB264	650.2	44.48	52	10140	C	531.8	32.92	45	6270	B	1716	319	100.9
MGA283	686.1	58.42	54	13600	C	574.4	43.6	47	8320	C	1430	271	85.7
MGA284	761.6	53.3	54	14400	C	621.5	39.56	47	8480	B	1907	353	111.7

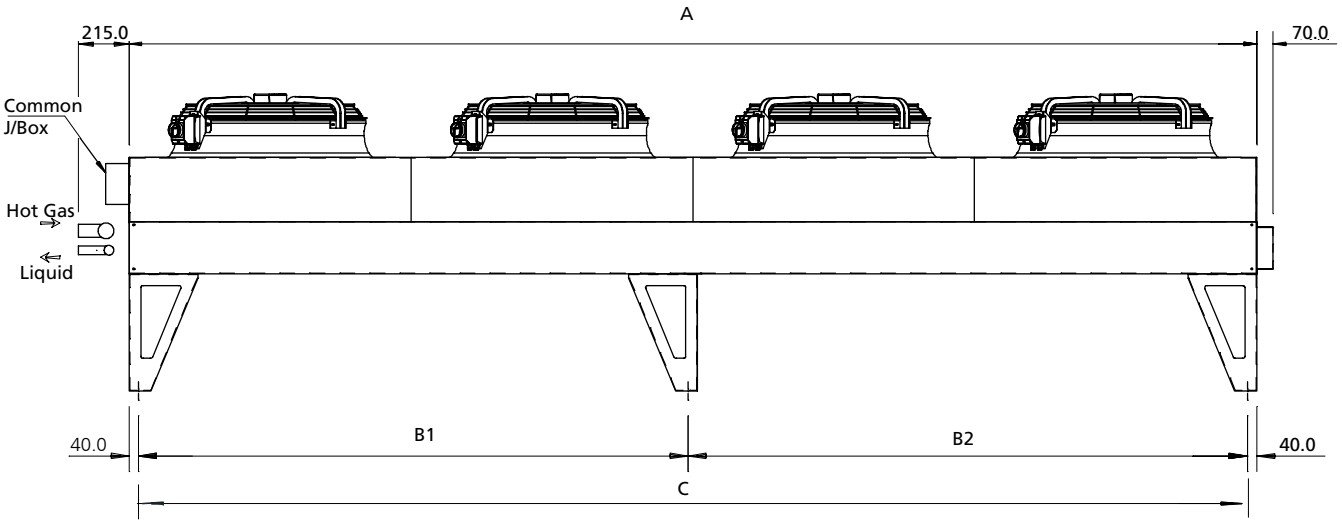
Note: * Capacity quoted at 15 K DT1 Dew Point, ** Sound level quoted as mean pressure level at 10m

MG 800mm 12 pole Selection data

Model	Delta (High Speed)					Star (Low Speed)					Total Surface	Internal Volume	R404A Charge
	Capacity * R404A & R507A	Air Volume	Sound level **	Power Input	Energy rating	Capacity * R404A & R507A	Air Volume	Sound level **	Power Input	Energy rating			
	kW	m³/s	dB(A)	W		kW	m³/s	dB(A)	W		m²	dm³	kg
MGA112	25.5	2.52	30	310	B	22.7	2.01	23	170	A	60	13	4.1
MGB112	28.5	2.67	29	300	B	25.6	2.15	23	170	A	72	17	5.4
MGA133	90.2	6.81	34	960	B	78.3	5.22	28	560	A	268	54	7.1
MGC112	32.3	2.83	29	300	B	29.0	2.30	23	170	A	89	20	6.3
MGA114	34.2	2.06	30	320	B	28.2	1.57	23	190	A	119	26	8.2
MGB113	34.4	2.41	30	310	A	29.7	1.88	23	180	A	107	23	7.3
MGB114	38.0	2.23	30	320	A	31.7	1.72	23	180	A	143	30	9.5
MGC113	39.0	2.60	29	300	A	34.0	2.05	23	170	A	134	28	8.8
MGC114	42.6	2.47	30	310	A	36.1	1.89	23	180	A	179	36	11.4
MGA212	50.9	5.03	33	620	B	45.4	4.02	26	350	A	119	26	8.2
MGB122	56.2	5.34	32	610	B	50.8	4.30	26	340	A	143	30	9.5
MGB212	56.9	5.34	32	610	B	51.2	4.30	26	345	A	143	33	10.4
MGA213	61.7	4.54	33	640	B	52.7	3.48	26	370	A	179	40	12.6
MGA123	62.2	4.54	33	640	B	53.3	3.48	26	370	A	179	36	11.4
MGC212	64.5	5.66	32	600	B	58.1	4.61	26	340	A	179	40	12.6
MGA214	68.4	4.11	33	650	B	56.5	3.14	26	380	A	239	51	16.1
MGB213	68.7	4.82	33	620	A	59.5	3.77	26	360	A	215	46	14.5
MGB214	75.9	4.46	32	640	A	63.5	3.43	26	370	A	286	60	19.0
MGB124	76.2	4.46	32	640	A	63.6	3.43	26	370	A	286	55	17.4
MGC213	77.9	5.20	32	610	A	68.0	4.11	26	340	A	268	56	17.7
MGB132	84.5	8.01	34	920	B	76.3	6.45	28	520	A	215	42	13.3
MGC124	85.1	4.94	33	620	A	72.1	3.79	26	360	A	358	702	2.1
MGC214	85.1	4.94	33	620	A	72.2	3.79	26	360	A	358	72	22.8
MGA133	90.2	6.81	34	960	B	78.3	5.22	28	560	A	268	54	17.1
MGB222	112.3	10.68	35	1220	B	101.5	8.60	29	690	A	286	59	18.6
MGB134	114.4	6.69	34	960	A	95.5	5.15	28	560	A	429	82	25.9
MGB142	114.4	10.68	35	1220	B	102.5	8.60	29	690	A	286	57	18.0
MGA223	124.3	9.08	35	1290	B	106.7	6.96	29	750	A	358	72	22.8
MGA143	124.6	9.08	35	1290	B	106.8	6.96	29	750	A	358	69	21.8
MGC134	128.0	7.41	35	930	A	108.5	5.68	28	540	A	537	101	31.9
MGC142	130.2	11.33	35	1210	B	117.5	9.21	29	680	A	358	69	21.8
MGB152	143.1	13.34	35	1530	B	128.6	10.75	30	860	A	358	69	21.8
MGB224	152.3	8.92	35	1290	A	127.2	6.87	29	750	A	572	110	34.8
MGB144	152.6	8.92	35	1290	A	127.4	6.87	29	750	A	572	108	34.1
MGA162	153.5	15.09	37	1860	B	37.6	12.07	31	1050	A	358	69	21.8
MGA153	154.3	11.35	36	1610	B	33.1	8.71	30	940	A	447	86	27.2
MGC143	156.5	10.40	34	1230	A	136.2	8.21	29	690	A	537	102	32.2
MGB232	169.1	16.01	37	1840	B	152.7	12.90	31	1040	A	429	84	26.5
MGC144	169.8	9.88	36	1240	A	144.6	7.57	29	720	A	715	33	42.0
MGC224	170.2	9.88	36	1240	A	144.2	7.57	29	720	A	715	139	43.9
MGB153	172.7	12.06	37	1560	A	149.6	9.42	30	910	A	537	02	32.2
MGA233	180.4	13.62	37	1930	B	156.7	10.45	31	1130	A	537	08	34.1
MGA163	187.1	13.62	37	1930	B	160.4	10.45	31	1130	A	537	102	32.2
MGB154	188.8	11.15	36	1610	A	159.2	8.58	30	940	A	715	33	42.0
MGA164	203.0	12.33	38	1950	B	169.4	9.41	31	1160	A	715	133	42.0
MGB234	228.8	13.38	37	1930	A	191.0	10.30	31	1130	A	858	164	51.8
MGB242	228.8	21.35	37	2450	B	205.0	17.20	32	1380	A	572	113	35.7
MGA243	249.3	18.16	38	2580	B	213.7	13.93	32	1500	A	715	39	43.9
MGC234	256.0	14.82	38	1870	A	217.0	11.36	31	1080	A	1073	201	63.5
MGB252	286.2	26.69	38	3060	B	257.1	21.50	33	1730	A	715	138	43.6
MGB244	305.2	17.84	38	2580	A	254.7	13.74	32	1500	A	1145	217	68.6
MGA253	308.5	22.71	39	3230	B	266.1	17.41	33	1880	A	894	173	54.7
MGC252	322.6	28.32	39	3000	B	290.3	23.03	33	1700	A	894	171	54.2
MGC244	339.6	19.76	38	2490	A	289.1	15.15	32	1440	A	431	266	84.1
MGB262	341.6	32.03	39	3660	B	306.9	25.80	34	2070	A	858	164.6	52.0
MGA263	374.2	27.25	40	3870	B	320.7	20.89	34	2260	A	1073	204	64.5
MGB254	377.7	22.30	39	3220	A	318.3	17.17	33	1880	A	1431	266	84.1
MGC253	389.5	25.99	38	3050	A	339.9	20.53	33	1700	A	1342	253	80.0
MGA282	407.5	40.24	42	4960	B	363.4	32.20	36	2800	A	953	183	58.3
MGB263	412.3	28.94	41	3720	A	356.9	22.61	34	2160	A	1280	243.1	76.9
MGC254	425.6	24.70	40	3100	A	361.0	18.93	33	1800	A	880	165	52.4
MGA273	432.0	31.79	41	4480	B	369.2	24.38	35	2590	A	1252	238	75.3
MGB264	455.4	26.77	40	3840	A	380.7	20.60	34	2220	A	1716	319.1	100.9
MGA283	493.7	36.33	42	5120	B	421.9	27.86	36	2960	A	1430	271	85.7
MGA284	547.5	32.88	43	5200	B	451.9	25.10	36	3040	A	1907	353.4	111.7

Note: * Capacity quoted at 15 K DT1 Dew Point, ** Sound level quoted as mean pressure level at 10m

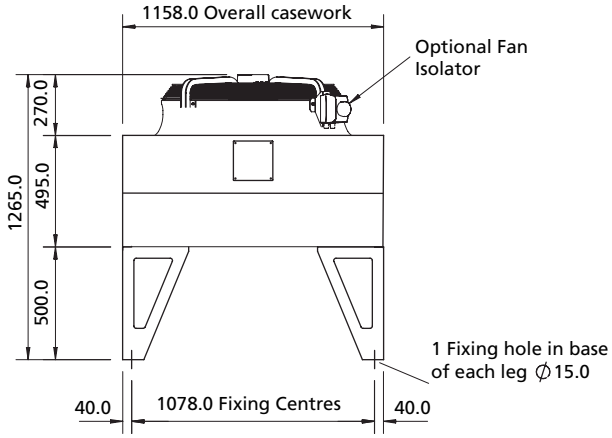
MG Model Drawings

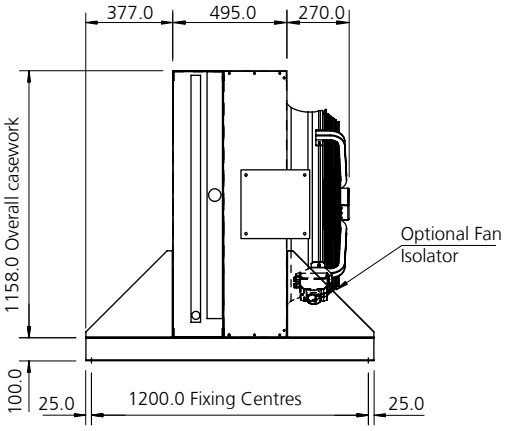


Horizontal Unit

Vertical Unit

1 bank

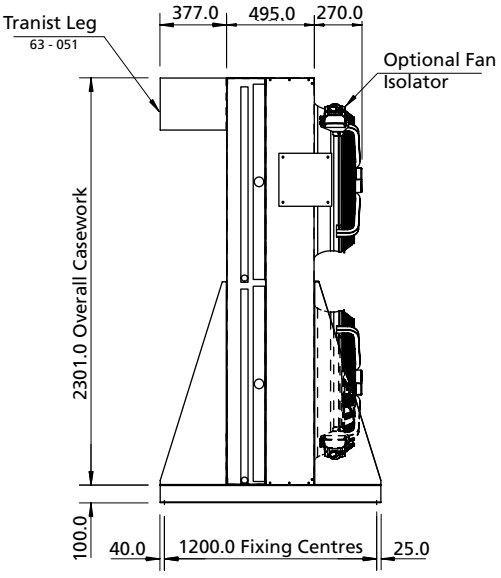


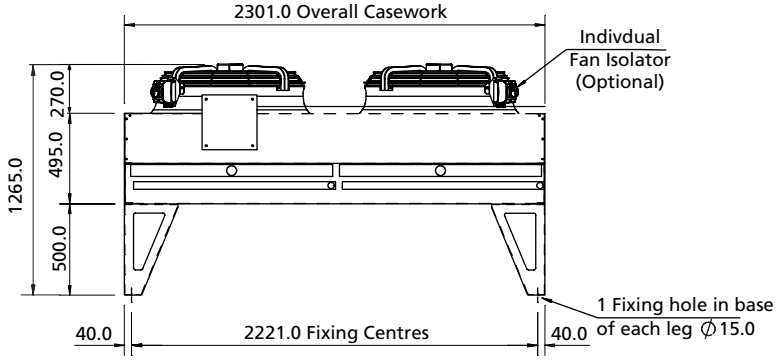


Vertical Unit

Horizontal Unit

2 bank





Notes:

All dimensions in mm. Common junction box will vary in size and position depending on the control option required.

Dimensions

Model	Fan Banks	Fans Per Bank	A	B1	B2	C	Total Unit Dry Weight			
							* 1 Bank		* 2 Bank	
			mm	mm	mm	mm	AL	CU	AL	CU
							kg	kg	kg	kg
MGA_12	1 or 2	1	1203	—	—	1123	174	198	299	349
MGA_13	1 or 2	1	1203	—	—	1123	188	255	328	402
MGA_14	1 or 2	1	1203	—	—	1123	202	252	357	455
MGA_22	1 or 2	2	2403	—	—	2323	289	339	508	607
MGA_23	1 or 2	2	2403	—	—	2323	318	392	565	713
MGA_24	1 or 2	2	2403	—	—	2323	345	444	622	820
MGA_32	1 or 2	3	3603	—	—	3523	404	478	726	874
MGA_33	1 or 2	3	3603	—	—	3524	447	558	811	1033
MGA_34	1 or 2	3	3603	—	—	3525	490	638	895	1192
MGA_42	1 or 2	4	4803	2342	2382	4723	529	628	948	1146
MGA_43	1 or 2	4	4803	2342	2382	4723	587	735	1061	1358
MGA_44	1 or 2	4	4803	2342	2382	4723	636	841	1175	1570
MGA_52	1 or 2	5	6003	2942	2982	5923	648	772	1168	1415
MGA_53	1 or 2	5	6003	2942	2982	5923	719	904	1310	1681
MGA_54	1 or 2	5	6003	2942	2982	5923	789	1036	1451	1945
MGA_62	1 or 2	6	7203	3542	3582	7123	759	907	1373	1670
MGA_63	1 or 2	6	7203	3542	3582	7123	844	1066	1544	1989
MGA_64	1 or 2	6	7203	3542	3582	7123	927	1225	1714	2307
MGA272	1 or 2	7	8403	2341	2381	8323	—	—	1594	1940
MGA273	2	7	8403	2341	2381	8323	—	—	1792	2312
MGA274	2	7	8403	2341	2381	8323	—	—	1991	2683
MGA282	2	8	9603	3521	3581	9523	—	—	1810	2206
MGA283	2	8	9603	3521	3581	9523	—	—	2036	2631
MGA284	2	8	9603	3521	3581	9523	—	—	2264	3054
MGB_12	1 or 2	1	1443	—	—	1363	190	219	328	387
MGB_13	1 or 2	1	1443	—	—	1363	206	251	361	451
MGB_14	1 or 2	1	1443	—	—	1363	224	283	396	515
MGB_22	1 or 2	2	2883	—	—	2803	318	377	565	684
MGB_23	1 or 2	2	2883	—	—	2803	353	442	632	810
MGB_24	1 or 2	2	2883	—	—	2803	386	505	700	938
MGB_32	1 or 2	3	4323	—	—	4243	447	536	800	978
MGB_33	1 or 2	3	4323	—	—	4243	498	631	903	1170
MGB_34	1 or 2	3	4323	—	—	4243	549	727	1005	1360
MGB_42	1 or 2	4	5763	2822	2862	5683	586	705	1048	1293
MGB_43	1 or 2	4	5763	5822	2862	5683	654	832	1183	1539
MGB_44	1 or 2	4	5763	5822	2862	5683	722	960	1320	1794
MGB_52	1 or 2	5	7203	3542	3582	7123	720	868	1292	1588
MGB_53	1 or 2	5	7203	3542	3582	7123	804	1027	1461	1906
MGB_54	1 or 2	5	7203	3542	3582	7123	890	1186	1631	2224
MGB262	2	6	8643	2821	2880	8563	—	—	1530	1890
MGB263	2	6	8643	2821	2880	8563	—	—	1734	2267
MGB264	2	6	8643	2821	2880	8563	—	—	1938	2649
MGC_12	1 or 2	1	1803	—	—	1723	210	247	364	438
MGC_13	1 or 2	1	1803	—	—	1723	232	288	406	517
MGC_14	1 or 2	1	1803	—	—	1723	253	327	449	597
MGC_22	1 or 2	2	3603	—	—	3523	360	434	636	784
MGC_23	1 or 2	2	3603	—	—	3523	402	513	721	943
MGC_24	1 or 2	2	3603	—	—	3523	445	593	806	1102
MGC_32	1 or 2	3	5403	2642	2682	5323	524	635	926	1148
MGC_33	1 or 2	3	5403	2642	2682	5323	588	754	1052	1386
MGC_34	1 or 2	3	5403	2642	2682	5323	652	874	1180	1625
MGC_42	1 or 2	4	7203	3542	3582	7123	670	818	1191	1487
MGC_43	1 or 2	4	7203	3542	3582	7123	754	976	1360	1805
MGC_44	1 or 2	4	7203	3542	3582	7120	840	1136	1530	2123
MGC252	2	5	9003	3541	3581	8923	—	—	1472	1842
MGC253	2	5	9003	3541	3581	8923	—	—	1683	2239
MGC254	2	5	9003	3541	3581	8923	—	—	1895	2637

Notes:

Total unit dry weight is dependent upon the coil material used (AL = Copper tubes with Aluminium or Vinyl coated aluminium fins, CU = Copper tubes with Copper fins or Copper fins electro-tinned).

MM - MX Condenser

The MM and MX ranges of fully weather-proofed air cooled condensers feature a new range of coil module sizes to extend the coil surface to air volume ratio and thereby increase the "air-volume efficiency" factor.

The MM series has a duty range of 18kW to 596kW and the MX series has a duty range of 22kW to 754kW. Both ranges are available in flat-bed horizontal and vertical configurations and have the latest innovation of blow-through horizontal design for high temperature applications.

The MM range is available in a single width of 1539mm and the MX range is available in a single width of 2301mm, both with module lengths of 1200mm, 1440mm and 1800mm, up to 8 fans and 2 to 4 coil rows.

The full fanset options are available, including the 910mm EC energy efficient fanset, which enables a highly efficient, very low noise complete fan speed-control package. Full details of the EC fanset and ideal application areas can be found in the EC brochure.

Due to the wide variety of condensers available only a selection of the range is represented in this catalogue. For full selection data either refer to the Selection data tables or use the Searle selection software, either on-line or via the Searle Selection CD.

MM A 1 6 2 H - N8 12 D - AL

Range	MM or MX
Module Size	A (1200mm), B (1440mm), C (1800mm)
Bank of fans	1
Fans per bank	1 - 8 (MMA & MXA), 1-6 (MMB & MXB), 1-5 (MMC & MXC)
Coils rows	2, 3, 4
Coil Orientation	H = Horizontal, V = Vertical
Fans type	N8 (800mm), Q8 (800mm), 09 (910mm) N9 (910mm), 99 (990mm)
Motor speed (Poles)	06, 08, 12, 09EC (Max 855rpm)
Power	D = Delta, S = Star, 2 = 2 Speed, Variable speed
Coil material	AL = Copper tubes/ Aluminium fins, AV = Copper tubes/ Vinyl coated aluminium fins CU = Copper tubes/ Copper fins, ET = Copper tubes/ Copper fins electro-tinned Bg = Copper tube/Aluminium fin Blygold coated

Fan Data Table

Fan type & Pole	Diameter	Module	Delta			Star		
			Speed (rpm)	FLC (Amp)	SC (Amp)	Speed (rpm)	FLC (Amp)	SC (Amp)
N806 6 Pole	800mm	A,B,C	895	4.3	14	685	2.5	4
N808 8 Pole		A,B,C	665	2.5	6.2	495	1.3	2.2
N812 12 Pole		A,B,C	450	1.2	2.3	350	0.5	0.8
Q812 12 Pole		A,B,C	360	0.75	1	255	0.3	0.5
N906 6 Pole	910mm	A,B,C	870	5.7	19	650	3.3	1.1
09EC EC Technology		A,B,C	Variable 100 - 855	3.1	4.3			

MM/ MX Selection Data

Model	Delta (High Speed)					Star (Low Speed)					Total Surface	Internal Volume	R404A Charge
	Capacity * R404A & R507A	Air Volume	Sound level **	Power Input	Energy rating	Capacity * R404A & R507A	Air Volume	Sound level **	Power Input	Energy rating			
	kW	m^3/s	dB(A)	W		kW	m^3/s	dB(A)	W		m^2	dm^3	kg
910mm 6 Pole													
MMA112	53.5	7.08	52	2110	E	46.9	5.55	45	1470	D	80	20	6.3
MMB113	74.1	7.00	52	2130	D	63.1	5.38	45	1490	D	143	31	9.8
MMC114	94.4	7.15	52	2100	D	78.4	5.51	45	1480	C	239	48	15.2
MMA122	107.7	14.16	55	4230	E	94.3	11.10	48	2950	D	159	34	10.7
MMB123	149.5	14.01	55	4260	D	126.7	10.76	48	2980	D	286	56	17.7
MMC124	189.3	14.31	55	4200	C	157.2	11.01	48	2960	C	477	93	29.4
MMB133	223.8	21.01	57	6400	D	190.2	16.15	49	4470	D	429	84	26.5
MMC134	283.8	21.46	57	6300	C	234.1	16.52	49	4440	C	715	136	43.0
MMC143	336.2	29.66	58	8190	D	286.7	23.24	51	5800	C	715	136	43.0
MMC144	379.4	28.62	58	8410	C	314.7	22.03	50	5920	C	954	177	55.9
MMB154	419.6	33.49	59	10990	D	345.2	25.08	51	7610	C	954	184	58.1
MMC154	471.9	35.77	59	10500	D	391.9	27.53	51	7400	C	1192	221	69.8
MMB164	502.9	40.19	60	13140	D	411.8	30.09	52	9120	C	1145	217	68.7
MMA174	521.1	43.39	61	16030	D	421.8	31.77	54	10850	D	1113	212	66.9
MMA184	595.5	49.59	62	18320	D	482.1	36.30	55	12400	D	1272	241	76.3
MXA112	67.6	7.78	52	1960	D	59.2	6.21	46	1400	D	119	26	8.2
MXB113	91.4	7.68	52	1990	C	78.3	6.08	46	1420	C	215	44	13.9
MXC114	112.3	7.75	52	1970	C	95.3	6.15	46	1410	C	358	72	22.8
MXA122	136.1	15.57	55	3930	D	118.5	12.43	49	2810	D	239	50	15.8
MXB123	181.2	15.35	55	3980	C	154.1	12.15	48	2840	C	429	84	26.5
MXC124	223.4	15.49	55	3950	C	188.9	12.30	48	2820	C	715	134	42.3
MXB133	272.0	23.03	57	5980	C	231.3	18.23	50	4260	C	644	121	38.2
MXC134	335.2	23.24	57	5930	C	283.4	18.45	50	4240	C	1073	201	63.5
MXC143	400.3	31.71	58	7740	C	337.4	25.45	51	5560	C	1073	200	63.2
MXC144	451.0	30.99	58	7910	C	382.1	24.60	51	5650	C	1431	263	83.1
MXB154	514.2	37.26	58	10200	C	431.7	29.13	51	7240	C	1431	263	83.1
MXC154	561.7	38.74	59	9850	C	476.4	30.75	52	7050	C	1789	328	103.5
MXB164	614.2	44.71	60	12240	C	515.1	34.96	53	8640	C	1717	314	99.3
MXA174	659.5	50.08	61	14700	D	544.6	38.55	53	10360	C	1669	308	97.5
MXA184	753.7	57.24	62	16800	D	622.4	44.05	54	11840	C	1907	352	111.2
800 mm 6 Pole													
MMA112	47.9	5.85	48	1560	D	42.5	4.78	44	1070	D	80	20	6.3
MMB113	67.4	5.65	48	1580	D	58.8	4.57	44	1070	C	143	31	9.8
MMC114	86.5	5.67	48	1570	C	73.8	4.55	44	1070	C	239	48	15.2
MMA122	96.2	11.70	51	3130	D	85.3	9.55	47	2140	D	159	34	10.7
MMB123	136.5	11.30	51	3160	D	118.1	9.15	46	2150	C	286	56	17.7
MMC124	173.9	11.34	51	3140	C	148.0	9.10	47	2150	C	477	93	29.4
MMB133	204.4	16.95	53	4750	D	177.4	13.72	48	3230	C	429	84	26.5
MMC134	260.2	17.01	53	4710	C	220.3	13.64	48	3220	C	715	136	43.0
MMC143	305.5	23.83	54	6160	C	262.4	19.12	50	4250	C	715	136	43.0
MMC144	348.4	22.69	54	6280	C	296.3	18.19	49	4300	C	954	177	55.9
MMB154	391.4	26.85	55	8090	C	333.6	21.48	49	5470	C	954	184	58.1
MMC154	432.7	28.36	55	7850	C	369.1	22.74	50	5350	C	1192	221	69.8
MMB164	468.4	32.22	56	9660	C	397.9	25.78	50	6540	C	1145	217	68.7
MMA174	493.2	35.55	57	11620	D	420.1	28.3	51	7700	C	1113	212	66.9
MMA184	563.7	40.63	58	13280	D	480.1	32.4	52	8800	C	1272	241	76.3
MXA112	60.3	6.38	48	1580	D	52.0	5.10	44	1040	C	119	26	8.2
MXB113	82.7	6.16	48	1510	C	70.8	4.91	44	1050	C	215	44	13.9
MXC114	102.9	6.12	48	1500	C	86.5	4.85	44	1050	B	358	72	22.8
MXA122	120.8	12.76	51	3160	D	103.9	10.21	47	2090	C	239	50	15.8
MXB123	163.2	12.32	51	3020	C	139.0	9.82	47	2100	C	429	84	26.5
MXC124	204.3	12.25	51	3010	C	171.5	9.70	47	2100	B	715	134	42.3
MXB133	244.8	18.48	53	4540	C	208.6	14.73	48	3150	C	644	121	38.2
MXC134	306.5	18.37	53	4520	C	257.3	14.55	48	3150	B	1073	201	63.5
MXC143	353.0	25.37	54	5940	C	300.4	20.13	49	4170	B	1073	200	63.2
MXC144	412.7	24.49	54	6020	C	346.4	19.40	49	4200	B	1431	263	83.1
MXB154	471.8	29.52	55	7690	C	399.3	23.52	50	5310	B	1431	263	83.1
MXC154	514.3	30.61	55	7500	C	432.5	24.2	50	5250	B	1789	328	103.5
MXB164	563.6	35.43	56	9180	C	476.6	28.2	52	6360	B	1717	314	99.3
MXA174	604.9	39.70	57	10990	C	512.6	31.8	52	7490	C	1669	308	97.5
MXA184	691.3	45.37	58	12560	C	585.8	36.4	53	8560	C	1907	352	111.2

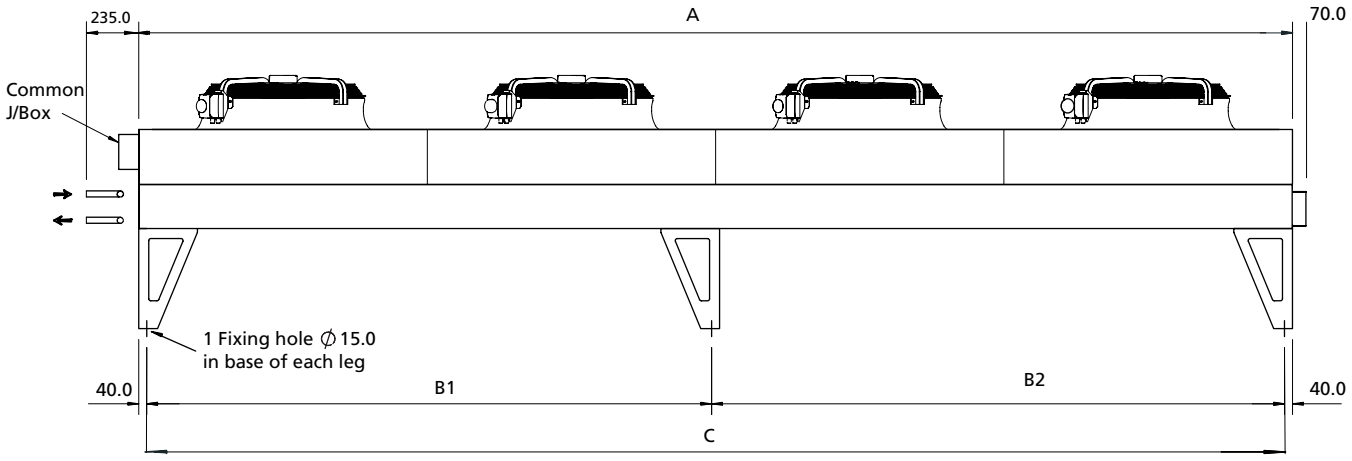
Note: * Capacity quoted at 15 K DT1 Dew Point, ** Sound level quoted as mean pressure level at 10m

MM/ MX Selection Data

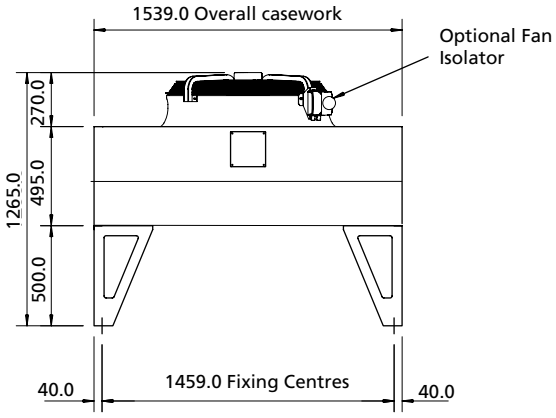
Model	Delta (High Speed)					Star (Low Speed)					Total Surface	Internal Volume	R404A Charge
	Capacity * R404A & R507A	Air Volume	Sound level **	Power Input	Energy rating	Capacity * R404A & R507A	Air Volume	Sound level **	Power Input	Energy rating			
	kW	m³/s	dB(A)	W		kW	m³/s	dB(A)	W		m²	dm³	kg
800 mm 8 Pole													
MMA112	41.3	4.46	41	790	C	35.0	3.40	34	490	B	80	20	6.3
MMB113	56.7	4.32	41	790	B	47.3	3.29	34	500	B	143	31	9.8
MMC114	71.0	4.38	41	790	B	58.1	3.33	34	490	A	239	48	15.2
MMA122	83.0	8.91	44	1580	C	70.2	6.81	37	990	B	159	34	10.7
MMB123	113.6	8.65	44	1590	B	94.6	6.58	37	1000	B	286	56	17.7
MMC124	142.4	8.76	44	1580	B	116.5	6.65	37	990	A	477	93	29.4
MMB133	170.8	12.97	46	2380	B	142.6	9.88	39	1500	B	429	84	26.5
MMC134	211.8	13.15	45	2370	B	173.0	9.98	39	1490	A	715	136	43.0
MMC143	254.5	18.24	46	3130	B	212.8	13.91	40	1960	B	715	136	43.0
MMC144	285.1	17.53	46	3170	B	233.1	13.31	40	1990	A	954	177	55.9
MMB154	318.3	20.44	48	4020	B	262.3	15.61	41	2550	B	954	184	58.1
MMC154	355.2	21.91	47	3950	B	290.7	16.63	41	2450	A	1192	221	69.8
MMB164	379.2	24.53	50	4800	B	312.6	18.73	42	3060	B	1145	217	68.7
MMA174	398.5	26.61	50	5740	C	329.1	20.30	44	3640	B	1113	212	66.9
MMA184	455.4	30.42	51	6560	C	376.1	23.20	45	4160	B	1272	241	76.3
MXA112	50.8	4.80	41	750	C	43.4	3.69	34	470	B	119	26	8.2
MXB113	68.8	4.71	41	760	B	57.1	3.60	34	480	A	215	44	13.9
MXC114	83.8	4.72	41	750	A	68.4	3.62	34	480	A	358	72	22.8
MXA122	101.3	9.60	43	1500	C	86.5	7.39	37	950	B	239	50	15.8
MXB123	135.1	9.41	44	1520	B	112.8	7.20	37	960	A	429	84	26.5
MXC124	167.0	9.44	43	1510	A	135.7	7.23	37	960	A	715	134	42.3
MXB133	202.7	14.12	45	2290	B	169.3	10.81	39	1450	A	644	121	38.2
MXC134	251.0	14.17	45	2270	A	203.6	10.85	39	1440	A	1073	201	63.5
MXC143	292.6	19.35	47	3180	B	245.5	14.91	39	1890	A	1073	200	63.2
MXC144	335.5	18.89	46	3030	A	274.0	14.47	40	1930	A	1431	263	83.1
MXB154	386.0	22.81	47	3900	B	315.1	17.37	41	2450	A	1431	263	83.1
MXC154	419.1	23.61	47	3750	A	342.2	18.09	41	2400	A	1789	328	103.5
MXB164	460.5	27.37	49	4680	B	377.8	20.84	42	2940	A	1717	314	99.3
MXA174	496.2	30.68	50	5530	B	406.4	23.29	43	3430	A	1669	308	97.5
MXA184	567.0	35.06	51	6320	B	464.4	26.61	44	3920	A	1907	352	111.2
800 mm 12 Pole													
MMA112	30.2	2.81	29	300	B	27.0	2.27	23	170	A	80	20	6.3
MMB113	40.2	2.70	29	300	A	35.1	2.15	23	170	A	143	31	9.8
MMC114	48.5	2.72	29	300	A	41.1	2.10	23	170	A	239	48	15.2
MMA122	60.7	5.62	32	610	B	54.3	4.54	26	340	A	159	34	10.7
MMB123	80.7	5.41	32	600	A	70.4	4.29	26	340	A	286	56	17.7
MMC124	97.2	5.43	32	610	A	82.3	4.20	26	340	A	477	93	29.4
MMB133	121.2	8.11	34	900	A	105.7	6.44	28	520	A	429	84	26.5
MMC134	146.1	8.15	34	910	A	123.3	6.30	28	520	A	715	136	43.0
MMC143	181.0	11.49	35	1210	A	155.8	9.04	29	680	A	715	136	43.0
MMC144	194.7	10.86	34	1220	A	164.8	8.41	29	690	A	954	177	55.9
MMB154	217.7	12.64	36	1550	A	186.5	9.88	30	880	A	954	184	58.1
MMC154	242.6	13.58	36	1500	A	205.4	10.51	30	850	A	1192	221	69.8
MMB164	261.3	15.17	37	1860	A	223.4	11.85	31	1020	A	1145	217	68.7
MMA174	276.6	16.59	38	2170	A	236.7	12.88	32	1260	A	1113	212	66.9
MMA184	276.6	16.59	39	2480	A	270.5	14.72	33	1440	A	1272	241	76.3
MXA112	37.5	3.04	29	300	A	33.4	2.45	23	160	A	119	26	8.2
MXB113	48.7	2.96	29	300	A	42.0	2.33	23	160	A	215	44	13.9
MXC114	56.3	2.92	29	300	A	47.4	2.28	23	160	A	358	72	22.8
MXA122	75.3	6.07	32	600	A	67.1	4.89	26	330	A	239	50	15.8
MXB123	97.9	5.92	32	600	A	84.3	4.67	26	330	A	429	84	26.5
MXC124	114.0	5.85	32	600	A	94.5	4.56	26	330	A	715	134	42.3
MXB133	145.9	8.88	34	900	A	125.5	7.00	28	500	A	644	121	38.2
MXC134	170.3	8.77	34	900	A	142.0	6.84	28	500	A	1073	201	63.5
MXC143	212.2	12.16	34	1200	A	181.1	9.58	29	660	A	1073	200	63.2
MXC144	225.7	11.69	35	1210	A	189.9	9.12	29	670	A	1431	263	83.1
MXB154	261.8	14.11	35	1520	A	221.0	10.95	30	850	A	1431	263	83.1
MXC154	281.3	14.62	36	1500	A	237.1	11.41	30	800	A	1789	328	103.5
MXB164	313.2	16.93	36	1800	A	263.1	13.14	31	1020	A	1717	314	99.3
MXA174	339.3	19.01	37	2100	A	287.0	14.71	32	1190	A	1669	308	97.5
MXA184	387.7	21.73	38	2400	A	328.0	16.81	33	1360	A	1907	352	111.2

Note: * Capacity quoted at 15 K DT1 Dew Point, ** Sound level quoted as mean pressure level at 10m

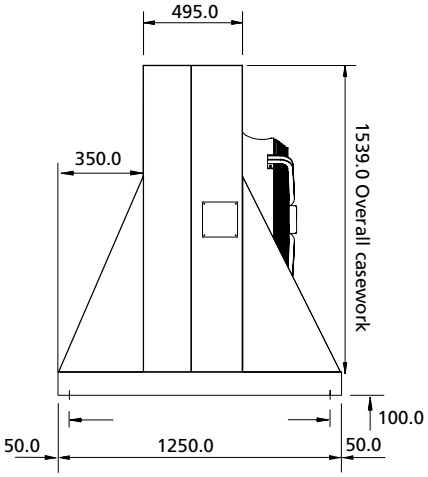
MM/MX Model Drawings



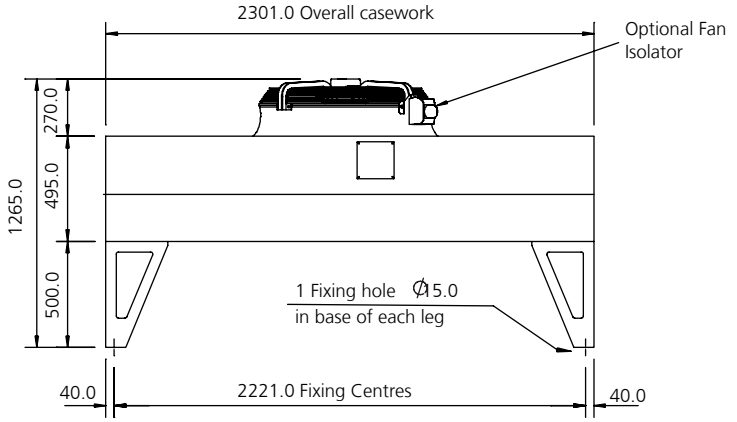
MM Horizontal Unit



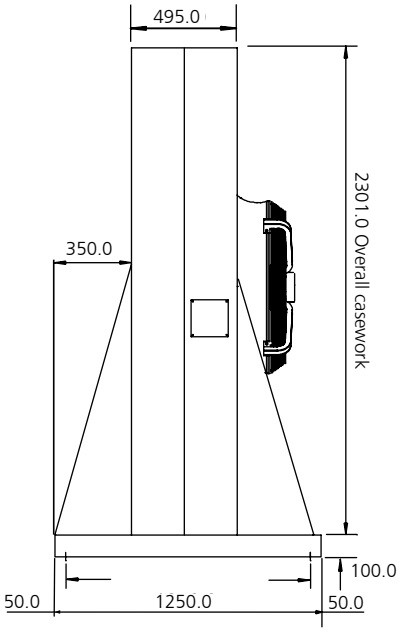
MM Vertical Unit



MX Horizontal Unit



MX Vertical Unit



Notes: All dimensions in mm. Common junction box will vary in size and position depending on the control option required.

Model MM/MX	Fans Per Bank	A	B1	B2	C	MM Total Unit Dry Weight		MX Total Unit Dry Weight	
						AL	CU	AL	CU
		mm	mm	mm	mm	kg	kg	kg	kg
M_A112	1	1203	—	—	1123	212	244	249	299
M_A113	1	1203	—	—	1123	237	287	278	352
M_A114	1	1203	—	—	1123	261	330	306	405
M_A122	2	2403	—	—	2323	348	414	413	512
M_A123	2	2403	—	—	2323	396	500	470	618
M_A124	2	2403	—	—	2323	444	589	527	725
M_A132	3	3603	—	—	3523	482	583	576	724
M_A133	3	3603	—	—	3523	553	711	661	883
M_A134	3	3603	—	—	3523	623	839	745	1042
M_A142	4	4803	2342	2382	4723	636	768	748	946
M_A143	4	4803	2342	2382	4723	732	939	861	11158
M_A144	4	4803	2342	2382	4723	828	1111	975	1370
M_A152	5	6003	2942	2982	5923	778	942	918	1165
M_A153	5	6003	2942	2982	5923	898	1157	1060	1431
M_A154	5	6003	2942	2982	5923	1017	1370	1201	1695
M_A162	6	7203	3542	3582	7123	909	1107	1073	1370
M_A163	6	7203	3542	3582	7123	1054	1364	1244	1689
M_A164	6	7203	3542	3582	7123	1197	1621	1414	2007
M_A172	7	8403	2341	2381	8323	1053	1284	1243	1589
M_A173	7	8403	2341	2381	8323	1222	1585	1442	1962
M_A174	7	8403	2341	2381	8323	1389	1884	1640	2332
M_A182	8	9603	3541	3581	9523	1194	1458	1409	1805
M_A183	8	9603	3541	3581	9523	1387	1802	1636	2230
M_A184	8	9603	3541	3581	9523	1578	2143	1863	2653
M_B112	1	1443	—	—	1363	249	285	278	337
M_B113	1	1443	—	—	1363	278	339	311	401
M_B114	1	1443	—	—	1363	309	392	346	465
M_B122	2	2883	—	—	2803	400	459	465	584
M_B123	2	2883	—	—	2803	457	557	532	710
M_B124	2	2883	—	—	2803	516	657	600	838
M_B132	3	4323	—	—	4243	549	629	650	828
M_B133	3	4323	—	—	4243	635	775	753	1020
M_B134	3	4323	—	—	4243	720	919	954	1210
M_B142	4	5763	2822	2862	5683	711	816	848	1093
M_B143	4	5763	2822	2862	5683	823	999	983	1329
M_B144	4	5763	2822	2862	5683	938	1189	1120	1594
M_B152	5	7203	3542	3582	7123	869	998	1042	1338
M_B153	5	7203	3542	3582	7123	1009	1234	1211	1656
M_B154	5	7203	3542	3582	7123	1151	1471	1381	1974
M_B162	6	8643	2821	2880	8563	1021	1172	1230	1606
M_B163	6	8643	2821	2880	8563	1189	1723	1434	1967
M_B164	6	8643	2821	2880	8563	1358	2056	1638	2349
M_C112	1	1803	—	—	1723	273	312	314	388
M_C113	1	1803	—	—	1723	309	376	356	467
M_C114	1	1803	—	—	1723	346	440	399	547
M_C122	2	3603	—	—	3523	439	504	536	684
M_C123	2	3603	—	—	3523	508	620	621	843
M_C124	2	3603	—	—	3523	578	737	706	1002
M_C132	3	5403	2642	2682	5323	602	691	776	998
M_C133	3	5403	2642	2682	5323	700	856	902	1236
M_C134	3	5403	2642	2682	5323	799	1021	1030	1475
M_C142	4	7203	3542	3582	7123	781	896	991	1287
M_C143	4	7203	3542	3582	7123	914	1117	1160	1605
M_C144	4	7203	3542	3582	7123	1047	1338	1330	1923
M_C152	5	9003	3541	1840	8923	955	1097	1222	1592
M_C153	5	9003	3541	1840	8923	1119	1370	1433	1989
M_C154	5	9003	3541	1840	8923	1285	1643	1645	2387

Notes:

Total unit dry weight is dependent upon the coil material used (AL = Copper tubes with Aluminium or Vinyl coated aluminium fins, CU = Copper tubes with Copper fins or Copper fins electro-tinned).

MV Condenser

The MV range extends the versatility of Searle's Air cooled condensers into a V-Bank configuration with a combination of 3 coil widths and 3 module lengths, 2 fans wide. The available range has a duty from 36kW to 1088kW.

GEA Searle achieves a close specification match by offering three module length options of 1200mm, 1440mm or 1800mm across three coil width options in the small footprint V-Bank formation. The MV...M has 2 x 1524mm high coils and the MV...L has 2 x 1905mm high coils with 2 fans wide, both sizes offer the choice of 2 to 8 fans in length. Combined with coil sizes from 2 to 4 row coils and multiple standard fan options up to 910mm, this range of V configuration units is comprehensive.

GEA Searle offers an EC fan, a highly efficient and very low noise complete control package. Full details of the EC fan and the best-suited application areas are included at the front of this brochure.

Due to the large number of options only a selection of the range is available in this catalogue, selection is best achieved using the Condenser data tables or the Searle selection software, either on-line at www.searle.co.uk or via the Searle Selection CD.

MV A 2 6 2 M - N8 12 D - AL

Range	MV
Module Size	A (1200mm), B (1440mm), C (1800mm)
Bank of fans	2
Fans per bank	1 - 8
Coils rows	2, 3, 4
Coil Orientation	M = Medium, L = Large
Fans type	N8 (800mm), Q8 (800mm),09 (910mm), N9 (910mm), 99 (990mm), L9 (990mm)
Motor speed (Poles)	06, 08, 12, or EC
Power	D = Delta, S = Star, 2 = 2 Speed, EC Variable speed
Coil material	AL = Copper tubes/ Aluminium fins, AV = Copper tubes/ Vinyl coated Aluminium fins CU = Copper tubes/ Copper fins, ET = Copper tubes/ Copper fins electro-tinned Bg = Bg = Copper tube/Aluminium fin Blygold coated

Fan Data Table

Fan type & Pole	Diameter	Module	Delta			Star		
			Speed (rpm)	FLC (Amp)	SC (Amp)	Speed (rpm)	FLC (Amp)	SC (Amp)
N806 6 Pole	800mm	A,B,C	895	4.3	14	685	2.5	4
N808 8 Pole		A,B,C	665	2.5	6.2	495	1.3	2.2
N812 12 Pole		A,B,C	450	1.2	2.3	350	0.5	0.8
Q812 12 Pole		A,B,C	360	0.75	1	255	0.3	0.5
N906 6 Pole	910mm	A,B,C	870	5.7	19	650	3.3	1.1
09EC EC Technology		A,B,C	Variable 100 - 855	3.1	4.3			

MV Selection Data

Model	Delta (High Speed)					Star (Low Speed)					Total Surface	Internal Volume	R404A Charge
	Capacity * R404A & R507A	Air Volume	Sound level **	Power Input	Energy rating	Capacity * R404A & R507A	Air Volume	Sound level **	Power Input	Energy rating			
	kW	m^3/s	dB(A)	W		kW	m^3/s	dB(A)	W		m^2	dm^3	kg
910mm 6 Pole													
MVA212M	104.3	14.02	58	4230	E	91.5	10.9	51	2950	D	159	39	12.3
MVC212M	132.5	15.42	58	3930	D	115.9	12.3	52	2810	D	239	53	16.7
MVB214M	177.6	13.27	58	4390	D	144.8	9.93	51	3040	C	382	79	25.0
MVA222M	209.8	28.05	61	8470	E	183.9	21.98	55	5900	D	318	68	21.5
MVC222M	266.1	30.83	61	7870	D	232.6	24.62	54	5630	D	477	95	30.0
MVA224M	317.5	24.55	61	9160	D	255.6	17.97	54	6200	D	636	128	40.4
MVB232M	351.4	44.28	63	12240	E	308.6	34.99	56	7210	D	572	118	37.3
MVA233M	412.2	39.17	63	13320	D	346.0	29.43	55	9150	D	715	144	45.5
MVB233M	458.0	41.62	63	12800	D	388.8	31.98	55	8950	D	858	168	53.1
MVB234M	534.2	39.80	63	13180	D	436.2	29.80	55	9130	C	1145	219	69.2
MVC234M	600.4	42.52	62	12610	C	493.3	32.72	55	8880	C	1431	261	82.5
MVC243M	687.5	58.75	63	16390	D	585.5	46.02	56	11600	C	1431	272	86.0
MVB244M	714.3	53.07	63	17580	D	581.3	39.73	56	12170	C	1526	285	90.1
MVB254M	886.9	66.34	64	21980	D	726.9	49.66	57	15220	C	1908	350	110.6
MVA264M	949.5	73.66	66	27480	D	771.8	53.93	58	18600	D	1908	350	110.6
MVA212L	117.9	14.90	58	4050	E	104.7	11.80	51	2860	D	199	49	15.5
MVB213L	170.9	14.69	58	4090	D	145.8	11.50	51	2900	C	358	77	24.3
MVC214L	219.2	14.88	58	4050	C	183.8	11.66	51	2880	C	596	121	38.2
MVB222L	265.6	30.83	61	7870	D	232.6	24.62	54	5630	D	477	98	31.0
MVA223L	312.6	28.09	60	8460	D	265.1	21.64	52	5930	D	596	125	39.5
MVB224L	398.6	28.34	61	8410	C	329.8	21.81	53	5920	C	954	191	60.4
MVA233L	471.1	42.14	63	12690	D	397.7	32.47	55	8900	D	894	180	56.9
MVA234L	546.5	40.32	63	13080	D	446.3	30.43	55	9090	C	1192	224	70.8
MVC233L	573.3	45.92	63	11890	C	489.1	36.43	56	8490	C	1341	249	78.7
MVA243L	627.3	56.18	63	16930	D	528.8	43.29	56	11870	D	1192	227	71.7
MVB243L	692.3	58.75	63	16390	D	586.5	46.02	56	11600	C	1431	272	86.0
MVC243L	762.0	61.23	63	15850	C	654.5	48.57	57	11330	C	1788	334	105.5
MVC244L	881.1	59.53	63	16230	C	737.6	46.66	56	11530	C	2385	438	138.4
MVB254L	999.7	70.86	64	21030	C	826.3	54.53	57	14800	C	2385	438	138.4
MVA264L	1088.52	80.63	65	26160	D	895.6	60.86	58	18190	C	2385	438	138.4
800mm 6 Pole													
MVA212M	95.7	12.1	54	3130	D	84.9	9.65	50	2140	D	159	39	12.3
MVC212M	120.9	13.10	54	3160	D	104.3	10.32	49	2092	C	239	53	16.7
MVB214M	159.3	11.32	54	3230	C	135.3	9.01	48	2180	C	382	79	25.0
MVA222M	192.4	24.02	57	6270	D	170.6	19.30	53	4280	D	318	68	21.5
MVC222M	242.7	26.20	57	6320	D	209.1	20.63	53	4180	C	477	95	30.0
MVA224M	288.3	21.42	57	6650	D	245.4	16.97	51	4410	C	636	128	40.4
MVB232M	321.2	37.75	59	7670	D	282.1	29.99	55	5290	C	572	118	37.3
MVA233M	373.7	33.64	59	9750	D	284.2	22.05	53	6570	D	715	144	45.5
MVB233M	412.9	35.35	59	9500	D	358.4	28.32	54	64.70	C	858	168	53.1
MVB234M	480.1	33.97	59	9710	C	408.3	27.03	53	6560	C	1145	219	69.2
MVC234M	530.9	35.88	59	9420	C	449.5	28.62	54	6450	C	1431	261	82.5
MVC243M	617.1	49.72	59	12330	C	530.1	39.46	55	8500	C	1431	272	86.0
MVB244M	640.1	45.29	60	12950	C	543.1	36.04	54	8750	C	1526	285	90.1
MVB254M	798.8	56.62	61	16180	C	680.9	45.05	55	10940	C	1908	350	110.6
MVA264M	866.5	64.25	62	19970	D	743.6	50.92	55	13250	C	1908	350	110.6
MVA212L	107.4	12.68	54	3050	D	95.3	10.06	50	2110	C	199	49	15.5
MVB213L	152.2	12.43	54	3080	C	131.9	9.86	50	2120	C	358	77	24.3
MVC214L	195.1	12.54	54	3060	C	165.2	9.93	50	2120	B	596	121	38.2
MVB222L	242.4	26.20	57	6000	D	209.2	20.63	52	4180	C	477	98	31.0
MVA223L	281.5	23.81	56	6300	D	243.1	19.05	51	4300	C	596	125	39.5
MVB224L	354.6	23.92	57	6280	C	301.8	19.08	52	4300	B	954	191	60.4
MVA233L	422.5	35.72	59	9450	D	364.3	28.58	54	6450	C	894	180	56.9
MVA234L	489.0	34.36	59	9650	C	414.1	27.37	53	6540	C	1192	224	70.8
MVC233L	511.0	38.79	59	9050	C	435.4	30.58	54	6300	C	1341	249	78.7
MVA243L	562.2	47.62	60	12600	D	483.7	38.11	55	8610	C	1192	227	71.7
MVB243L	618.8	49.72	59	12330	C	529.4	39.46	55	8500	C	1431	272	86.0
MVC243L	683.0	51.72	59	12070	C	585.1	40.77	55	8400	C	1788	334	105.5
MVC244L	783.5	50.17	59	12260	C	662.6	39.73	55	8480	B	2385	438	138.4
MVB254L	888.7	59.80	60	15710	C	755.9	47.70	56	10750	B	2385	438	138.4
MVA264L	979.2	68.72	61	19310	C	833.8	54.73	56	13090	C	2385	438	138.4

Note: * Capacity quoted at 15 K DT1 Dew Point, ** Sound level quoted as mean pressure level at 10m

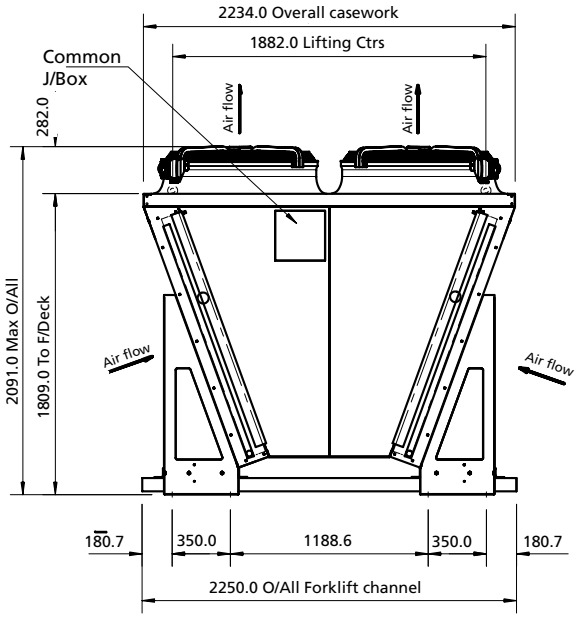
MV Selection Data

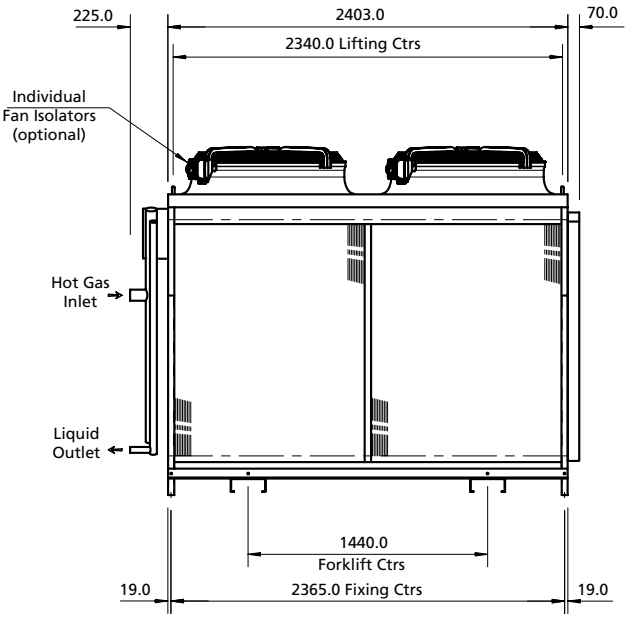
Model	Delta (High Speed)					Star (Low Speed)					Total Surface	Internal Volume	R404A Charge
	Capacity * R404A & R507A	Air Volume	Sound level **	Power Input	Energy rating	Capacity * R404A & R507A	Air Volume	Sound level **	Power Input	Energy rating			
	kW	m³/s	dB(A)	W		kW	m³/s	dB(A)	W		m²	dm³	kg
800mm 8 Pole													
MVA212M	82.7	9.20	47	1580	C	70.0	7.03	40	990	B	159	39	12.3
MVC212M	101.8	9.90	46	1500	C	87.3	7.62	40	950	B	239	53	16.7
MVB214M	129.0	8.44	48	1600	B	106.3	6.44	41	1020	B	382	79	25.0
MVA222M	166.0	18.40	50	3160	C	140.3	14.05	43	1980	B	318	68	21.5
MVC222M	204.0	19.81	49	3010	C	174.3	15.24	43	1910	B	477	95	30
MVA224M	231.5	15.69	51	3310	C	189.8	11.97	44	2080	B	636	128	40.4
MVB232M	274.5	28.68	51	3870	B	234.2	21.96	45	2440	B	572	118	37.3
MVA233M	311.3	25.16	53	4830	C	259.4	19.26	45	3070	B	715	144	45.5
MVB233M	345.1	26.78	52	4770	B	288.0	20.38	45	3000	B	858	168	53.1
MVB234M	389.2	25.31	53	4820	B	320.0	19.33	45	3060	B	1145	219	69.2
MVC234M	432.3	27.13	52	4750	B	353.0	20.60	45	2990	A	1431	261	82.5
MVC243M	514.1	37.64	52	6260	B	430.0	28.71	45	3930	B	1431	272	86.0
MVB244M	517.4	33.75	54	6430	B	424.9	25.77	46	4080	B	1526	285	90.1
MVB254M	649.5	42.19	54	8040	B	535.2	32.21	47	5110	B	1908	350	110.6
MVA264M	702.9	47.08	55	9950	B	578.8	35.91	48	6240	B	1908	350	110.6
MVA212L	92.9	9.63	47	1540	C	79.3	7.38	40	970	B	199	49	15.5
MVB213L	127.9	9.41	47	1560	B	107.0	7.18	40	980	B	358	77	24.3
MVC214L	159.6	9.48	47	1550	B	131.4	7.23	40	970	A	596	121	38.2
MVB222L	204.2	19.81	49	3010	C	174.8	15.24	43	1910	B	477	98	31.0
MVA223L	234.7	18.08	49	3170	B	195.5	13.75	42	1990	B	596	125	39.5
MVA224L	264.3	17.11	50	3200	B	216.9	13.05	42	2030	B	795	164	51.8
MVA233L	351.4	27.12	52	4760	B	292.0	20.62	45	2990	B	894	180	56.9
MVA234L	395.0	25.66	53	4810	B	324.1	19.58	45	3050	B	1192	224	70.8
MVC233L	423.1	29.31	51	4560	B	352.9	22.46	44	2890	A	1341	249	78.7
MVA243L	466.4	36.16	53	6340	B	387.3	27.49	46	3980	B	1192	227	71.7
MVB243L	513.0	37.64	52	6260	B	427.2	28.71	45	3930	B	1431	272	86.0
MVC243L	568.9	39.08	52	6080	B	475.9	29.95	45	3860	A	1788	334	105.5
MVC244L	640.1	37.92	52	6220	B	523.9	28.93	45	3910	A	2385	438	138.4
MVB254L	727.3	45.22	54	7930	B	594.6	34.33	46	4980	A	2385	438	138.4
MVA264L	796.2	51.32	55	9620	B	655.4	39.16	48	6100	B	2385	438	138.4
800mm 12 Pole													
MVA212M	60.0	5.56	35	610	B	54.0	4.54	29	340	A	159	39	12.3
MVC212M	75.2	6.01	35	600	A	67.0	4.89	29	330	A	239	53	16.7
MVB214M	88.0	5.06	35	620	A	76.0	4.12	29	350	A	382	79	25.0
MVA222M	121.4	11.12	38	1220	B	108.5	9.07	32	680	A	318	68	21.5
MVC222M	150.8	12.02	38	1200	A	134.3	9.79	32	660	A	477	95	30.0
MVA224M	160.0	9.48	38	1270	A	138.2	7.67	32	740	A	636	128	40.4
MVB232M	201.8	17.38	40	1510	A	180.4	14.23	34	840	A	572	118	37.3
MVA233M	219.8	15.17	40	1860	A	192.7	12.35	34	1060	A	715	144	45.5
MVB233M	242.4	16.06	39	1840	A	213.5	13.15	34	1040	A	858	168	53.1
MVB234M	264.9	15.17	40	1860	A	228.5	12.36	34	1060	A	1145	219	69.2
MVC234M	295.1	16.29	39	1830	A	251.6	13.15	34	1040	A	1431	261	82.5
MVB244M	353.3	20.22	41	2480	A	304.7	16.47	35	1420	A	1526	285	90.1
MVC243M	361.9	22.74	40	2430	A	314.8	18.46	34	1360	A	1431	272	86.0
MVB254M	439.7	25.28	42	3100	A	380.6	20.59	35	1770	A	1908	350	111.0
MVA264M	477.8	28.44	43	3810	A	413.7	23.02	36	2230	A	1908	350	111.0
MVA212L	68.3	5.83	35	600	A	61.2	4.78	29	330	A	199	49	15.5
MVB213L	90.2	5.69	35	600	A	78.5	4.61	29	340	A	358	77	24.3
MVC214L	107.1	5.69	35	600	A	92.8	4.61	29	340	A	596	121	38.2
MVB222L	150.7	12.02	38	1200	A	134.2	9.79	32	660	A	477	98	31.0
MVA223L	165.0	10.84	37	1220	A	144.8	8.87	31	690	A	596	125	40.0
MVB224L	196.7	10.86	37	1220	A	167.8	8.76	32	690	A	954	191	60.4
MVA233L	247.3	16.26	39	1830	A	217.8	13.30	34	1030	A	894	180	57.0
MVA234L	270.3	15.38	40	1850	A	232.9	12.51	34	1050	A	1192	224	70.8
MVC233L	298.2	17.68	40	1810	A	258.6	14.36	34	1010	A	1341	249	79.0
MVA243L	330.5	21.67	40	2450	A	290.0	17.73	35	1380	A	1192	227	72.0
MVB243L	362.5	22.74	40	2430	A	315.9	18.46	34	1360	A	1431	272	86.0
MVC243L	396.9	23.57	40	2420	A	344.1	19.15	34	1340	A	1788	334	106.0
MVC244L	429.4	22.75	40	2430	A	371.4	18.42	34	1360	A	2385	438	138.4
MVB254L	491.6	27.16	41	3060	A	420.4	21.91	35	1730	A	2385	438	138.4
MVA264L	541.1	30.76	42	3700	A	465.8	25.03	36	2110	A	2385	438	138.4

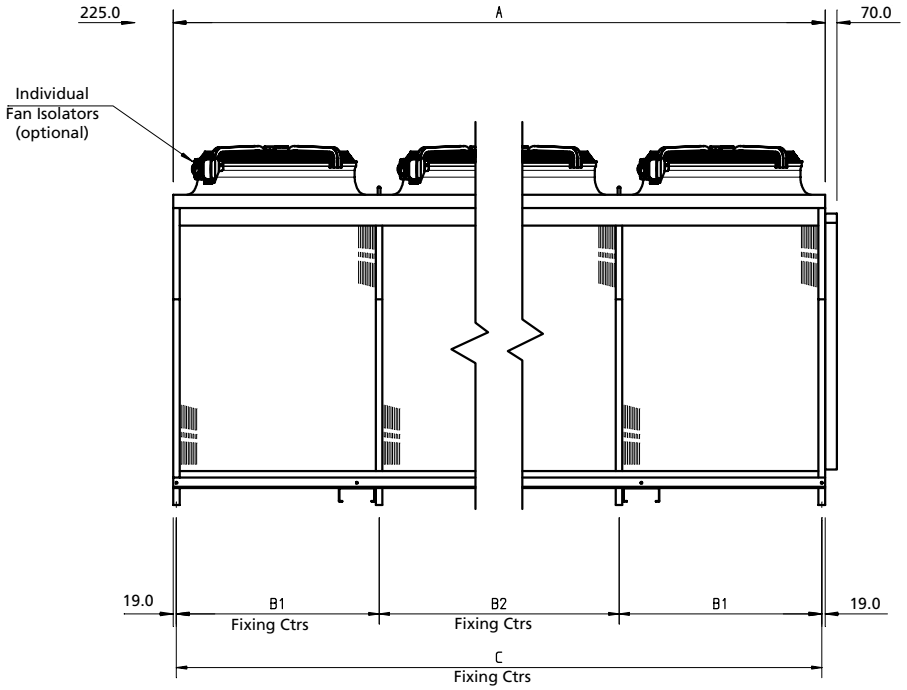
Note: * Capacity quoted at 15 K DT1 Dew Point, ** Sound level quoted as mean pressure level at 10m

MV...M Model Drawings

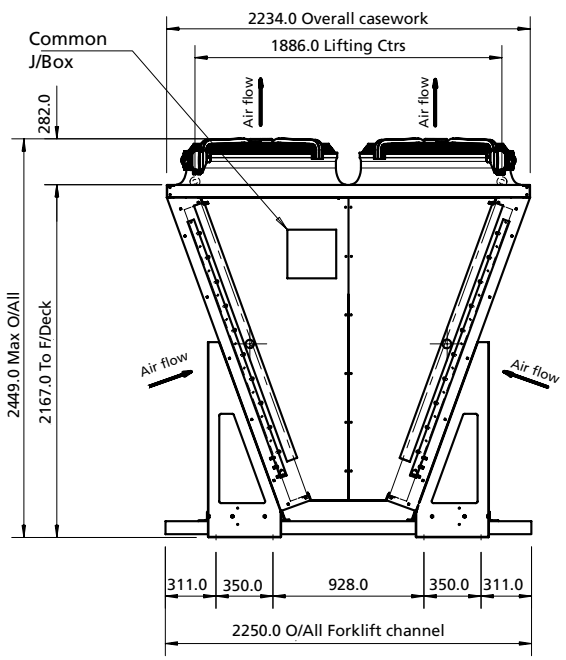
MV (M)







MV (L)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1886.0 Lifting Ctrs
Common
J/Box
Air flow
Air flow
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Air flow
Air flow
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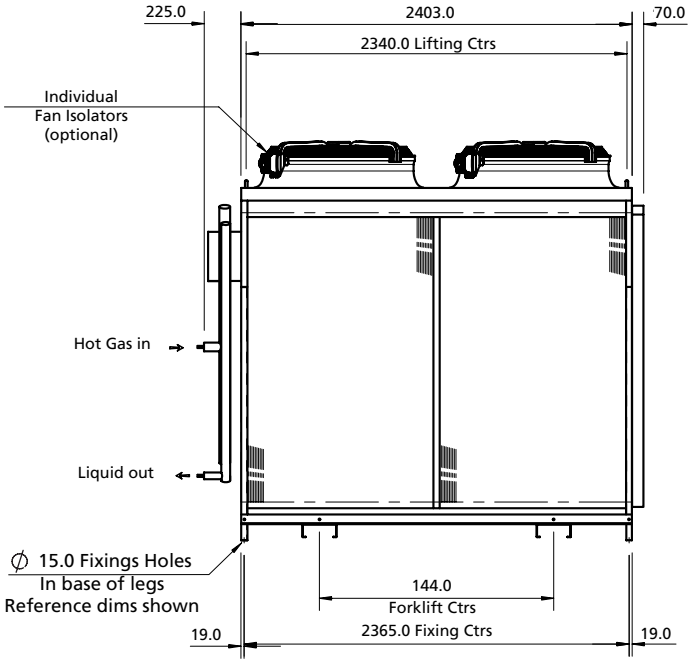
350.0
928.0
350.0
311.0
2250.0 O/All Forklift channel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2403.0
70.0
2340.0 Lifting Ctrs
Individual
Fan Isolators
(optional)
Hot Gas in
Liquid out
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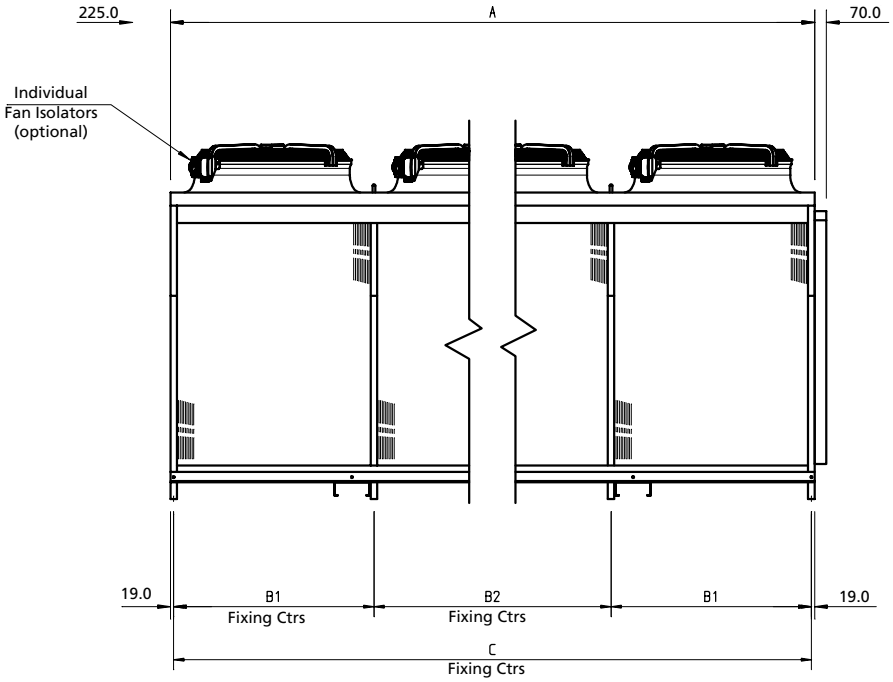
In base of legs
Reference dims shown
144.0
Forklift Ctrs
19.0
2365.0 Fixing Ctrs
19.0


225.0
A
70.0
Individual
Fan Isolators
(optional)
19.0
B1
Fixing Ctrs
B2
Fixing Ctrs
B1
19.0
C
Fixing Ctrs

Dimensions MV...M

Model		Size	No. of Fans	A Casework overall	B1	B2	C	Approx Dry Weight	
								AL/AV	CU/ET
				mm	mm	mm	mm	kg	kg
MVA	222	M	4	2403	N/A	N/A	2365	720	866
MVA	223	M	4	2403	N/A	N/A	2365	788	1008
MVA	224	M	4	2403	N/A	N/A	2365	857	1149
MVA	232	M	6	3603	1183	1200	3565	1087	1306
MVA	233	M	6	3603	1183	1200	3565	1189	1518
MVA	234	M	6	3603	1183	1200	3565	1292	1731
MVA	242	M	8	4803	1183	2400	4765	1449	1741
MVA	243	M	8	4803	1183	2400	4765	1585	2024
MVA	244	M	8	4803	1183	2400	4765	1722	2307
MVA	252	M	10	6003	2383	1200	5965	1811	2177
MVA	253	M	10	6003	2383	1200	5965	1981	2530
MVA	254	M	10	6003	2383	1200	5965	2152	2884
MVA	262	M	12	7203	2383	2400	7165	2173	2612
MVA	263	M	12	7203	2383	2400	7165	2377	3036
MVA	264	M	12	7203	2383	2400	7165	2535	3460
MVA	272	M	14	8403	2382	2400	8365	2535	3048
MVA	273	M	14	8403	2382	2400	8365	2774	3542
MVA	274	M	14	8403	2382	2400	8365	3013	4037
MVA	232	M	16	9603	2382	3400	9565	2898	3483
MVA	233	M	16	9603	2382	3400	9565	3170	4049
MVA	234	M	16	9603	2382	3400	9565	3443	4614
MVB	222	M	4	2883	N/A	N/A	2845	830	1005
MVB	223	M	4	2883	N/A	N/A	2845	912	1175
MVB	224	M	4	2883	N/A	N/A	2845	994	1345
MVB	232	M	6	4323	1422	1440	4285	1244	1508
MVB	233	M	6	4323	1422	1440	4285	1367	1762
MVB	234	M	6	4323	1422	1440	4285	1490	2017
MVB	242	M	8	5763	1422	2880	5725	1659	2010
MVB	243	M	8	5763	1422	2880	5725	1823	2350
MVB	244	M	8	5763	1422	2880	5725	1986	2689
MVB	252	M	10	7203	2862	1400	7165	2073	2512
MVB	253	M	10	7203	2862	1400	7165	2277	2936
MVB	254	M	10	7203	2862	1400	7165	2482	3360
MVB	262	M	12	8640	2862	2720	8602	2487	3015
MVB	263	M	12	8640	2862	2720	8602	2733	3523
MVB	264	M	12	8640	2862	2720	8602	2978	4032
MVC	222	M	4	3603	1782	N/A	3565	987	1206
MVC	223	M	4	3603	1782	N/A	3565	1089	1418
MVC	224	M	4	3603	1782	N/A	3565	1192	1631
MVC	232	M	6	5403	1782	1800	5365	1480	1809
MVC	233	M	6	5403	1782	1800	5365	1633	2127
MVC	234	M	6	5403	1782	1800	5365	1787	2445
MVC	242	M	8	7203	1782	3600	7165	1973	2412
MVC	243	M	8	7203	1782	3600	7165	2177	2836
MVC	244	M	8	7203	1782	3600	7165	2382	3260
MVC	252	M	10	9003	3565	1840	8965	2466	3015
MVC	253	M	10	9003	3565	1840	8965	3545	2721
MVC	254	M	10	9003	3565	1840	8965	2977	4075

Note:

Total unit dry weight is dependent upon the coil material used (AL/AV = Copper tubes with Aluminium or Vinyl coated aluminium fins, CU/ET = Copper tubes with Copper fins or Copper fins electro-tinned).

Dimensions MV...L

Model		Size	No. of Fan	A Casework overall	B1	B2	C	Approx Dry Weight	
								AL/AV	CU/ET
				mm	mm	mm	mm	kg	kg
MVA	222	L	4	2403	N/A	N/A	2365	850	1033
MVA	223	L	4	2403	N/A	N/A	2365	935	1210
MVA	224	L	4	2403	N/A	N/A	2365	1021	1387
MVA	232	L	6	3603	1183	1200	3565	1282	1556
MVA	233	L	6	3603	1183	1200	3565	1410	1822
MVA	234	L	6	3603	1183	1200	3565	1538	2087
MVA	242	L	8	4803	1183	2400	4765	1709	2075
MVA	243	L	8	4803	1183	2400	4765	2428	1880
MVA	244	L	8	4803	1183	2400	4765	2050	2782
MVA	252	L	10	6003	2383	1200	5965	2136	2593
MVA	253	L	10	6003	2383	1200	5965	3035	2349
MVA	254	L	10	6003	2383	1200	5965	3477	2562
MVA	262	L	12	7203	2383	2400	7165	2563	3112
MVA	263	L	12	7203	2383	2400	7165	3642	2819
MVA	264	L	12	7203	2383	2400	7165	4172	3074
MVA	272	L	14	8403	2382	2400	8365	2991	3631
MVA	273	L	14	8403	2382	2400	8365	2390	4250
MVA	274	L	14	8403	2382	2400	8365	3587	4868
MVA	232	L	16	9603	2382	3400	9565	3418	4150
MVA	233	L	16	9603	2382	3400	9565	3760	4857
MVA	234	L	16	9603	2382	3400	9565	4100	5563
MVB	222	L	4	2883	N/A	N/A	2845	987	1206
MVB	223	L	4	2883	N/A	N/A	2845	1090	1419
MVB	224	L	4	2883	N/A	N/A	2845	1192	1631
MVB	232	L	6	4323	1422	1440	4285	1480	1803
MVB	233	L	6	4323	1422	1440	4285	1634	2127
MVB	234	L	6	4323	1422	1440	4285	1787	2446
MVB	242	L	8	5763	1422	2880	5725	1973	2412
MVB	243	L	8	5763	1422	2880	5725	2178	2836
MVB	244	L	8	5763	1422	2880	5725	2382	3260
MVB	252	L	10	7203	2862	1400	7165	2463	3012
MVB	253	L	10	7203	2862	1400	7165	2719	3542
MVB	254	L	10	7203	2862	1400	7165	2974	4072
MVB	262	L	12	8640	2862	2720	8602	2947	3606
MVB	263	L	12	8640	2862	2720	8602	3253	4242
MVB	264	L	12	8640	2862	2720	8602	3560	4878
MVC	222	L	4	3603	1782	N/A	3565	1182	1456
MVC	223	L	4	3603	1782	N/A	3565	1310	1722
MVC	224	L	4	3603	1782	N/A	3565	1438	1987
MVC	232	L	6	5403	1782	1800	5365	1772	2184
MVC	233	L	6	5403	1782	1800	5365	1964	2582
MVC	234	L	6	5403	1782	1800	5365	2156	2980
MVC	242	L	8	7203	1782	3600	7165	2327	2876
MVC	243	L	8	7203	1782	3600	7165	2619	3442
MVC	244	L	8	7203	1782	3600	7165	2874	3972
MVC	252	L	10	9003	3565	1840	8965	2917	3604
MVC	253	L	10	9003	3565	1840	8965	3273	4302
MVC	254	L	10	9003	3565	1840	8965	3593	4965

Note:

Total unit dry weight is dependent upon the coil material used (AL/AV = Copper tubes with Aluminium or Vinyl coated aluminium fins, CU/ET = Copper tubes with Copper fins or Copper fins electro-tinned).

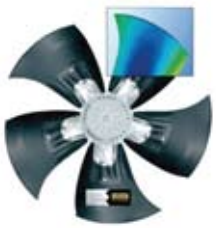
Gas Coolers

GEA Searle have embraced the re-emergence of Carbon Dioxide as a refrigerant having worked on many customer collaboration type development projects dating back to 1997. As the technology has developed and the boundaries have been tested and pushed GEA Searle have embraced the opportunities to develop bespoke solutions with the long term view of standardising products for the mass market once the refrigerant and various system designs have been adopted.

Fresh ideas from Searle

Control Options

There are various optional GEA Searle control packages available, including variable speed controlled products using Searle inverter control or the latest EC fan control system. The control options include:



- EC speed control
- Inverter speed control
- Triac speed control
- Dual speed step control
- Single speed step control

If a speed control method is utilised Searle recommends adding the option of internal motor protection.

Blygold® Coating

GEA Searle's specialist coating facility, where a Blygold® coating is applied and cured to protect the finned coils against harsh environmental conditions such as erosion by sand or salt. It provides a barrier and avoids the risk of electrolytic reactions between the two metals involved. The coating contains aluminium, in order to maintain the thermal performance of the coil, resulting in an extension of the lifetime, maximum cooling capacity and reduction of energy costs.

The coating is oriented in such a way that it creates a very high chemical resistance at low layer thickness.

Noise Data

The mean unit sound pressure data at 10m is given for each model in the catalogue and is certified as part of the Eurovent scheme. Sound power testing and sound pressure calculation are carried out in accordance with EN13487. Mean sound pressure levels are for a parallel piped surface surrounding the unit on a reflective plane. Power levels and sound spectrum are available on request.

Gas Coolers

Gas Cooler Features

- Standard ranges of Gas coolers : ME, MG, MM, MX and MV
- Maximum heat exchanger length of 7200mm
- Fan sizes from 500mm to 990mm
- Speeds from 12 up to 4 pole, with EC variable speed drives
- Trans-critical gas cooler in high ambient conditions
- Sub-critical condenser in low ambient conditions

- Designed with a maximum operating pressure of 120BarG
- The fin pack is split to ensure the structural stability of the heat exchanger over a long service life
- Copper tubes brazed in to T304L stainless steel headers for longer product life expectancy

120 Bar Gas Coolers

Range benefits

- **Meeting your specification -**
  Our range has literally 1000s of models, created through a modular design and a variety of fan sizes, offering a greater choice to match your requirements.

- **Designed to be quiet -**
  Our gas coolers can meet even the most stringent noise restrictions using the latest 4 , 6, 8 & 12 pole fansets. In addition, we offer EC technology across the standard range which offers variable speed control and high efficiency.

- **Backing our beliefs -**
  We offer two years warranty on all gas coolers and an additional one year warranty on all ebmpapst fans from dispatch (subject to our standard Terms & Conditions of Sale and excluding corrosion through misapplication).

Fansets

The fansets chosen for the range offer the best combined performance for air volume, noise and efficiency available in the refrigeration industry, customers can select the latest EC technology, offering high efficiency and speed controllability.

Coils

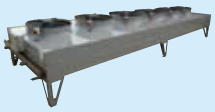
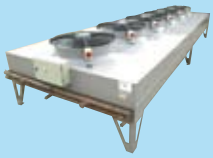
Coils are manufactured from high-quality materials ensuring a quality product without compromise. These coils have been tested extensively in Searle's Research & Development facility to ensure performance.

Standard coils are manufactured from copper tubes, which are mechanically expanded into fully collared holes in the fins. This ensures an effective and permanent bond between the tube and the fin, maximising heat transfer characteristics.

Within the coil casework surround, each fan chamber is separated by internal baffle plates to prevent windmilling of off-cycle fans. Alternative fin materials are available to give added protection in polluted or saline atmospheres: -

- Cu/Av - Copper tube / vinyl coated aluminium fins
- Cu/Cu - Copper tubes / copper fins
- Cu/Et - Copper tubes / electro tinned copper fins
- Cu/Al/Bg- Copper tubes / aluminium fins Blygold coated

All standard coils are fully leak and strength tested to 36 bar for a maximum operating pressure of 27 bar.

	Models
	ME
	MG
	MM
	MX
	MVM
	MVL

✔ Yes X No O Option

General Range Features

		Options			
No. Fans	Rows of Fans	Supply	EC Fans	Adiabatic Cooling System	Fin Materials
1 - 8	1 or 2	1 & 3ph	✔	X	Al Av Cu Et Bg
1 - 16	1 or 2	3ph	✔	O	Al Av Cu Et Bg
1 - 8	1	3ph	✔	O	Al Av Cu Et Bg
1 - 8	1	3ph	✔	O	Al Av Cu Et Bg
2 - 16	2	3ph	✔	O	Al Av Cu Et Bg
2 - 16	2	3ph	✔	O	Al Av Cu Et Bg

GEA Searle offer a range of gas coolers based upon the standard ranges ME, MG, MM, MX and MV with a maximum heat exchanger length of 7200mm. All ranges have optimised heat exchangers to suit the properties of Carbon Dioxide and are designed to suit the design conditions specified. The ranges offer fan sizes from 500mm to 990mm with speeds from 12 up to 4 pole, with EC variable speed drives for many.

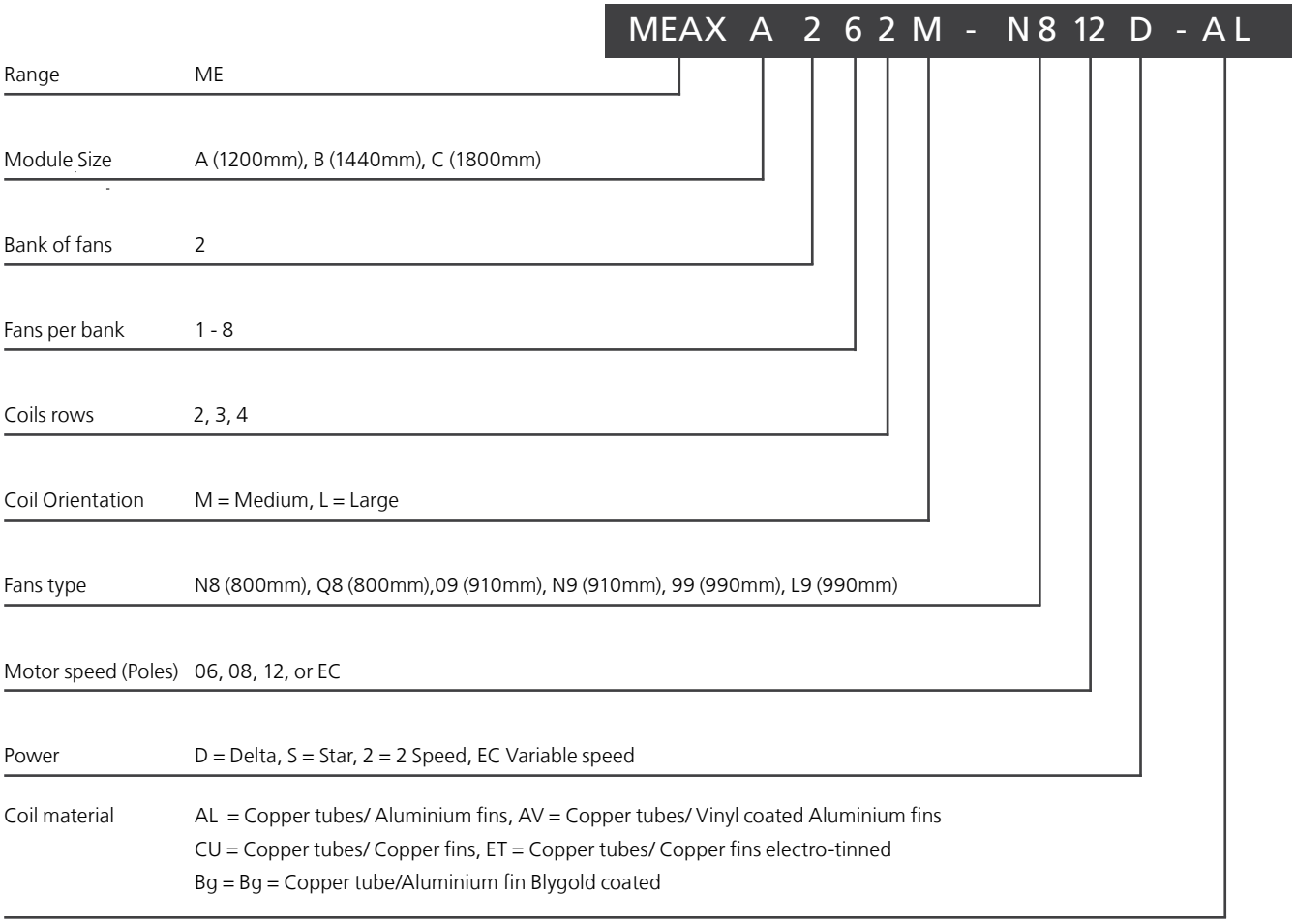
Most gas cooler designs are optimised to suit the dual operation expectations i.e. trans-critical gas cooler in high ambient conditions, sub-critical condenser in low ambient conditions.

Whilst the temperatures and pressures involved for trans-critical operation are high, the cooling process being single phase is relatively simple and with over 80 years of experience in the design and manufacture of standard and bespoke heat exchangers GEA Searle offer the confidence and quality expected.

The gas coolers have been designed with a maximum operating pressure of 120BarG. The coils are pneumatically leak and strength tested to avoid internal contamination.

Due to the high discharge temperatures at the start of the cooling process, GEA Searle split the fin pack to ensure the structural stability of the heat exchanger over a long service life.

GEA Searle has tested many material combinations and have standardised on copper tubes brazed in to T304L stainless steel headers to ensure long product life expectancy without the need for regular paint applications. To keep the heat exchangers in lower PED categories GEA Searle split the coils into multiple sections limiting header sizes .



Note: Model number is subject to change

Dry Air Coolers

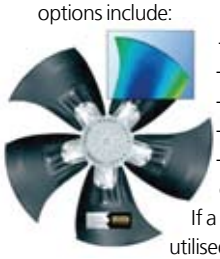
GEA Searle range of dry air coolers is a modular design of flat-bed and V-bank units arranged in single and double bank configurations with multiple module lengths. The new range builds on the expertise gained from many years at the forefront of dry air cooler technology resulting in the most extensive range of Dry Air Coolers created by GEA Searle.

The range of GEA Searle dry air cooler combinations enable the closest possible matching to a required specification taking into consideration duty, cost, noise level, size and efficiency (duty/motor input power).

Fresh ideas from Searle

Control Options

There are various optional GEA Searle control packages available, including variable speed controlled products using Searle inverter control or the latest EC fan control system. The control options include:



- EC speed control
- Inverter speed control
- Triac speed control
- Dual speed step control
- Single speed step control

If a speed control method is utilised Searle recommends adding the option of internal motor protection.

Other Options

GEA Searle offers a wide range of accessories and additional options, including anti-vibration mounts, leg extensions to enhance air flow in difficult locations and Adiabatic cooling System (Please see Searle's Adiabatic brochure for further details or contact your Searle representative).

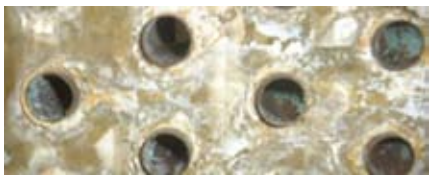
Vertical Mounting

Units maybe specified as horizontal (standard) or vertical orientation.

Blygold® Coating

GEA Searle's specialist coating facility, where a Blygold® coating is applied and cured to protect the finned coils against harsh environmental conditions such as erosion by sand or salt. It provides a barrier and avoids the risk of electrolytic reactions between the two metals involved. The coating contains aluminium, in order to maintain the thermal performance of the coil, resulting in an extension of the lifetime, maximum cooling capacity and reduction of energy costs.

The coating is oriented in such a way that it creates a very high chemical resistance at low layer thickness.



The Blygold® concept is a revolutionary product created to prevent corrosion which will ultimately reduce energy costs .

Correction Factors

Energy Labelling is now part of the Eurovent Certify-All scheme. Rating is based on the ratio of nominal duty to power input with banding as in the table below

A	Extremely low	R > 110
B	Very low	70 < R < 110
C	Low	5 < R < 70
D	Medium	30 < R < 45
E	High	< 30

Where R = nominal capcity/total fan power input.

Noise Data

The mean unit sound pressure data at 10m is given for each model in the catalogue and is certified as part of the Eurovent scheme. Sound power testing and sound pressure calculation are carried out in accordance with EN13487. Mean sound pressure levels are for a parallel piped surface surrounding the unit on a reflective plane. Power levels and sound spectrum are available on request.

GEA Searle Dry Air Coolers

Range benefits

- **Meeting your specification -**
  Our range has literally 1000s of models, created through a modular design and a variety of fan sizes, offering a greater choice to match your requirements.

- **Assured performance -**
  All our Dry Air Coolers are certified, under the Eurovent "Certify All" programme to guarantee that every unit will perform as specified.

- **Designed to be quiet -**
  Our Dry Coolers can meet even the most stringent noise restrictions using the latest 6, 8 & 12 pole fansets. In addition, we offer EC technology across the range which offers variable speed control and high efficiency.

- **Energy efficient -**
  Due to rising energy costs, efficiency is becoming a key industry issue and is increasingly important on end-user criteria. Our new units use the latest technology to ensure greater energy efficiency.

- **Backing our beliefs -**
  We offer two years warranty on all Dry Air Coolers and an additional one year warranty on all ebmpapst fans from dispatch (subject to our standard Terms & Conditions of Sale and excluding corrosion through misapplication).

Fansets

The fansets chosen for the range offer the best combined performance for air volume, noise and efficiency available in the refrigeration industry. Customers can select the latest EC technology, offering high efficiency and speed control.

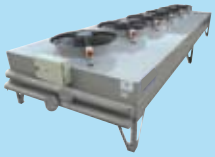
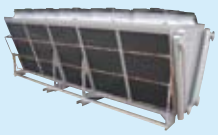
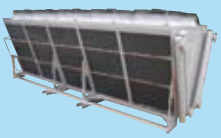
Coils

Coils are manufactured from high-quality materials ensuring a quality product without compromise. These coils have been tested extensively in Searle's Research & Development facility to ensure performance.

Standard coils are manufactured from copper tubes, which are mechanically expanded into fully collared holes in the fins. This ensures an effective and permanent bond between the tube and the fin, maximising heat transfer characteristics.

Within the coil casework surround, each fan chamber is separated by internal baffle plates to prevent windmilling of off-cycle fans. Alternative fin materials are available to give added protection in polluted or saline atmospheres: -

- Cu/Av- Copper tube / vinyl coated aluminium fins
- Cu/Cu - Copper tubes / copper fins
- Cu/Et - Copper tubes / electro tinned copper fins
- Cu/Al/Bg- Copper tubes / aluminium fins Blygold coated

	Models	Eurovent	No. Fans
	DE	✔	1 - 8
	DG	✔	1 - 16
	DM	✔	1 - 8
	DX	✔	1 - 8
	DVM	✔	2 - 16
	DVL	✔	2 - 16

✔ Yes X No O Option

General Range Features

	Options				Standard Capacity kW		
Bank of Fans	Supply	EC Fans	Adiabatic Cooling System	Fin Materials	10	100	1000
1 or 2	1 & 3ph	O	X	Al Av Cu Et Bg		11 - 192 kW	
1 or 2	3ph	O	O	Al Av Cu Et Bg		15 - 832 kW	
1	3ph	O	O	Al Av Cu Et Bg		18 - 554 kW	
1	3ph	O	O	Al Av Cu Et Bg		22 - 700 kW	
2	3ph	O	O	Al Av Cu Et Bg		35 - 1050 kW	
2	3ph	O	O	Al Av Cu Et Bg		41 - 1155kW	

DE Dry Cooler

The DE range of dry air coolers is based upon the well established E fin heat exchange matrix, combined with the HyBlade® range of fans from ebmpapst. This combination offers a versatile and economical solution to many refrigeration and air conditioning applications.

The range consists of one to eight fans in three coil depths and modules with 500 and 630 mm 4, 6 and 8 pole fans. This results in a wide range of capacities, noise levels and footprints to meet the diverse requirements of the industry.

Optional extras for the DE range include vertical orientation (1 to 4 fan), multi circuiting, alternative fin materials and coating. Control options include fan cycling, variable speed (including EC) and individual fan isolators.

The model selections can be made by using the popular Searle selection software available on CD, as a download from the website or interactively on-line at www.searle.co.uk.

DE Features

- 3 Module sizes (A,B,C)
- 500mm or 630mm HyBlade® fansets
- 4,6,8 pole or EC
- Optional coil fin materials and coating
- Powder coated robust casework
- Factory fitted or separate control options
- Compact design Vertical coil (1-4 fans) or Horizontal coil (1-8 fans)
- Wall mounting kits available for Vertical coil 1-4 fan units

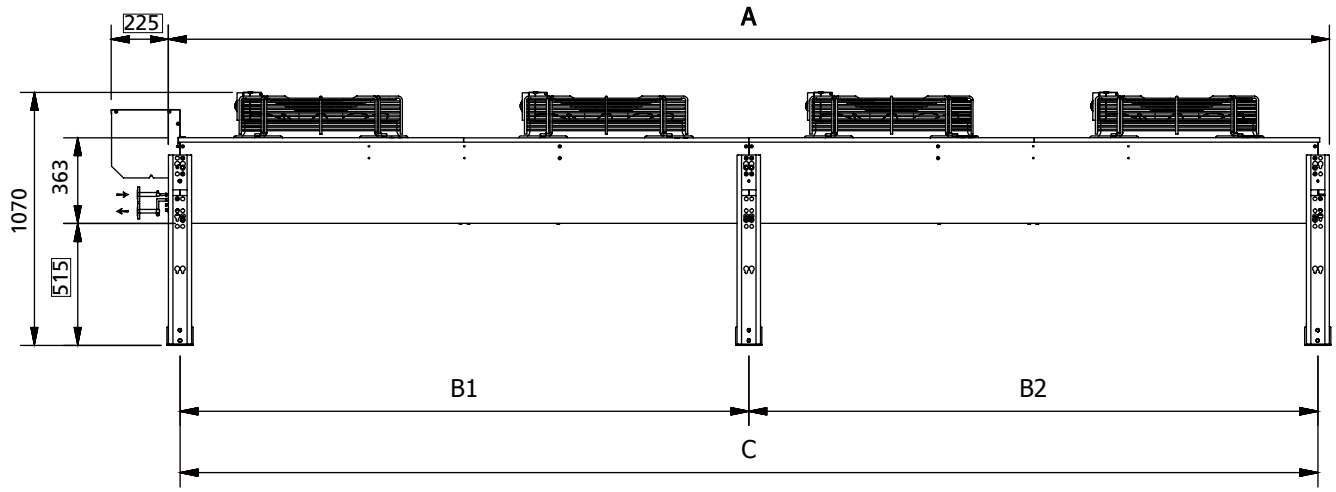
DE A 1 2 4 H - N6 04 3 - AL

Range	DE
Module size	A , B, C
Bank of fans	1 or 2
Fans per bank	1 - 4
Coils rows	2, 3, 4
Coil Orientation	H = Horizontal, V = Vertical
Fans type	N5 = 500mm,N6 = 630mm
Motor speed (Poles)	04, 06, 08, EC = Speed control, XX = Less fansets
Power	1 = 1 - phase, 3 = 3 - phase
Coil material	AL = Copper tubes/ Aluminium fins, AV = Copper tubes/ Vinyl coated Aluminium fins CU = Copper tubes/ Copper fins, ET = Copper tubes/ Copper fins electro-tinned Bg = Copper tube/Aluminium fin Blygold coated

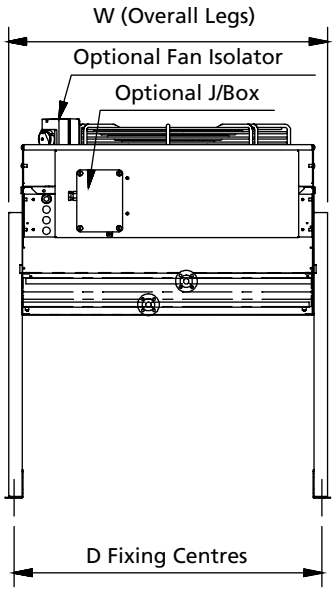
Fan Data Table

Fan type & Pole	Diameter	Module	Delta			Star		
			Speed (rpm)	FLC (Amp)	SC (Amp)	Speed (rpm)	FLC (Amp)	SC (Amp)
N504 4 Pole	500mm	A,B	1225	2.8	4.7	Single Phase		
N506 6 Pole		A,B	915	1.2	2.3	Single Phase		
N508 8 Pole		A,B	680	0.4	1	560	0.2	0.3
N604 4 Pole	630mm	B,C	1330	5	20	1035	3.1	14
N606 6 Pole		B,C	900	1.8	5.4	700	1.1	1.7
N608 8 Pole		B,C	640	1	1.9	440	0.5	0.6

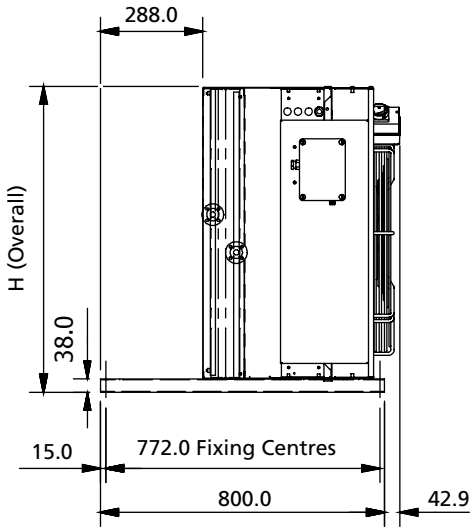
DE Model Drawings



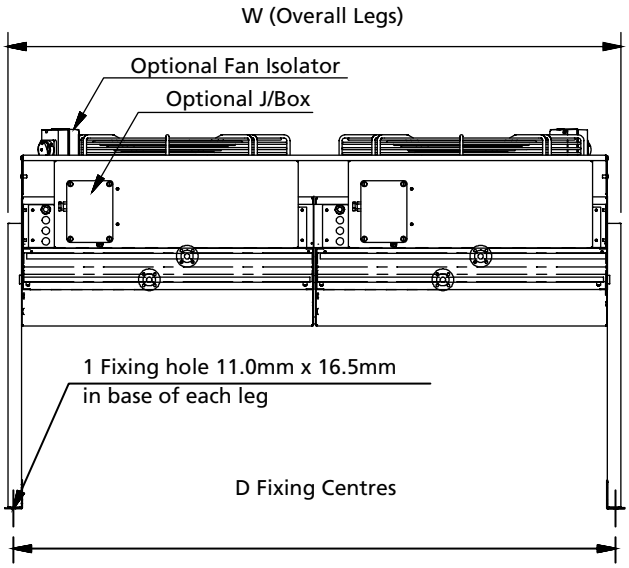
DE Single Bank Horizontal Unit



DE Vertical Unit



DE Double Bank Horizontal Unit



Model	Banks	Fans per bank	A	B1	B2	C	D	W	H	Approx Dry Weight	
										AL/AV	CU/ET
			mm	mm	mm	mm	mm	mm	mm	kg	kg
DEA112	1	1	893	—	—	795	867	898	863	75	85
DEA113	1	1	893	—	—	795	867	898	863	80	97
DEA114	1	1	893	—	—	795	867	898	863	85	107
DEA122	1	2	1698	—	—	1600	867	898	863	120	142
DEA123	1	2	1698	—	—	1600	867	898	863	130	163
DEA124	1	2	1698	—	—	1600	867	898	863	140	184
DEA132	1	3	2501	—	—	2403	867	898	863	164	197
DEA133	1	3	2501	—	—	2403	867	898	863	183	233
DEA134	1	3	2501	—	—	2403	867	898	863	195	261
DEA142	1	4	3308	—	—	3210	867	898	863	209	254
DEA143	1	4	3308	—	—	3210	867	898	863	229	296
DEA144	1	4	3308	—	—	3210	867	898	863	249	338
DEA212	2	1	893	—	—	795	1695	1726	-	144	164
DEA213	2	1	893	—	—	795	1695	1726	-	154	187
DEA214	2	1	893	—	—	795	1695	1726	-	164	209
DEA222	2	2	1698	—	—	1600	1695	1726	-	233	278
DEA223	2	2	1698	—	—	1600	1695	1726	-	253	320
DEA224	2	2	1698	—	—	1600	1695	1726	-	273	362
DEA232	2	2	2501	—	—	2403	1695	1726	-	322	389
DEA233	2	3	2501	—	—	2403	1695	1726	-	360	460
DEA234	2	3	2501	—	—	2403	1695	1726	-	383	517
DEA242	2	4	3308	—	—	3210	1695	1726	-	413	502
DEA243	2	4	3308	—	—	3210	1695	1726	-	452	586
DEA244	2	4	3308	—	—	3210	1695	1726	-	492	670
DEB112	1	1	1293	—	—	1195	867	898	863	97	113
DEB113	1	1	1293	—	—	1195	867	898	863	104	129
DEB114	1	1	1293	—	—	1195	867	898	863	113	146
DEB122	1	2	2501	—	—	2403	867	898	863	163	196
DEB123	1	2	2501	—	—	2403	867	898	863	177	227
DEB124	1	2	2501	—	—	2403	867	898	863	192	259
DEB132	1	3	3703	—	—	3605	867	898	863	230	280
DEB133	1	3	3703	—	—	3605	867	898	863	252	327
DEB134	1	3	3703	—	—	3605	867	898	863	274	375
DEB142	1	4	4903	2403	2403	4805	867	898	863	322	389
DEB143	1	4	4903	2403	2403	4805	867	898	863	352	452
DEB144	1	4	4903	2403	2403	4805	867	898	863	381	515
DEB212	2	1	1293	—	—	1195	1695	1726	-	188	221
DEB213	2	1	1293	—	—	1195	1695	1726	-	203	252
DEB214	2	1	1293	—	—	1195	1695	1726	-	219	286
DEB222	2	2	2501	—	—	2403	1695	1726	-	319	386
DEB223	2	2	2501	—	—	2403	1695	1726	-	349	449
DEB224	2	2	2501	—	—	2403	1695	1726	-	379	512
DEB232	2	3	3703	—	—	3605	1695	1726	-	454	554
DEB233	2	3	3703	—	—	3605	1695	1726	-	498	648
DEB234	2	3	3703	—	—	3605	1695	1726	-	543	743
DEB242	2	4	4903	2403	2403	4805	1695	1726	-	632	766
DEB243	2	4	4903	2403	2403	4805	1695	1726	-	693	892
DEB244	2	4	4903	2403	2403	4805	1695	1726	-	751	1018
DEC112	1	1	1293	—	—	1195	1070	1101	1066	104	125
DEC113	1	1	1293	—	—	1195	1070	1101	1066	114	145
DEC114	1	1	1293	—	—	1195	1070	1101	1066	123	165
DEC122	1	2	2501	—	—	2403	1070	1101	1066	175	216
DEC123	1	2	2501	—	—	2403	1070	1101	1066	193	256
DEC124	1	3	2501	—	—	2403	1070	1101	1066	212	295
DEC132	1	3	3703	—	—	3605	1070	1101	1066	250	312
DEC133	1	3	3703	—	—	3605	1070	1101	1066	278	372
DEC134	1	3	3703	—	—	3605	1070	1101	1066	306	431
DEC142	1	4	4903	2403	2403	4805	1070	1101	1066	344	427
DEC143	1	4	4903	2403	2403	4805	1070	1101	1066	381	506
DEC144	1	4	4903	2403	2403	4805	1070	1101	1066	418	585
DEC212	2	1	1293	—	—	1195	2101	2132	-	197	238
DEC213	2	1	1293	—	—	1195	2101	2132	-	216	278
DEC214	2	1	1293	—	—	1195	2101	2132	-	234	317
DEC222	2	2	2501	—	—	2403	2101	2132	-	338	412
DEC223	2	2	2501	—	—	2403	2101	2132	-	375	500
DEC224	2	2	2501	—	—	2403	2101	2132	-	412	579
DEC232	2	3	3703	—	—	3605	2101	2132	-	488	613
DEC233	2	3	3703	—	—	3605	2101	2132	-	544	731
DEC234	2	3	3703	—	—	3605	2101	2132	-	499	850
DEC242	2	4	4903	2403	2403	4805	2101	2132	-	664	830
DEC243	2	4	4903	2403	2403	4805	2101	2132	-	738	988
DEC244	2	4	4903	2403	2403	4805	2101	2132	-	812	1145

DG Dry Cooler

The DG range of Dry Air Coolers is a comprehensive and versatile range, suitable for a wide variety of applications, with a duty range of 21kW to 617kW. These capacities can be achieved in flat-bed horizontal and vertical configurations. In addition, Searle has created the latest innovation of blow-through horizontal designs for high temperature applications.

As with all dry coolers, optimum selection is best achieved using the Searle selection software, either on-line at www.searle.co.uk or via the Searle Selection CD.

GEA Searle achieves a close specification match through module length options of 1200mm, 1440mm and 1800mm in a single (1143mm) or double (2286mm) bank configuration. The range is up to 8 fans in length, combined with coil sizes between 2 to 4 row and multiple standard fan options up to 910mm.

For the ultimate in fan speed control, GEA Searle offers the EC fan, a high efficiency and low noise, complete fan speed control package. For full details of the EC fanset and the suitable applications please refer to the front of this brochure.

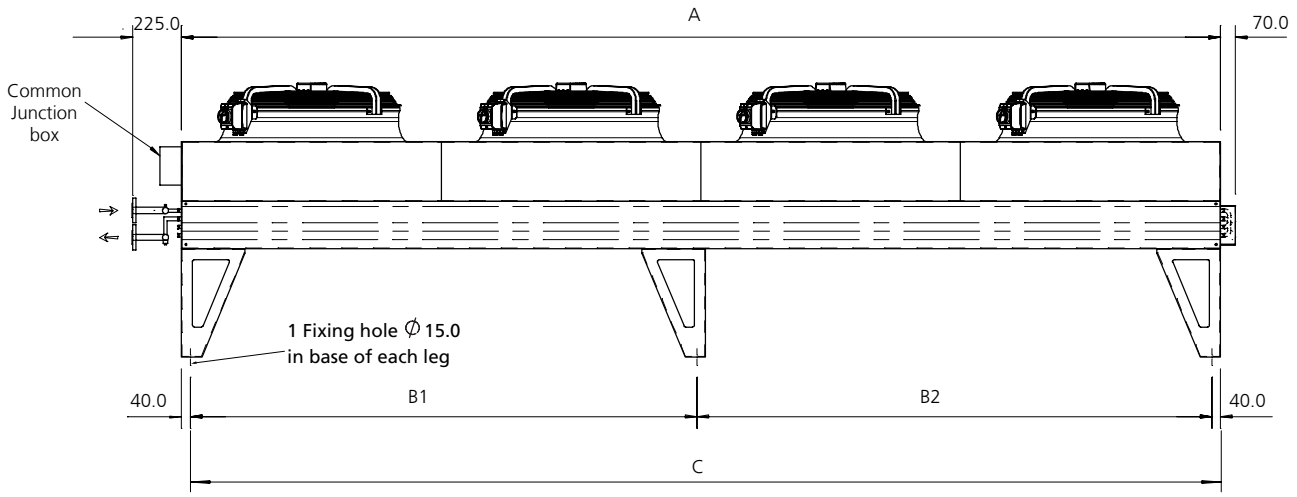
DG A 1 6 2 H - N8 12 D - AL

Range	DG
Module length	A (1200mm), B (1440mm), C (1800mm)
Bank of fans	1 or 2
Fans per bank	1 - 8 (DGA), 1-6 (DGB), 1-5 (DGC)
Coils rows	2, 3, 4
Orientation	H = Horizontal, V = Vertical
Fans type	N8 (800mm), Q8 (800mm), 09 (910mm), N9 (910mm)
Motor speed (Poles)	06, 08, 12, 09EC (Max 855rpm)
Power	D = Delta, S = Star, 2 = 2 Speed
Coil material	AL = Copper tubes/ Aluminium fins, AV = Copper tubes/ Vinyl coated Aluminium fins CU = Copper tubes/ Copper fins, ET = Copper tubes/ Copper fins electro-tinned Bg = Copper tube/Aluminium fin Blygold coated

Fan Data Table

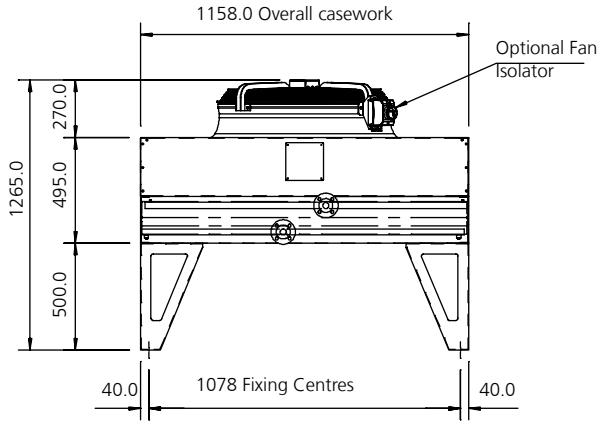
Fan type & Pole	Diameter	Module	Delta			Star		
			Speed (rpm)	FLC (Amp)	SC (Amp)	Speed (rpm)	FLC (Amp)	SC (Amp)
N806 6 Pole	800mm	A,B,C	895	4.3	14	685	2.5	4
N808 8 Pole		A,B,C	665	2.5	6.2	495	1.3	2.2
N812 12 Pole		A,B,C	450	1.2	2.3	350	0.5	0.8
Q812 12 Pole		A,B,C	360	0.75	1	255	0.3	0.5
N906 6 Pole	910mm	A,B,C	870	5.7	19	650	3.3	11.0
09EC EC Technology		A,B,C	Variable 100 - 855	3.1	4.3			

DG Model Drawings

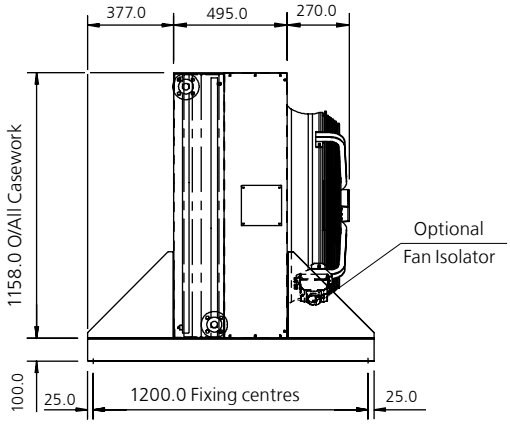


1 Bank

Horizontal Unit

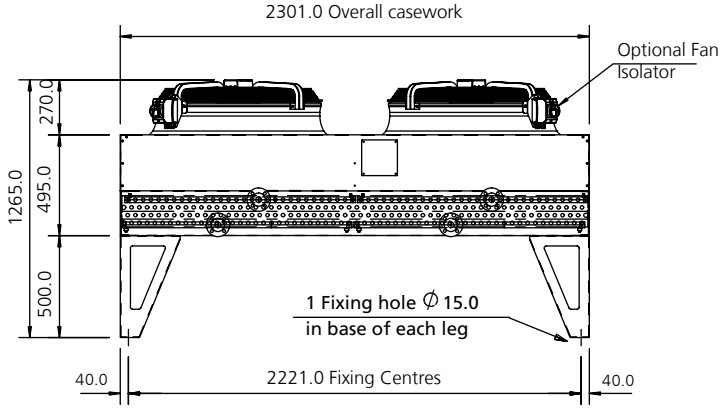


Vertical Unit

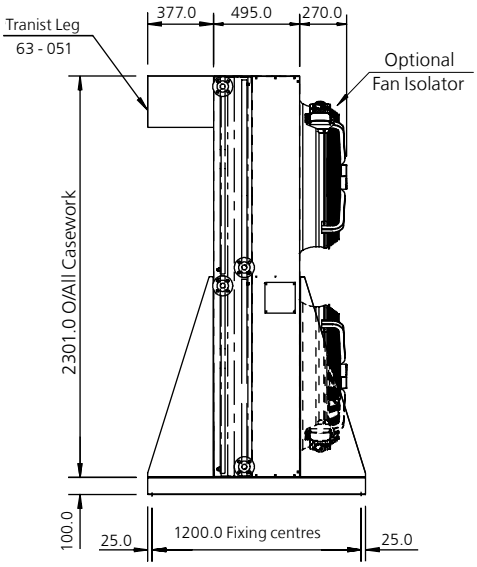


2 Bank

Horizontal Unit



Vertical Unit



Notes:

All dimensions in mm. Common junction box will vary in size and position depending on the control option required.

Model	Fan Banks	Fans Per Bank	A	B1	B2	C	Total Unit Dry Weight			
							* 1 Bank		* 2 Bank	
			mm	mm	mm	mm	AL	CU	AL	CU
							kg	kg	kg	kg
DGA_12	1 or 2	1	1203	—	—	1123	168	194	294	349
DGA_13	1 or 2	1	1203	—	—	1123	183	221	324	405
DGA_14	1 or 2	1	1203	—	—	1123	197	248	354	460
DGA_22	1 or 2	2	2403	—	—	2323	284	335	508	616
DGA_23	1 or 2	2	2403	—	—	2323	314	388	568	727
DGA_24	1 or 2	2	2403	—	—	2323	342	440	628	839
DGA_32	1 or 2	3	3603	—	—	3523	399	474	721	883
DGA_33	1 or 2	3	3603	—	—	3523	444	554	811	1050
DGA_34	1 or 2	3	3603	—	—	3523	489	634	899	1216
DGA_42	1 or 2	4	4803	2342	2382	4723	525	624	944	1160
DGA_43	1 or 2	4	4803	2342	2382	4723	586	731	1063	1383
DGA_44	1 or 2	4	4803	2342	2382	4723	637	837	1182	1605
DGA_52	1 or 2	5	6003	2942	2982	5923	645	768	1164	1434
DGA_53	1 or 2	5	6003	2942	2982	5923	719	900	1314	1713
DGA_54	1 or 2	5	6003	2942	2982	5923	793	1032	1462	1990
DGA_62	1 or 2	6	7203	3542	3582	7123	756	903	1369	1693
DGA_63	1 or 2	6	7203	3542	3582	7123	845	1062	1549	2028
DGA_64	1 or 2	6	7203	3542	3582	7123	933	1221	1727	2362
DGA272	2	7	8403	2341	2341	8323	—	—	1591	1967
DGA273	2	7	8403	2341	2341	8323	—	—	1799	2358
DGA274	2	7	8403	2341	2341	8323	—	—	2007	2747
DGA282	2	8	9603	3521	3521	9523	—	—	1807	2237
DGA283	2	8	9603	3521	3521	9523	—	—	2045	2684
DGA284	2	8	9603	3521	3521	9523	—	—	2283	3128
DGB_12	1 or 2	1	1443	—	—	1363	184.8	215	324	388
DGB_13	1 or 2	1	1443	—	—	1363	1201.6	247	359	456
DGB_14	1 or 2	1	1443	—	—	1363	220.5	279	396	523
DGB_22	1 or 2	2	2883	—	—	2803	314	373	563	691
DGB_23	1 or 2	2	2883	—	—	2803	351	438	633	824
DGB_24	1 or 2	2	2883	—	—	2803	385	501	705	958
DGB_32	1 or 2	3	4323	—	—	4243	444	532	799	992
DGB_33	1 or 2	3	4323	—	—	4243	498	627	907	1194
DGB_34	1 or 2	3	4323	—	—	4243	551	723	1013	1393
DGB_42	1 or 2	4	5763	2822	2862	5683	585	701	1049	1314
DGB_43	1 or 2	4	5763	2822	2862	5683	656	828	1191	1573
DGB_44	1 or 2	4	5763	2822	2862	5683	728	956	1335	1840
DGB_52	1 or 2	5	7203	3542	3582	7123	720	864	1295	1616
DGB_53	1 or 2	5	7203	3542	3582	7123	809	1023	1472	1950
DGB_54	1 or 2	5	7203	3542	3582	7123	899	1182	1651	2284
DGB262	2	6	8643	2821	2861	8563	—	—	1534	1860
DGB263	2	6	8643	2821	2861	8563	—	—	1748	2320
DGB264	2	6	8643	2821	2861	8563	—	—	1962	2721
DGC_12	1 or 2	1	1803	—	—	1723	206	243	362	441
DGC_13	1 or 2	1	1803	—	—	1723	229	284	406	524
DGC_14	1 or 2	1	1803	—	—	1723	251	323	452	608
DGC_22	1 or 2	2	3603	—	—	3523	358	430	637	797
DGC_23	1 or 2	2	3603	—	—	3523	402	509	727	964
DGC_24	1 or 2	2	3603	—	—	3523	447	589	816	1131
DGC_32	1 or 2	3	5403	2642	2682	5323	525	631	931	1170
DGC_33	1 or 2	3	5403	2642	2682	5323	592	750	1064	1420
DGC_34	1 or 2	3	5403	2642	2682	5323	659	870	1198	1671
DGC_42	1 or 2	4	7203	3542	3582	7123	673	814	1199	1517
DGC_43	1 or 2	4	7203	3542	3582	7123	761	972	1377	1851
DGC_44	1 or 2	4	7203	3541	3581	7120	851	1132	1555	2185
DGC252	2	5	9003	3541	3581	8923	—	—	1484	1882
DGC253	2	5	9003	3541	3581	8923	—	—	1705	2299
DGC254	2	5	9003	3541	3581	8923	—	—	1928	2717

Notes:

Total unit dry weight is dependent upon the coil material used (AL = Copper tubes with Aluminium or Vinyl coated Aluminium fins, CU = Copper tubes with Copper fins or Copper fins electro-tinned).

DM - DX Dry Cooler

The DM and DX ranges of fully weather-proofed dry coolers feature a new range of coil module sizes to extend the coil surface to air volume ratio and thereby increase the "air-volume efficiency" factor.

The DM series has a duty range of 18kW to 596kW and the DX series has a duty range of 22kW to 754kW. Both ranges are available in flat-bed horizontal and vertical configurations and have the latest innovation of blow-through horizontal design for high temperature applications.

The DM range is available in a single width of 1539mm and the DX range is available in a single width of 2301mm, both with module lengths of 1200mm, 1440mm and 1800mm, up to 8 fans and 2 to 4 coil rows.

The full fanset options are available, including the 910mm EC energy efficient fanset, which enables a highly efficient, very low noise complete fan speed-control package. Full details of the EC fanset and ideal application areas can be found in the EC brochure.

For full selection data either refer to the Selection data tables or use the Searle selection software, either on-line or via the Searle Selection CD.

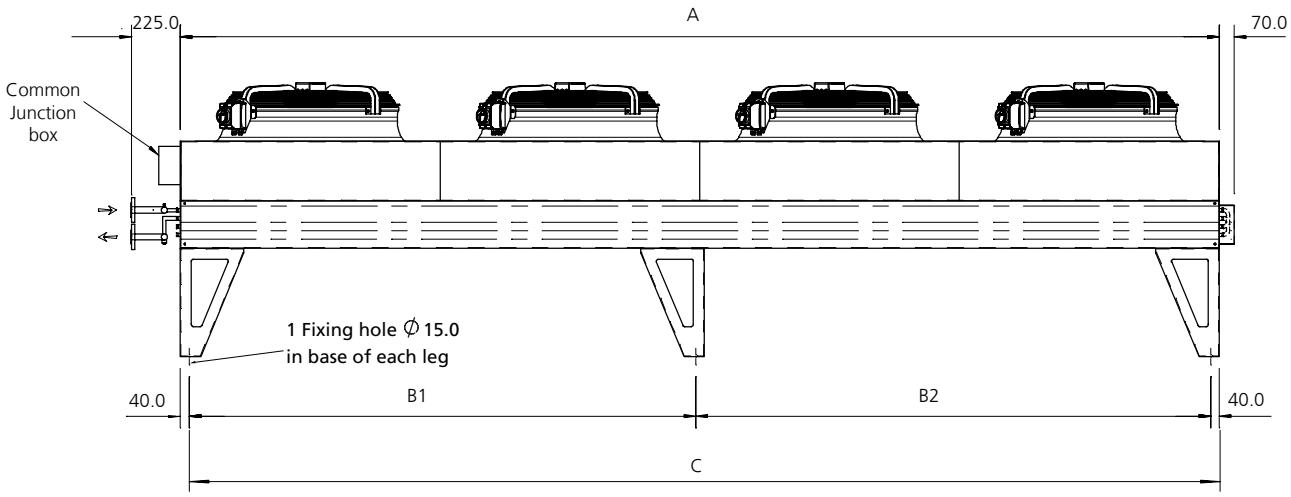
DM B 1 6 3 V - N8 12 D - AL

Range	DM/DX
Module length	A (1200mm), B (1440mm), C (1800mm)
Bank of fans	1
Fans per bank	1 - 8 (DMA & DXA), 1-6 (DMB & DXB), 1-5 (DMC & DXC)
Coils rows	2, 3, 4
Orientation	H = Horizontal, V = Vertical
Fans type	N8 (800mm), Q8 (800mm), 09 (910mm) N9 (910mm), 99 (990mm)
Motor speed (Poles)	06, 08, 12, 09EC (Max 855rpm)
Power	D = Delta, S = Star, 2 = 2 Speed, Variable speed
Coil material	AL = Copper tubes/ Aluminium fins, AV = Copper tubes/ Vinyl coated Aluminium fins CU = Copper tubes/ Copper fins, ET = Copper tubes/ Copper fins electro-tinned Bg = Copper tube/Aluminium fin Blygold coated

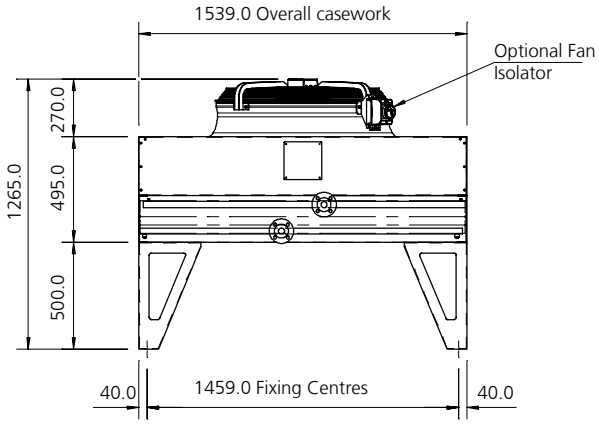
Fan Data Table

Fan type & Pole	Diameter	Module	Delta			Star		
			Speed (rpm)	FLC (Amp)	SC (Amp)	Speed (rpm)	FLC (Amp)	SC (Amp)
N806 6 Pole	800mm	A,B,C	895	4.3	14	685	2.5	4
N808 8 Pole		A,B,C	665	2.5	6.2	495	1.3	2.2
N812 12 Pole		A,B,C	450	1.2	2.3	350	0.5	0.8
Q812 12 Pole		A,B,C	360	0.75	1	255	0.3	0.5
N906 6 Pole	910mm	A,B,C	870	5.7	19	650	3.3	11.0
09EC EC Technology		A,B,C	Variable 100 - 855	3.1	4.3			

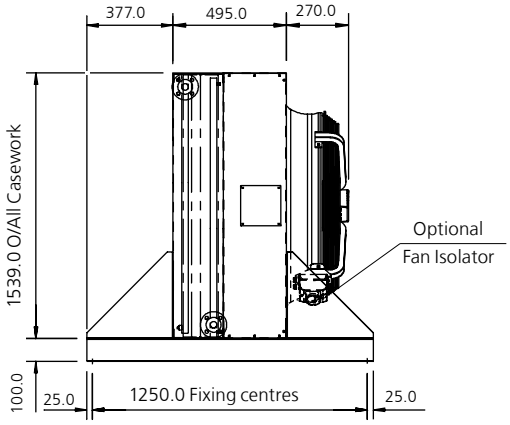
DM/DX Model Drawings



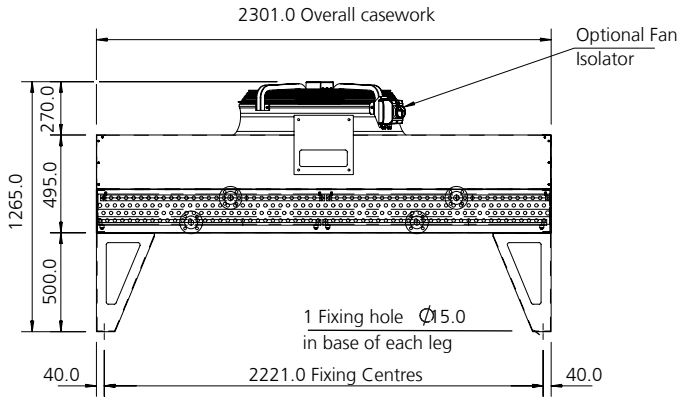
DM Horizontal Unit



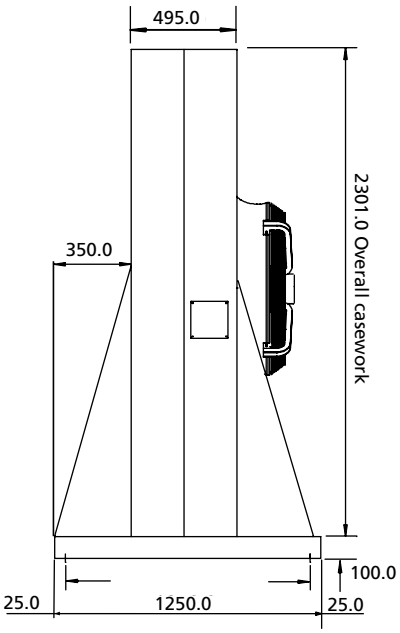
DM Vertical Unit



DX Horizontal Unit



DX Vertical Unit



Notes: All dimensions in mm. Common junction box will vary in size and position depending on the control option required.

Model DM/DX	Fans Per Bank	A	B1	B2	C	DM Total Unit Dry Weight		DX Total Unit Dry Weight	
						AL	CU	AL	CU
		mm	mm	mm	mm	kg	kg	kg	kg
D_A112	1	1203	—	—	1123	208	262	245	300
D_A113	1	1203	—	—	1123	234	324	277	356
D_A114	1	1203	—	—	1123	259	386	307	411
D_A122	2	2403	—	—	2323	351	464	414	518
D_A123	2	2403	—	—	2323	402	589	474	629
D_A124	2	2403	—	—	2323	452	714	533	741
D_A132	3	3603	—	—	3523	492	665	580	736
D_A133	3	3603	—	—	3523	567	855	669	903
D_A134	3	3603	—	—	3523	640	1040	757	1069
D_A142	4	4803	2342	2382	4723	653	822	755	964
D_A143	4	4803	2342	2382	4723	754	1133	874	1187
D_A144	4	4803	2342	2382	4723	855	1380	993	1409
D_A152	5	6003	2942	2982	5923	802	1088	928	1189
D_A153	5	6003	2942	2982	5923	928	1401	1077	1468
D_A154	5	6003	2942	2982	5923	1054	1708	1225	1745
D_A162	6	7203	3542	3582	7123	940	1285	1086	1399
D_A163	6	7203	3542	3582	7123	1092	1661	1265	1734
D_A164	6	7203	3542	3582	7123	1243	2030	1444	2068
D_A172	7	8403	2341	2381	8323	1092	1494	1260	1624
D_A173	7	8403	2341	2381	8323	1268	1934	1469	2015
D_A174	7	8403	2341	2381	8323	1444	2364	1677	2404
D_A182	8	9603	3541	3581	9523	1239	1700	1429	1845
D_A183	8	9603	3541	3581	9523	1441	2202	1668	2292
D_B184	8	9603	3541	3581	9523	1643	2694	1906	2736
D_B112	1	1443	—	—	1363	247	303	277	339
D_B113	1	1443	—	—	1363	278	385	312	407
D_B114	1	1443	—	—	1363	310	461	349	474
D_B122	2	2883	—	—	2803	405	508	468	593
D_B123	2	2883	—	—	2803	466	643	539	726
D_B124	2	2883	—	—	2803	527	785	610	860
D_B132	3	4323	—	—	4243	561	711	657	845
D_B133	3	4323	—	—	4243	652	900	765	1047
D_B134	3	4323	—	—	4243	742	1103	872	1246
D_B142	4	5763	2822	2862	5683	732	930	860	1118
D_B143	4	5763	2822	2862	5683	850	1160	1002	1377
D_B144	4	5763	2822	2862	5683	970	1425	1146	1644
D_B152	5	7203	3542	3582	7123	898	1144	1058	1371
D_B153	5	7203	3542	3582	7123	1045	1445	1236	1705
D_B154	5	7203	3542	3582	7123	1194	1777	1414	2039
D_B162	6	8643	2821	2880	8563	1057	1350	1254	1566
D_B163	6	8643	2821	2880	8563	1234	1692	1467	2026
D_B164	6	8643	2821	2880	8563	1411	2091	1682	2427
D_C112	1	1803	—	—	1723	272	330	315	392
D_C113	1	1803	—	—	1723	310	428	359	475
D_C114	1	1803	—	—	1723	349	519	404	559
D_C122	2	3603	—	—	3523	446	553	543	699
D_C123	2	3603	—	—	3523	519	718	632	866
D_C124	2	3603	—	—	3523	592	881	721	1033
D_C132	3	5403	2642	2682	5323	618	773	790	1023
D_C133	3	5403	2642	2682	5323	720	997	922	1273
D_C134	3	5403	2642	2682	5323	824	1228	1056	1524
D_C142	4	7203	3542	3582	7123	805	1010	1010	1321
D_C143	4	7203	3542	3582	7123	945	1307	1188	1655
D_C144	4	7203	3542	3582	7123	1085	1615	1366	1989
D_C152	5	9003	3541	1840	8923	988	1243	1248	1637
D_C153	5	9003	3541	1840	8923	1161	1606	1469	2054
D_C154	5	9003	3541	1840	8923	1335	1987	1693	2472

Notes:

Total unit dry weight is dependent upon the coil material used (AL = Copper tubes with Aluminium or Vinyl coated Aluminium fins, CU = Copper tubes with Copper fins or Copper fins electro-tinned).

DV Dry Cooler

The DV range extends the versatility of GEA Searle's dry coolers into a V-Bank configuration with a combination of 3 coil widths and 3 module lengths, 2 fans wide. The available range has a duty from36kW to 1088kW.

GEA Searle achieves a close specification match by offering three module length options of 1200mm, 1440mm or 1800mm across three coil width options in the small footprint V-Bank formation. The DV...M has 2 x 1524mm coils and the DV...L has 2 x 1905mm coils with 2 fans wide, all sizes offer the choice of 2 to 8 fans in length. Combined with coil sizes from 2 to 4 row coils and multiple standard fan options up to 910mm, this range of V configuration units is comprehensive.

GEA Searle now offers the EC fan, a highly efficient and very low noise complete control package. Full details of the EC fan and the best-suited application areas are included at the front of this brochure.

As with all dry air coolers, selection is best completed using the Searle selection software, either on the website (www.searle.co.uk) or from the latest Searle Selection CD.

DV A 2 4 2 M - N8 06 S - AL

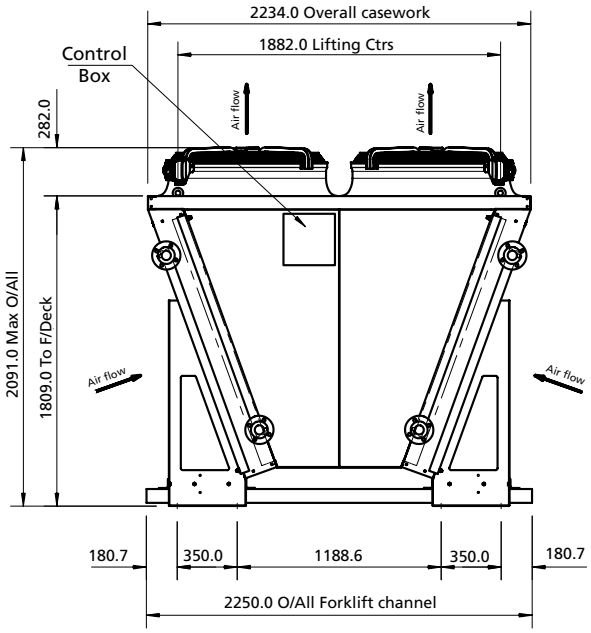
Range	DV
Module length	A (1200mm), B (1440mm), C (1800mm)
Bank of fans	2
Fans per bank	1- 8
Coils rows	2, 3, 4
Coil Orientation	M = Medium, L = Large
Fan type	N8 (800mm), Q8 (800mm),09 (910mm), N9 (910mm)
Motor speed	06, 08, 12 or EC
Power	D = Delta, S = Star, 2 = 2 Speed, Variable speed
Coil material	AL = Copper tubes/ Aluminium fins, AV = Copper tubes/ Vinyl coated Aluminium fins CU = Copper tubes/ Copper fins, ET = Copper tubes/ Copper fins electro-tinned Bg = Bg = Copper tube/Aluminium fin Blygold coated

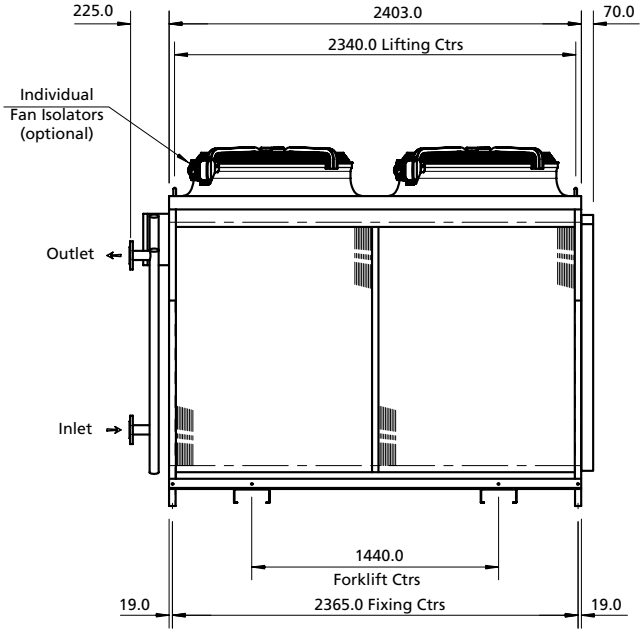
Fan Data Table

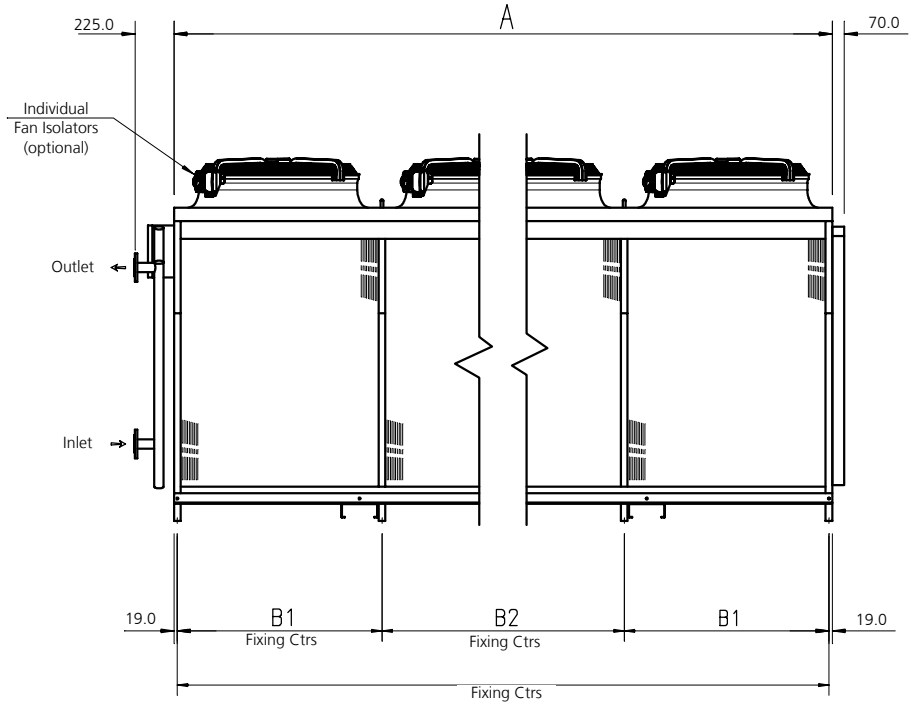
Fan type & Pole	Diameter	Module	Delta			Star		
			Speed (rpm)	FLC (Amp)	SC (Amp)	Speed (rpm)	FLC (Amp)	SC (Amp)
N806 6 Pole	800mm	A,B,C	895	4.3	14	685	2.5	4
N808 8 Pole		A,B,C	665	2.5	6.2	495	1.3	2.2
N812 12 Pole		A,B,C	450	1.2	2.3	350	0.5	0.8
Q812 12 Pole		A,B,C	360	0.75	1	255	0.3	0.5
N906 6 Pole	910mm	A,B,C	870	5.7	19	650	3.3	11.0
09EC EC Technology		A,B,C	Variable 100 - 855	3.1	4.3			

DV...M Model Drawings

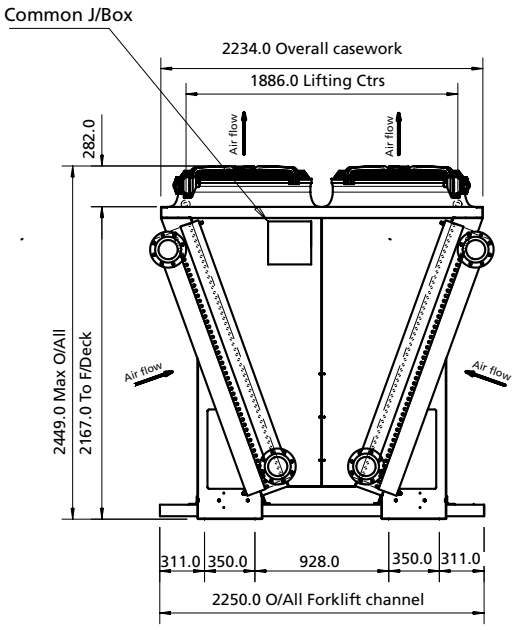
DV (M)

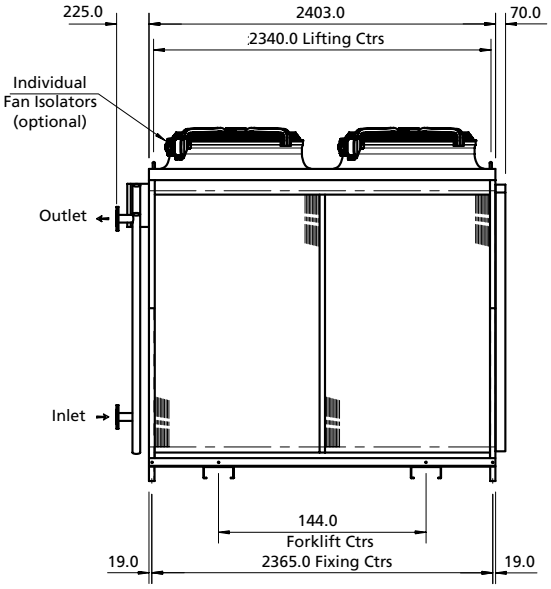


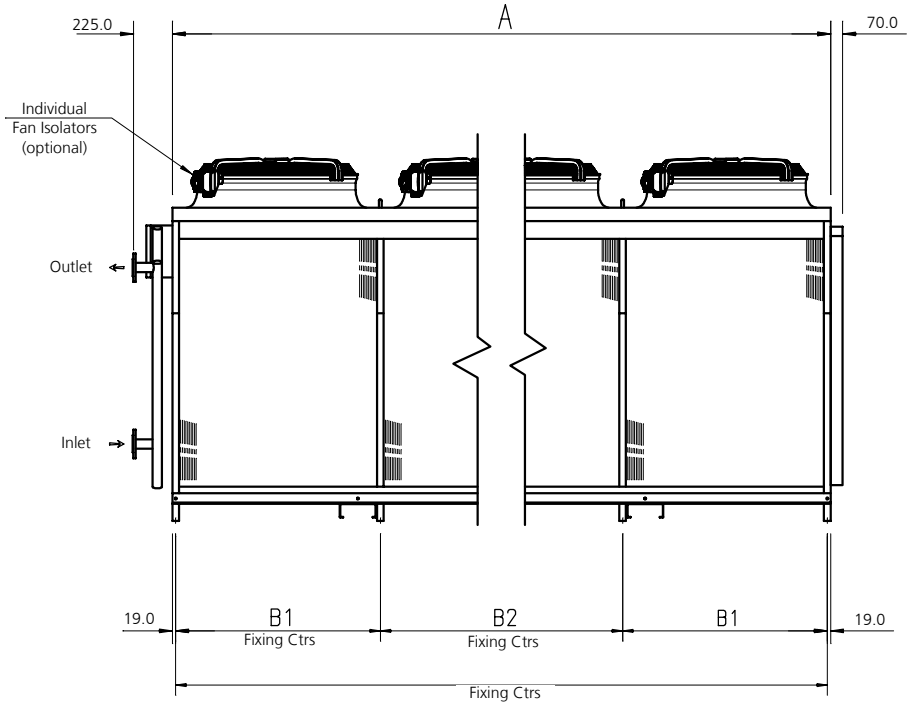




DV (L)


Common J/Box
2234.0 Overall casework
1886.0 Lifting Ctrs
282.0
Air flow
Air flow
2449.0 Max O/All
2167.0 To F/Deck
Air flow
Air flow
311.0
350.0
928.0
350.0
311.0
2250.0 O/All Forklift channel


225.0
2403.0
70.0
2340.0 Lifting Ctrs
Individual
Fan Isolators
(optional)
Outlet
Inlet
144.0
Forklift Ctrs
19.0
2365.0 Fixing Ctrs
19.0


225.0
A
70.0
Individual
Fan Isolators
(optional)
Outlet
Inlet
19.0
B1
Fixing Ctrs
B2
Fixing Ctrs
B1
19.0
Fixing Ctrs

Dimensions DV...M

Model		Size	No. of Fans	A Casework overall	B1	B2	C	Approx Dry Weight	
								AL/AV	CU/ET
				mm	mm	mm	mm	kg	kg
DVA	222	M	4	2403	N/A	N/A	2365	720	866
DVA	223	M	4	2403	N/A	N/A	2365	788	1008
DVA	224	M	4	2403	N/A	N/A	2365	857	1149
DVA	232	M	6	3603	1183	1200	3565	1087	1306
DVA	233	M	6	3603	1183	1200	3565	1189	1518
DVA	234	M	6	3603	1183	1200	3565	1292	1731
DVA	242	M	8	4803	1183	2400	4765	1449	1741
DVA	243	M	8	4803	1183	2400	4765	1585	2024
DVA	244	M	8	4803	1183	2400	4765	1722	2307
DVA	252	M	10	6003	2383	1200	5965	1811	2177
DVA	253	M	10	6003	2383	1200	5965	1981	2530
DVA	254	M	10	6003	2383	1200	5965	2152	2884
DVA	262	M	12	7203	2383	2400	7165	2173	2612
DVA	263	M	12	7203	2383	2400	7165	2377	3036
DVA	264	M	12	7203	2383	2400	7165	2535	3460
DVA	272	M	14	8403	2382	2400	8365	2535	3048
DVA	273	M	14	8403	2382	2400	8365	2774	3542
DVA	274	M	14	8403	2382	2400	8365	3013	4037
DVA	282	M	16	9603	2382	3400	9565	2898	3483
DVA	283	M	16	9603	2382	3400	9565	3170	4049
DVA	284	M	16	9603	2382	3400	9565	3443	4614
DVB	222	M	4	2883	N/A	N/A	2845	830	1005
DVB	223	M	4	2883	N/A	N/A	2845	912	1175
DVB	224	M	4	2883	N/A	N/A	2845	994	1345
DVB	232	M	6	4323	1422	1440	4285	1244	1508
DVB	233	M	6	4323	1422	1440	4285	1367	1762
DVB	234	M	6	4323	1422	1440	4285	1490	2017
DVB	242	M	8	5763	1422	2880	5725	1659	2010
DVB	243	M	8	5763	1422	2880	5725	1823	2350
DVB	244	M	8	5763	1422	2880	5725	1986	2689
DVB	252	M	10	7203	2862	1400	7165	2073	2512
DVB	253	M	10	7203	2862	1400	7165	2277	2936
DVB	254	M	10	7203	2862	1400	7165	2482	3360
DVB	262	M	12	8640	2862	2720	8602	2487	3015
DVB	263	M	12	8640	2862	2720	8602	2733	3523
DVB	264	M	12	8640	2862	2720	8602	2978	4032
DVC	222	M	4	3603	1782	N/A	3565	987	1206
DVC	223	M	4	3603	1782	N/A	3565	1089	1418
DVC	224	M	4	3603	1782	N/A	3565	1192	1631
DVC	232	M	6	5403	1782	1800	5365	1480	1809
DVC	233	M	6	5403	1782	1800	5365	1633	2127
DVC	234	M	6	5403	1782	1800	5365	1787	2445
DVC	242	M	8	7203	1782	3600	7165	1973	2412
DVC	243	M	8	7203	1782	3600	7165	2177	2836
DVC	244	M	8	7203	1782	3600	7165	2382	3260
DVC	252	M	10	9003	3565	1840	8965	2466	3015
DVC	253	M	10	9003	3565	1840	8965	3545	2721
DVC	254	M	10	9003	3565	1840	8965	2977	4075

Note:

Total unit dry weight is dependent upon the coil material used (AL/AV = Copper tubes with Aluminium or Vinyl coated Aluminium fins, CU/ET = Copper tubes with Copper fins or Copper fins electro-tinned).

Model		Size	No. of Fans	A Casework overall	B1	B2	C	Approx Dry Weight	
								AL/AV	CU/ET
				mm	mm	mm	mm	kg	kg
DVA	222	L	4	2403	N/A	N/A	2365	850	1033
DVA	223	L	4	2403	N/A	N/A	2365	935	1210
DVA	224	L	4	2403	N/A	N/A	2365	1021	1387
DVA	232	L	6	3603	1183	1200	3565	1282	1556
DVA	233	L	6	3603	1183	1200	3565	1410	1822
DVA	234	L	6	3603	1183	1200	3565	1538	2087
DVA	242	L	8	4803	1183	2400	4765	1709	2075
DVA	243	L	8	4803	1183	2400	4765	2428	1880
DVA	244	L	8	4803	1183	2400	4765	2050	2782
DVA	252	L	10	6003	2383	1200	5965	2136	2593
DVA	253	L	10	6003	2383	1200	5965	3035	2349
DVA	254	L	10	6003	2383	1200	5965	3477	2562
DVA	262	L	12	7203	2383	2400	7165	2563	3112
DVA	263	L	12	7203	2383	2400	7165	3642	2819
DVA	264	L	12	7203	2383	2400	7165	4172	3074
DVA	272	L	14	8403	2382	2400	8365	2991	3631
DVA	273	L	14	8403	2382	2400	8365	2390	4250
DVA	274	L	14	8403	2382	2400	8365	3587	4868
DVA	282	L	16	9603	2382	3400	9565	3418	4150
DVA	283	L	16	9603	2382	3400	9565	3760	4857
DVA	284	L	16	9603	2382	3400	9565	4100	5563
DVB	222	L	4	2883	N/A	N/A	2845	987	1206
DVB	223	L	4	2883	N/A	N/A	2845	1090	1419
DVB	224	L	4	2883	N/A	N/A	2845	1192	1631
DVB	232	L	6	4323	1422	1440	4285	1480	1803
DVB	233	L	6	4323	1422	1440	4285	1634	2127
DVB	234	L	6	4323	1422	1440	4285	1787	2446
DVB	242	L	8	5763	1422	2880	5725	1973	2412
DVB	243	L	8	5763	1422	2880	5725	2178	2836
DVB	244	L	8	5763	1422	2880	5725	2382	3260
DVB	252	L	10	7203	2862	1400	7165	2463	3012
DVB	253	L	10	7203	2862	1400	7165	2719	3542
DVB	254	L	10	7203	2862	1400	7165	2974	4072
DVB	262	L	12	8640	2862	2720	8602	2947	3606
DVB	263	L	12	8640	2862	2720	8602	3253	4242
DVB	264	L	12	8640	2862	2720	8602	3560	4878
DVC	222	L	4	3603	1782	N/A	3565	1182	1456
DVC	223	L	4	3603	1782	N/A	3565	1310	1722
DVC	224	L	4	3603	1782	N/A	3565	1438	1987
DVC	232	L	6	5403	1782	1800	5365	1772	2184
DVC	233	L	6	5403	1782	1800	5365	1964	2582
DVC	234	L	6	5403	1782	1800	5365	2156	2980
DVC	242	L	8	7203	1782	3600	7165	2327	2876
DVC	243	L	8	7203	1782	3600	7165	2619	3442
DVC	244	L	8	7203	1782	3600	7165	2874	3972
DVC	252	L	10	9003	3565	1840	8965	2917	3604
DVC	253	L	10	9003	3565	1840	8965	3273	4302
DVC	254	L	10	9003	3565	1840	8965	3593	4965

Note:

Total unit dry weight is dependent upon the coil material used (AL/AV = Copper tubes with Aluminium or Vinyl coated Aluminium fins, CU/ET = Copper tubes with Copper fins or Copper fins electro-tinned).

Installation and Location Guidance

Consideration should be given to pipework associated with the installation which can be either an obstruction to air flow or a heat source to the air entering the coil. Other adjacent plant either requiring an air supply or dissipating air will affect the air flow onto the unit. The colour of the surface on which the units are mounted and/or surrounding areas can create high solar gains, increasing the entering air temperature considerably. A 5K temperature increase over and above ambient is not unusual. This obviously has a serious effect on the performance.

Adjacent building styles, plant and prevailing winds can often cause air currents, which, in turn, can create down draughts, consequently forcing the discharge air back down into the air intake stream, causing high air entering temperatures and subsequent loss of performance. Vertical units must not be installed when either 16 pole (star/delta) or 12pole (star) connected motors are employed. The reason for this restriction is that an adverse effect of the prevailing wind can overcome the power of the motor, making it impossible to start. When vertical units are to be installed, they should be orientated so that the air flow direction is similar to that of the summer prevailing wind. Also, the coil should be, as far as is practical, shaded from direct sunlight.

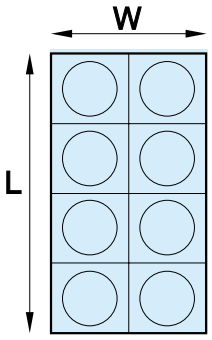


Fig 1

Single unit with no restriction within the units length has no limitations in use.
For dimensions W and L refer to the dimensions table

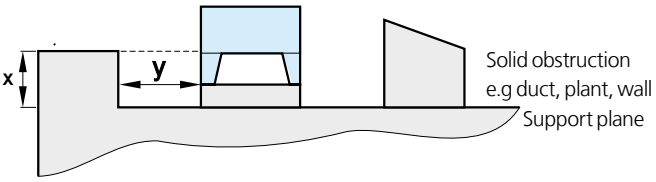


Fig 2

Parapet wall is not restrictive in this instance provided $y \geq 2x$.

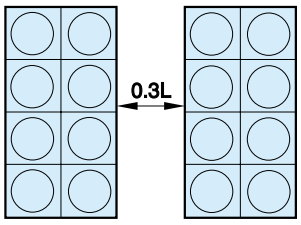


Fig 3

Multiple units with no restrictions within a distance equal to the units length have few limitations. However, the distance between units when more than 2 units in line are required is more critical. In this instance, it is worth considering increasing the leg height to give improved air circulation

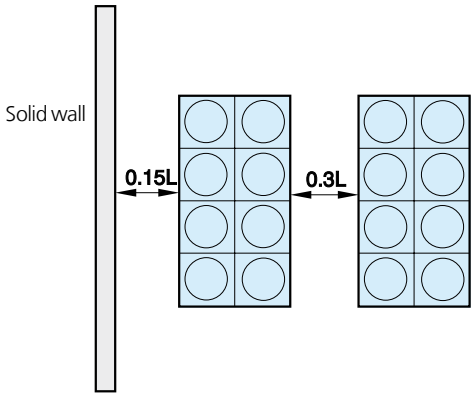


Fig 4

The dimension 0.15L is critical only if more than one unit is to be installed. If only one unit is installed, it can be located adjacent to the solid wall.

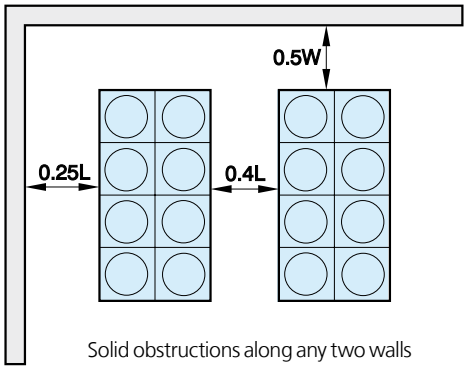


Fig 5

Please note pipework and other equipment sited adjacent to the units could well constitute an obstructions.

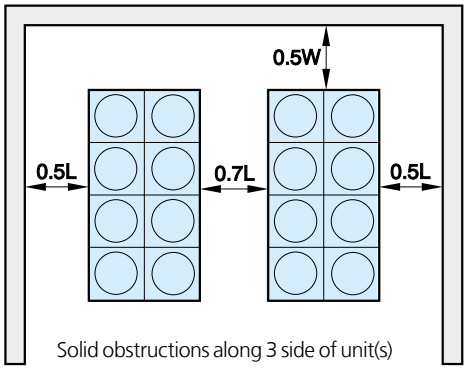


Fig 6

Where multiple units are located, the open side must give free air onto each unit. Raising units on extended legs or plinths will improve air circulation and is recommended for 12 and 16 - pole units.

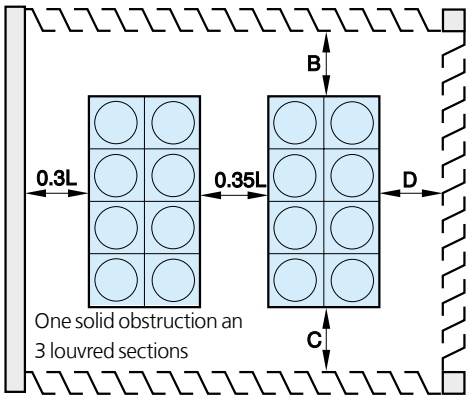


Fig 7

Free area of louvres should not be less than 70%
$B + C + D \geq L$
Fan discharge should be level with the top of the louvres

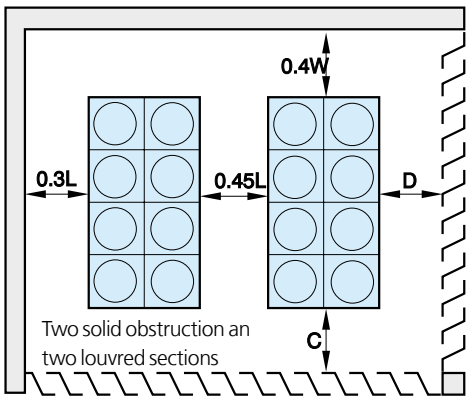


Fig 8

Total free area of the louvres should not be less than 70%
$B + C + D \geq 0.9L$
Fan discharge should be level with the top of the louvres

Adiabatic System

The GEA Searle Adiabatic cooling system is designed to enhance the thermal performance of air-cooled condensers and dry air coolers by reducing the effective incoming air temperature. Temperature reduction is achieved by spraying water into the incoming air via a series of sparge pipes and nozzles located adjacent to the heat exchange coils. The energy used to evaporate the spray water results in a reduction in air temperature and an increase in humidity.

The total enthalpy of the air remains the same. On a typical unit fitted with 12 pole fansets operating in an ambient of 32°C db and 40% RH a depression of 80% can be achieved, resulting in an effective incoming air temperature of 24°C Maximum depression on units fitted with 6 pole Delta motors is 60%. For alternative conditions please refer to enclosed tables.

Fresh ideas from Searle

System Description

GEA Searle Adiabatic cooling systems are made up of two principal assemblies. The adiabatic control box, which can be factory fitted to air-cooled condensers and dry air coolers. The sparge and nozzle assembly is factory fitted to V bank units and supplied loose (for shipment) on flat bed units. These items are also available as a retro fit kit for site upgrades. Three versions of the adiabatic control box are available:

Option 1

Without a pressurisation pump where the supply water pressure, at design flow rate, is not less than 5 bar.

Option 2

A low flow rate pressurisation pump where the supply water pressure, at design flow rate, is not less than 2 bar.

Option 3

A high flow rate pressurisation pump where the supply water pressure, at design flow rate, is not less than 2 bar

All adiabatic control boxes are fitted with water strainer, mains inlet solenoid valve, vent solenoid valve, pressure regulator and gauge, pressure switch, ultraviolet lamp, scale inhibitor and a 230-volt control panel. The electronic controls are mounted in a polycarbonate box and contain a mains isolator, adiabatic sequence controller and transformer. Water is sprayed into the air stream via a sparge system made of 22mm copper pipe fitted with atomising nozzles and connected together with push fittings. A drain solenoid is fitted to the lowest part of the system.

Applications

Adiabatic systems can be applied to dry air coolers and air cooled condensers when there is a reasonable difference between the dry bulb and wet bulb temperatures. The following benefits and features may be achieved when fitting adiabatic systems:

- Fluid temperatures lower than the ambient dry bulb when there is sufficient difference between the dry bulb and wet bulb.
- Reduction in physical size of plant.
- Increasing in capacity on existing dry systems.
- Standby - used as emergency capacity on critical applications or upgrades.

A sequence of operation has been developed:

- To ensure no free standing water is left in the system when inactive.
- Water in the supply pipe flushes the system before high pressure spraying starts.

When water is passed through the ultra-violet lamp the dose of UV radiation received is lethal to pathogens - including Legionella - eliminating any health risks. Searle adiabatic cooling systems conform to the design requirements of ACOP L8 "control of Legionella bacteria in water systems".

The adiabatic system is normally started from an external volt free signal provided by a capacity control system, BMS or emergency override. The ultraviolet lamp is switched on and the vent and drain solenoids are closed. After a set time delay the main solenoid is opened to flush the system before the pump is started.

The pressure in the system and operation of the ultraviolet lamp are monitored. If the pressure falls below 1 bar or the lamp fails the system will be closed down. The mains solenoid and pump will cycle on and off as the load varies. The ultraviolet lamp and vent/drain solenoids are cycled off at the end of the day's operation, ensuring the lamp operates at full power and that flushing is not repeated unnecessarily, no free standing water is left in the system when inactive. At the end of the sequence, the system (downstream of the main solenoid valve) has been fully drained.

Control Options

Controls options for GEA Searle Condensers and Dry Cooers

GEA Searle offers a range of Controls solutions, suitable for the range of Air Cooled Condensers and Dry Air Coolers. These can be supplied factory-fitted with all controls software installed and functioning so that the unit can be simply connected up and power supplied. This enables the installation time to be dramatically reduced and avoids problems using 3rd party controls.

Fresh ideas from Searle

Major benefits

- Reduced installation costs
- Latest controls systems installed
- Factory fitted system

Controls Overview

The new control range is based on a modular form starting with the basic package and the various control added as extras. Except for very small units and for EC Remote Condensers and DACs, which will be 230V 50/60Hz, the Control will be 24V 50/60Hz.

Control Options

No Controls :- Motor Wiring terminated in a junction box or Isolators, allowing either star or delta connections.

FCB ;- Fan Contactor Box (Standard AC Motors)

A single metal IP55 enclosure is used containing the following.

- Mains Isolator.
- Motor Starter and Contactor per fan as standard

Alternatively to cut costs on double bank units a Motor Starter and Contactor per pair of fans is an option. On single bank units each contactor coil is terminated to allow the Customer to provide a signal for each contactor to close. For double bank units, the contactors will be controlled in pairs Further steps can be obtained by applying a 2 Speed Strategy (Star Delta control). This requires 2-3 contactors per fan and is a fairly costly option. Standard practice on a 12-fan unit would 6 stages of Low Speed ("Star") and 2 stages 6 Fans each of High Speed ("Delta").

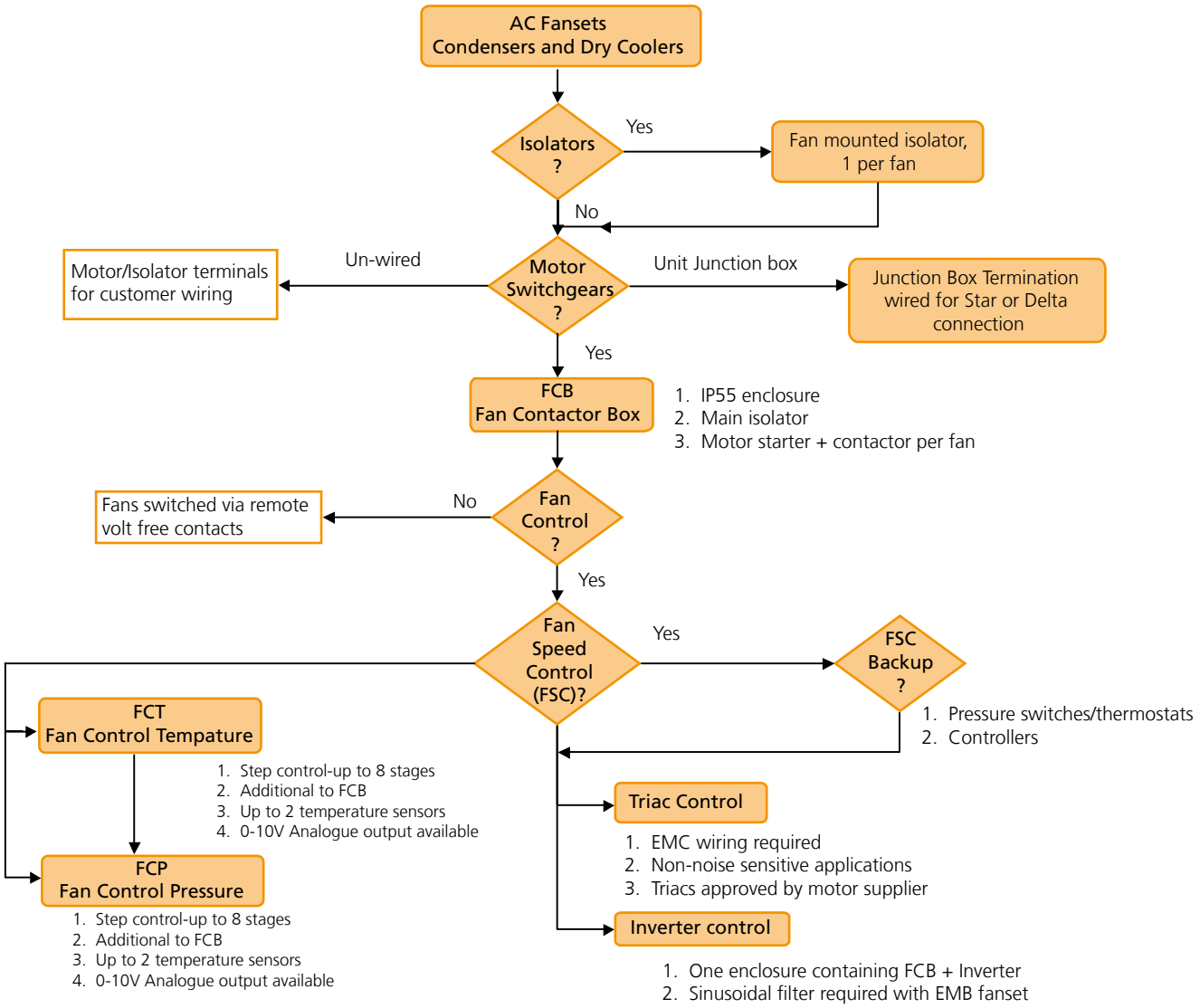
FCT Fan Control Temperature & FCP Fan Control Pressure

The FCT/FCP will be an addition to the FCB, and provides stand-alone control of the unit.

- Up to 8 Stages of step control.
- 0-10V Analogue output for FSC control.
- Up to 2 Temperature Sensors or 2 Pressure Transducers. Can be connected.
- Dual sensors can be employed in Dual Coil units and either Highest or Average control can be applied.
- Alternatively with a single sensor 2 set ponit can be programmed to provide "Winter Free Cooling"activated from a BMS system.

FSC Fan Speed Control (Temperature or Pressure)

The Inverter and FCB will be contained in one enclosure. Inverter Control will change the applied frequency to the motor; the Inverter can be programmed to employ an inbuilt PID control strategy, which can also shut down the fans when they are not required to run. Alternatively an external signal from a controller such as the RDM Varipac can be used this would allow easy connection to a network for monitoring purposes. For all EBM fan sets it is mandatory for Sinusoidal Filtering to be used. Also Consider EC fansets as an alternative They are generally more efficient and cost effective.



EC Fan Sets (Electronic Commutation)

The EC fansets provide a very good Fan Speed Control solution due to the internal electronics within the fanset enabling simple control. EC fansets are now the preferred choice for Condenser applications due to the varying load requirements during a normal day-night cycle. However, due to the inherent efficiency of EC motors, their use in fluid coolers is now becoming more common.
There are various control options, depending on the selection of the controller and whether back-up control is required.

Junction Box Termination.

3 Phase Supply 4 Core Cable

10V, 0-10V Signal, Grnd - Cores ,2,3
Com, N/O Alarm (Close on Fault) Cores 4&5 7 Core Screened Cable
RSA, RSB modbus Coms - Cores 6&7

Controller options

Main Isolator, and then a MCB for each fan set with the additional options below will be provided. On very large units 1 MCB per par of fans will be provided. The EC technology provides Overload Protection so only Short Circuit protection is required.

Directly connected Transducer

A "Closed Loop Control " strategy is applied to one fan set designated as the "Master" and any additional fan sets designated as "Slaves". This approach requires an external device such as a Laptop to set up the Master and alter the control settings.

Single Controller

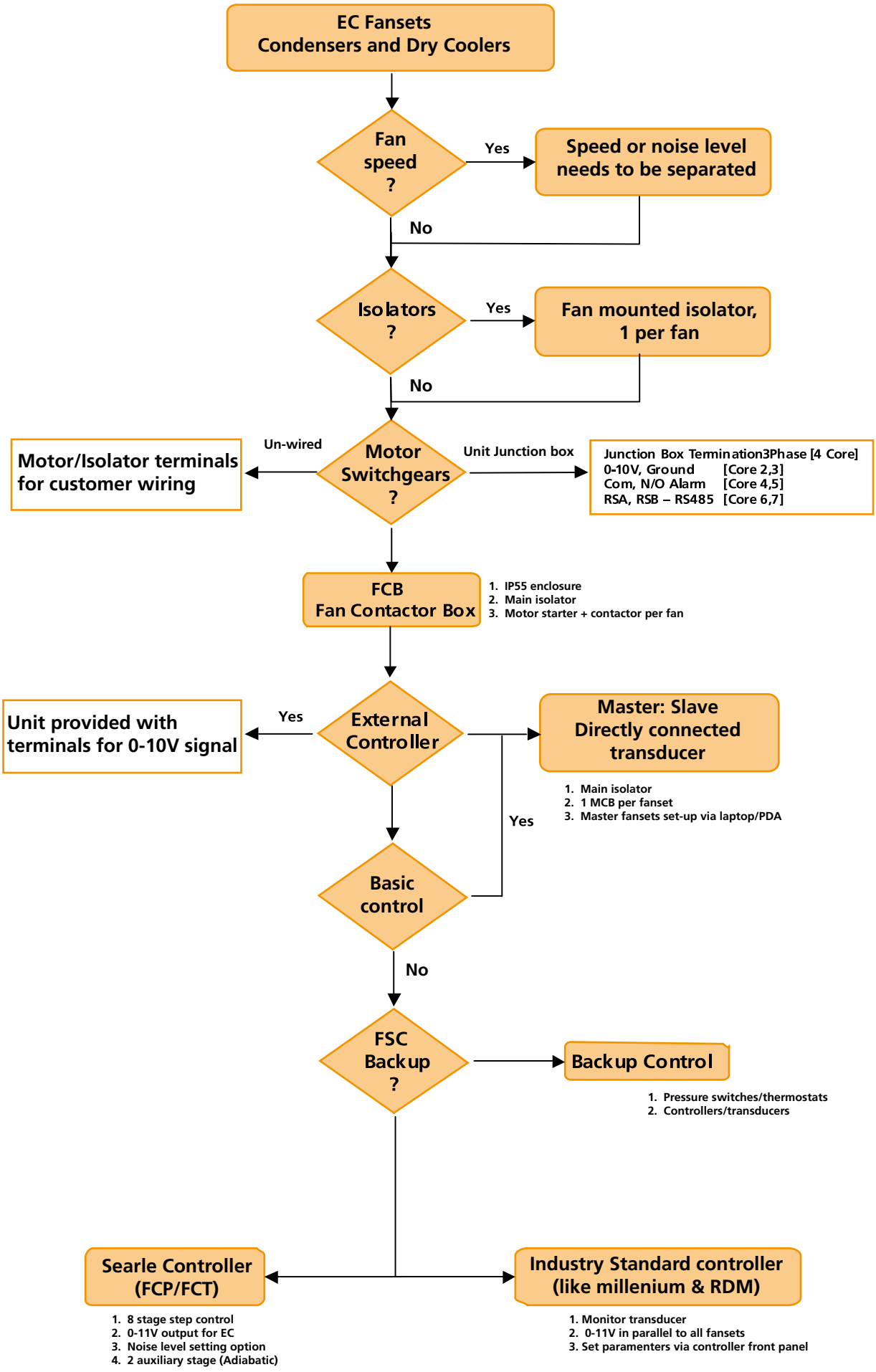
There are 3 main options for a single controller

1. Searle sequential controller
2. Millenium
3. RDM

All operate in a similar manner by reading a transducer input and applying a 0-10V signal in parallel to all fansets. The searle controller
allows operating limits to be set in terms of noise level. Fansets can be pre-set to have an upper speed limit so as not to exceed specified noise requirements.

Backup Control

Backup Control can be provided for any FSC strategy and can take the form of Pressure switches or thermostats for small condensers or DACs and extra controllers and transducers for larger units. This requirement is becoming more common.


EC Fansets
Condensers and Dry Coolers
Fan speed ?
Yes
Speed or noise level needs to be separated
No
Isolators ?
Yes
Fan mounted isolator, 1 per fan
No
Motor Switchgears ?
Un-wired
Motor/Isolator terminals for customer wiring
Unit Junction box
Junction Box Termination3Phase [4 Core]
0-10V, Ground [Core 2,3]
Com, N/O Alarm [Core 4,5]
RSA, RSB – RS485 [Core 6,7]
FCB
Fan Contactor Box
1. IP55 enclosure
2. Main isolator
3. Motor starter + contactor per fan
External Controller
Yes
Unit provided with terminals for 0-10V signal
Master: Slave
Directly connected transducer
1. Main isolator
2. 1 MCB per fanset
3. Master fansets set-up via laptop/PDA
Yes
Basic control
No
FSC Backup ?
Backup Control
1. Pressure switches/thermostats
2. Controllers/transducers
Searle Controller (FCP/FCT)
1. 8 stage step control
2. 0-11V output for EC
3. Noise level setting option
4. 2 auxiliary stage (Adiabatic)
Industry Standard controller (like millenium & RDM)
1. Monitor transducer
2. 0-11V in parallel to all fansets
3. Set paramenters via controller front panel

The GEA Searle sequential controller has been designed specifically for the control of air-cooled condensers and dry coolers either using step control or speed control, indirectly via inverter or EC technology. The controller can be configured for pressure or temperature inputs and up to 8 stages of control. There is also an analogue input that can be used to replace the input signal, adjust the setpoint or provide direct control of the outputs. A 0-10V output is available for EC or inverter control.

When factory fitted, the controllers have parameters set as per their defaults unless variations are required. For most standard applications it will only be necessary to adjust the setpoint to the required value. If the controller has been supplied as an accessory it will be required to reconfigure the controller parameters.

The controller has two main functions: sequential (or step) control and speed control, both involve monitoring the control input (system pressure or fluid temperature) and switching its output relays (usually connected to fan contactors) in order to maintain the control input within a specified control band.

The sequential function is achieved by using one of two selectable Control Modes: RAMP and DEADBAND. Either mode can be used, but the best results are usually achieved using DEADBAND control for condensers and RAMP for dry coolers.

For both modes the control band is specified by the SETPOINT at the top of the band and its range temp./press. is the bottom limit of the control band. The default mode of stage rotation is "Linear" (Stage 1 on, 2 on, 2 off , 2 on, 2 off, 1 off). Alternatively, CIRCULAR can be selected (Stage 1 on, 2 on, 1 off , 3 on, 2 off, 3 off). The speed control function uses the same Control Band value as for sequential control to modulate the 0-10 V output.

The output is either simply proportional (intended for use with an inverter or triac) or tuned for use with EC fan sets. Operating limits (normal and setback) can be set as either speed or noise level. A mixture of sequential and speed control can be used when close control at the minimum cost is required. However, most of the advantage of reduced noise and power consumption at lower speeds will be lost.

Sensors

The pressure and temperature sensors are supplied wired to the controller but with the sensor loose. Pressure sensors are not fitted due to vulnerability of the joint during transport. Temperature sensor location will depend on the application and is best placed on pipework slightly remote from the unit. Pressure sensors should only be fitted by qualified refrigeration engineers. Temperature sensors should be fitted to give a good thermal contact with the fluid. Heat transfer paste can be used. It is possible to calibrate sensor readings using the offset parameters. The gain of pressure sensors can be adjusted by altering the Pressure Range parameter. Both sensors can be extended up to 10m using standard cable with a minimum section of 0.75mm². If a longer extension is required then twisted pair cable must be used and the sensors will need recalibration.

The enter key is used to move from display mode to parameter list. Once into the list, the key accepts the current parameter value and moves to the next.

In display mode the up arrow accesses a secondary screen of data. In the parameter list it increases the value of a parameter. Holding the key down scrolls the value and the rate of scrolling increases if the key is held down for a second.

As above, but value decreases.

This enters the password (11) or returns from list to display mode, accepting any changes that have been made to the current parameter.

When in basic step control mode the primary display is typically:

Top row:

- Input Value (temperature in °C in this case)
- Setpoint.
- Active Setpoint (S – Summer, W – Winter)

If the controller is configured for two inputs then the Input Value is the average or maximum, as specified. Bottom row:

- Stage Status (stage number if active, "-" if not)
- Auxiliary Status (auxiliary letter if active, "-" if not)

By holding down the ▲ or ▼ keys, secondary displays can be accessed.

For ▲ a typical display is:

Top Row:

- Input Value (temperature in °C in this case)

Bottom row:

- Input Type (P - pressure, T - temperature, A - analogue)
- Input Mode (S – single, M – maximum, A – average, a – analogue)
- Auxiliary A Function (A – combined alarm, a – auxiliary stage)
- Auxiliary A Function (A – combined alarm, a – auxiliary stage)
- Night Setback (N – selected, n – deselected)
- Free Cooling (W – selected, w – deselected)
- Motor Fault (M – terminals linked, m – terminals open)
- Remote Off (R – selected, r – deselected)
- Sensor (number and o – open circuit, s – short circuit)
- Stages on hold (H followed by the number of stages waiting time delay)

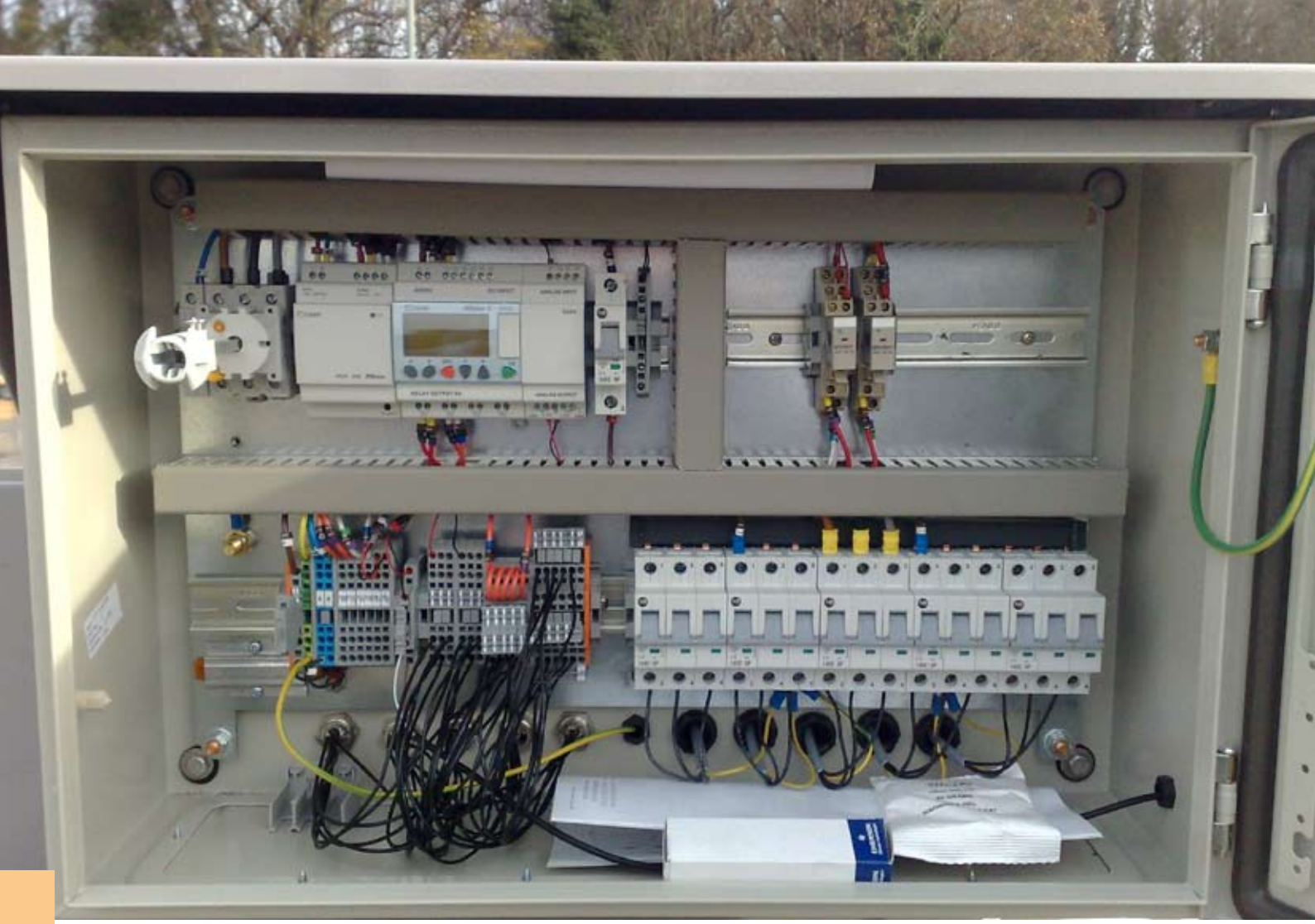
For ▼ a typical display is:

This is also the main display when the output is analogue only

Top row:

- Input Value and units
- Setpoint and units
- Free Cooling (S – Summer setpoint active, W – Winter setpoint active) Bottom row:
- Current Calculated Noise (Speed)
- Current Noise (Speed) Limit
- Active Noise (Speed) Limit – (D – normal, N – setback)

With the Control Mode set to analogue only the above display becomes primary. The default language is English, but alternatives are selectable at start-up or through the parameters list.

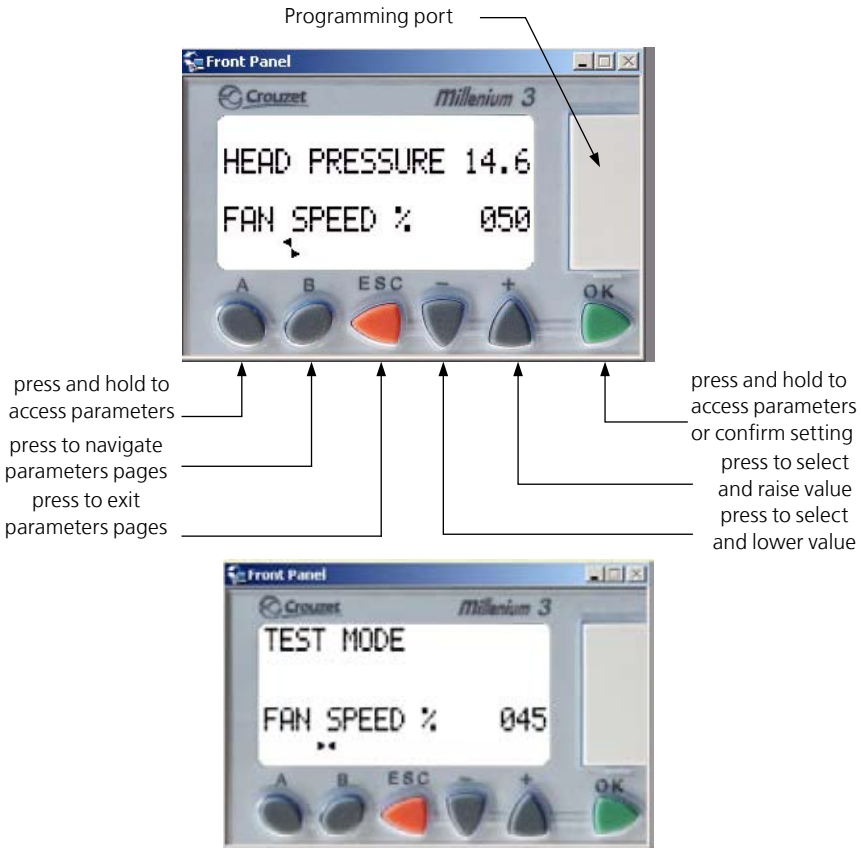


Millenium Controller

The Millenium controller is a versatile programmable logic controller, which Searle has adopted as either a main or backup controller. Using proprietary software, the controller can be used in a variety of applications and is easily setup via the front programming port, with simple front controls.

The controller will start to run the fans at just above the Set Point and will ramp up the speed to the Set Back Speed as the pressure increases. The Control Band determines the rate at which the speed increases. With the default settings the Fan Sets begin to run at just above 12 bar and rise to 50% speed at 13.5 bar (3 bar Control Band). The controller will then allow the pressure to drift up to the High Pressure Full Speed value (default of 20bar), when the controller will ramp the fans to full speed.

The Fan Sets will continue to run at full speed until the pressure falls to the top end of the control band where the controller will resume the set back speed control. When the controller is employed as a Backup controller the display will indicate that it is disabled under normal operation.



Note: Dry cooler Version now available

Parameter Adjustment

1 Press and hold down "A" until the first set of parameters appears.

2 Use the "+" &"-" buttons agin until the parameter required is highlighted then press "OK" and the parameter will flash. Use "+" or "-" to adjust the reading then press "OK" to confirm the setting.

3 Use the "+" &"-" buttons again until the parameter required is highlighted and repeat.

4 Press "B" to move to the next Menu Page and repeat step 2 as necessary.

5 Press "ESC" at any time to return to exit parameters.

When the controller is employed as a Backup controller the display will indicate that it is disabled under normal operation. The controller monitors the discharge Pressure and will assume control when the HP Override value is exceeded (default 21 bar), and will remain in control until manually reset. Should the Pressure Transducer signal fail this will be indicated on the display and the Fan Sets will run at the Fault Speed, if the controller is enabled.

Dry Testing

The Fan Sets can be run without Pressure in the Condenser by selecting the Test Mode (Default 45%). Press and hold down "OK & "B" for 5 Seconds. The controller will remain in this mode. To exit this feature press "B" & "ESC".

First Parameter page

Second Parameter page

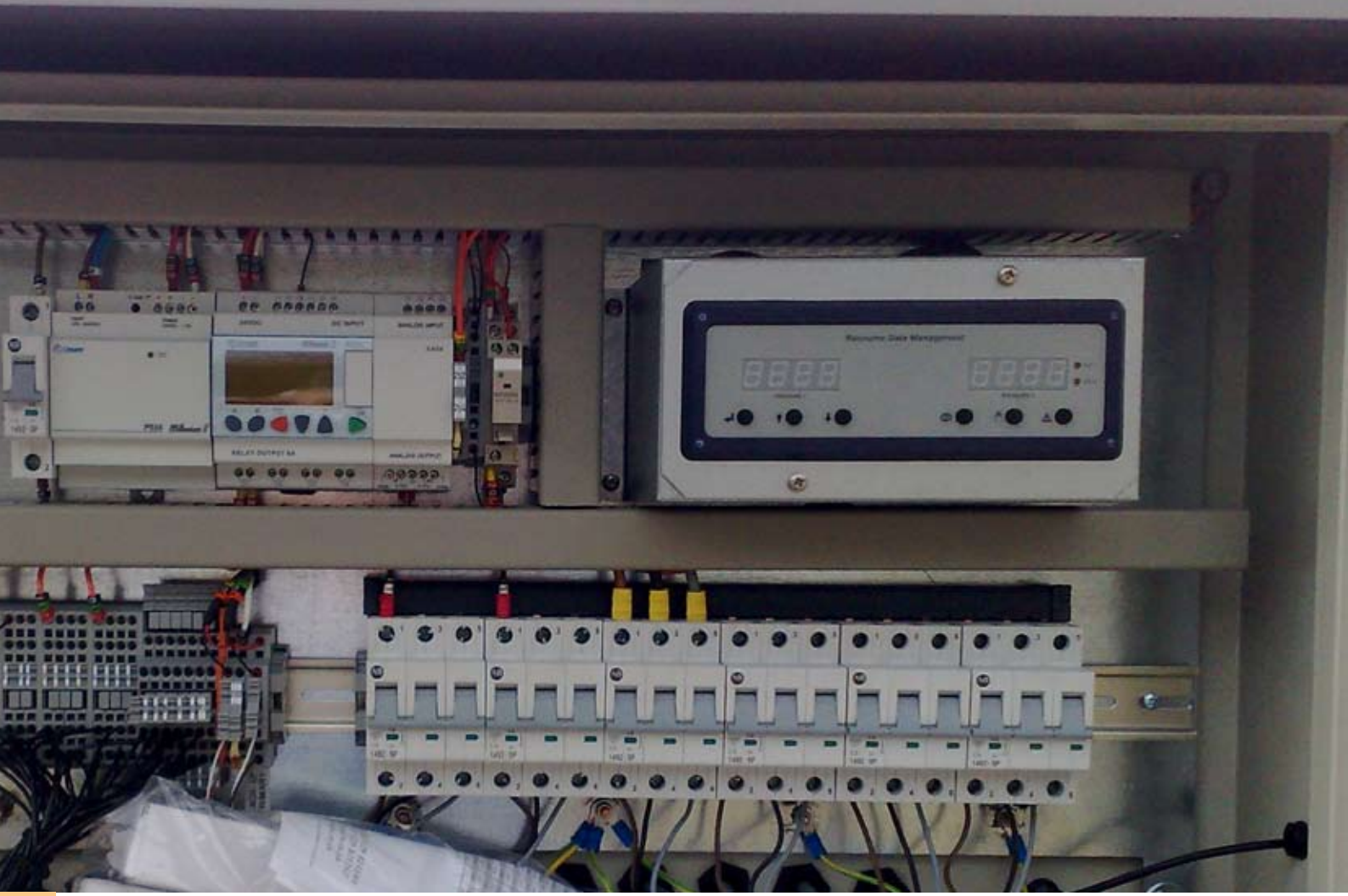
Parameter	Min	Max	Def	Unit	Remarks
COND Set PNT	8.0	22.0	12.0	BAR	Condenser Set Point
COND CNTL BND	0.5	8.0	3.0	BAR	Control Band
HP Override P	9.0	22.0	21.0	BAR	High Pressure Override setting
COND Backup Del	10	300	20	SECS	Delay Time For Backup to start
CONDTX offset	-10.0	10.0	0	BAR	Transducer Calibration
Setback Speed	10	100	50	%	Normal Maximum speed
HP Full Speed	10.0	22.0	20.0		High Pressure Full Speed
Fault Speed	10	100	45	%	TX Fail and Dry Test Speed

Note

1 HP Override is only applicable in dual controller applications.

2 Transducer offset will not be updated until "OK" is pressed.

When the controller is used in Backup applications:- Backup can be forced by pressing "A"&"B" simultaneously. Reset to primary Control can be achieved by pressing "A"&"ESC" simultaneously.



RDM Controller

The Mercury 11-10V is a controller intended for Pack and Condenser control. It has 10 relay outputs that are configurable for compressors, loaders or fans. The 10 digital inputs can be assigned for Pack or Condenser section inputs or general alarms. There are two 4-20mA inputs for pressure transducers and one temperature probe input.

The 11-10V has an analogue output (0-10V dc or 4-20mA) to control variable speed devices. The controller has 2 options, Pack or Condenser. The control is a "Fuzzy logic" based algorithm, giving enhanced control whilst maintaining the starts/hr requirement. The algorithm also reduces the number of input parameters required for control; only a target pressure is needed. Like all Mercury controllers, the 11-10V has a serial output that can connect directly to a PC for quick set-up (PC running RDM Communicator application) or to one of RDMs' network modules. The controller can run off a supply voltage of 100 - 250 Vac and each relay can switch in excess of 2 Amps. There is a low voltage version : -10 - 35 Vdc or 15 - 30 Vac and also a remote display version for door mounting applications.

Configuration

The controller has two configuration options

Display Value	Type
1	Pack
2	Condenser

The controller is delivered pre-configured as a Pack Controller (Type 1)

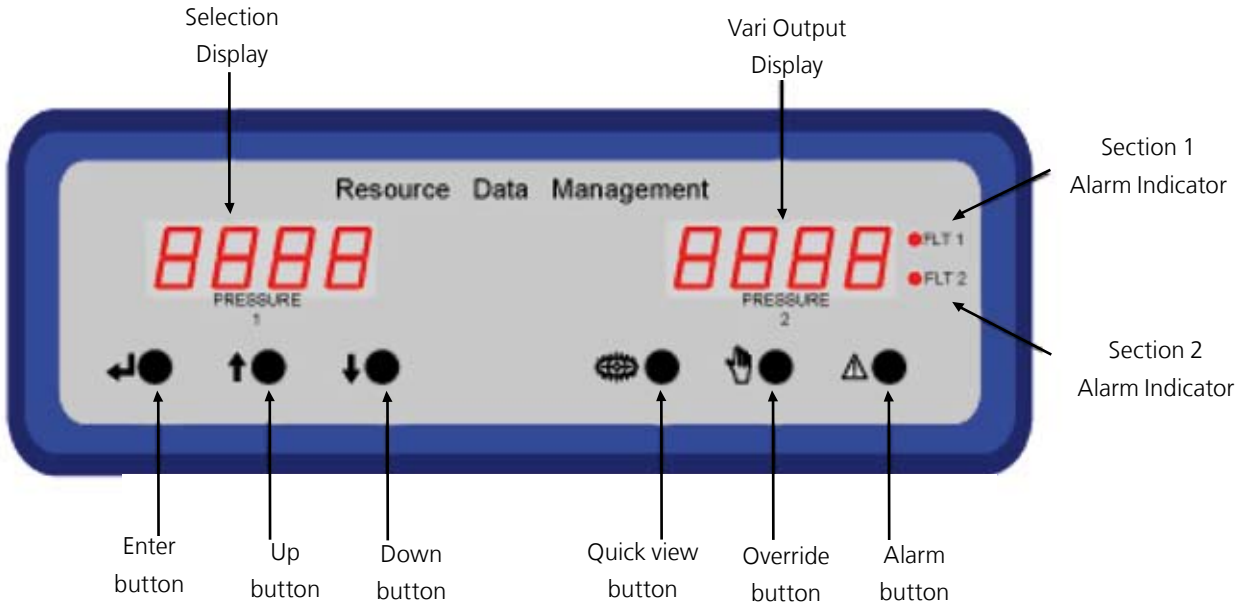
Front Panel display

Networks

The controller is capable of connecting to either a TCP/IP local area network or a RS485 network or controlling in standalone mode with no network output. To connect to a network you must connect through a communications module or a Mercury Serial Hub.

- 485 Legacy module (Part No. PR0026)
- IP Futura module (Part No. PR0016)
- Mercury Serial Hub (Part No. PR0017/18)

Connecting to any of these communication modules will automatically be detected on power up and this will affect the set up screens made available to you.



Section Display

4 character display, shows the pressure (suction for pack, discharge for condensers)
In set-up mode, displays the set-up menu items
In quick view mode, indicates the target pressure
In alarm view mode, indicates the alarm number
In Override mode, indicates and allows the number of stages forced on

Vari Output Display

4 character display, shows the percentage of the analogue output.
In set-up mode, display is blank
In alarm view mode, indicates the alarm channel (e.g. S101 = section 1 input 1)
In Override mode, display is blank

Front Panel Buttons

Enter Button: - Used to enter menu items.

Up Button: - Used to scroll up

Down Button: - Used to scroll down

Quick View Button: - Used to view the target pressure In "alarm view" mode, used to view the alarm occurred

Override Button: - Used with the "Enter" button, to go into the override mode.

Button: - Used to enter the "alarm view" mode.

The PR0600RDM Controller is now available for the Dual Controls.

Condensing Units

GEA Searle's new range of Condensing units means you've more choice than ever before, comprising both Scroll and Reciprocating Compressor units, arranged in single and multiple compressor configurations, with varying condenser and control options. The wide range is suitable for high and low temperature refrigeration and air conditioning applications.

Fresh ideas from Searle

General range features

Fansets

The fansets chosen for the ranges offers the best combined performance for air volume, noise and efficiency available in the refrigeration and air conditioning industry.

In addition to the conventional AC motors, customers can select the latest EC technology, offering high efficency and speed controllability for situations traditionally controlled by independent systems. While EC motors are new to this market, GEA Searle has been using them in specialised applications for a number of years.

Connections

All models are supplied with the standard imperial size copper suction and liquid line stubs, exiting on the right hand side of the unit, ready for brazing. Connection sizes are selected for the unit duty, and may be adapted to suit the on site requirements.

Fin and Coils

Fins are manufactured from high quality materials ensuring a quality product without compromise. GEA Searle has developed a unique fin design specifically for our range of condensing units. This fin has been tested extensively in GEA Searle's Research and development facility and ensures a greater efficiency. Standard coils are manufactured from internally grooved copper tubes, which are mechanically expanded into fully collared holes in vinyl coated aluminium fins. This ensures an effective and permanent bond between the tube and the fin, maximising heat transfer characteristics.

Control Options

GEA Searle Condensing units are supplied as standard with a complete control package, incorporatingmains isolator, compressor motor starter,overloads or MCB's for single phase models, compressor contactors, high and low pressure switches, control circuit protections and compressor crankcase heaters.

Depending on the model range additional modulers can be specified for factory fitting. The control options indlude

- Compressor anti cycle timer/delay on timers
- Alarm relays
- Fan speed/head pressure controller
- Fan cycling controller
- EC fan control

- Compressor sequencing controls, with options for TCP/IP network communication
- Backup control systems for compressor and condenser fans

Casework

Our casework is aesthetically designed to ensure the minimum fixings visible on the outer casing and provide a clean finish.

All our casework is manufactured from corrosion resistant pre-galvanised steel sheets, polyester powder coated and oven baked in RAL7036 grey finish. This finish protects surfaces and cut edges and ensure long lasting protection.

Pipework

GEA Searle condensing units are supplied as standard with a complete pipework arrangements, incorporating compressor pipework, liquid receiver, liquid filter drier, sight glass, and schraeder access point. Low temperature scroll units also incorporate compressor liquid injection.

GEA Searle Condensing units Range

- Single, Twin and Multiple Compressor Condensing Units
- Scroll, Reciprocating and Digital Compressor
- Standard product range or configure to customer specification

High Specification

GEA Searle Condensing Units are supplied as standard with a complete control package, incorporating:

- Mains Isolator
- Compressor Motor Starter/Overloads or MCB's for single phase models
- Compressor Contactors
- High and Low pressure switches
- Controls Circuit protection
- Fitted pressure relief valve (PRV)
- Compressor Crankcase Heaters.
  Depending on the model range additional control modules can be specified for factory fitting.

Quality Assured

Searle is a quality assured company to ISO 9001:2000 encompassing performance testing, manufacturing systems and Inspection Procedures.

Backing our beliefs

We are so confident in our product that we offer two years warranty on all condensing units. (subject to standard Terms & Conditions of Sale and excluding corrosion through misapplication).

	Features							
	Models	Compressor type	Compressor Quantity	Single Phase/ 3 Phase	Condenser Fans	Fan Speed Controller	Acoustic Insulation	Oil Separator
	NRE NRQ	Recip	1	1&3ph	4pl 6pl	O ✔	O ✔	O
	NSE NSQ	Scroll Scroll	1	1&3ph	4pl 6pl/ EC	O ✔	O ✔	O
	NBQ	Recip	1	3ph	6pl	✔	✔	O
	N2CQ	Scroll	2	3ph	6pl/ EC	✔	✔	O
	NDQ N2DQ	Digital Scroll	1 2	3ph	6pl/ EC	✔	✔	O
	HCU	Scroll	3-4 HT/ LT	3ph	6pl/ 8pl 12pl/ EC	✔	✔	✔

✔ Yes X No O Option ● Optimum ◔ Good ◒ Satisfactory

General Range Features

Alarm Relay and Anti Cycle Timer	Electronic Controller	Maximum No of Evaporators	Small Cold Room & Cool Cabinets	Large cold rooms	Food Preparation/ Storage	Supermarket refrigeration	Industrial refrigeration	Agricultural refrigeration	Commercial refrigeration	1kW – 10kW – 100kW
Applications										
o ✔	x	1	◔	◒	◔	◒	◒	◒	◔	0.6 - 19.2 kW
o ✔	o o	1 2 or 4	◔	●	◔	◔	◔	◔	●	3 - 26 kW
o	o	4	◒	◕	●	●	●	●	●	3 - 44 kW
✔	✔	4	◒	●	●	●	●	●	●	3 - 44 kW
✔	✔	No Limit	◔	◔	◒	●	◒	◒	◔	3.1 - 30 kW
✔	✔	10	◒	●	◔	●	●	◔	●	6 - 115 kW

NRE Condensing unit

GEA Searle NRE hermetic condensing units are an ideal partner for the catering and food retail industries including food preparation areas, cold storage facilities, convenience stores, garage forecourt shops and supermarkets.

The GEA Searle NRE range comprises 8 medium temperature and 6 low temperature models covering a duty range of 0.2kW to 19.2kW on R404A/ R507A.

The NRE standard units are to a high specification including vinyl fin, 4 pole fansets. The NRE units offer excellent value where noise levels are less critical. Noise levels range from 36 dB(A) for the smallest single fan unit fitted with fan speed control operating at minimum speed to 47dB(A) for the largest 2-fan unit operating at maximum fan speed.

The fully weatherproofed units are supplied prewired and ready to install. All models are suitable for floor or wall mounting with the optional wall bracket kit.

Details of available wall brackets, stacking frames and vandal proof guards can be obtained from your Searle supplier.

Standard Features & Benefits

- CE Marked Unit
- Hermetic Reciprocating compressor
- Compressor contactor
- Copper tube coil with vinyl-coated aluminium fins
- Fully-wired control panel with Mains Isolator
- Compressor with crankcase
- Sight glass and filter
- HP/LP switches, auto reset

Optional Features

- Acoustic Insulation kit
- Triac fan speed controller

NRE Standard Features

N R E 422 - 1 M X - Z A 2

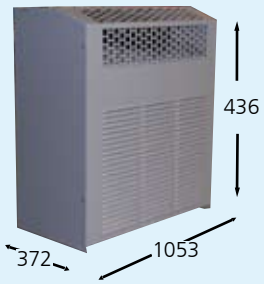
Range	N
Comp Technology	R = Recipercationg
Unit Type	E = Economy (4pl fans)
Compressor Capacity	eg. 422 = KCJ422CAL - C4,
Phase	1 = 1 Phase, 3 = 3 Phase
Temperature	M = Medium, L = Low,
Oil Separator	S = Oil separator, X = No oil separator
Coil/Case	ZA, ZB, NA, NB, NC
Rows	2, 3

NRE Condensing Unit

NRE 'L' RANGE Standard Noise

Low Temperature

Case ZA/ZB



Model Refrig Capacity	Ambient (°C)	Saturated Suction Temperature (°C)						
		-40	-35	-30	-25	-20	-15	-10
NRE414-1LX-ZA2	20	209	280	352	448	545	685	826
	27	188	255	321	415	509	644	779
	32	173	236	299	391	483	614	745
	35	164	225	286	377	468	596	725
	43	141	196	251	339	427	549	671
NRE418-1LX-ZA2	20	214	350	486	628	769	940	1111
	27	198	317	436	568	701	862	1024
	32	186	293	401	526	652	807	962
	35	179	279	379	501	623	774	925
	43	160	241	322	433	545	685	825
NRE430-1LX-ZA2	20	301	489	677	883	1090	1309	1528
	27	263	442	621	821	1021	1247	1472
	32	235	408	581	777	972	1202	1432
	35	219	388	558	750	943	1175	1408
	43	175	355	494	679	864	1104	1344
NRE450-1LX-ZA3	20	481	814	1147	1521	1895	2277	2659
	27	394	719	1044	1401	1759	2141	2524
	32	332	651	969	1315	1661	2044	2427
	35	295	610	925	1264	1603	1986	2369
	43	195	501	806	1127	1447	-	-
NRE475-1LX-ZB2	20	541	1238	1934	2395	2856	3641	4425
	27	445	1082	1720	2177	2634	3360	4087
	32	376	971	1567	2021	2476	3160	3845
	35	334	905	1475	1928	2380	3040	3700
	43	224	727	1230	1678	2127	2720	-
NRE515-3LX-NA3	20	622	2447	4272	5100	5929	6991	8052
	27	513	2162	3811	4601	5391	6439	7486
	32	435	1958	3481	4244	5007	6044	7082
	35	388	1836	3283	4029	4776	5808	6840
	43	264	1510	2755	3458	4161	5177	-

Case NC

Notes :

Noise levels are sound pressure, measured in decibels at 10m from the front face of the unit.
over a single semi-reverberant plane, in otherwise free field conditions.
Noise levels on site may vary from those shown above due to the acoustic characteristics of the installation.

Minimum Noise levels achieved with Option Fan Speed Controller, operating at minimum fan speed
Maximum Noise levels are without Fan speed controller, at any condition

Compressor Gas Conditions
COPELAND Conditions, R404A Copeland, 20°C RGT, 0K SC, 2K Suct PD, 6K S/H @ Load
TECUMSEH Conditions, 20°C RGT, 0K S/C, 0K Suct PD, 6K S/H @ Load

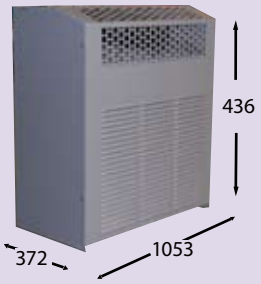
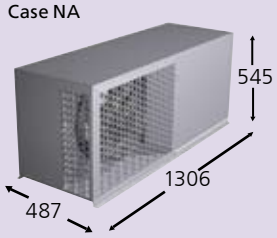
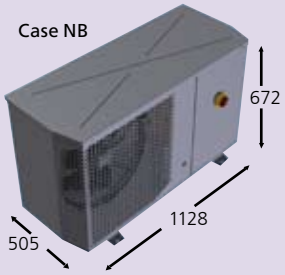
Dry weights are units as delivered, with packing, BUT not including any refrigerant, oil or accessory weight.

Compressor		Case Size Drawing	Fansets (230V/1ph/50Hz)			Connection Sizes		Liquid Receiver	Dry Weight	Sound Levels	
FLC	LRA		Number of Fans and Diameter	FLC	LRA	Suction	Liquid			dB(A)*	
(A)	(A)			(A)	(A)	inches	inches	(L)	(kg)	Max*	Min*
3.4	16.0	ZA	1 x 254	0.6	1.7	3/8"	1/2"	2.60	55	40	36
3.5	14.0	ZA	1 x 254	0.6	1.7	3/8"	1/2"	2.60	56	40	36
5.8	30.0	ZA	1 x 254	0.6	1.7	3/8"	5/8"	2.60	67	40	36
6.6	50.0	ZA	1 x 254	0.6	1.7	3/8"	5/8"	2.60	71	40	36
13.0	72.0	ZB	1 x 315	0.5	1.5	3/8"	5/8"	2.60	79	42	37
8.0	45.0	NC	1 x 400	1.0	2.1	3/8"	7/8"	6.40	111	47	43

NRE Condensing Unit

NRE 'M' RANGE Standard Noise

Medium Temperature

	Model Refrig Capacity	Ambient	Saturated Suction Temperature (^{O}C)						
		(^{O}C)	-15	-12.50	-10	-5	0	5	10
Case ZA/ZB 	NRE422-1MX-ZA2	20	714	793	872	1048	1224	1465	1707
		27	633	705	777	943	1109	1336	1564
		32	575	605	710	868	1027	1244	1461
		35	540	605	669	823	978	1189	1400
		43	448	504	561	704	846	1041	1236
	NRE438-1MX-ZB2	20	1157	1287	1417	1706	1996	2398	2801
		27	1027	1146	1265	1538	1812	2191	2570
		32	934	1045	1156	1418	1680	2043	2405
		35	878	985	1091	1346	1601	1954	2306
		43	730	824	918	1154	1391	1717	2042
	NRE461-1MX-ZB3	20	1996	2213	2431	2915	3400	4046	4692
		27	1769	1968	2167	2625	3082	3693	4304
		32	1608	1794	1979	2418	2856	3442	4028
		35	1511	1689	1867	2293	2720	3291	3862
		43	1253	1409	1566	1961	2357	2888	3419
Case NA 	NRE484-1MX-NA2	20	2752	3053	3355	4025	4695	5593	6491
		27	2441	2717	2992	3625	4258	5107	5958
		32	2219	2476	2733	3340	3946	4760	5574
		35	2085	2332	2578	3168	3759	4552	5345
		43	1730	1947	2164	2712	3260	3997	4734
Case NB 	NRE511-1MX-NB2	20	3737	4334	4931	6411	2891	9115	10340
		27	3303	3854	4404	5765	2125	8255	9383
		32	2993	3511	4028	5304	6580	7640	8699
		35	2807	3305	3802	5027	6253	7271	8289
		43	2311	2756	3201	4290	5379	6287	7196
	NRE514-1MX-NB3	20	4761	5512	6263	8161	10059	11590	13121
		27	4241	4937	5633	7381	9129	10559	11989
		32	3869	4526	5183	6824	8465	9823	11180
		35	3646	4280	4913	6490	8066	9381	10695
		43	3052	3622	4193	5596	7003	8202	9401
Case NC 	NRE519-1MX-NC2	20	6453	7329	8205	10398	12591	14341	16092
		27	5758	6565	7372	9393	11413	13032	14650
		32	5261	6019	6777	8675	10572	12096	13620
		35	4963	5692	6420	8244	10068	11535	13002
		43	4168	4818	5468	7095	8722	10038	11354
	NRE522-1MX-NC3	20	8508	9294	10079	12516	14954	17064	19174
		27	7416	8215	9014	11296	13578	15522	17466
		32	6637	7445	8253	10424	12595	14421	16246
		35	6169	6983	7797	9901	12005	13760	15514
		43	4921	5750	6579	8506	10432	11997	13563

Notes :

Noise levels are sound pressure, measured in decibels at 10m from the front face of the unit.
over a single semi-reverberant plane, in otherwise free field conditions.
Noise levels on site may vary from those shown above due to the acoustic characteristics of the installation.
Minimum Noise levels achieved with Option Fan Speed Controller, operating at minimum fan speed
Maximum Noise levels are without Fan speed controller, at any condition

Compressor Gas Conditions
COPELAND Conditions, R404A Copeland, 20°C RGT, 0K SC, 2K Suct PD, 6K S/H @ Load
TECUMSEH Conditions, 20°C RGT, 0K S/C, 0K Suct PD, 6K S/H @ Load

Dry weights are units as delivered, with packing, BUT not including any refrigerant, oil or accessory weight.

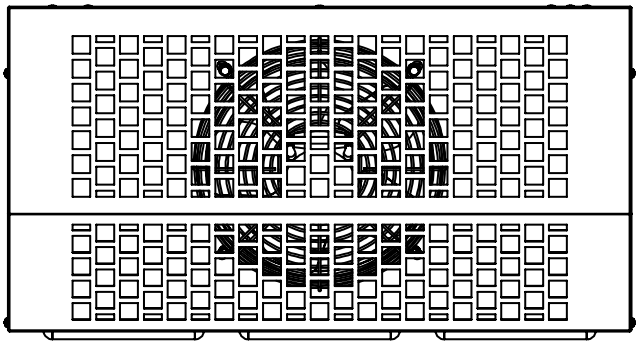
NRE Technical Data

Compressor		Case Size Drawing	Fansets (230V/1ph/50Hz)			Connection Sizes		Liquid Receiver	Dry Weight	Sound Levels	
FLC	LRA		Number of Fans and Diameter	FLC	LRA	Suction	Liquid			dB(A)*	
(A)	(A)			(A)	(A)	inches	inches	(L)	(kg)	Max*	Min*
3.4	16.0	ZA	1 x 254	0.6	1.7	3/8"	1/2"	2.6	64	40	36
5.0	24.0	ZB	1 x 315	0.5	1.5	3/8"	1/2"	2.6	69	42	37
6.0	25.0	ZB	1 x 315	0.5	1.5	3/8"	5/8"	2.6	70	42	37
11.5	37.0	NA	1 x 400	1.0	2.1	3/8"	5/8"	2.6	99	47	43
9.5	54.0	NB	1 x 450	1.6	3.5	1/2"	7/8"	6.4	113	48	43
13.5	75.0	NB	1 x 450	1.6	3.5	1/2"	7/8"	6.4	125	48	43
17.0	85.0	NC	2 x 400	2.0	4.2	1/2"	7/8"	6.4	141	50	46
19.0	104.0	NC	2 x 400	2.0	4.2	1/2"	7/8"	6.4	146	50	46

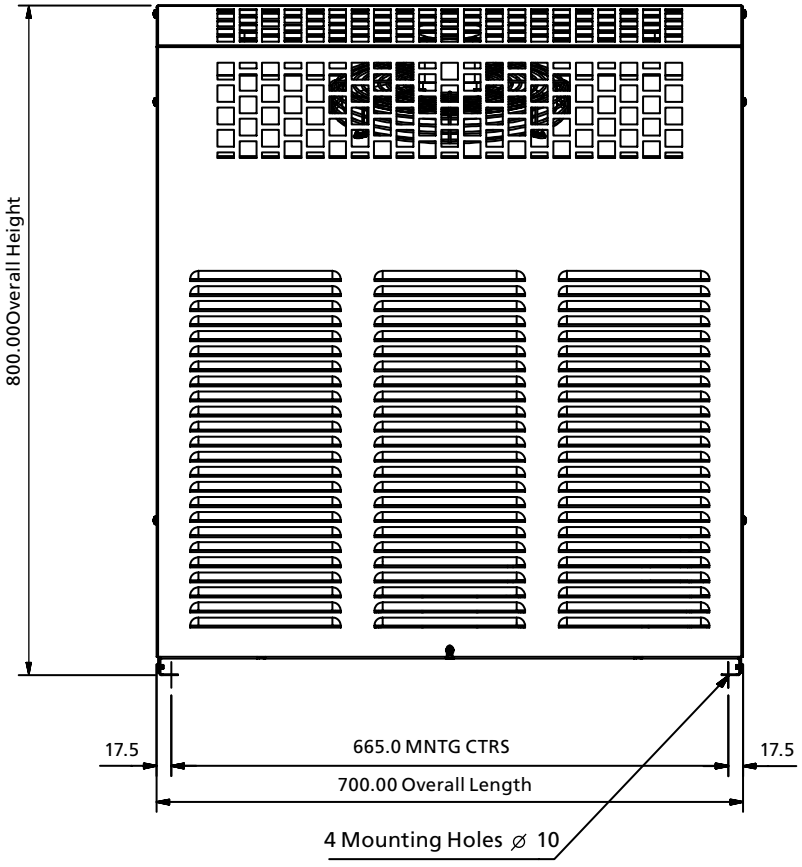
Dimension Drawings

Case ZA

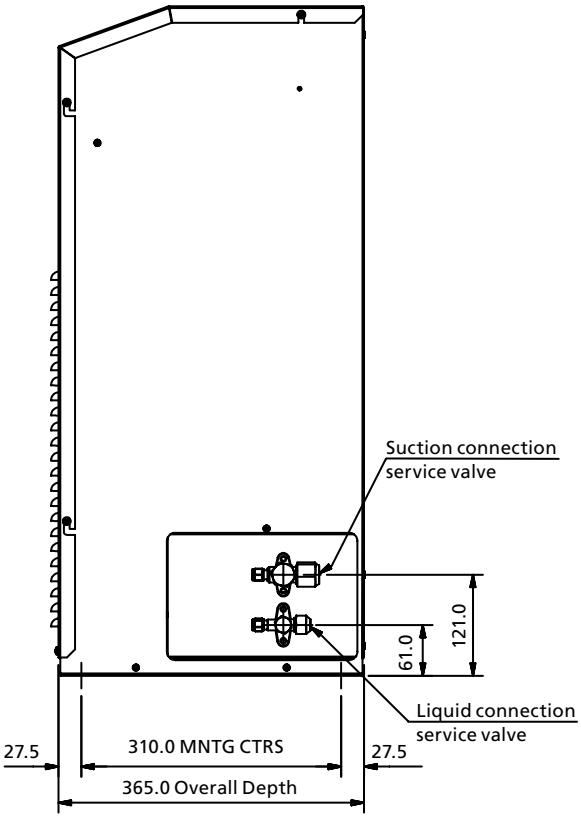
Plan View



Front View

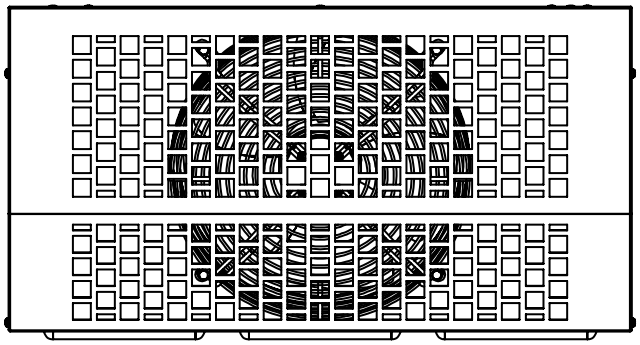


Side View

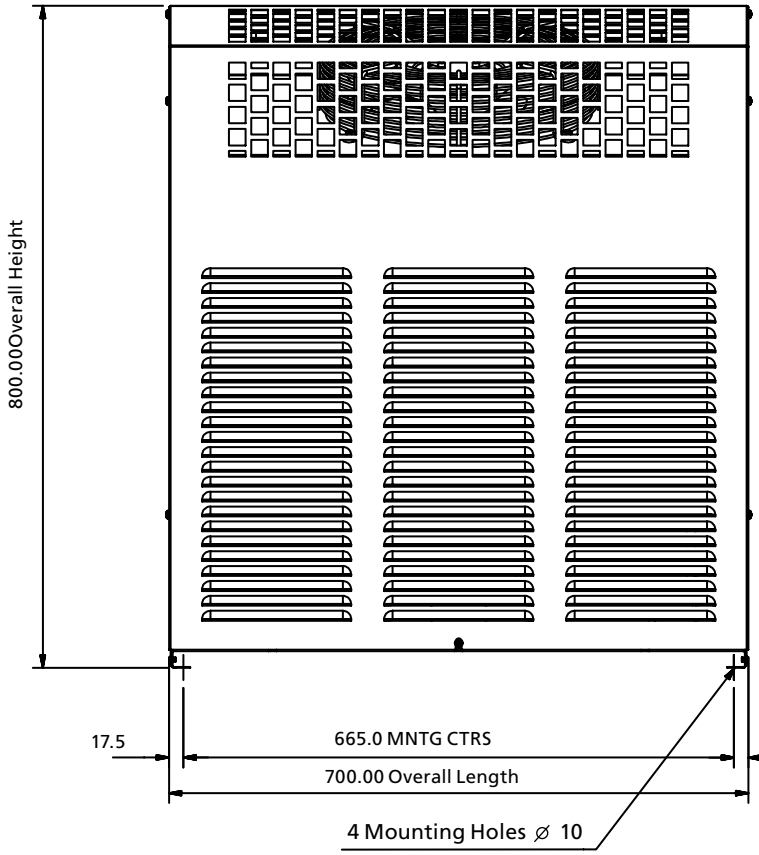


Case ZB

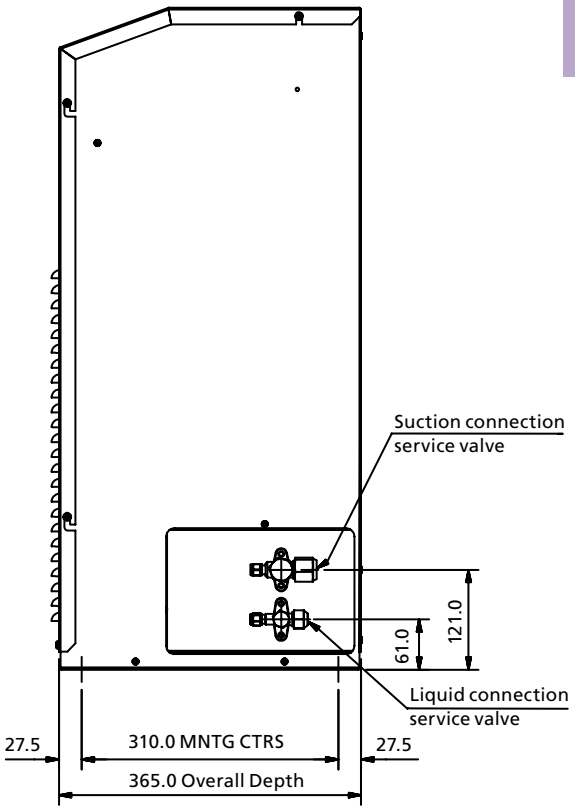
Plan View



Front View

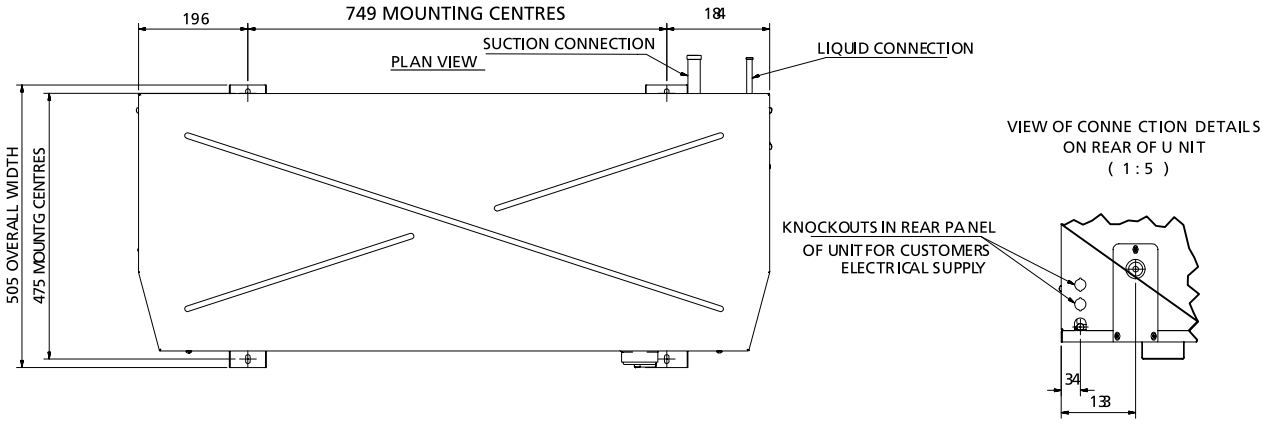


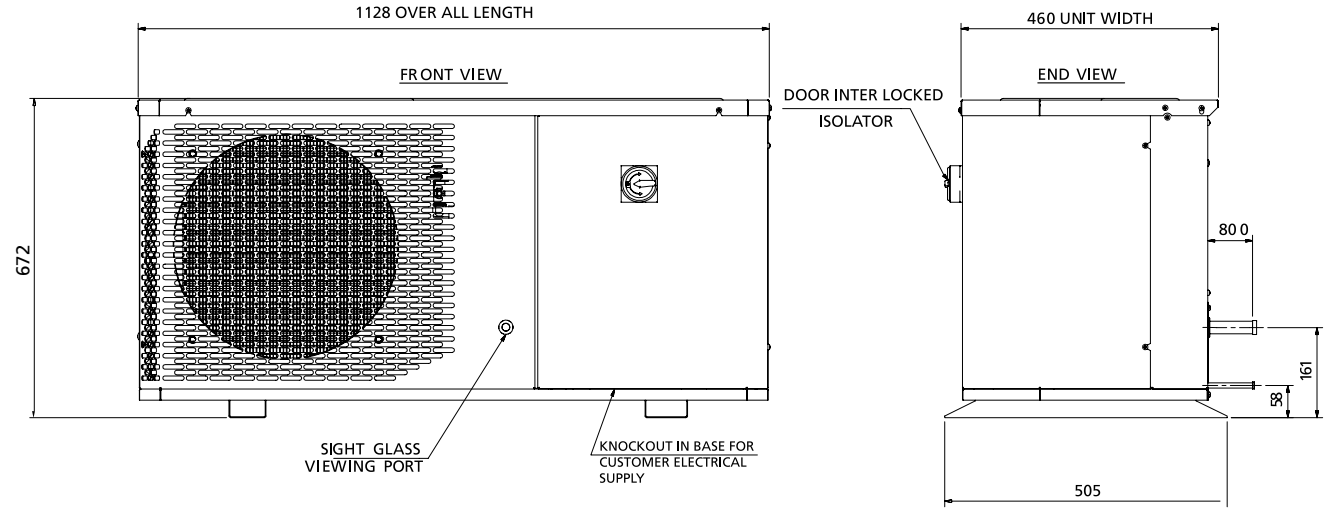
Side View



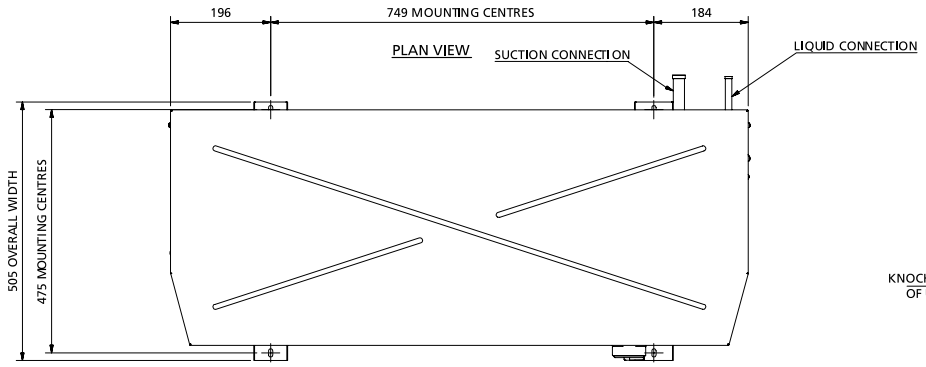
Dimension Drawings

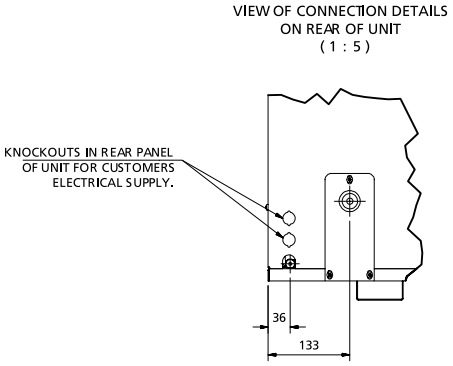
Case NB

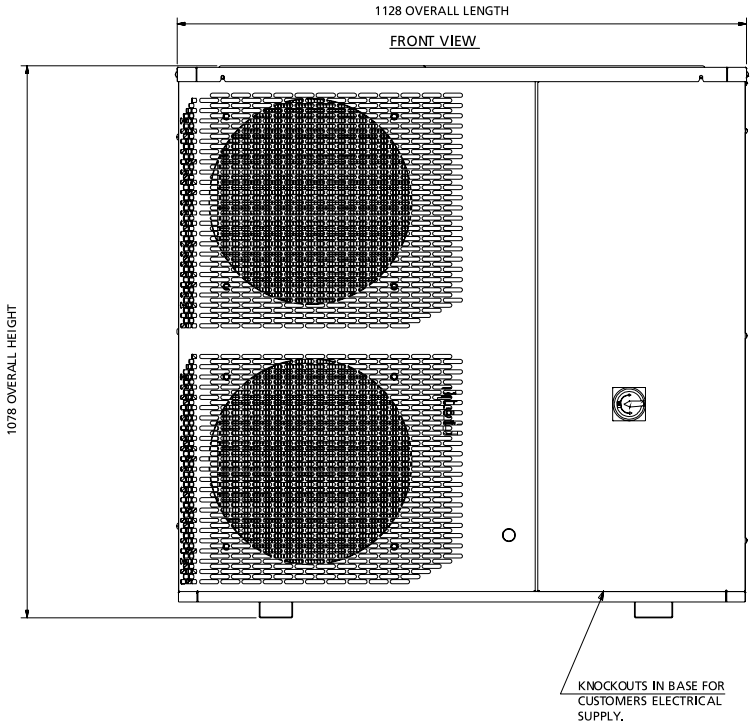


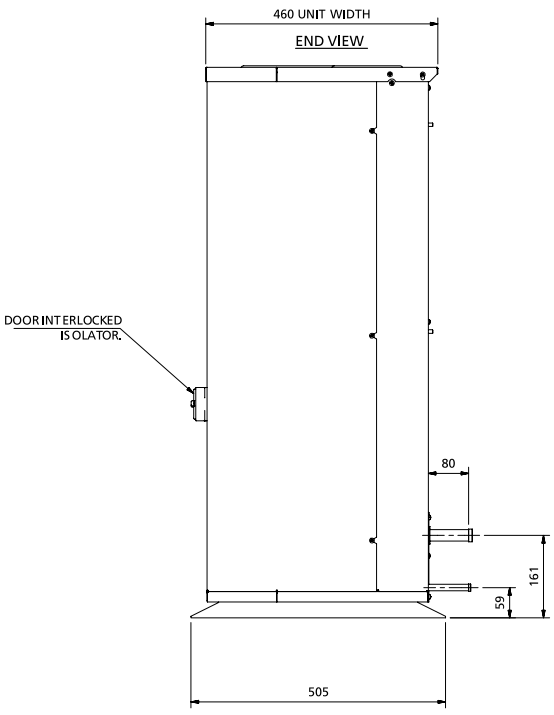


Case NC


196
749 MOUNTING CENTRES
184
PLAN VIEW
SUCTION CONNECTION
LIQUID CONNECTION
505 OVERALL WIDTH
475 MOUNTING CENTRES


VIEW OF CONNECTION DETAILS
ON REAR OF UNIT
(1 : 5)
KNOCKOUTS IN REAR PANEL
OF UNIT FOR CUSTOMERS
ELECTRICAL SUPPLY.
36
133


1128 OVERALL LENGTH
FRONT VIEW
1078 OVERALL HEIGHT
KNOCKOUTS IN BASE FOR
CUSTOMERS ELECTRICAL
SUPPLY.


460 UNIT WIDTH
END VIEW
DOOR INTERLOCKED
ISOLATOR.
80
161
59
505

NSE - NSQ Single Scroll Condensing unit

GEA Searle NSE - NSQ scroll condensing units are an ideal partner for the catering and food retail industries including food preparation areas, cold storage facilities, convenience stores, garage forecourt shops and supermarkets.

The GEA Searle NSE - NSQ range comprises eleven medium temperature and nine low temperature base models covering a duty range of 1.5kW to 47kW on R404A/ R507 and R407C. Different options are available for each base unit to match the condenser and fanset selection to exact requirements.

The NSQ standard units are to a high specification including vinyl fin, 6 pole fansets and acoustic insulation. The NSE units offer excellent value where noise levels are less critical.Noise levels range from 28 dB(A) for the smallest single fan unit fitted with fan speed control operating at minimum speed to 56 dB(A) for the largest four-fan unit operating at maximum fan speed.

The fully weatherproofed units are supplied prewired and ready to install. All models are suitable for floor or wall mounting with the optional wall bracket kit.

The smaller capacity units may be wall mounted or, where floor space is at a premium, double stacked. Details of available wall brackets, stacking frames and vandal proof guards can be obtained from your Searle supplier.

Standard Features & Benefits

- CE Marked Unit
- Compliant scroll compressor
- Compressor motor starter with short circuit and overload protection
- Compressor contactor
- Copper tube coil with vinyl-coated aluminium fins
- Fully-wired control panel with Mains Isolator
- Compressor with crankcase heater
- Sight glass and filter
- HP/LP switches auto reset

Options

- Pressure activated fan speed control kit*
- Start delay and anti-recycle timer*
- Volt-free contact for alarm signal*
- Acoustic Insulation Kit*

*** included as standard on NSQ models**

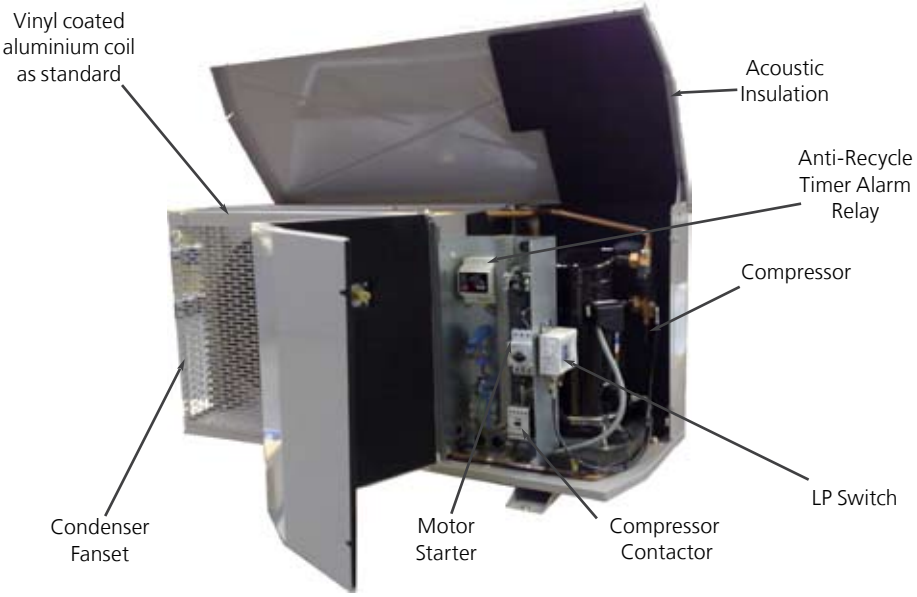
- Oil separator
- EC Fans and controller
- Wall bracket
- Vandal Proof Cage
- Condenser coils with copper fin

NSE - NSQ Standard Features

Standard specification | Options

N	S	Q	45	-	3	M	X	-	C	3	F	I	-	V	O

Range	N
Comp Technology	S = Scroll
Unit Type	Q = Quiet (6pl fans) E = Economy (4pl fans)
Compressor Capacity	eg. 45 = ZB45, 18 = ZF18
Phase	1 = 1 Phase, 3 = 3 Phase
Temperature	M = Medium, L = Low,
Oil Separator	S = Oil separator, X = No oil separator, V = EVI
Coil/Case	A B C D E
Rows	2, 3
Controls Package	F = Fan speed controller, W = Fan speed controller + Anti cycle timer + Alarm relay T = Anti cycle timer + Alarm relay, E = Electronic Controller + EC Fans
Acoustic Insulation	I = Insulation
Fin Material	C = Copper, V = Vinyl coated aluminium
Opitional Extras	O = Evaporator Contactor, S = Solenoid valve, G = Evap. Contactor + Sol. valve



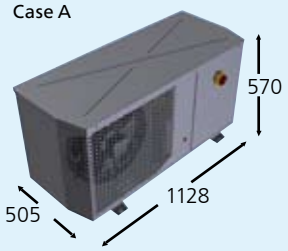
NSE - NCE Single Scroll Condensing Unit

NSE 'L' RANGE Standard Noise

R404A

Low Temperature

Case A

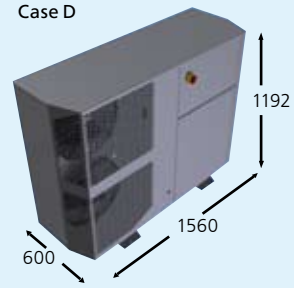


Model	Ambient	Saturated Suction Temperature (°C)						
	(°C)	-40	-35	-30	-25	-20	-15	-10
NSE9-3LX-A	27	1663	2119	2574	3149	3724	4462	5199
	32	1560	1985	2409	2940	3471	4157	4843
	35	1498	1904	2310	2815	3320	3974	4629
	43	1334	1690	2046	2481	2916	3487	4059
NSE11-3LX-A	27	2074	2620	3167	3827	4486	5327	6168
	32	1936	2445	2955	3566	4177	4954	5730
	35	1854	2340	2827	3409	3992	4730	5468
	43	1633	2060	2487	2992	3498	4133	4767
NSE13-3LX-A	27	2322	2956	3591	4358	5126	6055	6984
	32	2190	2760	3331	4035	4738	5606	6473
	35	2110	2643	3175	3841	4506	5337	6167
	43	1899	2329	2760	3323	3887	4618	5350
NSE15-3LX-A	27	2801	3520	4240	5106	5972	6980	7987
	32	2611	3276	3941	4724	5506	6430	7353
	35	2497	3130	3762	4494	5227	6099	6972
	43	2194	2739	-	-	-	-	-
NSE18-3LX-A	27	3448	4316	5183	6256	7330	8601	9871
	32	3211	4013	4815	5800	6786	7953	9120
	35	3068	3831	4594	5527	6460	7564	8669
	43	2688	3346	-	-	-	-	-

NCE 'L' RANGE Standard Noise

Low Temperature

Case D



NCE24-3LX-D	27	4375	5592	6810	8318	9826	11713	13601
	32	4062	5213	6364	7764	9164	10905	12646
	35	3875	4986	6096	7431	8766	10420	12074
	43	3374	4379	5383	6545	7707	9127	10547
NCE33-3LX-D	27	5211	7158	9105	11074	13044	15263	17481
	32	4877	6652	8428	10236	12045	14114	16182
	35	4676	6349	8021	9734	11446	13424	15402
	43	4140	5539	6938	8393	9847	11585	13323
NCE40-3LX-D	27	7080	8962	10843	13025	15206	17748	20289
	32	6574	8322	10069	12067	14065	16386	18707
	35	6270	7938	9605	11493	13380	15568	17757
	43	5461	6914	-	-	-	-	-
NCE48-3LX-D	27	7763	9916	12068	14356	16644	19198	21753
	32	7164	9119	11075	13155	15235	17596	19956
	35	6805	8642	10478	12434	14390	16634	18879
	43	5847	-	-	-	-	-	-

Performance data in Watts rated at 20°C Return Gas Temperature, 0K Sub Cooling

Compressor		Case Size Drawing	Fansets (230V/1ph/50Hz)			Connection Sizes		Liquid Receiver	Dry Weight	Sound Levels	
FLC	LRA		Number of Fans and Diameter	FLC	LRA	Suction	Liquid			dB(A)*	
(A)	(A)			(A)	(A)	inches	inches	(L)	(kg)	Max*	Min*
6.0	40.0	A	1x 400 4pl	1.0	2.12	7/8	3/8	6.2	123	48	43
7.0	46.0	A	1x 400 4pl	1.0	2.12	7/8	3/8	6.2	124	48	43
8.0	52.0	A	1x 400 4pl	1.0	2.12	7/8	3/8	6.2	134	48	43
10.0	64.0	A	1x 400 4pl	1.0	2.12	7/8	3/8	6.2	135	48	44
12.0	74.0	A	1x 400 4pl	1.0	2.12	7/8	1/2	6.2	141	48	44
16.1	99.0	D	2x 450 4pl	3.1	6.9	1 1/8	5/8	18.0	161	53	46
23.0	134.0	D	2x 450 4pl	3.1	6.9	1 1/8	5/8	18.0	162	53	46
26.0	159.0	D	2x 450 4pl	3.1	6.9	1 1/8	5/8	18.0	182	53	46
30.6	187.0	D	2x 450 4pl	3.1	6.9	1 5/8	5/8	18.0	191	53	46

* Noise levels in dB(A) at 10m from the front face of the unit, min. noise levels with fan speed control at minimum speed

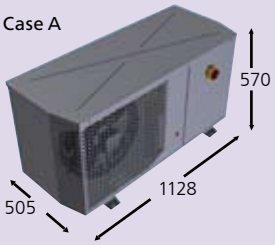
NSE - NCE Single Scroll Condensing Unit

NSE 'M' RANGE Standard Noise

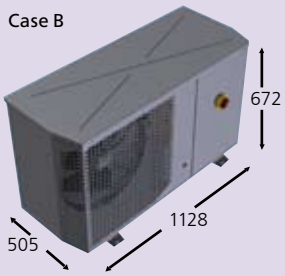
R404A

Medium Temperature

Case A



Case B



Model	Ambient	Saturated Suction Temperature (°C)						
	(°C)	-20	-15	-10	-5	0	5	10
NSE15-1MX-A	27	2646	3261	3875	4611	5347	6211	7074
	32	2387	2964	3541	4228	4915	5708	6501
NSE15-3MX-A	35	2232	2786	3340	3998	4656	5407	6157
	43	1818	2312	2806	3385	3965	4603	5240
NSE19-1MX-A	27	3243	3920	4597	5435	6274	7262	8249
	32	2994	3618	4241	5027	5812	6730	7648
NSE19-3MX-A	35	2844	3436	4028	4781	5534	6410	7287
	43	2444	2952	3460	4127	4794	5559	6324
NSE21-1MX-A	27	3963	4789	5615	6638	7660	8851	10041
	32	3666	4427	5188	6136	7085	8192	9298
NSE21-3MX-A	35	3487	4209	4931	5836	6740	7797	8853
	43	3012	3630	4247	5033	5819	6742	7666
NSE26-1MX-B	27	4674	5666	6658	7910	9161	10652	12144
	32	4315	5241	6167	7331	8496	9890	11283
NSE26-3MX-B	35	4100	4986	5872	6985	8097	9432	10767
	43	3526	4307	5087	6060	7033	8212	9391
NSE30-3MX-B	27	5398	6530	7661	9064	10467	12119	13771
	32	4968	6019	7070	8380	9690	11249	12808
	35	4710	5713	6716	7970	9224	10727	12230
	43	4022	4897	5771	6876	7981	9335	10690
NSE38-3MX-B	27	6480	7807	9135	10731	12326	14168	16011
	32	5967	7195	8424	9911	11398	13116	14834
	35	5659	6828	7997	9420	10842	12485	14127
	43	4838	5849	6860	8109	9358	-	-
NSE45-3MX-B	27	7429	8899	10370	12103	13836	15776	17715
	32	6833	8183	9533	11139	12744	14539	16335
	35	6475	7753	9031	10560	12088	13797	15507
	43	5522	6608	7693	9017	-	-	-

NCE 'M' RANGE Standard Noise

Medium Temperature

Case D

Case E

NCE56-3MX-D	27	9364	11325	13286	15675	18064	20909	23753
	32	8684	10495	12306	14514	16722	19361	22000
	35	7868	9500	11131	13121	15111	17503	19895
	43	7189	8670	10152	11960	13769	15955	18142
NCE75-3MX-D	27	13423	16152	18881	22151	25420	29291	33162
	32	12475	14990	17506	20546	23586	27189	30791
	35	11906	14293	16681	19584	22486	25928	29369
	43	10389	12435	14481	17016	19552	22565	25577
NCE92-3MX-E	27	17057	20553	24049	28394	32738	37773	42809
	32	15848	19085	22321	26334	30647	35030	39714
	35	15123	18204	21284	25098	28912	33385	37858
	43	13190	15854	18519	21802	25085	28996	32907
NCE110-3MX-E	27	20189	24322	28455	33374	38293	44198	50104
	32	18684	22517	26350	30931	35513	41037	46561
	35	17781	21434	25087	29466	33845	39140	44435
	43	15373	18546	21719	25558	29396	34081	38766

Performance data in Watts rated at 20°C Return Gas Temperature, 0K Sub Cooling

Compressor		Case Size Drawing	Fansets (230V/1ph/50Hz)			Connection Sizes		Liquid Receiver	Dry Weight	Sound Levels	
FLC	LRA		Number of Fans and Diameter	FLC	LRA	Suction	Liquid			dB(A)*	
(A)	(A)			(A)	(A)	inches	inches	(L)	(kg)	Max*	Min*
10.5 4.9	50.0 26.0	A	1x 400 4pl	1.0	2.1	7/8	3/8	6.2	119.2	48.0	43.0
12.8 6.5	61.0 32.0	A	1x 400 4pl	1.0	2.1	7/8	3/8	6.2	122.2	48.0	43.0
16.4 7.2	82.0 40.0	A	1x 400 4pl	1.0	2.1	7/8	3/8	6.2	126.4	48.0	43.0
18.0 8.9	97.0 46.0	B	1x 450 4pl	1.55	3.2	7/8	1/2	6.2	135.4	50.0	45.0
10.3	49.0	B	1x 450 4pl	1.55	3.2	7/8	1/2	6.2	144.4	50.0	45.0
12.8	66.0	B	1x 450 4pl	1.55	3.2	7/8	1/2	6.2	145.4	50.0	46.0
13.1	74.0	B	1x 450 4pl	1.55	3.2	7/8	1/2	6.2	148.3	50.0	45.0
15.4	99.0	D	2x 450 4pl	3.1	6.94	1 3/8	5/8	18.0	170.4	53.0	41.0
21.7	127.0	D	2x 450 4pl	3.1	6.94	1 3/8	5/8	18.0	196.9	53.0	41.0
25.1	167.0	E	4x 450 4pl	6.2	13.9	1 3/8	7/8	18.0	207.2	56.0	44.0
29.2	198.0	E	4x 450 4pl	6.2	13.9	1 5/8	7/8	18.0	236.0	56.0	46.0

* Noise levels in dB(A) at 10m from the front face of the unit, min. noise levels with fan speed control at minimum speed

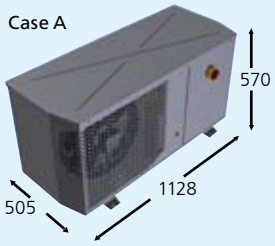
NSQ - NCQ Single Scroll Condensing Unit

NSQ 'L' RANGE Low Noise

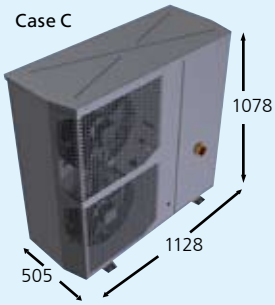
Low Temperature

R404A

Case A



Case C

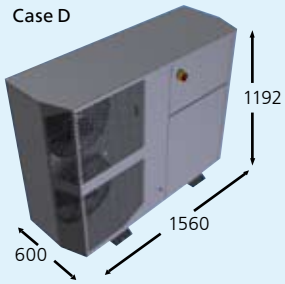


Model	Ambient	Saturated Suction Temperature (°C)						
	(°C)	-40	-35	-30	-25	-20	-15	-10
NSQ9-3LX-A	27	1634	2074	2514	3058	3603	4290	4977
	32	1531	1940	2349	2851	3352	3990	4627
	35	1469	1859	2250	2726	3202	3810	4417
	43	1303	1644	1985	2394	2802	3329	3857
NSQ11-3LX-A	27	2025	2548	3071	3688	4305	5072	5839
	32	1887	2373	2859	3429	4000	4705	5411
	35	1804	2268	2731	3274	3816	4485	5154
	43	1583	1988	2392	2860	3328	3899	-
NSQ13-3LX-A	27	2271	2864	3458	4162	4867	5708	6549
	32	2138	2668	3199	3842	4485	5269	6052
	35	2057	2550	3043	3650	4257	5005	5754
	43	1844	2236	-	-	-	-	-
NSQ15-3LX-A	27	2802	3522	4242	5109	5976	6985	7993
	32	2612	3278	3943	4727	5510	6434	7359
	35	2498	3131	3764	4497	5230	6104	6978
	43	2195	2740	-	-	-	-	-
NSQ18-3LX-C	27	3548	4468	5388	6559	7731	9159	10588
	32	3311	4165	5019	6098	7178	8495	9812
	35	3169	3983	4797	5822	6846	8096	9346
	43	2791	3498	4206	5084	5962	7033	8105

NCQ 'L' RANGE Low Noise

Low Temperature

Case D



NCQ24-3LX-D	27	4340	5541	6742	8219	9695	11525	13355
	32	4028	5162	6297	7666	9035	10721	12408
	35	3840	4935	6030	7334	8639	10239	11839
	43	3339	4328	5317	6450	7582	8953	10324
NCQ33-3LX-D	27	5164	7063	8963	10866	12770	14898	17026
	32	4828	6558	8287	10032	11777	13758	15740
	35	4627	6254	7881	9531	11180	13074	14968
	43	4090	5445	6800	8195	9591	11251	-
NCQ40-3LX-D	27	7133	9043	10953	13186	15419	18044	20668
	32	6627	8403	10179	12226	14274	16674	19074
	35	6324	8019	9714	11650	13587	15853	18118
	43	5514	6994	-	-	-	-	-
NCQ48-3LX-D	27	7836	10036	12236	14592	16948	19594	22239
	32	7238	9239	11241	13387	15533	17981	20428
	35	6879	8761	10644	12664	14684	17013	19342
	43	5921	-	-	-	-	-	-

Performance data in Watts rated at 20°C Return Gas Temperature, 0K Sub Cooling

Compressor		Case Size Drawing	Fansets (230V/1ph/50Hz)			Connection Sizes		Liquid Receiver	Dry Weight	Sound Levels	
FLC	LRA		Number of Fans and Diameter	FLC	LRA	Suction	Liquid			dB(A)*	
(A)	(A)			(A)	(A)	inches	inches	(L)	(kg)	Max*	Min*
6.0	40.0	A	1x 400 6pl	0.7	1.4	7/8	3/8	6.2	123	40	28
7.0	46.0	A	1x 400 6pl	0.7	1.4	7/8	3/8	6.2	124	40	29
8.0	52.0	A	1x 400 6pl	0.7	1.4	7/8	3/8	6.2	134	41	33
10.0	64.0	A	1x 400 6pl	0.7	1.4	7/8	3/8	6.2	138	42	39
12.0	74.0	C	2x 400 6pl	1.4	2.8	7/8	1/2	6.2	163	42	36
16.1	99.0	D	2x 450 6pl	2.0	3.6	1 3/8	5/8	18.0	161	46	45
23.0	134.0	D	2x 450 6pl	2.0	3.6	1 3/8	5/8	18.0	162	46	45
26.0	159.0	D	2x 450 6pl	2.0	3.6	1 3/8	5/8	18.0	182	46	45
30.6	187.0	D	2x 450 6pl	2.0	3.6	1 3/8	5/8	18.0	192	46	45

* Noise levels in dB(A) at 10m from the front face of the unit, min. noise levels with fan speed control at minimum speed

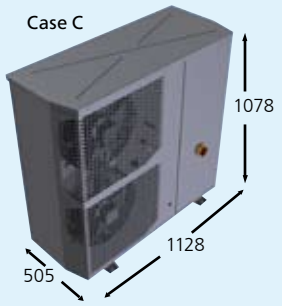
NSQ - NCQ Single Scroll Condensing Unit

NSQ 'L' EVI RANGE Low Noise

R404A

Low Temperature

Case C

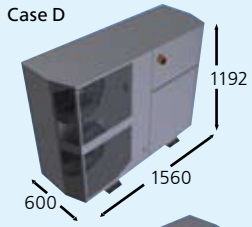


Model	Ambient	Saturated Suction Temperature (^{O}C)						
	(^{O}C)	-40	-35	-30	-25	-20	-15	-10
NSQ13-3LV-C	27	3355	4228	5100	6197	7294	8718	10142
	32	3206	4074	4942	6033	7124	8555	9987
	35	3116	3982	4847	5935	7022	8458	9893
	43	2878	3736	4594	5672	6749	8197	9645
NSQ18-3LV-C	27	4957	6072	7186	8607	10028	11841	13653
	32	4920	5982	7044	8405	9766	11530	13295
	35	4898	5928	6958	8283	9608	11344	13079
	43	4838	5784	6730	7959	9188	10847	-

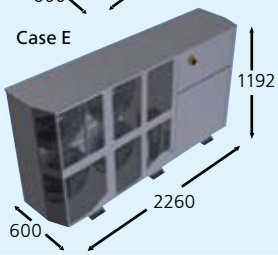
NCQ 'L' EVI RANGE Low Noise

Low Temperature

Case D



Case E



NCQ24-3LV-D	27	5834	7393	8952	10786	12620	14781	16942
	32	5682	7236	8789	10562	12335	14393	16451
	35	5591	7141	8692	10428	11859	14239	16619
	43	5348	6890	8431	10070	11402	13593	15784
NCQ33-3LV-E	27	8222	10269	12316	14885	17454	20651	23849
	32	8106	10068	12030	14481	16932	19992	23053
	35	8036	9947	11859	14239	16619	19597	22575
	43	7849	9626	11402	13593	15784	18543	21301
NCQ40-3LV-E	27	9157	12206	15254	18700	22146	25980	29815
	32	8582	11688	14794	18173	21552	25227	28902
	35	8237	11378	14518	17857	21196	24775	28354
	43	7316	10549	13783	17015	20247	23570	-
NCQ48-3LV-E	27	12181	15221	18262	21811	25361	29421	33480
	32	11777	14785	17793	21217	24640	28530	32419
	35	11535	14524	17512	20860	24208	27995	31782
	43	10889	13826	16762	19909	23055	26570	-

Performance data in Watts rated at 20^{O}C Return Gas Temperature, 0K Sub Cooling

Note:

EVI units utilise enhanced vapour injection compressors and are fitted with oil separators,fan speed controller & acoustic insulation as standard.

Compressor		Case Size Drawing	Fansets (230V/1ph/50Hz)			Connection Sizes		Liquid Receiver	Dry Weight	Sound Levels	
FLC	LRA		Number of Fans and Diameter	FLC	LRA	Suction	Liquid			dB(A)*	
(A)	(A)			(A)	(A)	inches	inches	(L)	(kg)	Max*	Min*
8.0	51.5	C	2x 400 6pl	1.4	2.8	7/8	1/2	6.2	168	42	36
12.0	74.0	C	2x 400 6pl	1.4	2.8	7/8	1/2	6.2	174	42	36
16.1	99.0	D	2x 450 6pl	2.0	3.5	1 3/8	5/8	18.0	179	46	45
22.3	127.0	E	4x 450 6pl	4.0	7.2	1 3/8	7/8	18.0	208	47	45
25.1	167.0	E	4x 450 6pl	4.0	7.2	1 3/8	7/8	18.0	218	47	45
30.6	198.0	E	4x 450 6pl	4.0	7.2	1 5/8	7/8	18.0	247	47	45

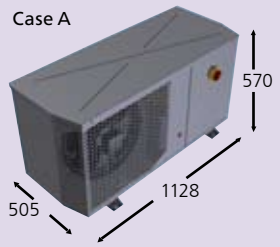
* Noise levels in dB(A) at 10m from the front face of the unit, min noise levels with fan speed control at minimum speed

NSE - NSQ Single Scroll Condensing Unit

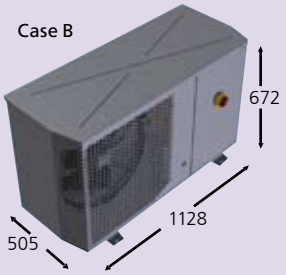
NSQ 'M' RANGE Low Noise
Medium Temperature

R404A

Case A



Case B



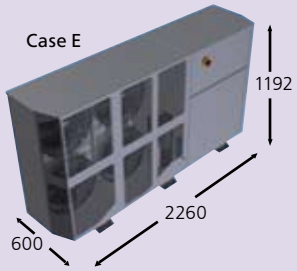
Case C

Model	Ambient	Saturated Suction Temperature (^{O}C)						
	(^{O}C)	-20	-15	-10	-5	0	5	10
NSQ15-1MX-A	27	2553	3137	3721	4408	5095	5876	6658
	32	2295	2843	3391	4031	4672	5388	6104
NSQ15-3MX-A	35	2140	2666	3192	3805	4418	5095	5772
	43	1726	2195	2663	3202	3742	4315	4887
NSQ19-1MX-A	27	3244	3922	4599	5438	6278	7266	8254
	32	2995	3619	4244	5029	5815	6734	7652
NSQ19-3MX-A	35	2845	3438	4031	4784	5538	6415	7291
	43	2445	2954	3462	4130	4798	5563	6328
NSQ21-1MX-B	27	3981	4815	5649	6683	7718	8927	10135
	32	3684	4452	5221	6181	7141	8265	9389
NSQ21-3MX-B	35	3505	4234	4964	5879	6795	7868	8941
	43	3030	3654	4279	5075	5871	6809	7747
NSQ26-1MX-C	27	4650	5633	6616	7852	9088	10556	12024
	32	4292	5209	6126	7276	8425	9797	11169
NSQ26-3MX-C	35	4077	4954	5832	6930	8028	9342	10656
	43	3503	4276	5048	6008	6967	8127	9287
NSQ30-3MX-C	27	5365	6484	7603	8986	10369	11994	13618
	32	4936	5974	7013	8304	9596	11129	12662
	35	4678	5669	6660	7896	9132	10610	12088
	43	3990	4853	5717	6805	7894	9225	10557
NSQ38-3MX-C	27	6650	8045	9439	11137	12834	14826	16818
	32	6135	7428	8721	10305	11889	13749	15608
	35	5826	7058	8290	9806	11323	13103	14882
	43	5002	6072	7141	8476	9812	11379	12947
NSQ45-3MX-C	27	7657	9220	10783	12652	14520	16654	18788
	32	7059	8497	9936	11670	13404	15383	17362
	35	6700	8064	9427	11080	12734	14620	16507
	43	5743	6907	8071	9590	10947	-	-

NSQ 'M' RANGE Low Noise
Medium Temperature

Case D

Case E



NCQ56-3MX-D	27	9150	11019	12888	15131	17373	20000	22626
	32	8472	10194	11917	13986	16055	18487	20920
	35	8065	9700	11335	13299	15263	17580	19897
	43	6980	8381	9782	11468	13153	15161	17168
NCQ56-3MX-E	27	9613	11684	13755	16326	18897	22020	25144
	32	8931	10849	12766	15146	17527	20428	23330
	35	8522	10347	12172	14438	16704	19473	22241
	43	7432	9011	10589	12551	14512	16925	19339
NCQ75-3MX-E	27	13515	16287	19058	22389	25721	29688	33655
	32	12565	15122	17678	20777	23876	27569	31263
	35	11996	14423	16850	19809	22768	26298	29828
	43	10476	12559	14642	17229	19816	22908	26001
NCQ92-3MX-E	27	16293	19464	22635	26447	30258	34540	38822
	32	15097	18021	20944	24452	27961	31934	35908
	35	14379	17154	19929	23256	26582	30371	34159
	43	12465	14844	17223	20065	22906	-	-
NCQ110-3MX-E	27	19566	23431	27305	31839	36373	41714	47055
	32	18061	21646	25230	29446	33663	38653	43644
	35	17165	20575	23985	28011	32036	36817	41597
	43	14773	17719	20666	24183	27700	-	-

Performance data in Watts rated at 20^{O}C Return Gas Temperature, 0K Sub Cooling

Compressor		Case Size Drawing	Fansets (230V/1ph/50Hz)			Connection Sizes		Liquid Receiver	Dry Weight	Sound Levels	
FLC	LRA		Number of Fans and Diameter	FLC	LRA	Suction	Liquid			dB(A)*	
(A)	(A)			(A)	(A)	inches	inches	(L)	(kg)	Max*	Min*
10.5 4.9	50.0 26	A	1x 400 6pl	0.7	1.4	7/8	3/8	6.2	119	40	28
12.8 6.5	61.0 32	A	1x 400 6pl	0.7	1.4	7/8	3/8	6.2	125	40	28
16.4 7.2	82.0 40.0	B	1x 450 6pl	1.0	1.8	7/8	1/2	6.2	131	40	28
18.0 8.9	97.0 46.0	C	2x 400 6pl	1.4	2.8	7/8	1/2	6.2	150	40	34
10.3	49.3	C	2x 400 6pl	1.4	2.8	7/8	1/2	6.2	159	41	34
12.8	65.5	C	2x 400 6pl	1.4	2.8	7/8	1/2	6.2	167	41	34
13.1	74.0	C	2x 400 6pl	1.4	2.8	7/8	1/2	6.2	170	41	34
15.4	99.0	D	2x 450 6pl	2.0	3.6	1 1/8	5/8	18.0	170	43	39
15.4	99.0	E	4x 450 6pl	4.0	7.2	1 3/8	7/8	18.0	197	46	42
21.7	127.0	E	4x 450 6pl	4.0	7.2	1 3/8	7/8	18.0	197	46	42
25.1	167.0	E	4x 450 6pl	4.0	7.2	1 3/8	7/8	18.0	207	46	42
29.2	198.0	E	4x 450 6pl	4.0	7.2	1 5/8	7/8	18.0	236	46	42

* Noise levels in dB(A) at 10m from the front face of the unit, min noise levels with fan speed control at minimum speed

NBQ Quiet Condensing unit

The NBQ range of Condensing units have been developed to offer high quality and low noise solutions for commercial refrigeration applications. Units include Bitzer reciprocating compressors with a tradition of high quality and excellent reliability.

NBQ units are supplied complete with fully wired control panels, incorporating mains isolation, compressor thermal & overload protection, compressor contactor and condenser fan speed control. All electrical components are also wired to the panel, with spare terminals provided for additional options 'CR', 'SU' and 'OLC-K1' .

Compressors and components are located in an acoustic enclosure to ensure minimum noise levels during operation, allowing the units to be applied in stringent low noise applications. The acoustic enclosure has a unique design that allows for rapid access without removal of fixings.

Units include integral condensers with inner grooved copper tube and vinyl coated aluminium fins for improved corrosion resistance.Condensers utilise external rotor motors for low noise operation with high reliability and market leading energy efficiencies. Units may be specified with Copper fin coils for further improved corrosion resistance.

NBQ models are divided into two groups, Motor 1 units for use with R404A in Medium to High applications, comprising of 15 models, Motor 2 units for use with R404A at Low temperature and R134A at Medium to High temperature applications, comprising of 16 models.

Units with 4 cylinder compressors may be specified with Capacity Regulation (CR) compressor head, and/or Start Unloader (SU) compressor head. Larger units incorporate oil sensors for increased protection as standard, also optional on all 4 cylinder units.

NBQ Standard Features

- New Style Casework
- Single 400/450/630mm 6/8 pole fansets
- Easy Access Features
- Simplified Assembly
- Generously sized coil

- Standard Fin material options
- Sight Glass Viewport
- Rear Connections
- Compressor located in acoustically lined enclosure
- All Line Components located locally to compressor to minimise pipe runs
- Fan Grille is also removable for easy fan access
- Front cover can be removed completely, with no removal of fixings required.
- Lid raises up, with latch at 45°
- Crankcase heater fitted on all models

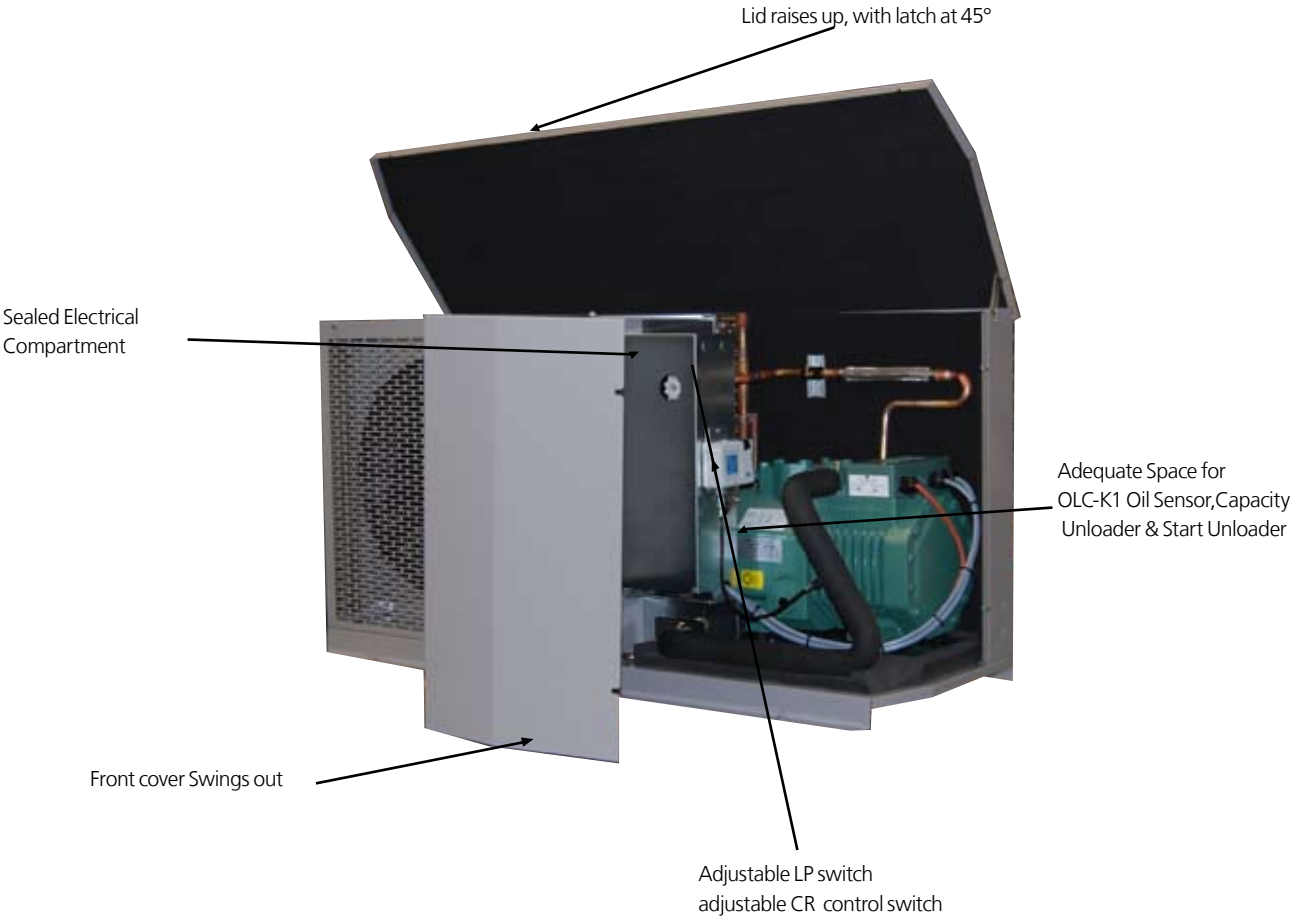
NBQ Standard Features

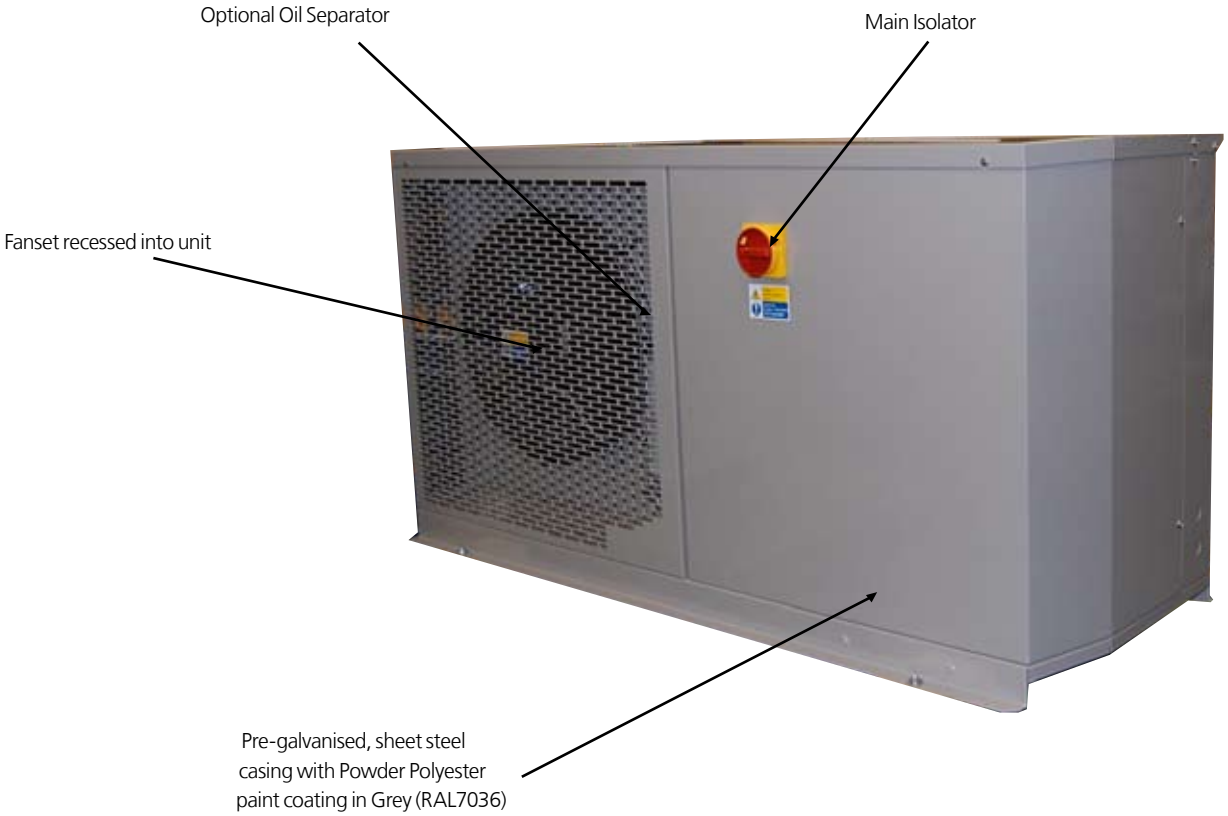
Standard specification

N B Q 2 J C - 0 7 - X A 2

Range	N
Comp Technology	B = Bitzer Reciprocating
Unit Type	Q = Quiet (6/8pl fans)
Compressor model	eg. 2JC-07 = 2JC-07.2Y
Oil Separator	X = No Oil Separator, S = Oil Separator
Coil/Case	A, B, D, E
Rows	2 = Rows, 3 = Rows

NBQ Features





Capacity

R404A

Medium temperature 100% Capacity (no CR Head)

Type	Ambient Temp. °C		Cooling Capacity Qo [Watt] Power consumption Pe [kW] Evaporation temperature °C					
			5	0	-5	-10	-15	-20
NBQ2JC-07-XA2	27	Q	4871	4157	3552	2947	2458	1969
		P	1.41	1.34	1.27	1.21	1.13	1.05
	32	Q	4468	3811	3253	2695	2242	1788
		P	1.51	1.43	1.35	1.26	1.17	1.08
	35	Q	4070	3604	3074	2544	2112	1679
		P	1.54	1.48	1.39	1.30	1.20	1.10
NBQ2HC-2-XA2	27	Q	5883	5064	4353	3642	3060	2478
		P	1.86	1.76	1.65	1.54	1.43	1.31
	32	Q	5398	4646	3989	3333	2792	2252
		P	1.98	1.85	1.73	1.60	1.47	1.34
	35	Q	4929	4395	3771	3147	2632	2116
		P	2.01	1.91	1.78	1.64	1.50	1.36
NBQ2GC-2-XA2	27	Q	6472	5609	4848	4087	3450	2813
		P	2.25	2.10	1.96	1.81	1.67	1.52
	32	Q	5926	5139	4440	3741	3154	2566
		P	2.39	2.22	2.06	1.90	1.73	1.57
	35	Q	5413	4857	4195	3534	2976	2418
		P	2.43	2.29	2.12	1.94	1.77	1.60
NBQ2FC-3-XA2	27	Q	7591	6694	5793	4892	4151	3410
		P	2.75	2.25	2.25	2.24	2.06	1.87
	32	Q	6950	6156	5315	4475	3791	3108
		P	2.88	2.29	2.31	2.34	2.13	1.92
	35	Q	6382	5832	5028	4224	3575	2926
		P	2.80	2.31	2.36	2.40	2.18	1.95
NBQ2EC-3-XB2	27	Q	9343	8163	7096	6030	5099	4167
		P	3.45	3.18	2.92	2.67	2.43	2.20
	32	Q	8564	7490	6510	5531	4677	3823
		P	3.67	3.37	3.08	2.80	2.53	2.27
	35	Q	7844	7085	6158	5231	4424	3616
		P	3.72	3.49	3.18	2.87	2.59	2.31
NBQ2DC-3-XB3	27	Q	11043	9626	8354	7082	5978	4875
		P	3.91	3.61	3.34	3.06	2.79	2.51
	32	Q	10121	8827	7658	6489	5477	4466
		P	4.16	3.83	3.52	3.21	2.90	2.59
	35	Q	9263	8348	7241	6134	5177	4220
		P	4.23	3.96	3.63	3.29	2.97	2.64
NBQ2CC-4-XB3	27	Q	12538	11048	9659	8271	7054	5837
		P	5.06	4.62	4.22	3.82	3.45	3.08
	32	Q	11457	10109	8842	7575	6457	5339
		P	5.35	4.88	4.44	4.00	3.59	3.19
	35	Q		9545	8352	7158	6099	5039
		P		5.04	4.57	4.11	3.68	3.25
NBQ4FC-5-XD2	27	Q	15960	13792	11910	10027	8475	6922
		P	5.11	4.81	4.50	4.18	3.85	3.52
	32	Q	14658	12675	10941	9208	7771	6334
		P	5.44	5.10	4.74	4.38	4.01	3.63
	35	Q	13409	12004	10361	8717	7349	5980
		P	5.54	5.27	4.88	4.50	4.10	3.70
NBQ4EC-6-XD2	27	Q	18870	16460	14298	12137	10297	8458
		P	6.68	6.22	5.75	5.29	4.82	4.36
	32	Q	17261	15071	13087	11104	9409	7714
		P	7.08	6.56	6.04	5.51	5.00	4.48
	35	Q	15780	14237	12361	10484	8876	7267
		P	7.18	6.77	6.21	5.65	5.10	4.55
NBQ4DC-7-XD2	27	Q	21119	18544	16173	13802	11737	9672
		P	8.05	7.46	6.87	6.29	5.71	5.13
	32	Q	19284	16952	14785	12617	10717	8817
		P	8.50	7.86	7.21	6.56	5.92	5.28
	35	Q	17636	15997	13952	11907	10106	8305
		P	8.60	8.10	7.41	6.73	6.05	5.37
NBQ4CC-9-XD3	27	Q	25733	22619	19751	16883	14403	11924
		P	9.74	9.05	8.35	7.65	6.95	6.26
	32	Q	23572	20750	18129	15507	13220	10932
		P	10.29	9.53	8.77	8.01	7.24	6.48
	35	Q	21614	19629	17155	14681	12509	10337
		P	10.42	9.83	9.02	8.22	7.42	6.62
NBQ4VCS-10-XD3	27	Q	27274	23996	20922	17849	15173	12497
		P	10.01	9.16	8.34	7.53	6.77	6.01
	32	Q	24917	21936	19115	16295	13827	11359
		P	10.51	9.58	8.69	7.80	6.97	6.14
	35	Q		20700	18031	15362	13019	10676
		P		9.84	8.90	7.96	7.08	6.21
NBQ4TCS-12-XE2	27	Q	35153	30674	26619	22565	19097	15629
		P	12.02	11.05	10.17	9.29	8.44	7.60
	32	Q	32159	28079	24377	20675	17476	14277
		P	12.68	11.61	10.62	9.64	8.70	7.77
	35	Q	29402	26523	23032	19541	16503	13465
		P	12.80	11.94	10.89	9.85	8.86	7.87
NBQ4PCS-15-XE3	27	Q	42712	37196	32201	27206	22712	18217
		P	13.73	12.54	11.52	10.49	9.54	8.58
	32	Q	39179	34151	29556	24961	20859	16757
		P	14.47	13.13	11.99	10.84	9.79	8.75
	35	Q	35875	32323	27969	23614	19748	15881
		P	14.55	13.48	12.27	11.05	9.95	8.85
NBQ4NCS-20-XE3	27	Q	47316	41341	35889	30437	25778	21119
		P	16.63	15.18	13.84	12.51	11.28	10.05
	32	Q	43439	37954	32916	27877	23566	19255
		P	17.45	15.84	14.37	12.90	11.55	10.20
	35	Q	39815	35922	31132	26342	22239	18136
		P	17.51	16.24	14.68	13.13	11.71	10.29

Unit with Capacity Regulation not to be used at this condition.

NBQ - Motor 2

Capacity

R404A

Low temperature

Type	Temp. ambiante		Cooling Capacity Qo [Watt] Power consumption Pe [kW]					
			Evaporation temperature °C					
	°C		-10	-15	-20	-25	-30	-35
NBQ2KC-05-XA2	27	Q	2263	1869	1474	1169	864	641
		P	0.90	0.86	0.81	0.76	0.70	0.63
	32	Q	2060	1695	1331	1050	768	562
		P	0.94	0.89	0.83	0.76	0.70	0.61
	35	Q	1937	1592	1246	978	711	514
		P	0.97	0.91	0.85	0.77	0.69	0.60
NBQ2JC-07-XA2	27	Q	2947	2458	1969	1588	1208	925
		P	1.21	1.13	1.05	0.97	0.89	0.79
	32	Q	2695	2242	1788	1435	1082	818
		P	1.26	1.17	1.08	0.98	0.89	0.78
	35	Q	2544	2112	1679	1343	1007	754
		P	1.30	1.20	1.10	0.99	0.89	0.77
NBQ2HC-1-XA2	27	Q	3581	3008	2436	1983	1530	1185
		P	1.54	1.42	1.29	1.18	1.06	0.94
	32	Q	3271	2741	2212	1791	1370	1050
		P	1.60	1.46	1.32	1.19	1.05	0.92
	35	Q	3085	2581	2078	1676	1275	969
		P	1.64	1.49	1.34	1.19	1.05	0.91
NBQ2GC-2-XA2	27	Q	4087	3450	2813	2303	1793	1405
		P	1.81	1.67	1.52	1.38	1.24	1.09
	32	Q	3741	3154	2566	2094	1622	1261
		P	1.90	1.73	1.57	1.41	1.25	1.09
	35	Q	3534	2976	2418	1969	1519	1175
		P	1.94	1.77	1.60	1.43	1.26	1.09
NBQ2FC-2-XA2	27	Q	4855	4128	3402	2809	2216	1751
		P	2.28	2.08	1.89	1.69	1.50	1.30
	32	Q	4429	3762	3095	2548	2001	1570
		P	2.38	2.16	1.94	1.73	1.52	1.31
	35	Q	4174	3542	2911	2391	1872	1462
		P	2.44	2.21	1.98	1.75	1.53	1.32
NBQ2EC-2-XA3	27	Q	5875	4996	4117	3397	2678	2116
		P	2.69	2.44	2.19	1.97	1.74	1.53
	32	Q	5383	4573	3763	3097	2431	1908
		P	2.81	2.53	2.25	2.01	1.76	1.53
	35	Q	5088	4319	3550	2917	2283	1783
		P	2.88	2.58	2.29	2.03	1.77	1.53
NBQ2DC-2-XA3	27	Q	6584	5623	4661	3856	3052	2417
		P	3.15	2.84	2.53	2.25	1.98	1.72
	32	Q	6007	5125	4243	3499	2755	2166
		P	3.29	2.95	2.60	2.30	1.99	1.71
	35	Q	5661	4826	3992	3284	2576	2016
		P	3.37	3.01	2.65	2.33	2.00	1.70
NBQ2CC-3-XA3	27	Q	7672	6601	5530	4601	3672	2919
		P	3.95	3.54	3.12	2.76	2.40	2.08
	32	Q	6997	6020	5043	4188	3334	2636
		P	4.12	3.68	3.23	2.84	2.44	2.09
	35	Q	6593	5672	4751	3941	3131	
		P	4.23	3.76	3.30	2.88	2.47	
NBQ4FC-3-XD2	27	Q	9961	8419	6877	5652	4428	3493
		P	4.31	3.96	3.61	3.27	2.93	2.57
	32	Q	9149	7724	6298	5160	4023	3153
		P	4.49	4.10	3.71	3.33	2.95	2.57
	35	Q	8662	7307	5951	4865	3780	2949
		P	4.60	4.18	3.76	3.36	2.96	2.57
NBQ4EC-4-XD2	27	Q	11957	10155	8353	6884	5415	4273
		P	5.22	4.76	4.31	3.86	3.42	2.98
	32	Q	10921	9267	7613	6258	4903	3846
		P	5.44	4.93	4.43	3.94	3.45	2.97
	35	Q	10299	8734	7169	5883	4596	3589
		P	5.57	5.03	4.50	3.98	3.47	2.97
NBQ4DC-5-XD2	27	Q	13938	11896	9854	8151	6449	5107
		P	6.38	5.81	5.23	4.66	4.09	3.53
	32	Q	12722	10852	8982	7413	5845	4602
		P	6.65	6.01	5.38	4.76	4.14	3.54
	35	Q	11993	10226	8459	6970	5482	4299
		P	6.81	6.14	5.47	4.82	4.17	3.55
NBQ4CC-6-XD3	27	Q	16839	14372	11904	9870	7835	6243
		P	7.65	6.95	6.25	5.56	4.88	4.23
	32	Q	15448	13169	10891	9007	7123	5644
		P	8.00	7.24	6.47	5.72	4.98	4.26
	35	Q	14612	12448	10283	8489	6696	5285
		P	8.22	7.41	6.60	5.82	5.04	4.29
NBQ4VCS-6-XD3	27	Q	17737	15132	12527	10349	8171	6444
		P	7.83	7.03	6.22	5.50	4.77	4.09
	32	Q	16191	13797	11403	9393	738	5786
		P	8.10	7.23	6.36	5.58	4.80	4.07
	35	Q	15264	12996	10728	8820	6911	5392
		P	8.26	7.35	6.44	5.63	4.82	4.06
NBQ4TCS-8-XD3	27	Q	20449	17554	14660	12168	9675	7672
		P	9.70	8.67	7.63	6.72	5.81	4.87
	32	Q	18639	15987	13335	11038	8742	6903
		P	10.02	8.91	7.80	6.83	5.85	4.67
	35	Q	17554	15047	12540	10361	8182	6441
		P	10.22	9.06	7.91	6.89	5.88	4.55
NBQ4PCS-10-XD3	27	Q	22687	19545	16403	13647	10892	8596
		P	11.37	10.07	8.77	7.68	6.58	5.61
	32	Q	20668	17794	14920	12382	9844	7685
		P	11.75	10.36	8.97	7.78	6.59	5.54
	35	Q	19457	16744	14031	11623	9215	
		P	11.98	10.53	9.09	7.84	6.60	
NBQ4NCS-12-XD3	27	Q	24661	21387	18112	15125	12139	9618
		P	13.64	12.03	10.41	9.06	7.70	6.52
	32	Q	22428	19448	16468	13716	10965	8596
		P	14.05	12.34	10.62	9.18	7.73	6.45
	35	Q		18284	15481	12871	10261	
		P		12.53	10.75	9.25	7.75	

Unit with Capacity Regulation not to be used at this condition.

Capacity

Medium temperature

R134a

Type	Ambient Temp.		Cooling Capacity Qo [Watt] Power consumption Pe [kW]					
			Evaporation temperature °C					
	°C		10	5	0	-5	-10	-15
NBQ2KC-05-XA2	27	Q	2991	2502	2012	1641	1270	994
		P	0.76	0.71	0.66	0.62	0.57	0.53
	32	Q	2816	2354	1891	1538	1184	922
		P	0.80	0.75	0.70	0.65	0.60	0.55
	35	Q	2711	2265	1819	1476	1133	879
		P	0.83	0.78	0.72	0.67	0.62	0.56
NBQ2JC-07-XA2	27	Q	3715	3118	2520	2058	1595	1248
		P	0.95	0.89	0.84	0.78	0.73	0.67
	32	Q	3503	2935	2367	1928	11489	1159
		P	1.00	0.94	0.89	0.82	0.76	0.69
	35	Q	3375	2825	2275	1850	1425	1105
		P	1.04	0.98	0.91	0.85	0.78	0.70
NBQ2HC-1-XA2	27	Q	4715	3999	3283	2725	2168	1752
		P	1.13	1.07	1.01	0.96	0.90	0.83
	32	Q	4451	3769	3087	2557	2026	1631
		P	1.20	1.14	1.08	1.01	0.94	0.86
	35	Q	4292	3631	2970	2455	1941	1558
		P	1.25	1.18	1.11	1.04	0.96	0.88
NBQ2GC-2-XA2	27	Q	5363	4568	3773	3144	2514	2036
		P	1.33	1.26	1.19	1.12	1.05	0.97
	32	Q	5066	4312	3558	2959	2359	1905
		P	1.42	1.34	1.26	1.17	1.09	1.00
	35	Q	4888	4158	3428	2847	2266	1826
		P	1.47	1.38	1.29	1.21	1.12	1.02
NBQ2FC-2-XA2	27	Q	6502	5576	4650	3894	3138	2547
		P	1.65	1.54	1.42	1.31	1.21	1.10
	32	Q	6068	5201	4334	3623	2912	2357
		P	1.77	1.64	1.50	1.39	1.27	1.14
	35	Q	5808	4976	4145	3461	2777	2243
		P	1.84	1.70	1.56	1.43	1.30	1.17
NBQ2EC-2-XA3	27	Q	7496	6426	5357	4488	3620	2947
		P	2.01	1.84	1.67	1.52	1.36	1.22
	32	Q	7028	6023	5017	4198	3380	2745
		P	2.15	1.97	1.79	1.61	1.44	1.27
	35	Q	6747	5780	4813	4024	3236	2623
		P	2.24	2.04	1.85	1.67	1.48	1.31
NBQ2DC-2-XA3	27	Q	8583	7384	6186	5196	4206	3431
		P	2.43	2.24	2.05	1.87	1.69	1.52
	32	Q	8041	6916	5790	4858	3925	3193
		P	2.56	2.36	2.16	1.97	1.77	1.58
	35	Q	7716	6635	5553	4655	3757	3050
		P	2.64	2.44	2.23	2.02	1.82	1.62
NBQ2CC-3-XA3	27	Q	10219	8857	7494	6337	5180	4251
		P	3.10	2.81	2.53	2.28	2.02	1.79
	32	Q	9563	8286	7009	5920	4832	3956
		P	3.26	2.96	2.66	2.39	2.12	1.87
	43	Q	9169	7943	6718	5670	4623	3779
		P	3.36	3.05	2.74	2.46	2.18	1.91
NBQ4FC-3-XD2	27	Q	12881	10951	9021	7500	5978	4825
		P	2.91	2.74	2.57	2.39	2.21	2.01
	32	Q	12116	10293	8470	7029	5588	4496
		P	3.08	2.89	2.70	2.50	2.30	2.08
	35	Q	11658	9899	8140	6747	5354	4299
		P	3.18	2.98	2.77	2.56	2.35	2.12
NBQ4EC-4-XD2	27	Q	15891	13577	11263	9412	7560	6157
		P	3.97	3.74	3.52	3.27	3.03	2.77
	32	Q	14890	12716	10542	8797	7051	5721
		P	4.24	3.97	3.70	3.42	3.14	2.84
	35	Q	14290	12200	10110	8428	6746	5459
		P	4.40	4.11	3.82	3.51	3.20	2.88
NBQ4DC-5-XD2	27	Q	18284	15710	13135	11026	8916	7267
		P	4.90	4.52	4.15	3.79	3.43	3.09
	32	Q	17159	14732	12306	10315	8324	6765
		P	5.18	4.78	4.37	3.99	3.60	3.22
	35	Q	16483	14146	11808	9888	7968	6464
		P	5.34	4.93	4.51	4.10	3.70	3.29
NBQ4CC-6-XD3	27	Q	22054	18958	15863	13324	10785	8806
		P	5.84	5.35	4.86	4.40	3.95	3.53
	32	Q	20671	17766	14862	12469	10077	8206
		P	6.19	5.66	5.13	4.64	4.14	3.68
	35	Q	19842	17051	14261	11956	9652	7846
		P	6.40	5.85	5.29	4.77	4.26	3.76
NBQ4VCS-6-XD3	27	Q	23200	19769	16338	13828	11318	9229
		P	6.26	6.92	7.57	5.89	4.22	3.79
	32	Q	21739	18431	15123	12829	10535	8554
		P	6.66	7.72	8.78	6.56	4.34	3.86
	35	Q	20863	17628	14394	12229	10065	8149
		P	6.90	8.20	9.51	6.97	4.42	3.91
NBQ4TCS-8-XD3	27	Q	26836	23185	19535	16468	13401	10964
		P	7.93	7.17	6.40	5.79	5.18	4.64
	32	Q	25092	21673	18253	15359	12465	10158
		P	8.46	7.59	6.72	6.03	5.34	4.73
	35	Q	24046	20765	17484	14694	11904	9674
		P	8.78	7.85	6.92	6.17	5.43	4.78
NBQ4PCS-10-XD3	27	Q	29784	25853	21922	18535	15148	12397
		P	9.57	8.59	7.61	6.83	6.05	5.36
	32	Q	27791	24114	20437	17252	14068	11463
		P	10.14	9.05	7.95	7.08	6.21	5.45
	35	Q	26595	23070	19545	16482	13419	10902
		P	10.49	9.32	8.15	7.23	6.30	5.50
NBQ4NCS-12-XD3	27	Q	29385	26865	24345	20635	16925	13900
		P	24.91	17.00	9.10	8.06	7.03	6.21
	32	Q	26771	24774	22777	19279	15781	12906
		P	27.56	18.54	9.51	8.38	7.24	6.33
	35	Q	25202	23519	21836	18465	15094	12309
		P	29.16	19.46	9.76	8.56	7.36	6.41

Unit with Capacity Regulation not to be used at this condition.

NB Physical Data

	Type	Compressor		Motor Connection	Case size, Condenser coil rows	Fan					
		Max operating current FLC (A)	Max starting current RA (A)	(V)	A,B,D,E / 2,3	Fan type	Current consumption FLC (A)	Max starting current LRA (A)	Motor Connection	Power Consumption (kW)	Air Flow condenser (m^3/h)
NBQ Motor 1	NBQ2JC-07-XA2	3.5	14.8	D.O.L. 380…420VY 3 / 50 Hz	A2	1 x 6pl 400mm	0.7	1.4	D.O.L 220…240V 1 / 50 Hz	0.13	2484
	NBQ2HC-2-XA2	4.3	22.5		A2	1 x 6pl 400mm	0.7	1.4		0.13	2484
	NBQ2GC-2-XA2	4.7	22.5		A2	1 x 6pl 400mm	0.7	1.4		0.13	2484
	NBQ2FC-3-XA2	5.8	25.5		A2	1 x 6pl 400mm	0.7	1.4		0.13	2484
	NBQ2EC-3-XB2	6.4	37.0		B2	1 x 6pl 450mm	1.0	1.8		0.14	3600
	NBQ2DC-3-XB3	7.8	37.0		B3	1 x 6pl 450mm	1.0	1.8		0.14	3276
	NBQ2CC-4-XB3	9.4	44.2		B3	1 x 6pl 450mm	1.0	1.8		0.14	3276
	NBQ4FC-5-XD2	10.8	62.2		D2	1 x 8pl 630mm	2.0	3.3		0.34	7632
	NBQ4EC-6-XD2	13.2	62.2		D2	1 x 8pl 630mm	2.0	3.3		0.34	7632
	NBQ4DC-7-XD2	15.9	82.4		D2	1 x 8pl 630mm	2.0	3.3		0.34	7632
	NBQ4CC-9-XD3	20.0	82.4		D3	1 x 8pl 630mm	2.0	3.3		0.34	7128
	NBQ4VCS-10-XD3	21.0	59.0	P.W. 380…420VYY 3 / 50 Hz	D3	1 x 8pl 630mm	2.0	3.3		0.34	7128
	NBQ4TCS-12-XE2	24.0	69.0		E2	2 x 8pl 630mm	4.0	6.6		0.67	14472
	NBQ4PCS-15-XE3	31.0	81.0		E3	2 x 8pl 630mm	4.0	6.6		0.67	13248
	NBQ4NCS-20-XE3	37.0	97.0		E3	2 x 8pl 630mm	4.0	6.6		0.67	13248
NBQ Motor 2	NBQ2KC-05-XA2	2.7	12.0	D.O.L. 380…420VY 3 / 50 Hz	A2	1 x 6pl 400mm	0.7	1.4	D.O.L 220…240V 1 / 50 Hz	0.13	2484
	NBQ2JC-07-XA2	3.5	14.8		A2	1 x 6pl 400mm	0.7	1.4		0.13	2484
	NBQ2HC-1-XA2	3.5	16.7		A2	1 x 6pl 400mm	0.7	1.4		0.13	2484
	NBQ2GC-2-XA2	4.7	22.5		A2	1 x 6pl 400mm	0.7	1.4		0.13	2484
	NBQ2FC-2-XA2	4.9	22.5		A2	1 x 6pl 400mm	0.7	1.4		0.13	2484
	NBQ2EC-2-XA3	5.7	26.0		A3	1 x 6pl 400mm	0.7	1.4		0.13	2268
	NBQ2DC-2-XA3	6.9	30.7		A3	1 x 6pl 400mm	0.7	1.4		0.13	2268
	NBQ2CC-3-XA3	8.5	37.0		A3	1 x 6pl 400mm	0.7	1.4		0.13	2268
	NBQ4FC-3-XD2	9.2	42.5		D2	1 x 8pl 630mm	2.0	3.3		0.34	7632
	NBQ4EC-4-XD2	10.7	47.0		D2	1 x 8pl 630mm	2.0	3.3		0.34	7632
	NBQ4DC-5-XD2	13.5	62.2		D2	1 x 8pl 630mm	2.0	3.3		0.34	7632
	NBQ4CC-6-XD3	15.9	62.2		D3	1 x 8pl 630mm	2.0	3.3		0.34	7128
	NBQ4VCS-6-XD3	14.0	39.0	P.W. 380…420VYY 3 / 50 Hz	D3	1 x 8pl 630mm	2.0	3.3		0.34	7128
	NBQ4TCS-8-XD3	17.0	49.0		D3	1 x 8pl 630mm	2.0	3.3		0.34	7128
	NBQ4PCS-10-XD3	21.0	59.0		D3	1 x 8pl 630mm	2.0	3.3		0.34	7128
	NBQ4NCS-12-XD3	24.0	69.0		D3	1 x 8pl 630mm	2.0	3.3		0.34	7128

NBQ Physical Data

Type	Connections		Receiver			Weight (Stand)	Sound Levels dB(A)*	
	Suction valve	Refrigerant Outlet	Total volume	Maximum refrigerant charge				
	Zoll Inch Pouce	Zoll Inch Pouce	(L)	R134a (kg)	R404A / R507A (kg)	(kg)	Max*	Min*
NBQ2JC-07-XA2	5/8"	3/8"	6.2	5.7	5.0	136	38	32
NBQ2HC-2-XA2	5/8"	3/8"	6.2	5.7	5.0	138	38	32
NBQ2GC-2-XA2	5/8"	3/8"	6.2	5.7	5.0	138	39	33
NBQ2FC-3-XA2	5/8"	3/8"	6.2	5.7	5.0	140	39	33
NBQ2EC-3-XB2	7/8"	1/2"	6.2	5.7	5.0	172	40	36
NBQ2DC-3-XB3	7/8"	1/2"	6.2	5.7	5.0	172	40	36
NBQ2CC-4-XB3	7/8"	1/2"	6.2	5.7	5.0	172	40	36
NBQ4FC-5-XD2	7/8"	5/8"	18.0	16.6	14.4	224	44	40
NBQ4EC-6-XD2	1 1/8"	5/8"	18.0	16.6	14.4	224	44	41
NBQ4DC-7-XD2	1 1/8"	7/8"	18.0	16.6	14.4	225	44	41
NBQ4CC-9-XD3	1 1/8"	7/8"	18.0	16.6	14.4	282	45	42
NBQ4VCS-10-XD3	1 1/8"	7/8"	18.0	16.6	14.4	330	45	42
NBQ4TCS-12-XE2	1 3/8"	7/8"	18.0	16.6	14.4	342	48	44
NBQ4PCS-15-XE3	1 5/8"	7/8"	18.0	16.6	14.4	343	48	45
NBQ4NCS-20-XE3	1 5/8"	7/8"	18.0	16.6	14.4	351	48	45
NBQ2KC-05-XA2	5/8"	3/8"	6.2	5.7	5.0	136	38	32
NBQ2JC-07-XA2	5/8"	3/8"	6.2	5.7	5.0	136	38	32
NBQ2HC-1-XA2	5/8"	3/8"	6.2	5.7	5.0	137	38	32
NBQ2GC-2-XA2	5/8"	3/8"	6.2	5.7	5.0	138	39	33
NBQ2FC-2-XA2	5/8"	3/8"	6.2	5.7	5.0	138	39	33
NBQ2EC-2-XA3	7/8"	3/8"	6.2	5.7	5.0	164	39	33
NBQ2DC-2-XA3	7/8"	3/8"	6.2	5.7	5.0	164	39	33
NBQ2CC-3-XA3	7/8"	3/8"	6.2	5.7	5.0	166	39	33
NBQ4FC-3-XD2	7/8"	5/8"	18.0	16.6	14.4	220	44	40
NBQ4EC-4-XD2	1 1/8"	5/8"	18.0	16.6	14.4	222	44	41
NBQ4DC-5-XD2	1 1/8"	5/8"	18.0	16.6	14.4	224	44	41
NBQ4CC-6-XD3	1 1/8"	5/8"	18.0	16.6	14.4	282	45	42
NBQ4VCS-6-XD3	1 1/8"	7/8"	18.0	16.6	14.4	323	45	42
NBQ4TCS-8-XD3	1 3/8"	7/8"	18.0	16.6	14.4	325	45	42
NBQ4PCS-10-XD3	1 3/8"	7/8"	18.0	16.6	14.4	330	45	42
NBQ4NCS-12-XD3	1 3/8"	7/8"	18.0	16.6	14.4	332	45	42

Noise levels are sound pressure, measured in decibels at 10m from the front face / Compressor Access door side of the unit.
Max noise levels are with Condenser fan/s at maximum speed and compressor fully loaded,
Min noise levels are with Condenser fan/s at minimum speed via speed controller and compressor fully loaded

Unit Weights are net dry weights without packing or refrigerant, also not including additional options (Oil separator / SU Head / CR Head)

N2CQ Twin Scroll Condensing unit

GEA Searle N2CQ twin scroll compressor condensing units compliment the NSQ range by extending the range through the use of two scroll compressors.

The twin compressor configuration provides capacity control in steps of 100% and 50% to suit projects with a variable refrigeration load.

This makes the N2CQ the flexible option for larger convenience stores, garage forecourts and small supermarkets.

The N2CQ range comprises seven low temperature and eight medium temperature models using refrigerants R404A/R507 and R407C. The low temperature models (-40 °C to -10°C) cover a capacity range of 4.03 kW to 19.6 kW while the medium temperature units (-20°C to +10°C) range from 7.27 kW to 23.28 kW.

N2CQ Standard Features

- CE Marked Unit
- Weatherproof housing with separate, acoustically lined compressor compartment
- Concealed, low noise condenser fans
- Copper tube coil with vinyl-coated aluminium fins
- Capacity control 100-50-0%
- Fully-wired control panel with Mains Isolator
- Low ambient fan speed control (FSC)
- Liquid receiver with fitted pressure relief valve
- Compressor motor starter with short circuit and overload protection
- Twin scroll compressors including contactors (with liquid injection and oil management system on low temperature 'LS' models)
- Volt-free contact for alarm signal (relay)
- HP/LP switch auto reset
- Sight glass and filter drier
- Rotalock service valves on compressors and receiver
- Oil separator
- Electronic Step Controller

Options

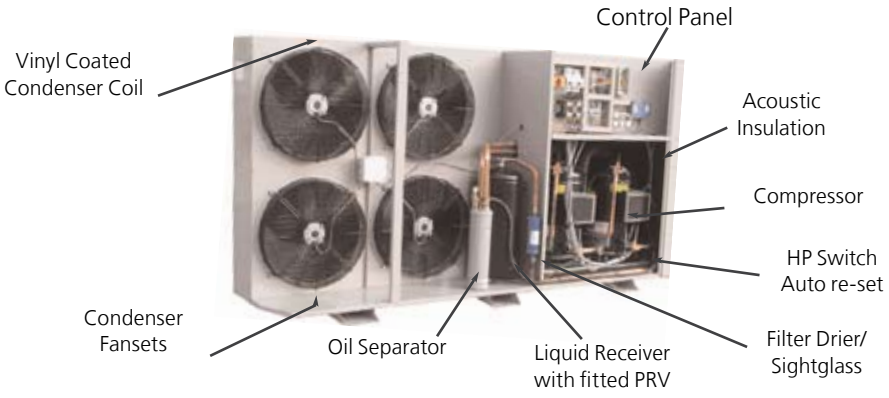
- Copper fin coil
- Fully crated packing

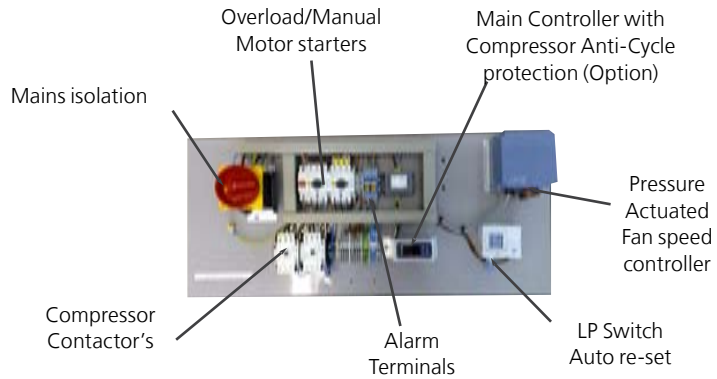
N2CQ Features

Standard specification | Options

N 2 C Q 112 - 3 M X - C 3 F I - V

Range	N
Comp Technology	2C = Twin Scroll compressor
Unit Type	Q = Quiet (6pl)
Compressor Capacity	eg. 112 = 2x ZB56, 22 = 2X ZF11
Phase	3 = 3 Phase
Temperature	M = Medium, L = Low,
Oil Separator	S = Oil separator, X = No oil separator, V = EVI
Coil/Case	D, E
Rows	2, 3
Controls	E =Elec. controller + Fan Speed Control + Anti-Recycle Timer + Alarm Relay, F = Fan Speed Control W = Fan Speed Control + Anti-Recycle Timer + Alarm Relay, T = Anti Recycle Timer + Alarm Relay
Insulation	I = Insulation
Optional Extras	V = Vinyl coated aluminium fin, C = Copper fin, O = Evaporator Contactor, S = Solenoid valve, G = Evap. Contactor + Sol. valve





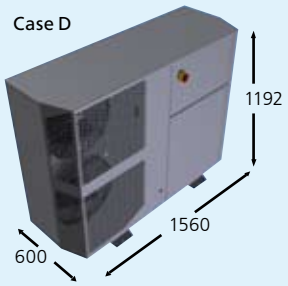
N2CQ Twin Scroll Condensing unit

N2CQ 'L' RANGE Low Noise Twin Compressor

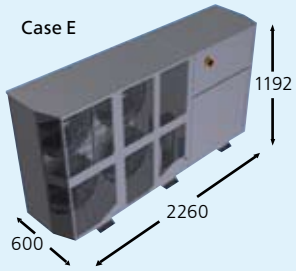
R404A

Low Temperature

Case D



Case E

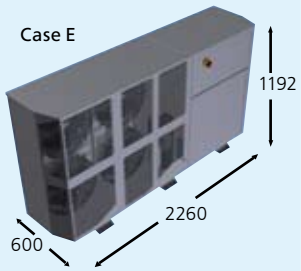


Model	Ambient	Saturated Suction Temperature (^{O}C)						
	(^{O}C)	-40	-35	-30	-25	-20	-15	-10
N2CQ18-3LS-D	27	3362	4293	5225	6413	7601	9143	10685
	32	3157	4026	4895	5994	7093	8528	9964
	35	3034	3865	4697	5742	6788	8159	9531
	43	2706	3437	4168	5072	5975	7176	8376
N2CQ22-3LS-D	27	4207	5331	6456	7829	9202	10982	12762
	32	3932	4981	6030	7305	8580	10227	11873
	35	3768	4771	5775	6991	8207	9773	11340
	43	3329	4211	5093	6152	7212	8564	9917
N2CQ26-3LS-D	27	4707	6028	7349	8965	10581	12559	14536
	32	4444	5636	6829	8314	9800	11649	13498
	35	4286	5401	6517	7924	9331	11103	12875
	43	3865	4775	5685	6883	8081	9647	11214
N2CQ30-3LS-D	27	5796	7346	8896	10855	12814	15165	17515
	32	5419	6859	8299	10082	11865	14031	16198
	35	5193	6566	7940	9618	11295	13352	15408
	43	4590	5786	6983	8380	9777	11539	13300
N2CQ36-3LS-D	27	6957	8724	10492	12697	14903	17537	20172
	32	6483	8118	9754	11782	13810	16232	18654
	35	6198	7755	9312	11233	13155	15449	17743
	43	5439	6785	8132	9769	11407	13360	-
N2CQ48-3LS-E	27	8708	11123	13538	16515	19492	23196	26899
	32	8083	10365	12647	15408	18170	21584	24999
	35	7707	9910	12112	14744	17377	20618	23859
	43	6706	8696	10686	12974	15261	18040	20818
N2CQ66-3LS-E	27	10364	14201	18037	21895	25754	30079	34404
	32	9694	13189	16685	20224	23763	27792	31822
	35	9292	12583	15873	19221	22568	26420	30272
	43	8219	10965	13710	16546	19381	22761	-

N2CQ 'L' EVI Low Noise Twin Compressor

Low Temperature

Case E



N2CQ26-3LV-D	27	6634	8364	10093	12264	14435	17268	20100
	32	6333	8054	9774	11933	14092	16940	19787
	35	6153	7868	9583	11735	13887	16743	19599
	43	5671	7372	9073	11205	13338	16217	-
N2CQ36-3LV-E	27	9920	12161	14401	17264	20127	23779	27432
	32	9846	11982	14117	16860	19603	23159	26715
	35	9801	11874	13947	16618	19288	22787	26285
	43	9682	11587	13493	15971	18450	21794	25138
N2CQ48-3LV-E	27	11684	14806	17928	21613	25298	29653	34008
	32	11381	14492	17604	21166	24728	28878	33027
	35	11199	14304	17409	20898	24387	28413	32439
	43	10715	13802	16889	20182	23476	27173	-
N2CQ66-3LV-E	27	16226	20075	23924	28577	33230	38836	44442
	32	15982	19660	23337	27754	32171	37514	42856
	35	15836	19410	22985	27261	31536	36720	41904
	43	-	-	-	-	-	-	-

Performance data in Watts rated at 20^{O}C Return Gas Temperature, 0K Sub Cooling

Compressor		Case Size Drawing	Fansets (230V/1ph/50Hz)			Connection Sizes		Liquid Receiver	Dry Weight	Sound Levels	
FLC	LRA		Number of Fans and Diameter	FLC	LRA	Suction	Liquid			dB(A)*	
(A)	(A)			(A)	(A)	inches	inches	(L)	(kg)	Max*	Min*
2x 6.0	2x 40	D	2x 450 6pl	2.0	3.6	1 1/8	5/8	18.0	218	42	38
2x 7.0	2x 46	D	2x 450 6pl	2.0	3.6	1 1/8	5/8	18.0	220	42	38
2x 8.0	2x 52	D	2 x 450 6pl	2.0	3.6	1 3/8	5/8	18.0	241	42	38
2x 10.0	2x 64	D	2 x 450 6pl	2.0	3.6	1 3/8	5/8	18.0	251	42	38
2x 12.0	2x 74	D	2 x 450 6pl	2.0	3.6	1 3/8	5/8	18.0	255	42	38
2x 16.1	2x 99	E	4x 450 6pl	4.0	7.2	1 5/8	7/8	18.0	435	45	41
2x 22.3	2x 134	E	4x 450 6pl	4.0	7.2	1 5/8	7/8	18.0	435	45	41

2x 8.0	2x 51.5	D	2x 450 6pl	2.0	3.6	1 3/8	5/8	18.0	241	42	38
2x 12.0	2x 74.5	E	4x 450 6pl	4.0	7.2	1 3/8	7/8	18.0	305	45	41
2x 16.1	2x 99	E	4x 450 6pl	4.0	7.2	1 5/8	7/8	18.0	435	45	41
2x 22.3	2x 127	E	4x 450 6pl	4.0	7.2	1 5/8	7/8	18.0	435	45	41

* Noise levels in dB(A) at 10m from the front face of the unit, min noise levels with fan speed control at minimum speed

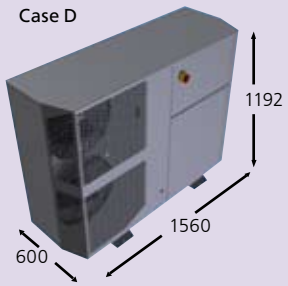
N2CQ Twin ScrollCondensing unit

N2CQ 'M' RANGE Low Noise Twin Compressor

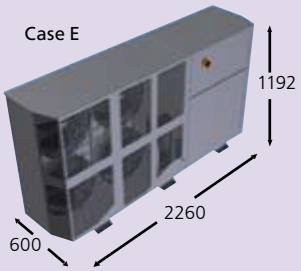
R404A

Medium Temperature

Case D



Case E



Model	Ambient	Saturated Suction Temperature (^{O}C)						
	(^{O}C)	-20	-15	-10	-5	0	5	10
N2CQ30-3MX-D	27	5408	6677	7947	9483	11020	12859	14698
	32	4889	6082	7274	8709	10145	11835	13525
	35	4579	5724	6870	8245	9619	11220	12822
	43	3749	4772	5794	7006	8218	9582	10945
N2CQ38-3MX-D	27	6622	8032	9442	11204	12966	15077	17188
	32	6122	7424	8727	10377	12028	13992	15956
	35	5821	7059	8297	9881	11465	13341	15216
	43	5021	6087	7152	8558	9964	11604	13245
N2CQ42-3MX-D	27	7844	9462	11080	13071	15062	17363	19664
	32	7250	8739	10229	12074	13920	16059	18197
	35	6894	8306	9718	11476	13235	15276	17317
	43	5945	7150	8356	9882	11408	13189	14970
N2CQ52-3MX-D	27	9079	10961	12843	15174	17505	20233	22961
	32	8364	10118	11871	14037	16202	18748	21293
	35	7935	9612	11288	13354	15420	17856	20293
	43	6791	8262	9733	11534	13335	15480	17625
N2CQ60-3MX-D	27	10423	12543	14663	17250	19837	22843	25850
	32	9566	11532	13498	15910	18321	21156	23991
	35	9052	10925	12799	15105	17412	20144	22876
	43	7682	9308	10934	12960	14987	-	-
N2CQ76-3MX-E	27	13396	16224	19053	22506	25958	30032	34105
	32	12365	14989	17612	20836	24059	27864	31668
	35	11746	14247	16748	19834	22920	26563	30206
	43	10097	12270	14443	17162	19882	23095	26307
N2CQ90-3MX-E	27	15766	19082	22397	26420	30442	35127	39813
	32	14565	17623	20681	24420	28159	32512	36865
	35	13844	16748	19652	23220	26789	30943	35097
	43	11923	14415	16906	20021	23136	26759	30381
N2CQ112-3MX-E	27	17993	21603	25213	29497	33781	38743	43704
	32	16639	19961	23283	27230	31176	35768	40360
	35	15827	18976	22125	25869	29613	33983	38354
	43	13660	16349	19038	22242	25446	29224	-

Performance data in Watts rated at 20^{O}C Return Gas Temperature, 0K Sub Cooling

Compressor		Case Size Drawing	Fansets (230V/1ph/50Hz)			Connection Sizes		Liquid Receiver	Dry Weight	Sound Levels	
FLC	LRA		Number of Fans and Diameter	FLC	LRA	Suction	Liquid			dB(A)*	
(A)	(A)			(A)	(A)	inches	inches	(L)	(kg)	Max*	Min*
2x 4.9	2x 26	D	2x 450 6pl	2.0	3.6	1 1/8	5/8	18.0	203	42	38
2x 6.5	2x 32	D	2x 450 6pl	2.0	3.6	1 1/8	5/8	18.0	209	42	38
2x 7.2	2x 40	D	2x 450 6pl	2.0	3.6	1 1/8	5/8	18.0	220	42	38
2x 8.85	2x 46	D	2x 450 6pl	2.0	3.6	1 3/8	5/8	18.0	222	42	38
2x 10.3	2x 49.3	D	2x 450 6pl	2.0	3.6	1 3/8	5/8	18.0	240	42	38
2x 12.8	2x 65.5	E	4x 450 6pl	4.0	7.2	1 3/8	7/8	18.0	273	45	41
2x 13.1	2x 74	E	4x 450 6pl	4.0	7.2	1 3/8	7/8	18.0	295	45	41
2x 15.4	2x 99	E	4x 450 6pl	4.0	7.2	1 5/8	7/8	18.0	426	45	41

* Noise levels in dB(A) at 10m from the front face of the unit, min noise levels with fan speed control at minimum speed

NDQ - N2DQ Condensing Units

GEA Searle NDQ and N2DQ Digital condensing units are the latest addition to the Searle range. They feature the new scroll digital compressor which precisely matches the refrigeration load to provide significant energy savings.

The N2DQ is the twin compressor choice, with 1 digital scroll and 1 normal scroll compressor.

The NDQ comprises three models and N2DQ range comprises five models using refrigerants R404A/R507 and R407C. The low temperature models (-40 °C to -10°C) cover a capacity range of 6.22 kW to 12.22 kW while the medium temperature units (-20°C to +10°C) range from 7.19 kW to 20.7 kW.

N2CQ Standard Features

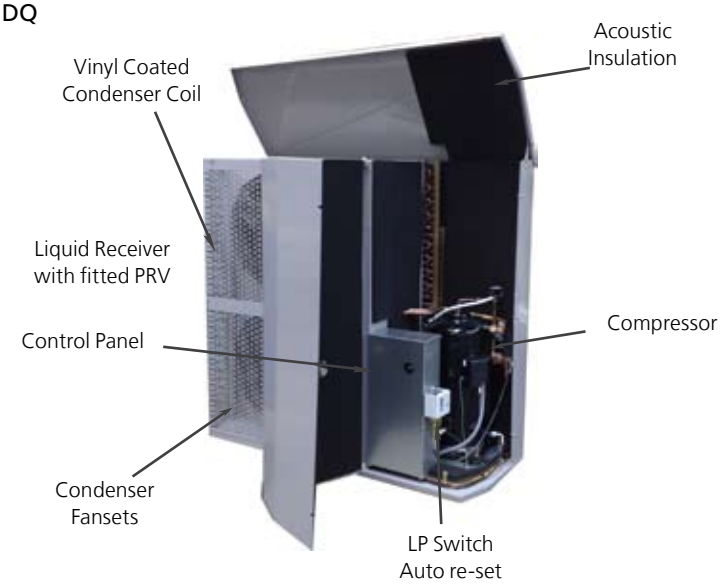
- CE Marked Unit
- Weatherproof housing with separate, acoustically lined compressor compartment
- Concealed, low noise condenser fans
- Copper tube coil with vinyl-coated aluminium fins
- Capacity control 100-10-0% for NDQ, 100-5-0% for N2DQ
- Fully-wired control panel with Mains Isolator
- Electronic step controller
- Low ambient fan speed control
- MCB protected crankcase heaters
- Twin scroll compressors (with liquid injection and oil management system on low temperature 'LS' models)
- Compressor motor starter with short circuit and overload protection
- Compressor contactors
- Compressor start delay and anti-recycle timer integrated into step control.
- Volt-free contact for alarm signal
- HP/LP switch auto reset
- Sight glass and filter drier
- Liquid receiver with fitted pressure relief valve
- Rotalock service valves on compressors and receiver
- Oil level sight glass

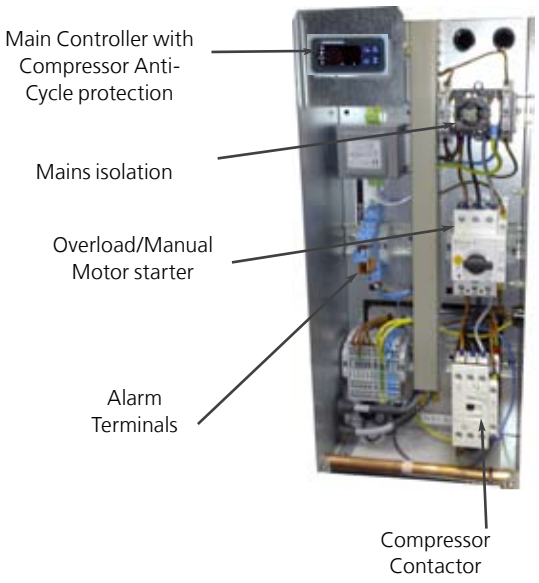
NDQ - N2DQ Standard Features

N	D	Q	30	-	3	M	X	-	C

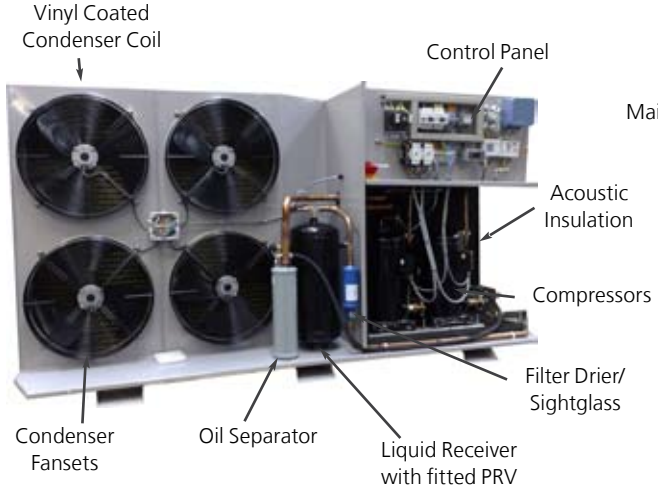
Range	N
Comp Technology	D = Single Digital Scroll, 2D =Twin Digital Scroll
Unit Type	Q = Quiet (6pl)
Compressor Capacity	eg. 30, 45, 60
Phase	3 = 3 Phase
Temperature	M = Medium, L = Low,
Oil Separator	S = Oil separator, X = No oil separator, V = EVI
Coil/Case	C, D, E

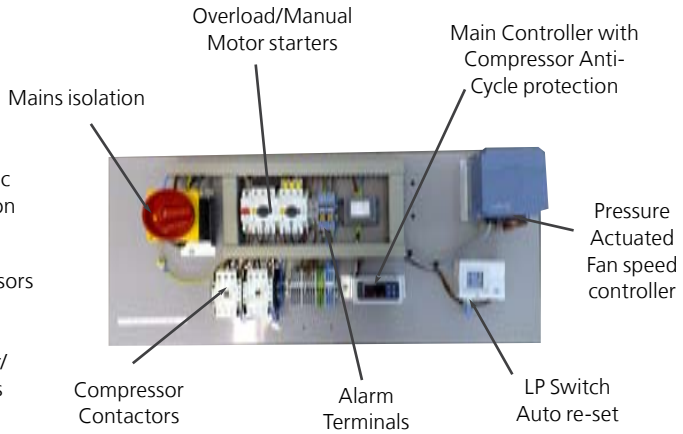
NDQ





N2DQ



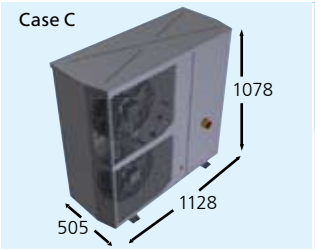


NDQ - N2DQ Single & Twin Digital Condensing Unit

NDQ 'L' RANGE Low Noise Digital EVI

R404A

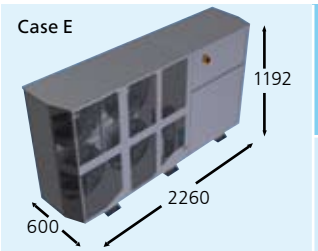
Low Temperature



Model	Ambient	Saturated Suction Temperature (°C)						
	(°C)	-40	-35	-30	-25	-20	-15	-10
NDQ18-3LV-C	27	5146	6311	7476	8968	10459	12388	14316
	32	5119	6225	7331	8765	10198	12078	13959
	35	5103	6174	7245	8643	10041	11893	13744
	43	5060	6037	7014	8318	9623	11398	-

N2DQ 'L' RANGE Low Noise Digital Twin EVI Compressor

Low Temperature



Model	Ambient	Saturated Suction Temperature (°C)						
	(°C)	-40	-35	-30	-25	-20	-15	-10
N2DQ36-3LV-E	27	10108	12400	14692	17625	20559	24327	28096
	32	10044	12225	14405	17221	20036	23708	27380
	35	10006	12120	14234	16978	19722	23337	26951
	43	9904	11840	13776	16331	18886	22346	25806

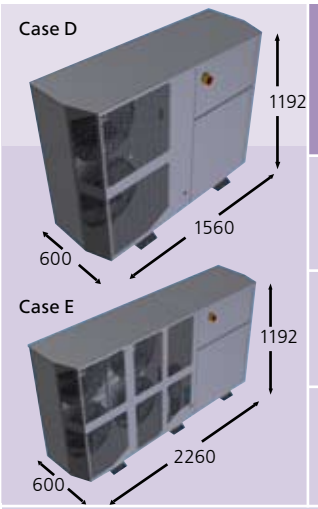
NDQ 'M' RANGE Low Noise Single Digital

Medium Temperature

Model	Ambient	Saturated Suction Temperature (°C)						
	(°C)	-20	-15	-10	-5	0	5	10
NDQ30-3MX-C	27	5454	6556	7654	8987	10320	11856	13392
	32	5077	6098	7119	8364	9609	11054	12500
	35	4851	5824	6798	7990	9182	10574	11965
	43	4247	5095	5942	6993	8045	9291	10537
NDQ45-3MX-C	27	7188	8914	10640	12806	14972	17577	20182
	32	6812	8472	10133	12220	14308	16813	19318
	35	6587	8208	9828	11869	13909	16355	18800
	43	5986	7501	9016	10932	-	-	-

N2DQ 'M' RANGE Low Noise Digital Twin Compressor

Medium Temperature



Model	Ambient	Saturated Suction Temperature (°C)						
	(°C)	-20	-15	-10	-5	0	5	10
N2DQ60-3MX-D	27	10537	12640	14743	17284	19825	22745	25666
	32	9734	11684	13633	16002	18371	21122	23872
	35	9253	11110	12966	15233	17499	20148	22796
	43	7969	9579	11190	13182	15173	-	-
N2DQ60-3MX-E	27	11154	13511	15868	18803	21737	25212	28686
	32	10343	12536	14728	17472	20217	23489	26762
	35	9856	11950	14044	16674	19304	22456	25608
	43	8558	10389	12220	14546	16871	19700	22530
N2DQ90-3MX-E	27	15216	18654	22091	26344	30597	35660	40723
	32	14237	17477	20716	24743	28770	33557	38343
	35	13650	16771	19891	23783	27674	32295	36915
	43	12084	14888	17691	21221	24751	28929	-

Performance data in Watts rated at 20°C Return Gas Temperature, 0K Sub Cooling

Compressor		Case Size Drawing	Fansets (230V/1ph/50Hz)			Connection Sizes		Liquid Receiver	Dry Weight	Sound Levels	
FLC	LRA		Number of Fans and Diameter	FLC	LRA	Suction	Liquid			dB(A)*	
(A)	(A)			(A)	(A)	inches	inches	(L)	(kg)	Max*	Min*
13.8	74.0	C	2x 400 6pl	1.4	2.8	7/8	1/2	6.2	167	42	36

Compressor		Case Size Drawing	Fansets (230V/1ph/50Hz)			Connection Sizes		Liquid Receiver	Dry Weight	Sound Levels	
FLC	LRA		Number of Fans and Diameter	FLC	LRA	Suction	Liquid			dB(A)*	
(A)	(A)			(A)	(A)	inches	inches	(L)	(kg)	Max*	Min*
13.8 12.0	74.0 74.0	E	4x 450 6pl	4.0	7.2	1 5/8	7/8	18.0	305	45	41

Compressor		Case Size Drawing	Fansets (230V/1ph/50Hz)			Connection Sizes		Liquid Receiver	Dry Weight	Sound Levels	
FLC	LRA		Number of Fans and Diameter	FLC	LRA	Suction	Liquid			dB(A)*	
(A)	(A)			(A)	(A)	inches	inches	(L)	(kg)	Max*	Min*
7.9	51.5	C	2x 400 6pl	1.4	2.8	7/8	1/2	6.2	159	41	34
11.4	74.0	C	2x 400 6pl	1.4	2.8	7/8	1/2	6.2	170	41	34

Compressor		Case Size Drawing	Fansets (230V/1ph/50Hz)			Connection Sizes		Liquid Receiver	Dry Weight	Sound Levels	
FLC	LRA		Number of Fans and Diameter	FLC	LRA	Suction	Liquid			dB(A)*	
(A)	(A)			(A)	(A)	inches	inches	(L)	(kg)	Max*	Min*
7.9 10.0	51.5 51.5	D	2x 450 6pl	2.0	3.6	1 3/8	5/8	18.0	240	42	38
7.9 10.0	51.5 51.5	E	4x 450 6pl	4.0	7.2	1 3/8	7/8	18.0	295	45	41
13.0 11.4	74.0 74.0	E	4x 450 6pl	4.0	7.2	1 3/8	7/8	18.0	295	45	41

* Noise levels in dB(A) at 10m from the front face of the unit, min noise levels with fan speed control at minimum speed

Correction Factors

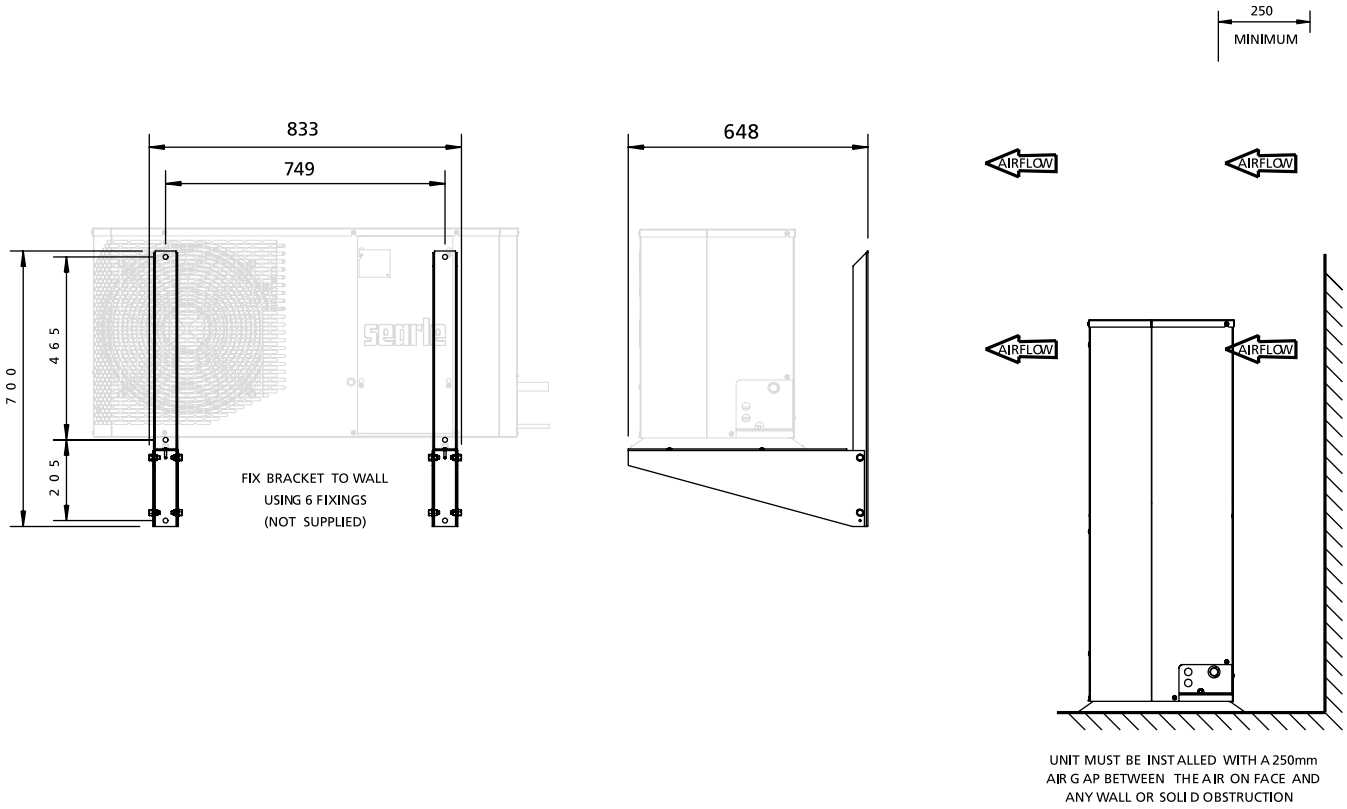
R407C Capacities

The following units can be used with R407C refrigerant : NSE-NCE 'M' units, NSQ-NCQ 'M' units and N2CQ 'M' units.
Multiply the relevant R404A capacity by the factor below.

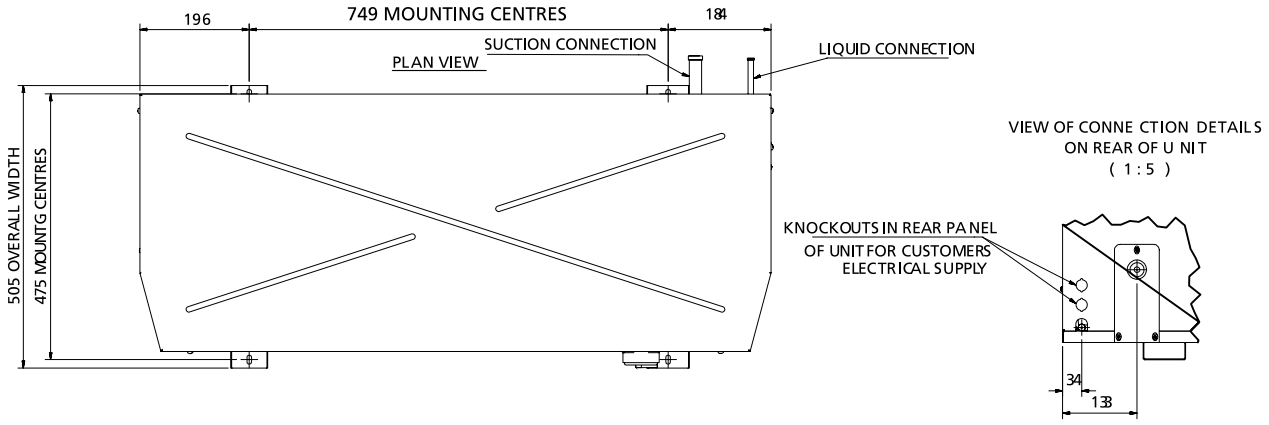
Model Average	Ambient	Saturated Suction Temperature (℃)						
	(°C)	-20	-15	-10	-5	0	5	10
R407C from R404A Correction Factors	27	0.809	0.848	0.876	0.914	0.942	0.966	0.984
	32	0.807	0.852	0.883	0.926	0.957	0.982	1.001
	35	-	0.854	0.888	0.933	0.967	0.992	1.012
	38	-	-	0.893	0.942	0.978	1.004	-
	43	-	-	-	0.959	-	-	-

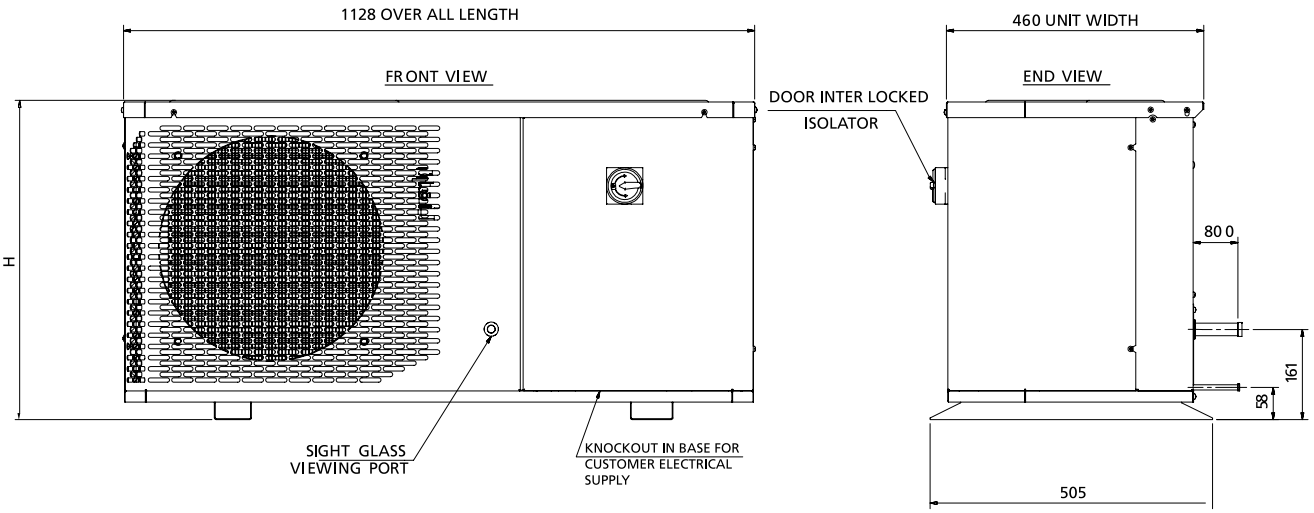
Correction factors are for guidance only, and are subject to a +/-8% Tolerance -20 to -15 SST, and +/-5% Tolerance -10 to +10 SST. Contact Searle for a detailed unit selection if required.

Wall and floor mounting instructions - Case A, B & C



Case A & B

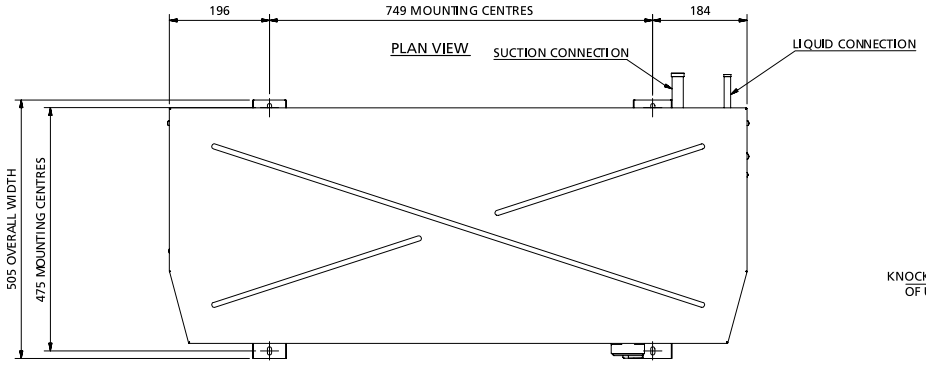


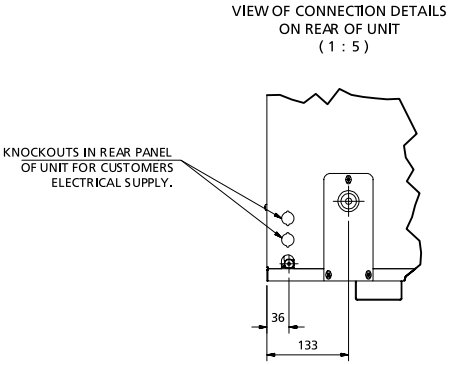


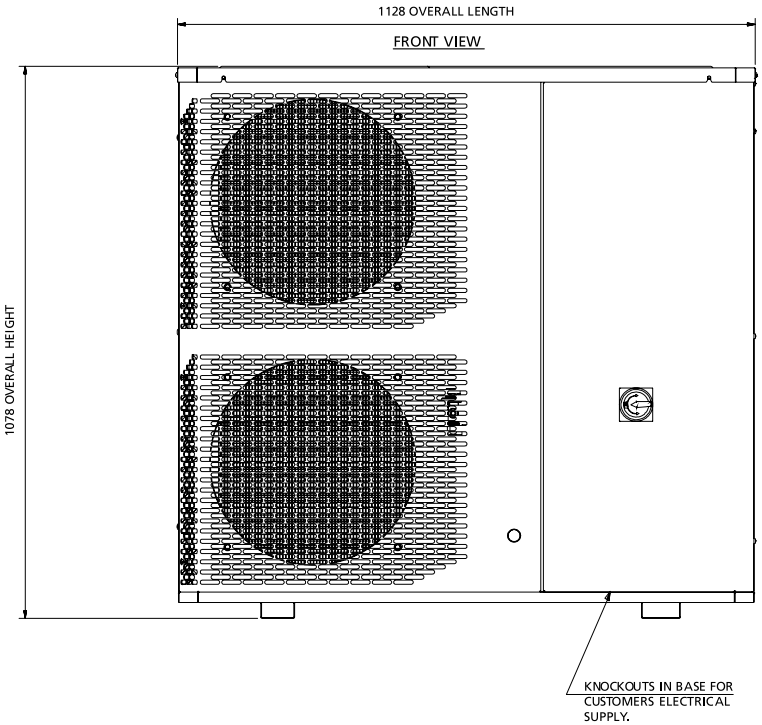
	H
Case A	570
Case B	672

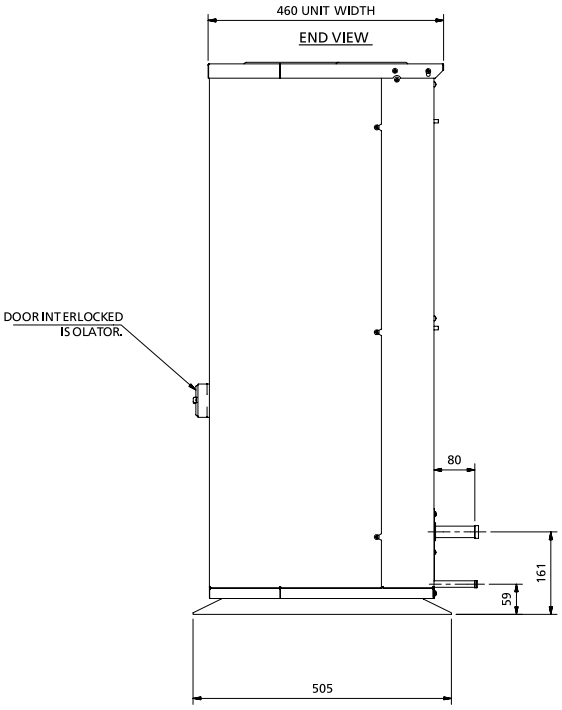
Dimension Drawings

Case C

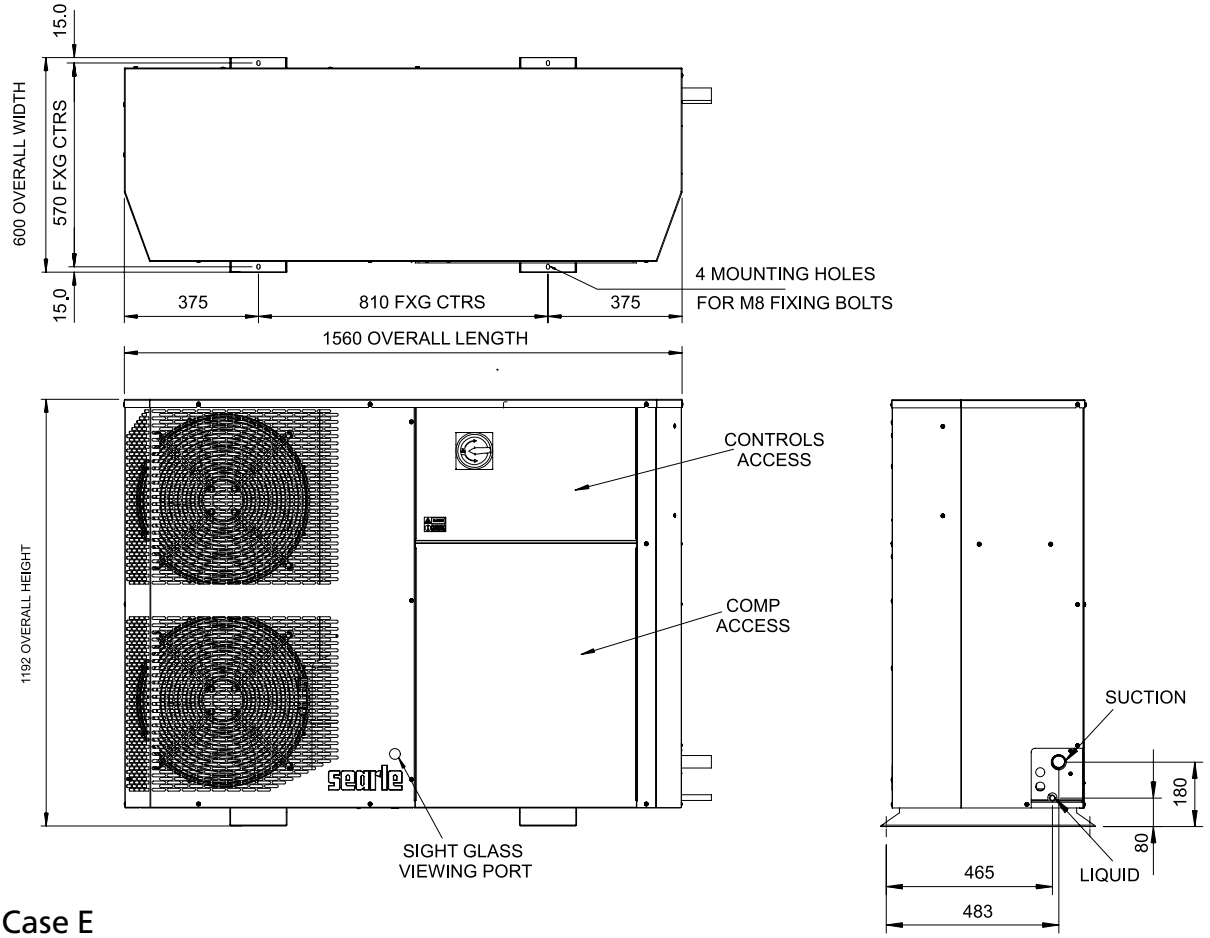




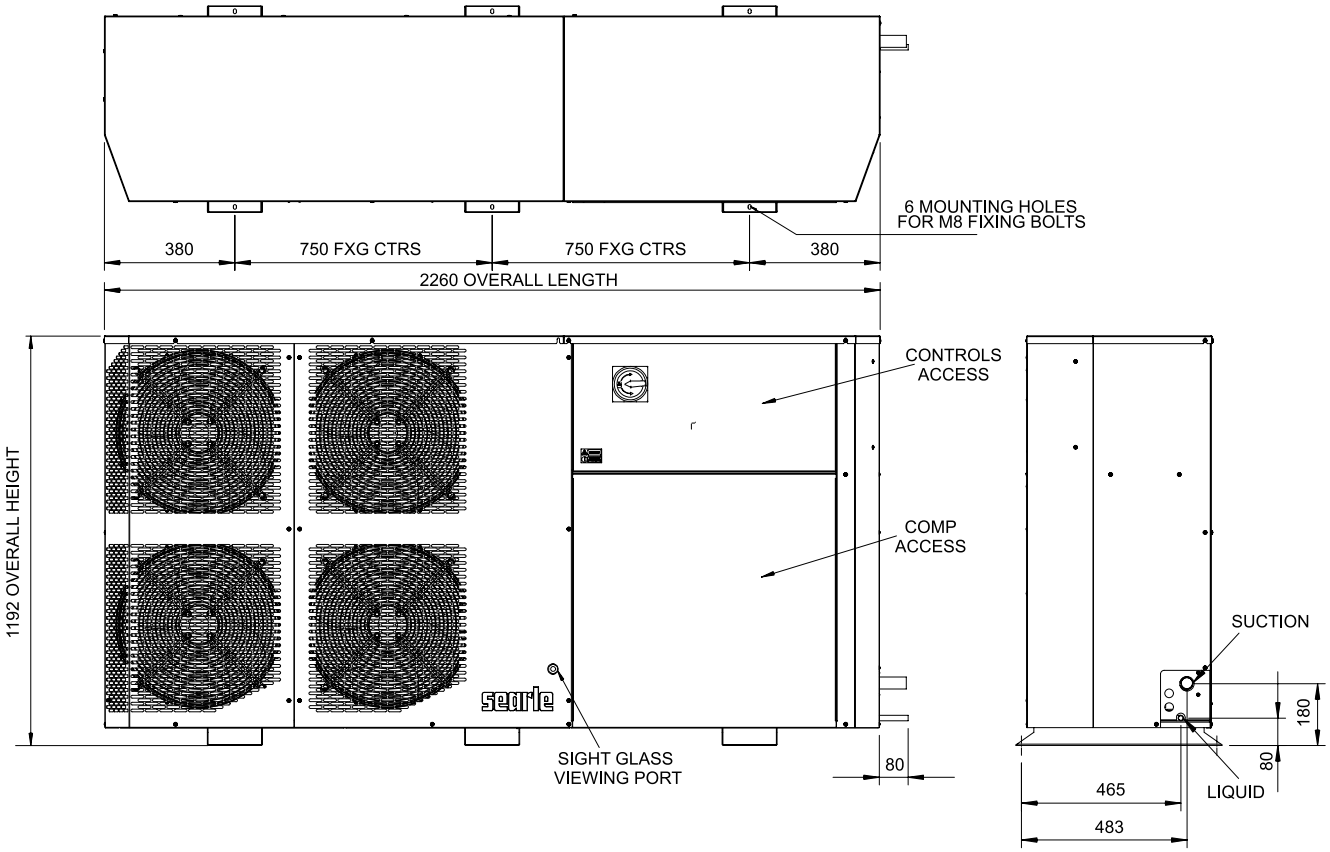




Case D


15.0
600 OVERALL WIDTH
570 FXG CTRS
15.0
375
810 FXG CTRS
375
4 MOUNTING HOLES
FOR M8 FIXING BOLTS
1560 OVERALL LENGTH
1192 OVERALL HEIGHT
CONTROLS
ACCESS
COMP
ACCESS
SUCTION
180
80
LIQUID
465
483
SIGHT GLASS
VIEWING PORT

Case E


6 MOUNTING HOLES
FOR M8 FIXING BOLTS
380
750 FXG CTRS
750 FXG CTRS
380
2260 OVERALL LENGTH
1192 OVERALL HEIGHT
CONTROLS
ACCESS
COMP
ACCESS
SUCTION
180
80
LIQUID
465
483
80
SIGHT GLASS
VIEWING PORT

HCU Condensing unit

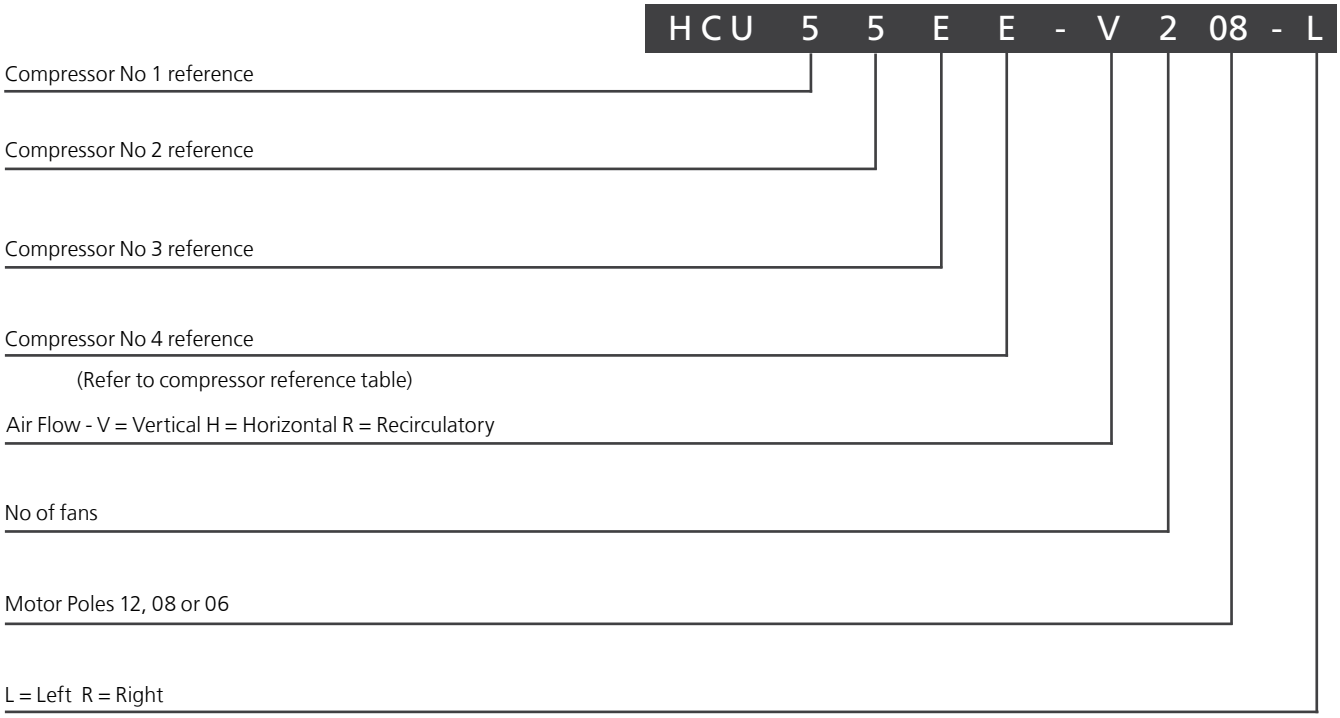
The HCU Range of condensing sets offers a unique, ready-packaged solution for fast and easy installation of refrigeration systems where either three or four compressors are required. The range offers the following benefits:-

- Compact, aesthetic design (minimises site space and visual impact)
- Fully pre-wired, packaged unit (easy and strighforward to install)
- Comprehensive controls package (easy to set up and commission)
- Energy efficient design (low running costs)
- Low noise compressors and fansets (reduced environmental impact)
- High quality, reliable components (low-maintenance, low lifetime costs)
- for other unit combinations, including dual temperatures, contact sales representatives

Compressor Reference Table

Med Temp	Reference	Low Temp	Reference
ZB15KCE-TFD	0		
ZB19KCE-TFD	1		
ZB21KCE-TFD	2	ZF09K4E-TFD	C
ZB26KCE-TFD	3	ZF11K4E-TFD	D
ZB30KCE-TFD	4	ZF13K4E-TFD	E
ZB38KCE-TFD	5	ZF15K4E-TFD	F
ZB45KCE-TFD	6	ZF18K4E-TFD	G
ZB56KCE-TWD	7	ZF24K4E-TWD	H
ZB75KCE-TWD	8	ZF33K4E-TWD	J
ZB92KCE-TWD	9	ZF40K4E-TWD	K
No Compressor	-	No Compressor	-

HCU - Specification Summary



Overview

- Suitable for use with R404A , R507A and R407C on medium temperature units (other refrigerants on application).
- Two or three fans (two fans only on 12-pole).
- 6, 8 or 12-pole motors for low-noise operation.
- Choice of three air-flow configurations for siting units internally or externally.
- Condenser coil with vinyl coated aluminium fins for extended life. Optional copper fin coil.
- Integral liquid sub-cooling section to enhance performance.
- Removable doors and access panels for easy maintenance.
- 35 litre liquid receiver with fitted PRV. Options for Twin PRV, Twin burst disc, sightglass, low level indicator.
- Rotalock valves on all compressors and receivers for easy maintenance.
- Fully weatherproof, grey gloss painted, pre-galvanized steel casing.
- Acoustically lined compressor housing for minimal noise break-out.
- CE marked and manufactured under BS EN ISO 9001 Quality Assurance.
- Units can be supplied with left or right handed connections.
- Forklift channels for ease of lifting.

Compressor and System

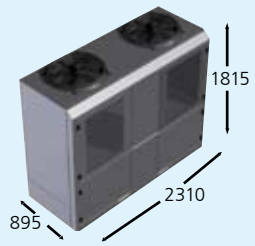
- Integral, separate acoustically lined compressor housing with forced extraction cooling.
- Various combinations of three or four Copeland Compliant scroll compressors for low or high temperature applications.
- Compressor rotalock valves for quick and easy maintenance.
- In-built oil management system - high pressure combined coalescing separator/ reservoir with individual oil level regulators.
- Oil separator shut-off valves for easy filter replacement.
- Spare separator filter supplied loose with unit.
- Crankcase heaters as standard.
- Vibration eliminators on compressor suction and discharge lines.
- Suction line ball valve and filter with replaceable core.
- Liquid line replaceable core drier with fitted core and replacement.
- Liquid line three-way valve enabling filter bypass for easy core change.

Electrical controls

- Control components located in easily-accessible, separate front enclosure.
- 24V control system.
- Modulating fan speed control maintains head pressure in low ambient temperatures.
- Compressor contactors and thermal overloads, incorporating short circuit protection, and individual compressor isolation.
- Individual compressor short cycle prevention function.
- Mains isolator and system HP/LP switch (manual/ auto).
- Additional DIN rail space for customers' additional controls with 100A integrated contact on isolator.
- Electronic compressor sequence controller with optional automatic backup system

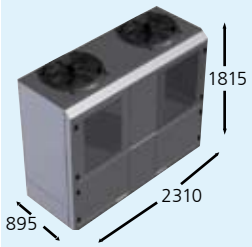
HCU L Range

HCU 'L' RANGE Ultra Low Noise (12pl) Low Temperature



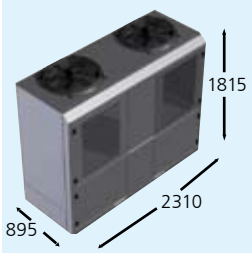
Model	Ambient	Saturated Suction Temperature (°C)						
	(°C)	-40	-35	-30	-25	-20	-15	-10
HCU DDD V/H 212 R/L	27	6466	8236	10005	12214	14422	17370	20318
	32	6057	7710	9364	11420	13477	16212	18946
	35	5811	7395	8979	10944	12909	15516	18124
	43	5156	6555	7953	9675	11396	13663	15930
HCU DDDD V/H 212 R/L	27	8670	11055	13441	16434	19426	23449	27471
	32	8124	10355	12585	15374	18162	21897	25631
	35	7797	9935	12072	14738	17403	20965	24528
	43	6925	8814	10704	13042	15380	18482	21584
HCU EEE V/H 212 R/L	27	7223	9344	11465	14114	16763	20065	23367
	32	6832	8757	10682	13127	15571	18666	21761
	35	6598	8405	10213	12535	14856	17827	20798
	43	5972	7467	8961	10955	12950	15590	18229
HCU EEEE V/H 212 R/L	27	9467	12155	14842	18147	21451	25511	29571
	32	8942	11372	13801	16841	19882	23680	27478
	35	8627	10902	13176	16058	18940	22581	26223
	43	7787	9649	11511	13970	16429	19652	22874
HCU FFF V/H 212 R/L	27	8852	11270	13688	16821	19954	23782	27610
	32	8288	10539	12790	15653	18515	22054	25592
	35	7950	10101	12252	14952	17653	21017	24381
	43	7049	8932	10815	13083	15351	18252	21153
HCU FFFF V/H 212 R/L	27	11515	14573	17630	21456	25282	29844	34406
	32	10761	13598	16434	19912	23390	27591	31792
	35	10308	13013	15717	18986	22255	26239	30224
	43	9101	11452	13804	16515	19227	22634	26041

HCU 'L' RANGE Low Noise (8pl) Low Temperature



HCU FFFF V/H 208 R/L	27	11890	15167	18444	22734	27023	32308	37593
	32	11140	14194	17247	21172	25097	29987	34877
	35	10691	13609	16528	20235	23942	28594	33247
	43	9492	12052	14612	17736	20860	24881	28901
HCU GGG V/H 208 R/L	27	11009	13974	16940	20841	24723	29694	34645
	32	10304	13065	15826	19438	23050	27635	32220
	35	9881	12519	15157	18595	22034	26399	30765
	43	8753	11064	13374	16349	19325	23105	26885
HCU GGGG V/H 308 R/L	27	14512	18371	22230	27250	32269	38555	44841
	32	13570	17158	20747	25387	30028	35841	41653
	35	13004	16431	19857	24270	28683	34212	39740
	43	11497	14491	17484	21291	25097	29869	34640
HCU HHH V/H 308 R/L	27	13222	16921	20620	25237	29854	35681	41507
	32	12284	15783	19282	23571	27861	33242	38623
	35	11722	15100	18478	22571	26665	31779	36893
	43	10221	13279	16337	19906	23475	27877	32280

HCU 'L' RANGE Standard Noise (6pl) Low Temperature



HCU HHHH V/H 306 R/L	27	17659	22603	27547	33729	39911	47727	55543
	32	16408	21085	25762	31507	37251	44471	51692
	35	15657	20174	24691	30173	35655	42518	49381
	43	13655	17746	21836	26618	31400	37309	43218
HCU JJJ V/H 306 R/L	27	16126	22463	28800	35445	42091	49758	57425
	32	15132	20945	26759	32896	39033	46211	53388
	35	14535	20035	25534	31366	37199	44082	50966
	43	12944	17606	22268	27288	32307	38407	44506
HCU JJJJ V/H 306 R/L	27	21063	29066	37068	45264	53460	62762	72064
	32	19728	27042	34356	41896	49435	58121	66808
	35	18928	25828	32729	39875	47020	55337	63654
	43	16792	22591	28390	34485	40581	47913	55245

Performance data in Watts rated at 20°C Return Gas Temperature, 0K Sub Cooling

HCU Technical Data

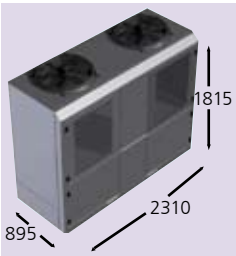
Compressor		Case Size Drawing	Fansets (230V/1ph/50Hz)			Connection Sizes		Liquid Receiver	Dry Weight	Sound Levels	
FLC	LRA		Number of Fans and Diameter	FLC	LRA	Suction	Liquid			dB(A)*	
(A)	(A)			(A)	(A)	inches	inches	(L)	(kg)	Max*	Min*
3x 7	3x 46	H	2x 630 12pl	2.4	3.0	1 5/8	7/8	35.0	757	37	35
4x 7	4x 46	H	2x 630 12pl	2.4	3.0	2 1/8	7/8	35.0	790	38	36
3x 8	3x 52	H	2x 630 12pl	2.4	3.0	1 5/8	7/8	35.0	787	41	40
4x 8	4x 52	H	2x 630 12pl	2.4	3.0	2 1/8	7/8	35.0	830	42	41
3x 10	3x 64	H	2x 630 12pl	2.4	3.0	2 1/8	7/8	35.0	790	44	44
4x 10	4x 64	H	2x 630 12pl	2.4	3.0	2 1/8	7/8	35.0	790	44	44
4x 10	4x 64	H	2x 630 8pl	4.0	6.6	2 1/8	7/8	35.0	847	48	46
3x 12	3x 74	H	2x 630 8pl	4.0	6.6	2 1/8	7/8	35.0	810	46	42
4x 12	4x 74	H	3x 630 8pl	6.0	7.2	2 1/8	7/8	35.0	855	48	44
3x 16.1	3x 99	H	3x 630 8pl	6.0	7.2	2 5/8	7/8	35.0	1079	54	53
4x 16.1	4x 99	H	3x 630 6pl	8.7	14.4	2 5/8	7/8	35.0	1079	54	53
3x 22.3	3x 134	H	3x 630 6pl	8.7	14.4	2 5/8	7/8	35.0	1079	54	53
4x 22.3	4x 134	H	3x 630 6pl	8.7	14.4	2 5/8	7/8	35.0	1179	54	53

* Noise levels in dB(A) at 10m from the front face of the unit, min noise levels with fan speed control at minimum speed

HCU M Range

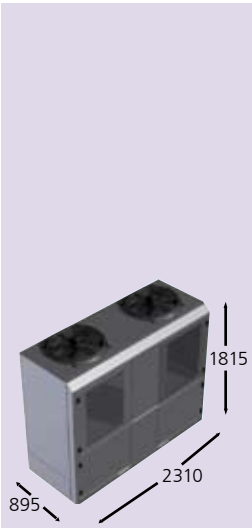
HCU 'M' RANGE Ultra Low Noise (12pl) Medium Temperature

R404A



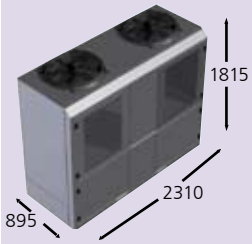
Model	Ambient	Saturated Suction Temperature (^{O}C)						
	(^{O}C)	-20	-15	-10	-5	0	5	10
HCU 333 V/H 212 R/L	27	13932	16871	19813	23508	27203	31587	35971
	32	12855	15599	18343	21780	25217	29313	33408
	35	12210	14836	17461	20744	24026	27948	31871
	43	10491	12800	15109	17979	20849	24310	27770

HCU 'M' RANGE Low Noise (8pl) Medium Temperature



HCU 3333 V/H 208 R/L	27	18809	22823	26837	31921	37004	43084	49163
	32	17374	21122	24869	29600	34331	40014	45697
	35	16513	20101	23688	28208	32728	38172	43617
	43	14217	17378	20539	24495	28451	33261	38071
HCU 444 V/H 208 R/L	27	16852	20507	24163	28791	33418	38959	44500
	32	15555	18959	22363	26690	31018	36253	41487
	35	14777	18030	21282	25430	29578	34628	39679
	43	12702	15552	18402	22070	25737	30298	34858
HCU 4444 V/H 208 R/L	27	21754	26341	30928	36641	42353	49095	55838
	32	20031	24295	28558	33894	39230	45593	51957
	35	18998	23067	27136	32246	37356	43492	49628
	43	16242	19793	23345	27851	32358	37888	43418
HCU 555 V/H 208 R/L	27	20413	24788	29163	34543	39923	46339	52755
	32	18863	22925	26987	32016	37044	43039	49035
	35	17933	21808	25682	30499	35316	41059	46802
	43	15454	18828	22201	26455	30709	35779	40849
HCU 5555 V/H 308 R/L	27	26617	32205	37792	44591	51390	59376	67362
	32	24557	29738	34919	41265	47611	55065	62519
	35	23321	28258	33195	39270	45344	52479	59613
	43	20026	24312	28598	33948	39298	45582	51865
HCU 666 V/H 308 R/L	27	23952	29056	34160	40391	46621	53952	61283
	32	22147	26859	31571	37366	43161	49978	56794
	35	21064	25541	30018	35552	41085	47593	54101
	43	18176	22026	25876	30713	35549	41234	46918
HCU 6666 V/H 308 R/L	27	30656	36919	43181	50672	58163	66715	75267
	32	28262	34027	39791	46743	53696	61626	69557
	35	26826	32291	37756	44386	51015	58573	66131
	43	22996	27664	32331	38099	43866	50431	-

HCU 'M' RANGE Standard Noise (6pl) Medium Temperature



HCU 6666 V/H 306 R/L	27	32021	38861	45700	54062	62424	72285	82145
	32	29613	35929	42246	50025	57805	66973	76142
	35	28168	34171	40173	47603	55033	63786	72540
	43	24316	29480	34645	41143	47642	55288	62934
HCU 777 V/H 306 R/L	27	28451	34492	40532	47959	55385	64311	73237
	32	26409	31994	37580	44449	51318	59604	67889
	35	25184	30496	35808	42343	48878	56779	64680
	43	21916	26500	31084	36728	42371	49247	56124
HCU 7777 V/H 306 R/L	27	36645	44143	51641	60640	69638	80185	90731
	32	33932	40844	47757	56057	64358	74128	83898
	35	32304	38865	45426	53308	61191	70494	79798
	43	27963	33587	39211	45977	52743	60804	68865
HCU 888 V/H 306 R/L	27	39798	47773	55748	65241	74733	85874	97015
	32	36959	44303	51647	60468	69289	79655	90020
	35	35256	42222	49187	57605	66023	75923	85823
	43	30715	36670	42625	49969	57313	65972	-
HCU 8888 V/H 306 R/L	27	50604	60177	69751	80878	92004	104622	117240
	32	46859	55638	64416	74727	85038	96750	108462
	35	44612	52914	61216	71037	80859	92027	103195
	43	38621	45651	52680	61197	-	-	-

Performance data in Watts rated at 20^{O}C Return Gas Temperature, 0K Sub Cooling

Compressor		Case Size Drawing	Fansets (230V/1ph/50Hz)			Connection Sizes		Liquid Receiver	Dry Weight	Sound Levels	
FLC	LRA		Number of Fans and Diameter	FLC	LRA	Suction	Liquid			dB(A)*	
(A)	(A)			(A)	(A)	inches	inches	(L)	(kg)	Max*	Min*
3x 8.85	3x 46	H	2x 630 12pl	2.4	3.0	1 5/8	7/8	35.0	751	37	35
4x 8.85	4x 46	H	2x 630 8pl	4.0	6.6	1 5/8	7/8	35.0	781	46	42
3x 10.3	3x 49.3	H	2x 630 8pl	4.0	6.6	2 1/8	7/8	35.0	822	46	43
4x 10.3	4x 49.3	H	2x 630 8pl	4.0	6.6	2 1/8	7/8	35.0	784	46	42
3x 12.8	3x 65.5	H	2x 630 8pl	4.0	6.6	2 1/8	7/8	35.0	839	48	44
4x 12.8	4x 65.5	H	3x 630 8pl	6.0	7.2	2 1/8	7/8	35.0	826	53	49
3x 13.1	3x 74	H	3x 630 8pl	6.0	7.2	2 1/8	7/8	35.0	790	52	48
4x 13.1	4x 74	H	3x 630 8pl	6.0	7.2	2 1/8	7/8	35.0	834	52	48
4x 13.1	4x 74	H	3x 630 6pl	8.7	14.4	2 1/8	7/8	35.0	971	55	51
3x 15.4	3x 99	H	3x 630 6pl	8.7	14.4	2 5/8	7/8	35.0	1071	55	51
4x 15.4	4x 99	H	3x 630 6pl	8.7	14.4	2 5/8	7/8	35.0	1171	55	51
3x 21.7	3x 127	H	3x 630 6pl	8.7	14.4	2 5/8	7/8	35.0	1071	55	51
4x 21.7	4x 127	H	3x 630 6pl	8.7	14.4	2 5/8	7/8	35.0	1171	55	51

* Noise levels in dB(A) at 10m from the front face of the unit, min noise levels with fan speed control at minimum speed

HCU Unit Selection

An HCU may be specified as either a three or four compressor unit, with either two or three condenser fans. Any combination of HT/LT compressors may be chosen. The duty of the compressors must be matched with the performance of the condenser coil, which is given in the table below. Any combination of compressors may be chosen from the two lists on page 34 showing the range of high and low temperature models.

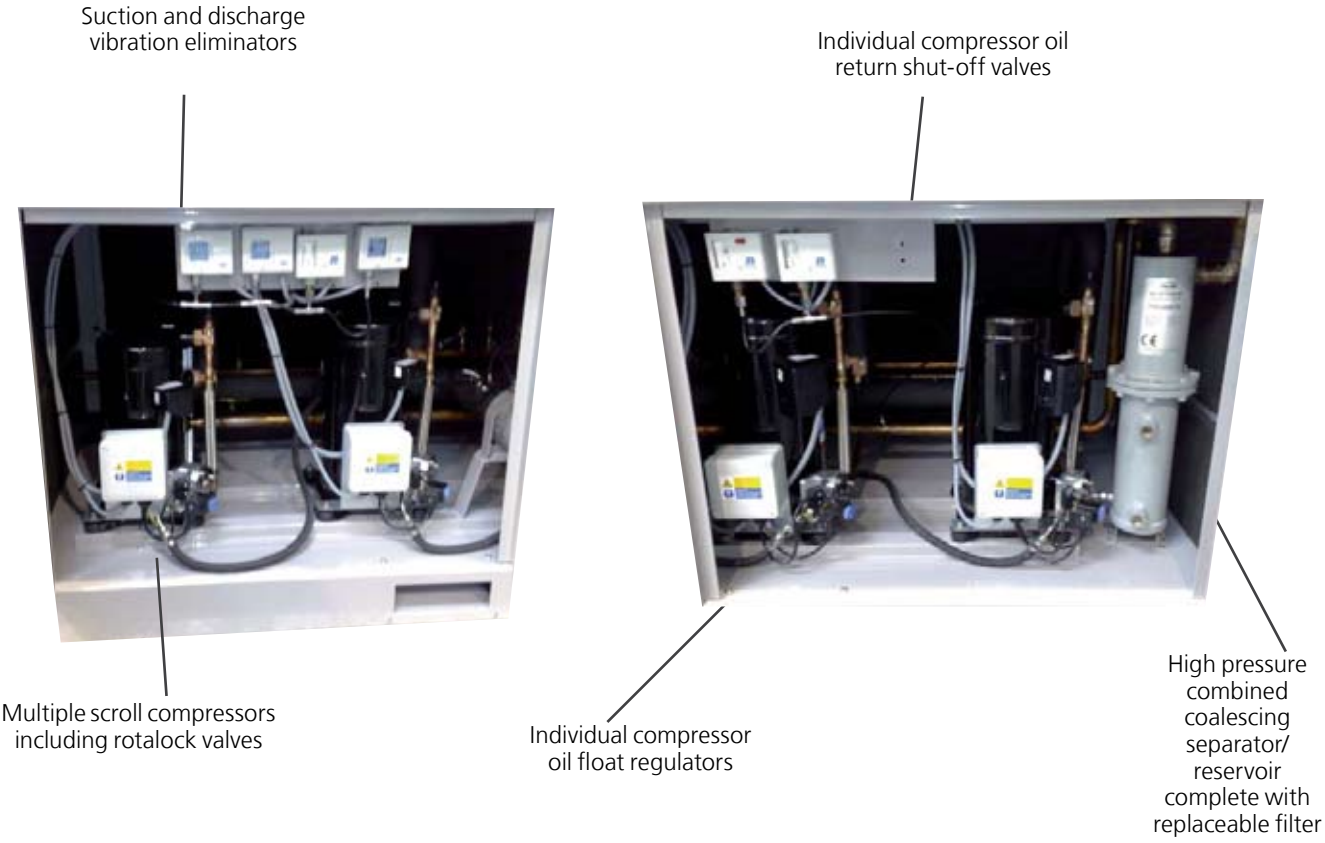
Compressor selection can be made using Copeland's Select software program or product literature which is available through Searle/ Dawmec. Alternatively, Searle's applications team would be pleased to make the required selections on your behalf.

*** Typical noise is based on a unit with four ZB45 (6HP) compressors.**

	No. Fans & Airflow	R404A Coil Duty (kW)				Typical Noise dBA@10m (*)	
		8 KTD	11KTD	13KTD	15 KTD	Fan speed	
						Max	Min
12 Pole	2 fan H & V	19.86	27.31	32.27	37.24	39	33
	2 fan R	N/A	N/A	N/A	N/A		
8 Pole	2 fan H & V	31.69	43.85	51.82	59.79	46	42
	2 fan R	26.05	35.82	42.34	48.85		
	3 fan R	38.51	52.95	62.57	72.20	48	44
	3 fan R	27.82	38.25	45.21	52.16		
6 Pole	2 fan H & V	40.49	55.67	65.80	75.92	54	49
	2 fan R	36.98	50.84	60.09	69.33		
	3 fan H & V	48.29	66.40	78.48	90.55		
	3 fan R	44.12	60.66	71.69	82.72	56	51

* Noise levels in dB(A) at 10m from the front face of the unit, min noise levels with fan speed control at minimum speed

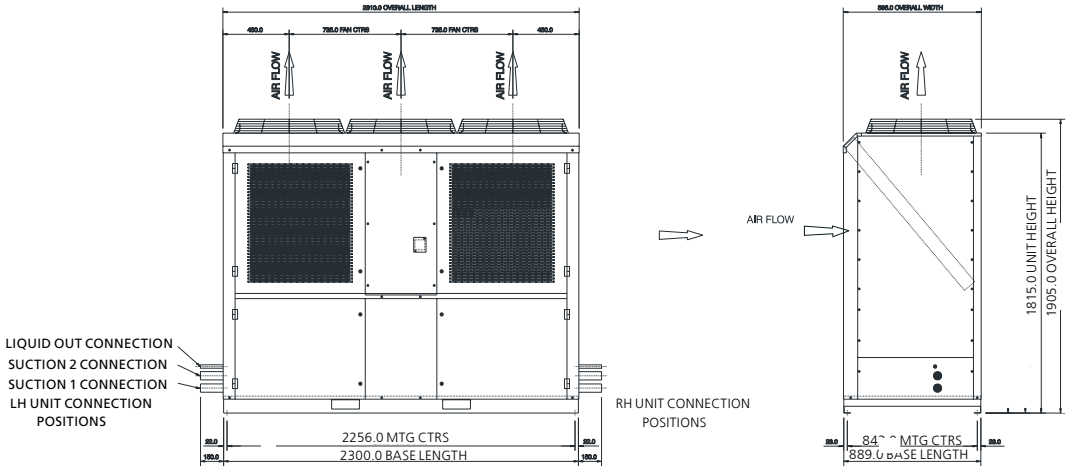

Fansets : 6, 8, 12 pole speed
Condenser coil access panels
Controls Access Panel
Compressor access panels
Forklift lifting point


Suction and discharge vibration eliminators
Individual compressor oil return shut-off valves
Multiple scroll compressors including rotalock valves
Individual compressor oil float regulators
High pressure combined coalescing separator/ reservoir complete with replaceable filter

HCU - Features

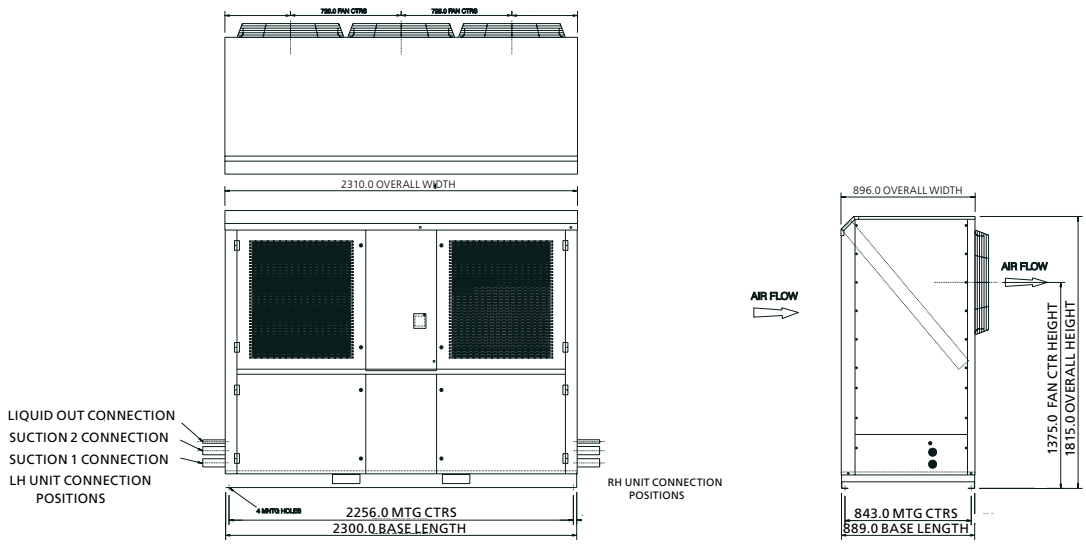
HCU - Vertical air flow 2+3 fan models

'V'



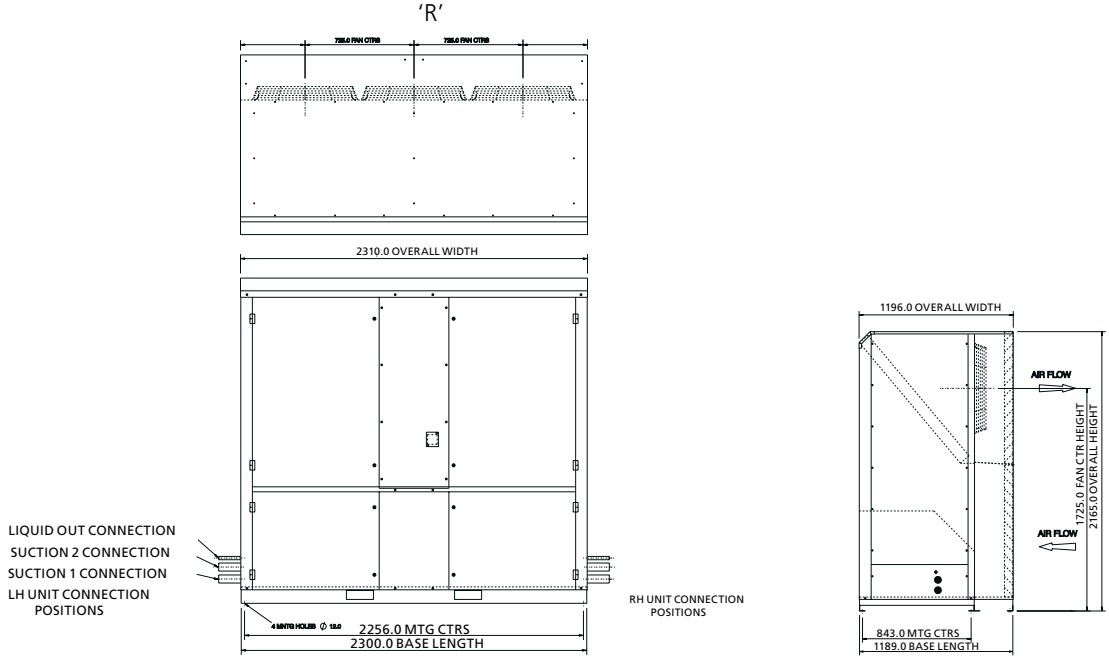
HCU - horizontal air flow 2+3 fan models

'H'



HCU - Recirculatory air flow 2+3 fan models

'R'



Commercial Air Coolers

GEA Searle's wide range of commercial unit coolers guarantee the continued excellence of our product range on terms of innovation, design and performance to offer the ideal cooler at a competitive price. They are the 1st choice product for their proven design and reliability, the range comes with many benefits which is often utilised across many industries the applications include small and large cold rooms and cabinets, warehouses, food storage and preparation rooms, freezers and blast freezing.

Unit Cooler Features

Motors & Fansets

GEA Searle selects the optimum combination of motors and fans to deliver the best performance for the cooler size and application range. All motors and fansets are verified for power input and air volume in our Research & Development department. Specific motor data details are provided in the relevant section for each cooler type.

EC

EC fansets offer the optimum in energy efficient performance combined with low noise levels and high reliability. The KEC Cooler range uses EC fansets as standard making it the most energy efficient cooler product available. Energy usage can be less than 50% of that of similar products, resulting in a product with a reduced payback period. Additional benefits include;-

- Internal motor protection
- Long service life
- High efficiency across the full operating range

For more information on EC fansets please see Searle brochure " Energy Efficient Fansets"

Casework

The standard Searle cooler casework is white powder coated, oven cured at 180°C to provide a hard durable finish. The JG, KLe and NS coolers are manufactured using aluminium casework, while the TEC, LDF, KEC, KMe and DSR all utilise galvanised steel casing.

Blygold Coating (Optional)

GEA Searle has installed a purpose built coating facility to apply the Blygold coil protection coating to any size of coil. Blygold withstands almost all chemical vapour exposure conditions and is ideal for the following application areas :-

- Corrosive environments
- Aggressive industrial areas

The duties presented in the specification tables are nominal. Tests are conducted in accordance with EN 328 under dry conditions which allows performance to stabiilise and permits measurement over a prolonged period.

The wet catalogue capacities are calculated from the dry capacities using the ratios given in the Eurovent Standard 7/C/001.

Refrigerant	R404A	R134a	R507A	R407A	R407C
Capacity Factor (dew point, DT1)	1.00	0.91	0.97	1.18*	1.35*
Capacity Factor (mid point, DT1)	0.97	0.91	0.97	0.91	1.01
Refrigerant Charge Density (kg/dm^3)	0.312	0.338	0.313	0.332	0.332

*Dew point capacity factors for refrigerants with high glide apply only at the nominal rating condition. Mid point factors can be used for all conditions. Refrigerant Charge Densities based on 25% of the internal volume being liquid.

Commercial Unit Cooler

Range benefits

The GEA Searle range of commercial unit coolers combine versatility and aesthetic design with consistent performance to offer the ideal cooler at a competitive price. They are typically the 1st choice product for the following applications due to their proven design and reliability :-

- Cold rooms
- Food storage
- Food preparation
- Cool cabinets

GEA Searle coolers are approved for many supermarkets across the world and are used extensively in convenience stores, commercial refrigeration applications and many industrial & agricultural projects.

Selection software

Due to the large number of models available and the range of alternative refrigerants, selection of the optimum cooler is best performed using the latest Searle Selection Software. The software can be obtained either as a CD, direct from your Searle representative or dowloaded from the Searle website, where it is also possible to view all brochures and installation & maintenance data.

Energy efficient

With the increasing importance of energy efficiency as part of the selection criteria, the new Searle coolers utilise fansets which offer significant energy savings over traditional motor assemblies. The KEC cooler has high efficiency EC fans as standard across the range.

Assured performance

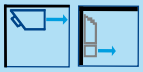
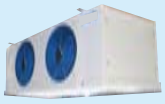
All our commercial unit coolers where applicable are certified under the Eurovent "Certify All" programme to guarantee that every unit will perform as specified.

Availability

Many of the models in the commercial unit cooler ranges are available ex-stock from your local distributor, with backup stocks held at the UK manufacturing plant centre.

Backing our beliefs

We offer 12 months warranty on all products in the range, with 24 months warranty on all KEC coolers (subject to standard Terms & Conditions of Sale and excluding corrosion through misapplication).

	Models	No fans	Configuration
	JG	1 - 3	
	TEC*	1 - 3	
	LDF	1 - 3	
	NS	1 - 4	
	KEC*	1 - 3	
	KMe*	1 - 4	
	KLe	1 - 4	
	DSR*	1 - 4	

✔ Yes X No O Option

General Range Features

Eurovent	Options						Capacity kW @ 8 KDT1
	Supply	EC Fans	Standard Electric Defrost	Heavy Electric Defrost	Hot Gas Defrost A/B/C/D	Fin Materials	1 — 10 — 100
	1 ph	x	✔ Kit	x	x	Al	0.3 - 1.6 kW
EUROVENT CERTIFIED PERFORMANCE	1 ph	x	✔ Kit	x	x	Al Av Cu	0.5 - 3.4 kW
EUROVENT CERTIFIED PERFORMANCE	1 ph	x	✔	x	x	Al	1.7 - 8.5 kW
EUROVENT CERTIFIED PERFORMANCE	1 ph	x	✔	x	x	Al	1.7 - 6.9 kW
EUROVENT CERTIFIED PERFORMANCE	1 ph	✔	✔	x	✔	Al Av Cu	1.2 - 10.5 kW
EUROVENT CERTIFIED PERFORMANCE	1 & 3ph	o	✔	✔	✔	Al Av Cu	5.7 - 28 kW
EUROVENT CERTIFIED PERFORMANCE	3ph	o	✔	x	✔	Al Av Cu	8 - 51 kW
EUROVENT CERTIFIED PERFORMANCE	1 ph	x	✔	x	✔	Al Av Cu	0.8 - 15 kW

Note: * See page 202 for CO^2 variations of these coolers

JG Unit Cooler

General

A range of eight, cost-effective, small 'blow through' unit coolers suitable for both high and low temperature applications. Its ultra low-profile design makes it ideal for use in areas such as reach-in and walk-in cold cabinets and small cold rooms. With an evaporating range of +10°C to -40°C, the JG range offers nominal capacities from 0.33kW to 1.64kW (R404A at 8K DT1) and will operate with low ozone depletion factor refrigerants R404A, R134a, and R507A.

Casework

The casework is aluminium, electrostatically powder painted and cured at 180°C to ensure an even, flexible and durable white gloss finish. Motors and fans are secured to the fan plate, which can be lowered to provide access to all refrigeration piping, electrical connections and components. An inner draintray is fitted to prevent sweating and improve condensate drainage.

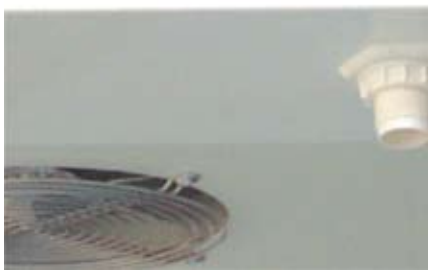
Coils

Coils are manufactured from 3/8" OD copper tube (internally grooved to provide an extended inner surface) and aluminium fins. Tubes are mechanically expanded to provide a tight interference fit between the aluminium fin collar and the copper tube, giving excellent heat transfer characteristics. Fin spacing is 4.3mm.

Models 1 to 5 have a single circuit and are suitable for use with an internally equalised expansion valve. Models 6, 7 and 8 have two circuits and require an externally equalised expansion valve. All coils are pressure tested to 36.0 bar.

Motors and Fans

The motors are 7W, 230V, single phase, shaded pole with internal thermal protection (auto reset) and are suitable for both 50Hz and 60Hz supplies. They are wired to an internal junction box with cable entry to the cooler being provided via knockouts in both sides and the back.



Fans are 200mm diameter running at a nominal speed of 1200rpm (1500rpm at 60Hz). The motors, fans and junction box can easily be accessed by unscrewing the base of the fan plate/drain pan and allowing it to hinge down along one edge.

Electric Defrost

Electric defrost kits are available for all models and are supplied separately. The elements are of the stainless steel sheathed type with sealed electrical connections, retained by clips and wired back to the junction box.

Installation

The JG units are designed to be mounted to the ceiling using the keyhole slots in the casework. The drain connection is 3/4" BSP.

JG	3	4	L	AV	GLY

Range	JG
Model	1,2,3,4,5,6,7,8
Fin Spacing	4mm
Defrost	Blank = No defrost, L = Standard Electric Defrost, HG = Hot Gas, D = Coil & Tray / E = Electric Tray, A / B / C / D = type
Fin Material	Blank = Aluminium AV = Vinyl Coated Aluminium CU = Copper
Coil	Blank = HCFC, GLY = Glycol,

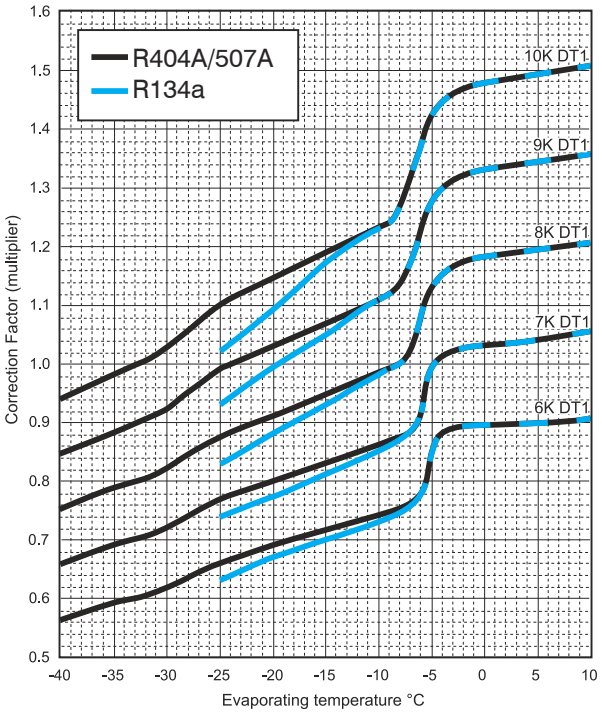
Refrigerant	R404A	R134a	R507A	R407A	R407C
Capacity Factor (dew point, DT1)	1.00	0.91	0.97	1.18*	0.35*
Capacity Factor (MID point, DT1)	0.97	0.91	0.97	0.91	1.01
Refrigerant charge Density (kg/dm$^{3)}$	0.312	0.338	0.313	0.332	0.332

Rating Conditions

The duties shown in this catalogue are at EN 328 Standard Condition 2 (-8°C saturated suction temperature, 0°C air entering). Correction factors are provided for calculating duties at other conditions and with alternative refrigerants.

Correction Factors (multipy capacity by appropriate correction factor to give performance at chosen conditions)

JG Cooler DT1 - WET



JG Selection Data

Model	Capacity (Dew point) 8K DT1 (*)		Fan/Motor Specifications 230V - 1ph - 50Hz						Coil Data			Electric defrost
	R404A	R134a	No. Fans	Air volume	Air throw (***)	Noise level (**)	Total Power Input	Total FLC	Surface Area	Internal volume	Approx. Ref. charge	
	W	W		m^3/s	m	dB (A)	W	A	m^2	dm^3	gms	W
JG1	330	300	1	0.095	3.5	50	38	0.25	0.81	0.264	90	275
JG2	520	470	1	0.081	3.0	49	38	0.25	1.63	0.527	180	550
JG3	660	600	1	0.087	3.0	49	38	0.25	2.31	0.707	240	700
JG4	800	730	1	0.078	3.0	49	38	0.25	3.47	1.060	360	700
JG5	1000	910	2	0.159	4.0	52	76	0.50	3.05	0.901	300	900
JG6	1210	1100	2	0.135	3.5	52	76	0.50	4.57	1.350	460	900
JG7	1360	1240	3	0.230	4.5	54	114	0.75	4.10	1.174	400	1000
JG8	1640	1490	3	0.205	4.0	54	114	0.75	6.14	1.760	600	1000

Notes:

Rating conditions:

The duties shown in this catalogue are at EN 328 Standard Condition 2 (-8°C saturated suction temperature, 0°C air entering). For data on refrigerants not shown, please contact your supplier.

* DT1 is the difference between the entering air temperature and the saturated suction temperature at the outlet of the cooler.

** Noise levels are based on free field conditions at a distance of 3m. Actual noise levels will depend upon cold store construction, store loading and the number of coolers installed.

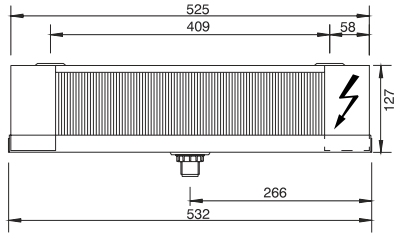
*** Terminal air velocity 0.25m/s, free air conditions at 10°C. Air throw cannot be considered on absolute value because many factors have a substantial effect on the distance achieved.

† Total Power Input at Standard Condition 2 (-8°C saturated suction temperature, 0°C air entering).

Options & Spares

Description	Part No	JG1	JG2	JG3	JG4	JG5	JG6	JG7	JG8
Defrost kit for JG1	G1 - E1	1	-	-	-	-	-	-	-
Defrost kit for JG2	G2 - E1	-	1	-	-	-	-	-	-
Defrost kit for JG3 & 4	G3/4 - E1	-	-	1	1	-	-	-	-
Defrost kit for JG5 & 6	G5/6 - E1	-	-	-	-	1	1	-	-
Defrost kit for JG7 & 8	G7/8 - E1	-	-	-	-	-	-	1	1
Fan/motor assembly	231 - 920 - 028	1	1	1	1	2	2	3	3
Fan guard	244 - 116 - 001	1	1	1	1	2	2	3	3
Drain connection 3/4" BSP	261 - 763 - 006	1	1	1	1	1	1	1	1
Gasket for drain connection	261 - 763 - 007	1	1	1	1	1	1	1	1

JG 1 , 2



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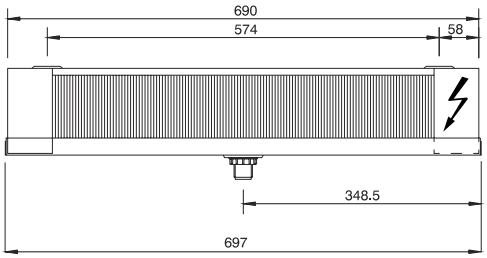
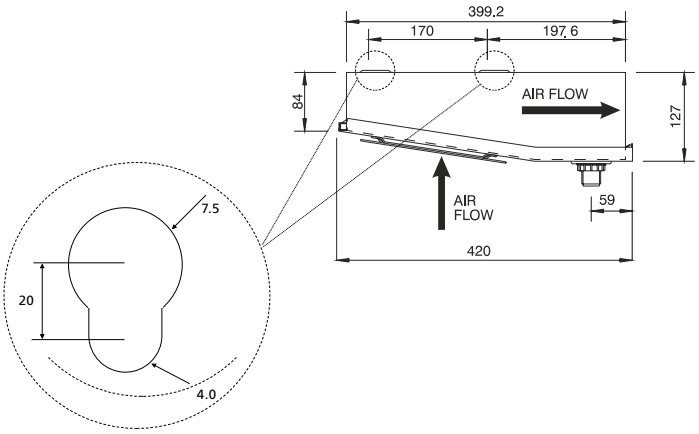
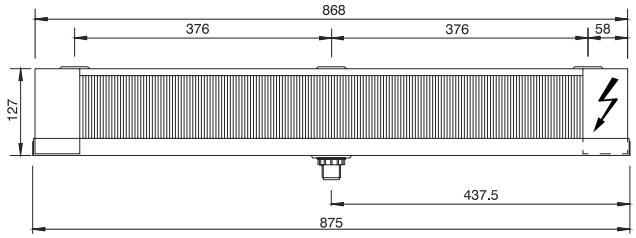
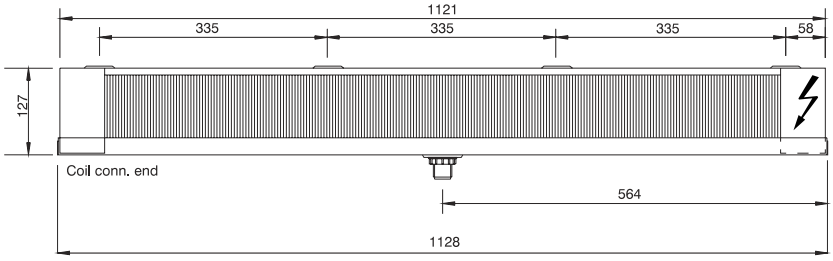




JG 5 , 6



JG 7 , 8



Note: All dimensions in mm

Dimensions

Model	No. of fans	Approx. Dry weight	Refrigeration Connections		Drain connection BSP
			Inlet	Outlet	
JG1	1	4.7	3/8"	3/8"	3/4"
JG2	1	5.1	3/8"	3/8"	3/4"
JG3	1	6.4	3/8"	3/8"	3/4"
JG4	1	7.2	3/8"	3/8"	3/4"
JG5	2	8.5	3/8"	3/8"	3/4"
JG6	2	9.6	3/8"	1/2"	3/4"
JG7	3	11.5	3/8"	1/2"	3/4"
JG8	3	13.0	3/8"	1/2"	3/4"

TEC Unit Cooler

General

This is a range of nine small 'blow through' type Unit Coolers suitable for both high and low temperature applications in areas such as reach-in and walk - in cold cabinets, small cold rooms and similar situations. With an evaporating range of + 10 ^{0}C to -40 ^{0}C , the TEC range offers nominal capacities from 0.52kW to 3.4kW (R404A at 8KDT1) and is available in both 5FPI (5.1mm) and 7FPI (3.6mm).

The TEC range, with 1, 2 or 3 fan configurations, can be either ceiling mounted or wall mounted (by using an optional wall mounting kit). The pleasing aesthetic design of the coolers, manufactured in galvanised steel and finished with oven cured white epoxy powder paint, complements the working environment as well as providing rigidity and excellent corrosion resistance. The range features the Searle 'E' fin and 3/8"D extended surface inner grooved copper tubes, to maximise performances.

The TEC range has been specifically designed to operate with low and zero ozone depletion factor refrigerants R134a, R404A and R507A.

Casework

The casework is fabricated from galvanised sheet which is electrostatically powered painted and cured at 180 ^{0}C. This ensures an even, flexible and durable gloss finish, providing excellent corrosion protection. The fansets are secured to the hinged fan plate, which can be lowered to provide access to all refrigeration piping and electrical connections and components.

Wall mounted units have an additional vertical drain pan which is secured to the flanges on the air - off side of the cooler, and is supplied in the optional wall mounting kit.

Coils

The coil blocks are manufactured from 3/8" OD copper tube (internally grooved to provide an extended inner surface) and aluminium fins of type 'E'. The copper tube is mechanically extended to provide a tight interference fit between the aluminium fin collar and the copper tube, thus giving excellent heat transfer characteristics. The units are available in two fin spacings 5FPI (5.1mm and 7 FPI (3.6mm). The refrigerant connections are at the right hand end when looking at the fans, although space provision has been made to permit left hand end connection. Models TEC1, TEC2 and TEC3 have a single circuit and are suitable for use with an internally equalised expansion valve. Models TEC3.5 to TEC8 are multi - circuited and require an externally equalised expansion vavle. All coils are pressure tested to 35.8 bar.

Motors and Fans

The fansets are 20W, 230V, single phase, EC with internal thermal protection and are suitable for both 50Hz and 60Hz supplies. They are pre-wired to an internal junction box with cable entry to the cooler being provided via one of several knock-outs.

The fanset is 230mm diameter and when running on a 50 or 60Hz supply the nominal fan speed is 1400rpm. The wiring for the junction box can be easily accessed by unscrewing the base of the fanplate/drain pan and allowing it to hinge down along one edge.

TEC 4 - 5 60

Range	TEC
Model	1,2,3,3.5,4,5,6,7,8
Fin Spacing	5 FPI (5.1mm), 7 FPI (3.6mm)
Supply frequency	Blank = 50Hz, 60 = 60Hz
Fin Material	Aluminium

Electric Defrost

Electric defrost kits are available for all TEC range and are supplied separately. However, the kits vary between wall mounted units and ceiling mounted units. The elements are of the stainless steel sheathed type with sealed electrical connections. On the ceiling mounted units the elements are mounted on a tray located along the fin block-retained by clips and wired back to the junction box. On wall mounted units one element is to be mounted on the air-off face of the coil with an additional heater in the vertical drain tray. Because the elements are exposed, a guard (supplied with the wall mounting defrost kit) must be fitted over the supply air opening.

Installation

The TEC units are designed to be flush - mounted to the ceiling using the keyhole slots in the casework or mounted on the wall with optional wall mounting kit. The refrigeration pipework and electrical wiring can be routed from either end of the cooler. The drain connection is 3/4" BSP.

Serviceability

As can be seen from the diagram, accessibility was a major consideration in the design of the range. The fan guard/drain tray unscrews and hinges by means of lugs along the front face of the unit, providing rapid access to all the components of the cooler

Selection Data

	Model	Capacity (Standard condition SC2)		Air volume	Coil Data					
		R404A	R134a		Total surface area	Internal volume	approx. ref charge	Connections		Approx. dry weight
								Inlet	Outlet	
				m^3/s	m^2	dm^3	kg	Inchs	Inchs	kg
7 FPI (3.6mm)	TEC1-7	0.57	0.52	0.150	1.50	0.395	0.133	3/8	3/8	7.3
	TEC2-7	0.89	0.81	0.136	2.90	0.790	0.266	3/8	3/8	8.2
	TEC3-7	1.04	0.95	0.153	4.10	1.060	0.357	3/8	3/8	9.8
	TEC3.5-7	1.25	1.14	0.164	5.40	1.350	0.455	3/8	1/2	12.0
	TEC4-7	1.72	1.57	0.264	5.40	1.350	0.455	3/8	1/2	13.7
	TEC5-7	2.04	1.86	0.300	7.30	1.760	0.593	3/8	1/2	16.4
	TEC6-7	2.29	2.08	0.320	9.70	2.340	0.788	1/2	5/8	18.5
	TEC7-7	3.02	2.75	0.450	10.0	2.420	0.817	1/2	7/8	24.0
	TEC8-7	3.40	3.09	0.480	14.0	3.230	1.089	1/2	7/8	26.9
5 FPI (5.1mm)	TEC1-5	0.52	0.47	0.161	1.10	0.395	0.133	3/8	3/8	7.3
	TEC2-5	0.84	0.77	0.145	2.20	0.790	0.266	3/8	3/8	8.2
	TEC3-5	1.00	0.91	0.161	3.10	1.060	0.357	3/8	3/8	9.8
	TEC3.5-5	1.15	1.05	0.172	4.10	1.350	0.455	3/8	1/2	12.0
	TEC4-5	1.61	1.47	0.281	4.10	1.350	0.455	3/8	1/2	13.7
	TEC5-5	1.89	1.72	0.311	5.40	1.760	0.593	3/8	1/2	16.4
	TEC6-5	2.14	1.95	0.336	7.30	2.340	0.788	1/2	5/8	18.5
	TEC7-5	2.76	2.51	0.470	7.70	2.420	0.817	1/2	7/8	24.0
	TEC8-5	3.18	2.89	0.503	10.00	3.230	1.089	1/2	7/8	26.9

	Model	Fanset and Motor Specifications								Electric Defrost	
		No. of fans	Diameter	Fan speed	Air throw (***)	Noise level (**)	230V - 1ph - 50/60Hz				
							Power Input † per fan	F.L.C per fan	SC per fan	Ceiling mtd	Wall mtd
			mm	rpm						W	W
7 FPI (3.6mm)	TEC1-7	1	230	1440	4.5	51	20	0.16	0.9	275	2 x 250
	TEC2-7	1	230	1440	4.5	50	20	0.16	0.9	550	2 x 250
	TEC3-7	1	230	1440	5.0	50	20	0.16	0.9	700	2 x 325
	TEC3.5-7	1	230	1440	5.0	50	20	0.16	0.9	900	2 x 425
	TEC4-7	2	230	1440	5.0	53	20	0.16	0.9	900	2 x 425
	TEC5-7	2	230	1440	5.5	52	20	0.16	0.9	1000	2 x 575
	TEC6-7	2	230	1440	5.5	51	20	0.16	0.9	1000	2 x 675
	TEC7-7	3	230	1440	6.0	54	20	0.16	0.9	1400	2 x 1030
	TEC8-7	3	230	1440	6.0	53	20	0.16	0.9	1400	2 x 1030
5 FPI (5.1mm)	TEC1-5	1	230	1440	4.5	51	20	0.16	0.9	275	2 x 250
	TEC2-5	1	230	1440	4.5	49	20	0.16	0.9	550	2 x 250
	TEC3-5	1	230	1440	5.0	50	20	0.16	0.9	700	2 x 325
	TEC3.5-5	1	230	1440	5.0	50	20	0.16	0.9	900	2 x 425
	TEC4-5	2	230	1440	5.0	53	20	0.16	0.9	900	2 x 425
	TEC5-5	2	230	1440	5.5	51	20	0.16	0.9	1000	2 x 575
	TEC6-5	2	230	1440	5.5	49	20	0.16	0.9	1000	2 x 675
	TEC7-5	3	230	1440	6.0	54	20	0.16	0.9	1400	2 x 1030
	TEC8-5	3	230	1440	6.0	52	20	0.16	0.9	1400	2 x 1030

Notes:
Rating conditions:
The duties shown in this catalogue are at EN 328 Standard Condition 2 (-8°C saturated suction temperature, 0°C air entering). For data on refrigerants not shown, please contact your supplier.

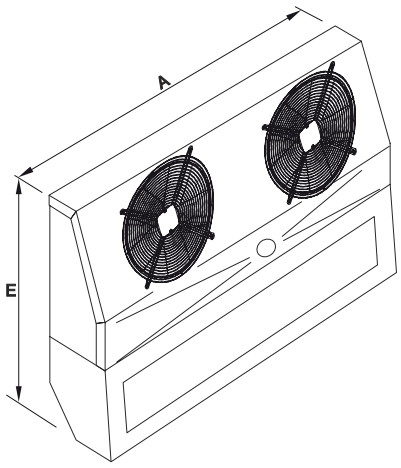
* DT1 is the difference between the entering air temperature and the saturated suction temperature at the outlet of the cooler.

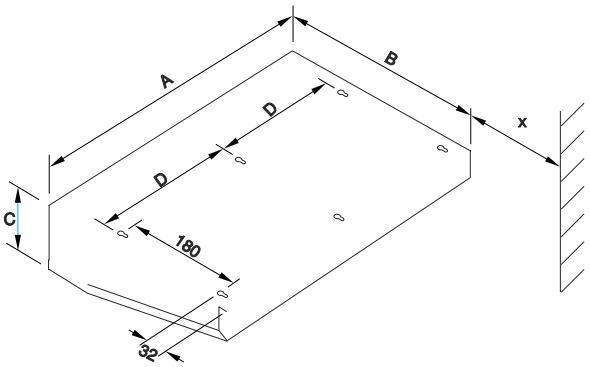
** Noise levels are based on free field conditions at a distance of 3m. Actual noise levels will depend upon cold store construction, store loading and the number of coolers installed.

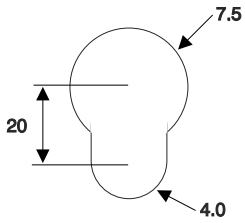
*** Terminal air velocity 0.25m/s, free air conditions at 10°C. Air throw cannot be considered on absolute value because many factors have a substantial effect on the distance achieved.

† Total Power Input at Standard Condition 2 (-8°C saturated suction temperature, 0°C air entering).

Dimensions

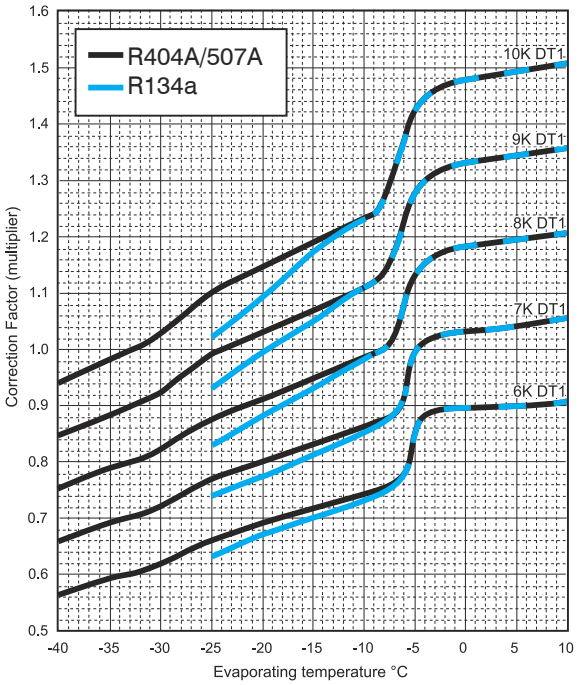






Model	No. of fans	mm					
		A	B	C	D	E	X Min
TEC1	1	525	375	180	453 (x4)	550	120
TEC2	1	525	375	180	453 (x4)	550	120
TEC3	1	690	375	180	618 (x4)	550	120
TEC3.5	1	865	375	180	793 (x4)	550	120
TEC4	2	865	375	180	793 (x4)	550	120
TEC5	2	1120	375	180	524 (x6)	550	120
TEC6	2	1120	375	230	524 (x6)	550	120
TEC7	3	1528	375	180	728 (x6)	550	120
TEC8	3	1528	375	230	728 (x6)	550	120

TEC Cooler DT1 - WET



Correction Factors (multipy capacity by appropriate correction factor to give performance at chosen conditions)

Rating Conditions

The duties shown in this catalogue are at EN 328 Standard Condition 2 (-8°C saturated suction temperature, 0 °C air entering). Correction factors are provided for calculating duties at other conditions and with alternative refrigerants.

Options & Spares

Part type/ Description	Part number	TEC1	TEC2	TEC3	TEC4	TEC4	TEC5	TEC6	TEC7	TEC8
Defrost kits - Ceiling mounted	T1 - LTKIT	1	-	-	-	-	-	-	-	
	T2 - LTKIT	-	1	-	-	-	-	-	-	-
	T3 - LTKIT	-	-	1	-	-	-	-	-	-
	T3.5/4 - LTKIT	-	-	-	1	1	-	-	-	-
	T5/6 - LTKIT	-	-	-	-	-	1	1	-	-
	T7/8 - LTKIT	-	-	-	-	-	-	-	1	1
Defrost kits - Wall mounted	WT1/2 - LTKIT	1	1	-	-	-	-	-	-	-
	WTG3 - LTKIT	-	-	1	-	-	-	-	-	-
	WT3.5/4-LTKIT	-	-	-	1	1	-	-	-	-
	WT5 - LTKIT	-	-	-	-	-	1	-	-	-
	WT6 - LTKIT	-	-	-	-	-	-	1	-	-
	WT7/8 - LTKIT	-	-	-	-	-	-	-	1	1
Wall mounting kits	WT1/2 - PAN	1	1	-	-	-	-	-	-	-
	WT3 - PAN	-	-	1	-	-	-	-	-	-
	WT3.5/4-PAN	-	-	-	1	1	-	-	-	-
	WT5 - PAN	-	-	-	-	-	1	-	-	-
	WT6 - PAN	-	-	-	-	-	-	1	-	-
	WT7 - PAN	-	-	-	-	-	-	-	1	-
	WT8 - PAN	-	-	-	-	-	-	-	-	1
Drain connection 3/4" BSP nylon	261 - 763 - 006	1	1	1	1	1	1	1	1	1

LDF Air Cooler

The LDF range consists of 6 ceiling mounted "blowthrough" unit coolers ranging from 1.8kW to 8.5kW, and are suitable for both high and low temperature applications. With multiple fin spacing available, various defrost options and a low profile, the cooler is ideally suited to preparation rooms and chill areas.

Coils

The coils in the LDF range utilise GEA Searle's 'D' fin with extended inner surface copper tube (internal surface area 90% greater than equivalent plain tubes), providing a highly efficient cooler fin. The unique coil geometry provides a high secondary surface on which to deposit frost and extend the periods between defrost cycles.

As an additional benefit, the coil design requires a low refrigerant charge. There are 2 fin spacings available 6mm (4 fins per inch) and 8mm (3 fins per inch). Searle manufactures the coil end plates from galvanised steel.

Fans/Motors

All units use 5 blade, 315mm axial fansets operating at a fan speed of 1380 rpm, complete with wire mesh guard. The motors have internal thermal protection and are fully tested in Searle's Research & Development laboratory. The fanset is suitable for use with a Triac speed controller, which is available as an option.

Casework

LDF coolers are manufactured from 1.2mm pre-galvanised sheet steel and electrostatically powder coated on both internal and external surfaces. Once baked and cured at 180˚C it ensures an even and durable coating, offering maximum protection and a cleanable surface that can be simply wiped at servicing to retain a fresh appearance for many years.

Defrost Options

These units can be defrosted using off-cycle defrost, if the air temperature is greater than 3˚C - typically in 45 minutes. Alternatively electric defrost elements can be employed and are available throughout the range.

These consist of 2 defrost elements in the coil (U-bend type, except LDF6 which uses 4 x straight elements) and 1 U-bend element in the drain tray (LDF5 and LDF 6 use 2 x straight elements). The standard heater wiring is for single phase, however LDF 5 and LDF 6 can be wired to a terminal box to suit single or three phase supply.

LDF	2	6	AV

Range	LDF
Model	1,2,3,4,5,6
Fin Spacing	6mm, 8mm
Fin Material	Blank = Aluminium AV = Vinyl Coated Aluminium CU = Copper

Options

- Circuiting for glycol
- Alternative fin materials:
- Vinyl coated aluminium
- Copper
- Electro-tinned copper

Applications

The low silhouette LDF cooler provides a neat installation with good positioning of drain lines for the following application areas:

- Preparation rooms
- Chill rooms
- Produce / Flower storage

The low air velocity and blow-through design create a comfortable working environment for all types of preparation work. Due to the low profile and ceiling mounting location, the cooler occupies less space resulting in less likelihood of damage during room loading. For servicing, defrost elements and fansets are easily removed and for customer peace of mind, the LDF is covered by Searle's full technical support and warranty.

Selection Data

Model	R404A	R134a	Number of fans	Fan diameter	Fan speed	Air Volume	Air throw (***)	Noise level (**)	Total Power Input †	Total F.L.C	Surface area	Internal volume	Electric Defrost
	kW*	kW*		mm	rpm	m^3/S	m	dBA	W	A	m^2	dm^3	W
1 - 6	2.29	2.08	1	315	1380	0.42	13	54	120	0.57	8.39	2.24	1590
2 - 6	2.81	2.56	1	315	1380	0.39	13	54	120	0.57	12.59	3.35	1590
3 - 6	4.63	4.21	2	315	1380	0.84	15	57	240	1.14	16.78	4.18	3180
4 - 6	5.62	5.12	2	315	1380	0.78	15	57	240	1.14	25.17	6.27	3180
5 - 6	7.02	6.39	3	315	1380	1.26	16	59	360	1.71	25.17	6.12	4800
6 - 6	8.48	7.72	3	315	1380	1.17	16	59	360	1.71	37.76	9.18	4800
1 - 8	1.84	1.68	1	315	1380	0.44	13	54	120	0.57	6.46	2.24	1590
2 - 8	2.34	2.13	1	315	1380	0.41	13	54	120	0.57	9.69	3.35	1590
3 - 8	3.76	3.42	2	315	1380	0.88	15	57	240	1.14	12.92	4.18	3180
4 - 8	4.77	4.34	2	315	1380	0.82	15	57	240	1.14	19.38	6.27	3180
5 - 8	5.70	5.19	3	315	1380	1.33	16	59	360	1.71	19.38	6.12	4800
6 - 8	7.18	6.53	3	315	1380	1.23	16	59	360	1.71	29.07	9.18	4800

Notes:

Rating Conditions

* Capacity factors for refrigerants with high glide apply only at the nominal rating condition. Refrigerant charge densities are based on 25% of the internal volume being liquid

■ The duties shown in this catalogue are at EN 328 Standard Condition 2 (-8°C saturated suction temperature, 0°C air entering). Correction factors are provided for calculating duties at other conditions and with alternative refrigerants.

** Noise levels are based on free field conditions at a distance of 3m. Actual noise levels will depend upon cold store construction, store loading and the number of coolers installed.

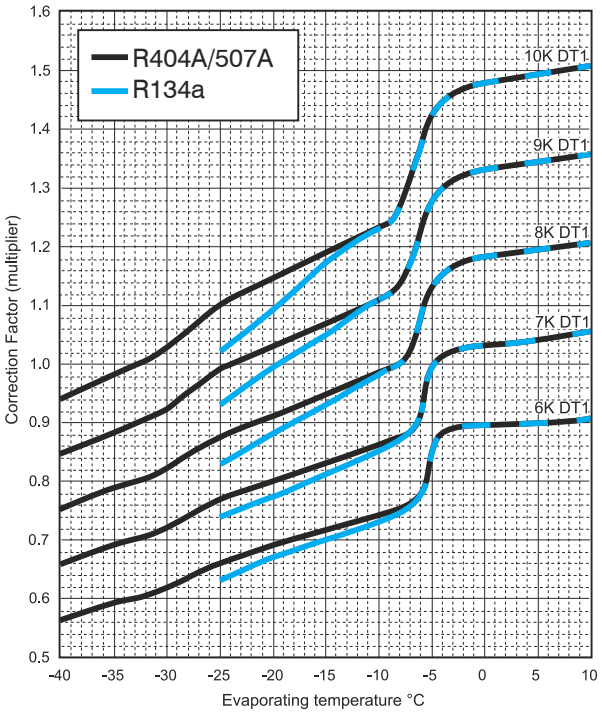
*** Terminal air velocity 0.25m/s, free air conditions at 10°C. Air throw cannot be considered on absolute value because many factors have a substantial effect on the distance achieved.

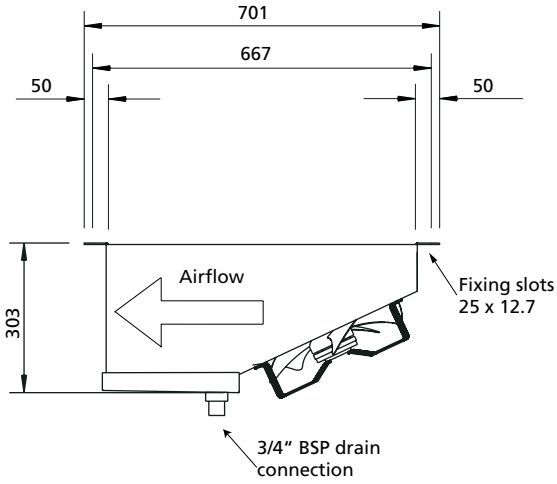
† Total Power Input at Standard Condition 2 (-8°C saturated suction temperature, 0°C air entering).

Refrigerant	R404A	R507A	R134a	R407A	R407C
Capacity Factor (dew point, DT1)	1.00	0.97	0.91	1.18■	0.35■
Capacity Factor (MID point, DT1)	-	-	-	0.91	1.01
Refrigerant charge Density (kg/dm3)	0.312	0.338	0.313	0.332	0.332

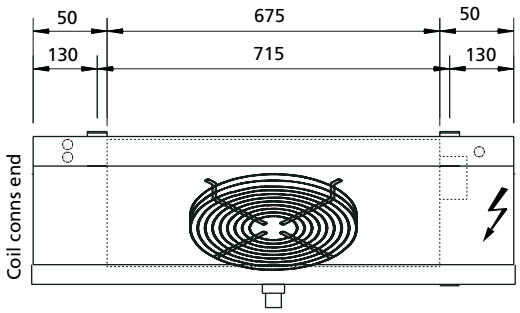
Correction Factors (multipy capacity by appropriate correction factor to give performance at chosen conditions)

LDF Cooler DT1 - WET

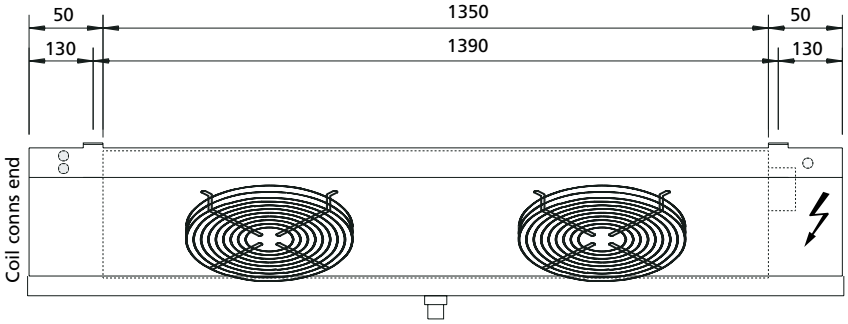




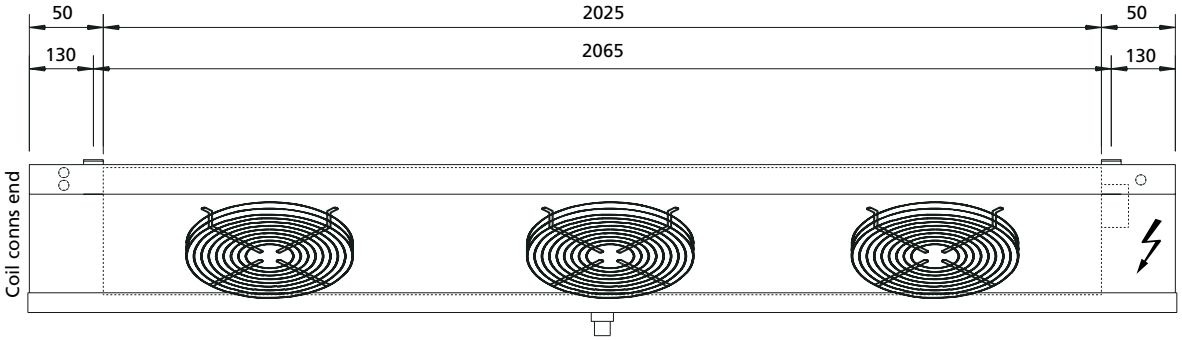
1 Fans



2 Fans



3 Fans



Note: All dimensions in mm

Model	Connections		Weight
	Inlet	Outlet	
	Inch	Inch	kg
1 - 6	1/2	5/8	31
2 - 6	1/2	5/8	34
3 - 6	1/2	7/8	48
4 - 6	1/2	7/8	53
5 - 6	1/2	7/8	66
6 - 6	1/2	1 1/8	73
1 - 8	1/2	5/8	30
2 - 8	1/2	5/8	33
3 - 8	1/2	7/8	47
4 - 8	1/2	7/8	52
5 - 8	1/2	7/8	65
6 - 8	1/2	1 1/8	72

NS Unit Cooler

General

This low profile range of NS unit coolers continues the Searle philosophy of energy efficient product design. With a capacity range from 1.69 kW up to 6.93kW and 6mm fin spacing, these coolers are suitable for both high and low temperature applications.

The heat exchanger incorporates Searle'D' fin with extended inner surface copper tube whichhas proved very popular since its introduction. Its unique coil geometry is highly efficient and provides a high secondary surface on which to deposit frost and extend initiation times between de-frost cycles. The range is certified for its performance by Eurovent (see below) and the capacities listed are inaccordance with its strict rules.

Casework

All the coolers are constructed from aluminum-sheet panels to form a rigid but lightweight structure. To enable the unit to be lifted directly into place the drain tray is constructed from pre galvanized steel. There are key hole slots in the top plate to allow the cooler to be fitted flush to the ceiling thereby limiting the opportunities for bacterial growth. The end covers are secured by only two screws, thus making removal quick and easy for installation and service needs.

Corrosion Protection

The casing is painted in high gloss white by applying electrostatic powder paint which is then baked and cured at 180˚C in a modern computer controlled paint facility. This method of paint ingensures an even and durable finish which can be wiped clean during service periods to retain a fresh appearance for many years of operation.

Coils

Standard (Cu/Al) coils are manufactured from copper tube (with extended inner surface) mechanically expanded into aluminum fins. The fin shave metric fin spacing of 6mm, this equates to approximately 4 fins per inch. All coils are tested to 35.8 bar using dry air down to -40˚C dew point. The Searle 'D' fin which has been specially developed for refrigeration applications, ensures optimum heat transfer efficiency combined with minimum defrost

demand and low refrigerant charge. The units have been designed with the refrigerant connections located at the left hand side when looking at the fans.

Distribution System

Good refrigerant distribution is essential to a achieve maximum and stable performance from any system. The NS coolers have been thoroughly tested to determine the ideal distribution system to operate over the wide range of conditions expected. The NS14 can be used with an internally equalized TEV. All other units must use externally equalized TEV's.

NS	25	6	AV

Range	NS
Model	14,25,28,37,43,57,
Fin Spacing	6mm
Fin Material	Blank = Aluminium AV = Vinyl Coated Aluminium CU = Copper

Motors and Fans

All units use 1300rpm 18 Watt shaded pole motors fitted with 5 bladed 254mm diameter fans. These components were selected after extensive testing and trials. These 4 pole motors conform to IP42 and are suitable for 230V-1ph-50/60 Hz supply. They are individually connected back to a terminal box via a push on plug and socket which allows the motor fan assembly to be quickly and easily dismounted for service purposes.

Defrost

The low temperature versions of these coolers employ electric defrost systems comprising two stainless steel hairpin heater elements fitted into the coil block and one to the coil base plate. Extensive testing has been carried out to determine the optimum heater wattage necessary to clear frost formation whilst minimizing power input and the risk of steaming. The heaters are individually wired to the terminal box located at the opposite end to the refrigerant connections.

Selection Data

Model	R404A Capacity @ SC2	Fan and Motor Specifications 230 - 1ph - 50Hz								Coil Data		Connections		Electric Defrost
		No. of fans	Air Volume	Air throw (***)	Noise level (**)	Total Power Input †	Motor size	F.L.C per Fan	SC per fan	Surface area	internal volume	Inlet	Outlet	
	kW		m^3/S	m	dB (A)	W	W	A	A	m^2	dm^3			kW
NS14-6	1.69	1	0.24	6.0	53	70	18	0.55	1.5	9.02	2.48	1/2"	1/2"	1.29
NS25-6	2.74	2	0.50	6.5	56	140	18	0.55	1.5	12.02	3.01	1/2"	5/8"	2.21
NS28-6	3.44	2	0.49	6.0	56	140	18	0.55	1.5	18.04	4.52	1/2"	5/8"	2.25
NS37-6	4.13	3	0.75	6.5	58	210	18	0.55	1.5	18.04	4.52	1/2"	7/8"	3.18
NS43-6	5.18	3	0.73	6.0	58	210	18	0.55	1.5	27.06	6.56	1/2"	7/8"	3.24
NS57-6	6.93	4	0.97	6.0	59	280	18	0.55	1.5	36.07	8.60	1/2"	7/8"	4.23

Notes:
Rating conditions:
The duties shown in this catalogue are at EN 328 Standard Condition 2 (-8°C saturated suction temperature, 0°C air entering). For data on refrigerants not shown, please contact your supplier.

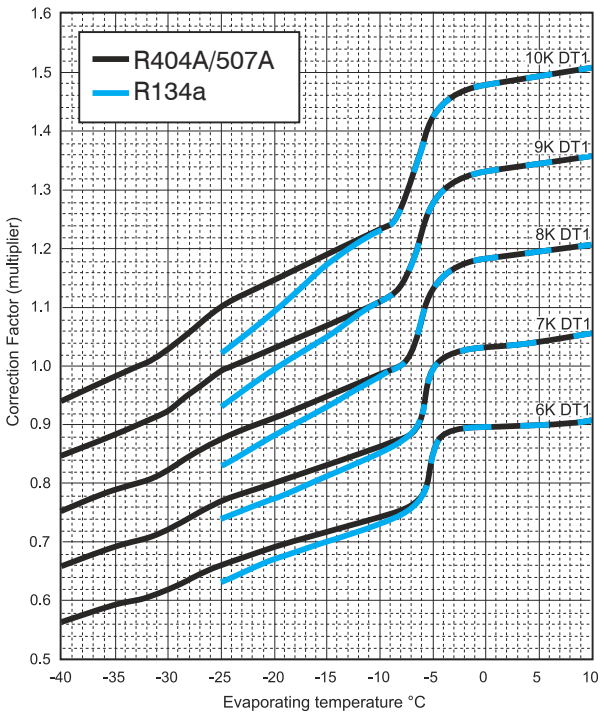
* DT1 is the difference between the entering air temperature and the saturated suction temperature at the outlet of the cooler.
** Noise levels are based on free field conditions at a distance of 3m. Actual noise levels will depend upon cold store construction, store loading and the number of coolers installed.
*** Terminal air velocity 0.25m/s, free air conditions at 10°C. Air throw cannot be considered on absolute value because many factors have a substantial effect on the distance achieved.
† Total Power Input at Standard Condition 2 (-8°C saturated suction temperature, 0°C air entering).

Refrigerant	R404A	R134a	R507A	R407A	R407C
Capacity Factor (dew point, DT1)	1.00	0.91	0.97	1.18*	1.35*
Capacity Factor (MID point, DT1)	0.97	0.91	0.97	0.91	1.01
Refrigerant charge Density (kg/dm3)	0.312	0.338	0.313	0.332	0.332

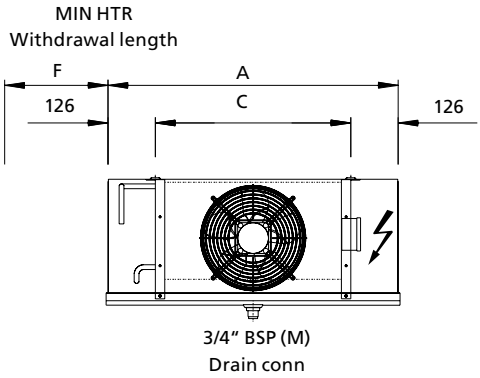
* Capacity factors for refrigerants with high glide apply only at the nominal rating condition.
Refrigerant charge densities are based on 25% of the internal volume being liquid.

Correction Factors (multipy capacity by appropriate correction factor to give performance at chosen conditions)

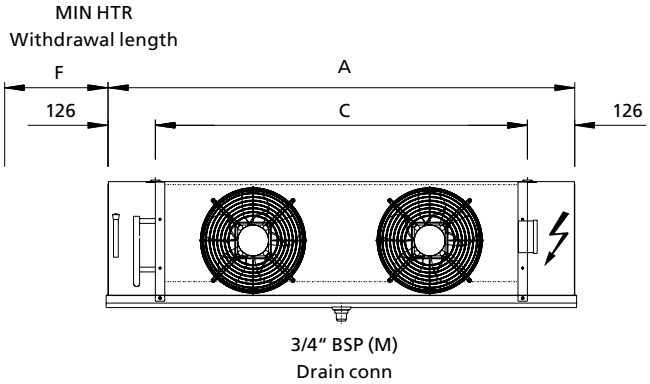
NS Cooler DT1 - WET

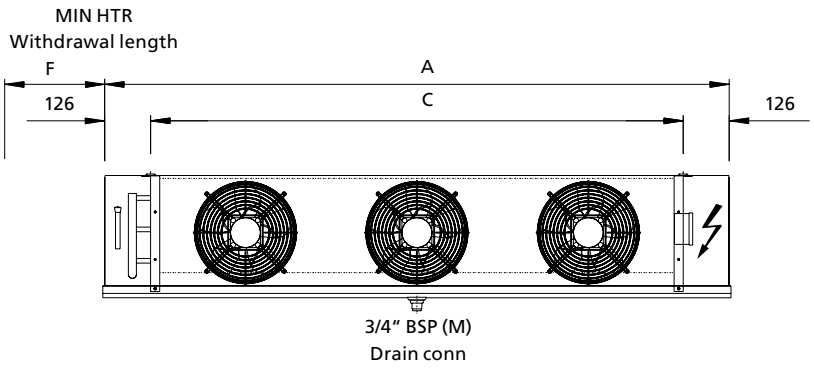


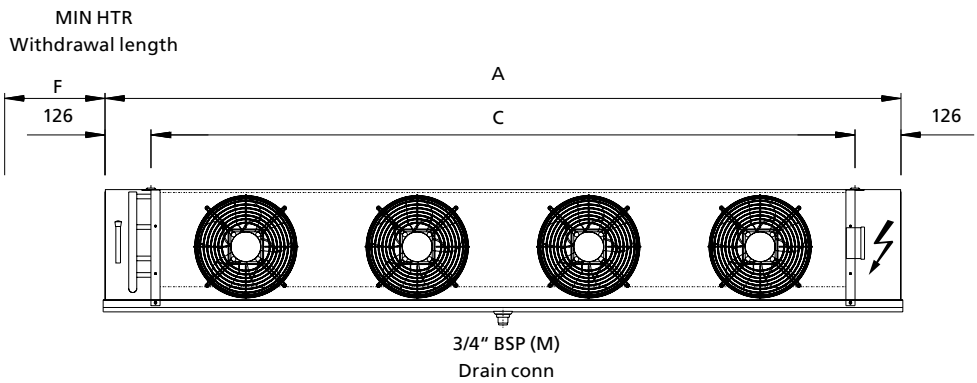
Dimensions

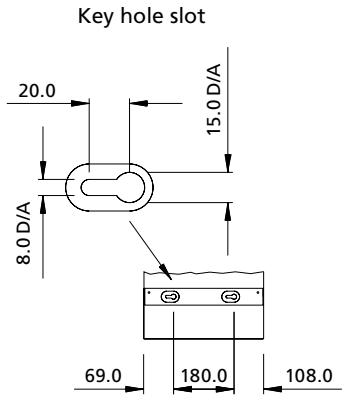


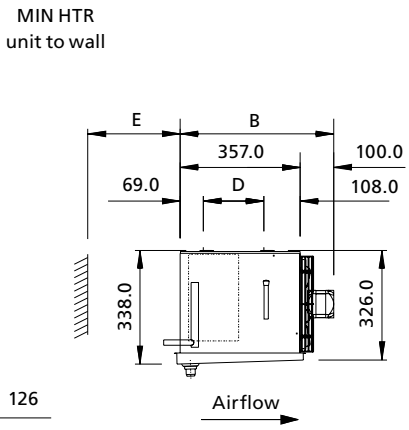
Model	Overall A	Overall B	Mounting Centres C	Mounting Centres D	E	F	Weight kg
NS14-6	772	457	520	180	275	550	15
NS25-6	1242	457	990	180	275	1020	22
NS28-6	1242	457	990	180	275	1020	26
NS37-6	1712	457	1460	180	275	1200	31
NS43-6	1712	457	1460	180	275	1200	36
NS57-6	2182	457	1930	180	275	1200	46











KEC Unit Cooler

The GEA Searle KEC cooler is the next generation of Unit Cooler, with market leading performance, noise levels and energy efficiency. Using EC Technology as standard across the range, the Power Input for the KEC cooler is typically 50% that of other cooler motors.

The KEC coolers cover a capacity range from 1.2 – 10.7kW and are ideally suited for cold room applications and cool cabinets. The range has a modern aesthetic design and is easy to install and maintain.

A range of refrigerants, can be selected using Selection Software. Software can be obtained as a CD from your Searle representative or downloaded from our website www.searle.co.uk.

The KEC defrost system has been significantly improved to offer more even defrosting. This is achieved using a greater number of elements which operate at lower temperatures and therefore minimises steaming, whilst also effecting a shorter defrost cycle.

The KEC utilises the unique GEA Searle 'D' fin which has been specifically developed for refrigeration applications. The 'D' fin incorporates ½" outside diameter tube with extended inner surface – 'rifle bore' – to maximise performance and balances the requirements of high efficiency heat transfer with the need to have secondary surface on which to deposit frost and maximise the periods between defrosts. All coils are tested to 35.8 bar unless otherwise stated.

The fansets used in the KEC are all 300mm EC fansets with internal thermal protection and are flush mounted within the casing providing a clean fascia. The KEC10, KEC15, KEC20 and KEC35 all utilise motors with 30W power input with the remainder of the range using motors with 70W power input. All are rated at IP44+ with an operating temperature range of –40°C to +40°C and can accept 196-253V 1PH power at 50/60Hz.

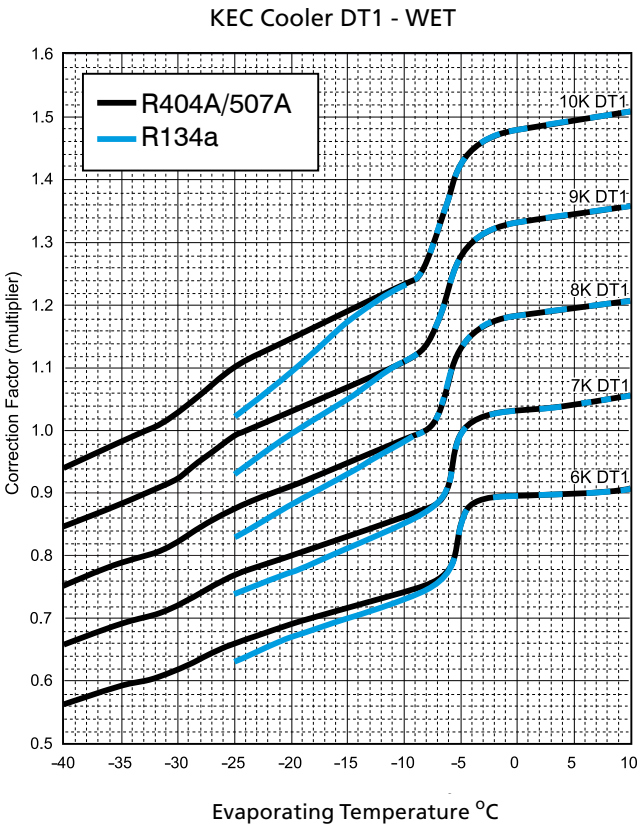
KEC	35	4	L	AV

Range	KEC
Model	10,15,20,25,30,35,40,45,55,70
Fin Spacing	4mm, 6mm, 8mm
Defrost	Blank = No defrost, L = Standard Electric Defrost, HG = Hot Gas, D = Coil & Tray / E = Electric Tray, A / B / C / D = type
Fin Material	Blank = Aluminium AV = Vinyl Coated Aluminium CU = Copper
Coil	Blank = HCFC, GLY = Glycol

Refrigerant	R404A	R134a	R507A	R407A	R407C
Capacity Factor (dew point, DT1)	1.00	0.91	0.97	1.18*	1.35*
Capacity Factor (MID point, DT1)	0.97	0.91	0.97	0.91	1.01
Refrigerant charge Density (kg/dm^3)	0.312	0.338	0.313	0.332	0.332

* Capacity factors for refrigerants with high glide apply only at the nominal rating condition.
Refrigerant charge densities are based on 25% of the internal volume being liquid.

Correction Factors (multipy capacity by appropriate correction factor to give performance at chosen conditions)



Note: EC Fans as standard on all models

KEC Selection Data

	Model	Capacity kW 8K DT1 (SC2) *				Air volume	Coil Data					
		R404A	R507A	R134a	R407C		Total surface area	Internal volume	Ref charge	Connections		Dry weight
						m^3/s	m^2	dm^3	kg	Inlet	Outlet	kg
4mm	KEC10-4	1.65	1.60	1.50	1.96	0.28	8.5	1.4	0.45	1/2″	1/2″	27
	KEC15-4	2.01	1.95	1.83	2.39	0.28	10.0	1.9	0.61	1/2″	1/2″	28
	KEC20-4	2.35	2.28	2.14	2.80	0.29	13.7	2.6	0.84	1/2″	5/8″	33
	KEC25-4	3.00	2.91	2.73	3.57	0.42	13.7	2.6	0.84	1/2″	5/8″	33
	KEC30-4	3.73	3.62	3.39	4.44	0.40	20.5	3.8	1.23	1/2″	7/8″	35
	KEC35-4	4.57	4.43	4.16	5.44	0.58	24.9	4.4	1.41	1/2″	7/8″	47
	KEC40-4	5.84	5.67	5.31	6.95	0.83	24.9	4.4	1.41	1/2″	7/8″	47
	KEC45-4	6.99	6.78	6.36	8.32	0.81	37.4	6.4	2.08	1/2″	7/8″	53
	KEC55-4	8.79	8.53	8.00	10.46	1.25	37.4	6.3	2.02	1/2″	7/8″	67
	KEC70-4	10.51	10.19	9.56	12.51	1.21	56.0	9.3	3.00	1/2″	7/8″	74
6mm	KEC10-6	1.34	1.30	1.22	1.59	0.31	5.8	1.4	0.45	1/2″	1/2″	27
	KEC15-6	1.72	1.67	1.57	2.05	0.31	6.8	1.9	0.61	1/2″	1/2″	28
	KEC20-6	1.99	1.93	1.81	2.37	0.32	9.4	2.5	0.84	1/2″	5/8″	33
	KEC25-6	2.38	2.31	2.17	2.83	0.43	9.4	2.6	0.84	1/2″	5/8″	33
	KEC30-6	3.16	3.07	2.88	3.76	0.42	14.1	3.8	1.23	1/2″	7/8″	35
	KEC35-6	3.85	3.74	3.50	4.58	0.63	17.0	4.3	1.41	1/2″	7/8″	47
	KEC40-6	4.63	4.49	4.21	5.51	0.85	17.0	4.4	1.41	1/2″	7/8″	47
	KEC45-6	5.97	5.79	5.43	7.10	0.83	25.6	6.4	2.08	1/2″	7/8″	53
	KEC55-6	7.00	6.79	6.37	8.33	1.28	25.6	6.3	2.02	1/2″	7/8″	67
	KEC70-6	8.98	8.71	8.17	10.69	1.25	38.3	9.3	3.00	1/2″	7/8″	74
8mm	KEC10-8	1.17	1.13	1.06	1.39	0.32	4.4	1.4	0.45	1/2″	1/2″	27
	KEC15-8	1.52	1.47	1.38	1.81	0.32	5.2	1.9	0.61	1/2″	1/2″	28
	KEC20-8	1.74	1.69	1.58	2.07	0.33	7.2	2.5	0.84	1/2″	5/8″	33
	KEC25-8	2.06	1.99	1.87	2.45	0.44	7.2	2.5	0.84	1/2″	5/8″	33
	KEC30-8	2.75	2.67	2.50	3.27	0.43	10.8	3.8	1.23	1/2″	7/8″	35
	KEC35-8	3.30	3.20	3.00	3.93	0.65	13.1	4.3	1.41	1/2″	7/8″	47
	KEC40-8	3.98	3.86	3.62	4.74	0.86	13.1	4.3	1.41	1/2″	7/8″	47
	KEC45-8	5.31	5.15	4.83	6.32	0.86	19.7	6.4	2.08	1/2″	7/8″	53
	KEC55-8	6.01	5.83	5.47	7.15	1.31	19.7	6.3	2.02	1/2″	7/8″	67
	KEC70-8	7.97	7.73	7.25	9.48	1.29	29.5	9.3	3.00	1/2″	7/8″	74

Model	Fan and Motor Specification							Electric Defrost		
	No of fans	Speed	Air throw ***	Noise Level **	230V-1ph-50/60Hz			230V-1ph-50/60Hz		
					†Total power	F.L.C Amps Per Fan	SC Amps Per Fan	Standard		
								Coil	Pan	Total
		rpm	m	dB(A)	W	A	A	W	W	W
KEC10	1	1370	16	44	33	0.35	0.5	680	340	1020
KEC15	1	1370	16	44	33	0.35	0.5	680	340	1020
KEC20	1	1370	16	44	33	0.35	0.5	920	460	1380
KEC25	1	1750	22	52	77	0.70	1.0	920	460	1380
KEC30	1	1750	22	52	77	0.70	1.0	920	460	1380
KEC35	2	1370	16	47	66	0.35	0.5	1600	800	2400
KEC40	2	1750	22	55	154	0.70	1.0	1600	800	2400
KEC45	2	1750	22	55	154	0.70	1.0	1600	800	2400
KEC55	3	1750	22	57	231	0.70	1.0	2400	1200	3600
KEC70	3	1750	22	57	231	0.70	1.0	2400	1200	3600

Notes:
Rating conditions:
The duties shown in this catalogue are at EN 328 Standard Condition 2 (-8°C saturated suction temperature, 0°C air entering). For data on refrigerants not shown, please contact your supplier.

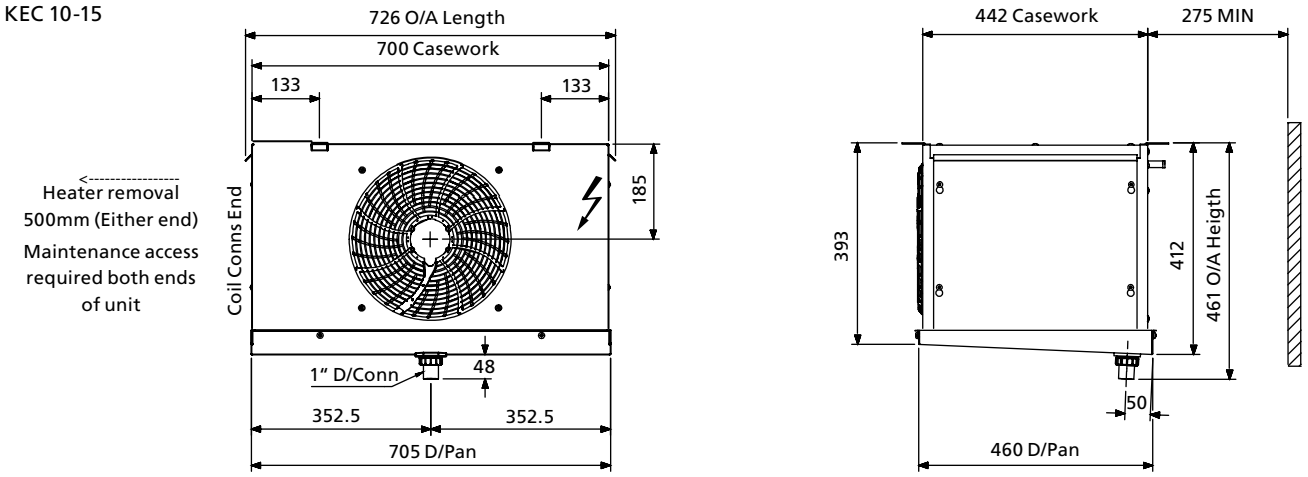
* DT1 is the difference between the entering air temperature and the saturated suction temperature at the outlet of the cooler.

** Noise levels are based on free field conditions at a distance of 3m. Actual noise levels will depend upon cold store construction, store loading and the number of coolers installed.

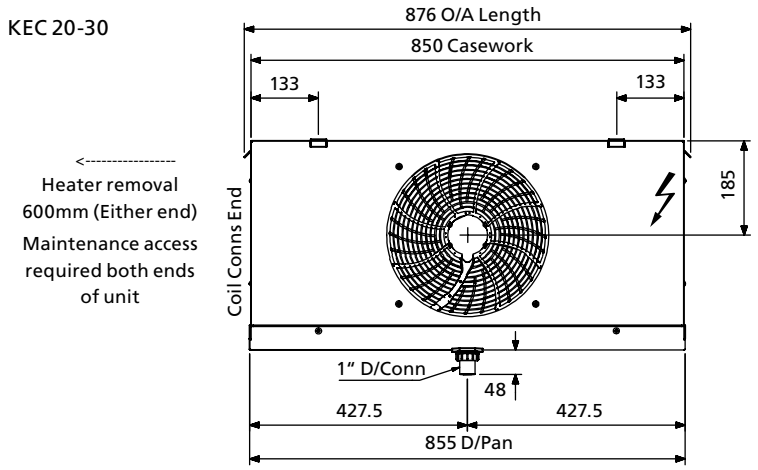
*** Terminal air velocity 0.25m/s, free air conditions at 10°C. Air throw cannot be considered on absolute value because many factors have a substantial effect on the distance achieved.

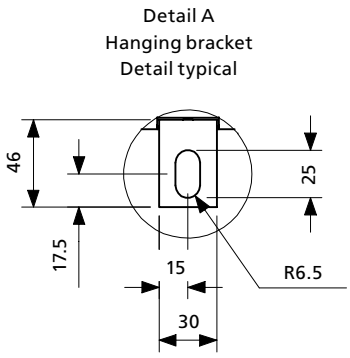
† Total Power Input at Standard Condition 2 (-8°C saturated suction temperature, 0°C air entering).

KEC 10-15

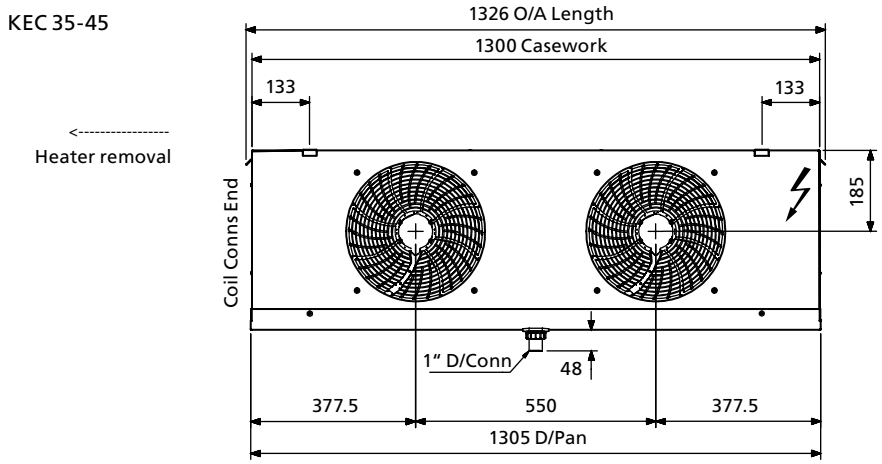


KEC 20-30

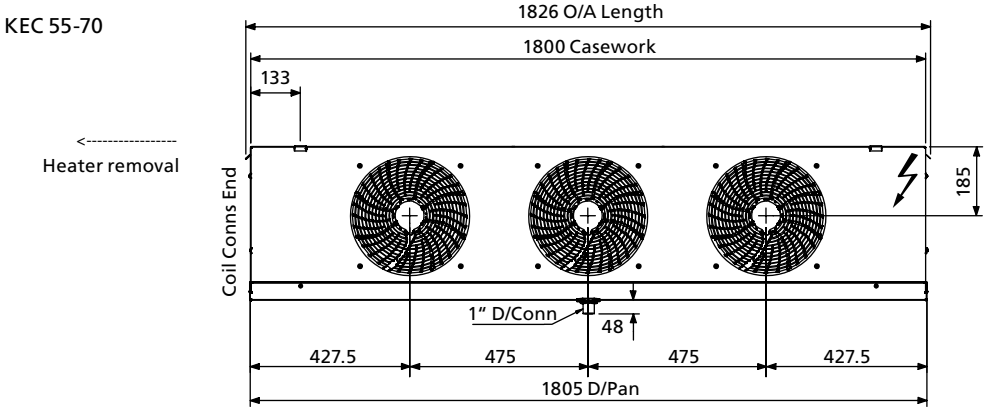




KEC 35-45



KEC 55-70



Note: All dimensions in mm

KMe Air Cooler

The KMe range of coolers is ideally suited to large cold rooms and small warehouses where an efficient solution is required. The KMe can also be used for industrial food processing and agricultural applications.

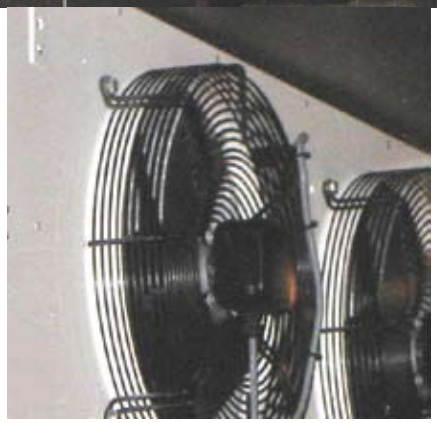
To find the optimum model from the range it is recommened to use the Searle Selection Software.

The KMe utilises the unique GEA Searle 'D' fin which has been specifically developed for refrigeration applications. The 'D' fin utilises ½" outside diameter tube with extended inner surface – 'rifle bore' – to maximise performance. It balances the requirements of high efficiency heat transfer with the need to have secondary surface on which to deposit frost and maximise the periods between defrosts.

All coils are tested to 35.8 bar and have a maximum operating pressure of 20.7 bar unless otherwise stated.

KMe Options

- EC Fansets
- Air streamer – to extend the air throw of the standard 400mm fanset
- Forkguard – a guard system to prevent accidental damage from forklift trucks or similar when siting the cooler at low level.
- Axial fans – for significantly increased air throw or for external pressure of 120Pa.
- Peripheral Heaters – available in conjunction with axial fans, recommended for applications below 0°C.
- Fan plate Heaters
- Heavy Electric Defrost – comprises of additional coil block heaters to increase the total defrost load by approximately 40%



- Fan Plate Heaters – to prevent fan blade contact with frost build up at low temperatures.

KMe140-6L-AV-3PH-EC

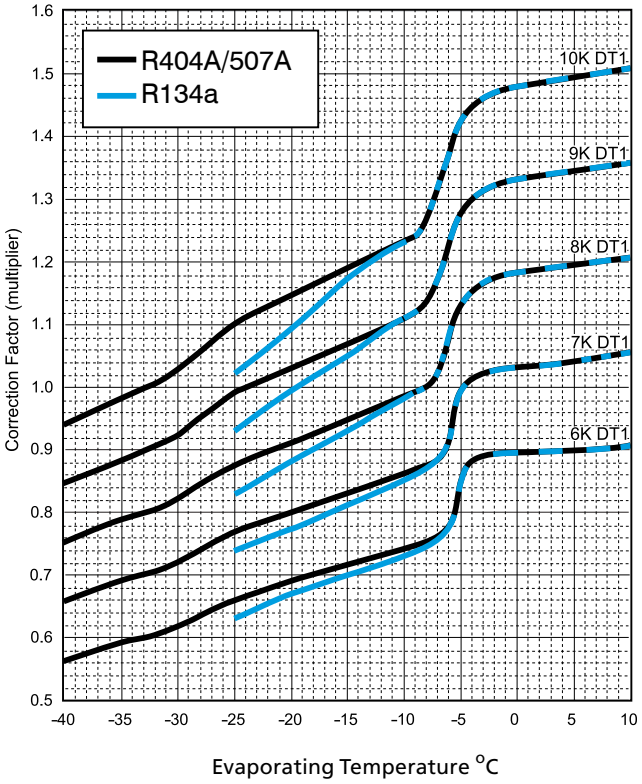
Range	KMe
Model	50, 60, 80, 95, 115, 140, 175
Fin Spacing	4mm, 6mm, 8mm
Defrost	Blank = No Defrost, L = Standard Electric , L2 = Heavy Duty Electric HG = Hot Gas, D = Coil & Tray / E = Electric Tray, A / B / C / D = type
Fin Material	Blank = Aluminium AV = Vinyl coated Aluminium CU = Copper
Electrical Supply	Blank = 1PH, 3PH = 3PH
Fanset Options	Blank = Standard 400mm fanset , Ax = Axial, EC = EC Fanset

Refrigerant	R404A	R134a	R507A	R407A	R407C
Capacity Factor (dew point, DT1)	1.00	0.91	0.97	1.18*	1.35*
Capacity Factor (MID point, DT1)	0.97	0.91	0.97	0.91	1.01
Refrigerant charge Density (kg/dm^3)	0.312	0.338	0.313	0.332	0.332

* Capacity factors for refrigerants with high glide apply only at the nominal rating condition.
Refrigerant charge densities are based on 25% of the internal volume being liquid.

Correction Factors (multipy capacity by appropriate correction factor to give performance at chosen conditions)

KMe Cooler DT1 - WET



KMe Selection Data

	Model	Capacity kW 8K DT1 (SC2) *				Air volume	Coil Data					
		R404A	R507A	R134a	R407C		Total surface area	Internal volume	Ref charge	Connections		Dry weight
						m³/s	m²	dm³	kg	Inlet	Outlet	kg
4mm	KMe50-4	7.36	7.14	6.70	8.76	0.89	37.8	6.7	2.1	1/2"	1 1/8"	85
	KMe60-4	8.70	8.44	7.92	10.35	0.96	56.0	9.5	2.9	5/8"	1 1/8"	112
	KMe80-4	12.21	11.84	11.11	14.53	1.89	50.4	8.4	2.6	5/8"	1 1/8"	129
	KMe95-4	14.78	14.34	13.45	17.59	1.78	75.6	12.5	3.9	5/8"	1 1/8"	139
	KMe115-4	18.41	17.86	16.75	21.91	2.83	75.6	12.2	3.8	7/8"	1 3/8"	170
	KMe140-4	22.29	21.62	20.28	26.53	2.68	113.4	18.4	5.6	7/8"	1 3/8"	195
	KMe175-4	27.92	27.08	25.41	33.22	3.45	134.4	21.6	6.6	7/8"	1 3/8"	217
6mm	KMe50-6	6.20	6.01	5.64	7.38	0.98	25.9	6.7	2.1	1/2"	1 1/8"	83
	KMe60-6	7.45	7.23	6.78	8.87	1.01	38.3	9.5	2.9	5/8"	1 1/8"	109
	KMe80-6	9.74	9.45	8.86	11.59	2.00	34.5	8.4	2.6	5/8"	1 1/8"	126
	KMe95-6	12.50	12.13	11.38	14.88	1.95	51.8	12.5	3.9	5/8"	1 1/8"	135
	KMe115-6	14.62	14.18	13.30	17.40	3.00	51.8	12.2	3.8	7/8"	1 3/8"	166
	KMe140-6	18.70	18.14	17.02	22.25	2.93	77.7	18.4	5.6	7/8"	1 3/8"	190
	KMe175-6	23.86	23.14	21.71	28.39	3.86	92.1	21.6	6.6	7/8"	1 3/8"	212
8mm	KMe50-8	5.70	5.53	5.19	7.70	1.02	19.9	6.7	2.1	1/2"	1 1/8"	84
	KMe60-8	6.81	6.61	6.20	9.19	1.03	29.5	9.5	2.9	5/8"	1 1/8"	110
	KMe80-8	8.58	8.32	7.81	11.58	2.05	26.5	8.4	2.6	5/8"	1 1/8"	127
	KMe95-8	11.46	11.12	10.43	15.47	2.04	39.8	12.5	3.9	5/8"	1 1/8"	136
	KMe115-8	12.94	12.55	11.78	17.47	3.07	39.8	12.2	3.8	7/8"	1 3/8"	167
	KMe140-8	17.19	16.67	15.64	23.21	3.06	59.7	18.4	5.6	7/8"	1 3/8"	191
	KMe175-8	21.91	21.25	19.94	29.58	4.06	70.8	21.6	6.6	7/8"	1 3/8"	212

Model	Fan & Motor Specification												Electric Defrost				
	No of fans	Diameter	Speed	Air throw std/thrower ***		Noise level **	230V-1ph-50Hz			400V-3ph-50Hz			400V-3ph				
							Total †power	F.L.C Amps Per Fan	SC Amps Per Fan	Total †power	F.L.C Amps Per Fan	SC Amps Per Fan	Standard			Heavy duty	
		mm	rpm	4mm m	8mm m	dB(A)	W	A	A	W	A	A	Coil W	Pan W	Total W	Coil W	Pan W
KMe50	1	400	1410	17/26	19/29	60	200	1.05	3.3	200	0.65	2.6	1590	795	2385	2650	795
KMe60	1	400	1410	19/29	22/34	60	200	1.05	3.3	200	0.65	2.6	2400	1200	3600	4000	1200
KMe80	2	400	1410	19/29	22/34	63	400	1.05	3.3	400	0.65	2.6	3240	1590	4830	5400	1590
KMe95	2	400	1410	17/26	19/29	63	400	1.05	3.3	400	0.65	2.6	3240	1590	4830	5400	1590
KMe115	3	400	1410	19/29	22/34	65	600	1.05	3.3	600	0.65	2.6	4800	2400	7200	8000	2400
KMe140	3	400	1410	17/26	19/29	65	600	1.05	3.3	600	0.65	2.6	4800	2400	7200	8000	2400
KMe175	4	400	1410	17/26	19/29	66	800	1.05	3.3	800	0.65	2.6	5640	2820	8460	9400	2820

Notes:

Rating conditions:

The duties shown in this catalogue are at EN 328 Standard Condition 2 (-8°C saturated suction temperature, 0°C air entering). For data on refrigerants not shown, please contact your supplier.

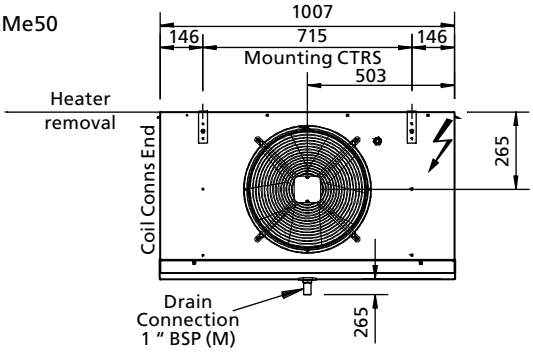
* DT1 is the difference between the entering air temperature and the saturated suction temperature at the outlet of the cooler.

** Noise levels are based on free field conditions at a distance of 3m. Actual noise levels will depend upon cold store construction, store loading and the number of coolers installed.

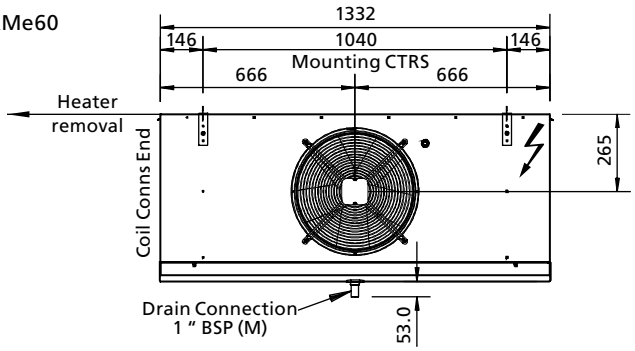
*** Terminal air velocity 0.25m/s, free air conditions at 10°C. Air throw cannot be considered on absolute value because many factors have a substantial effect on the distance achieved.

† Total Power Input at Standard Condition 2 (-8°C saturated suction temperature, 0°C air entering).

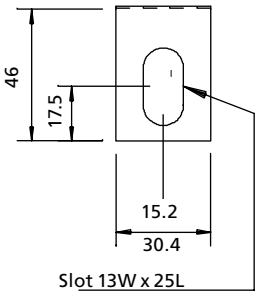
KMe50



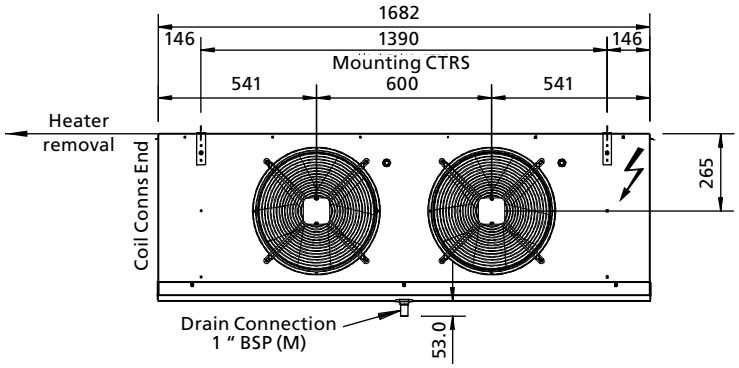
KMe60

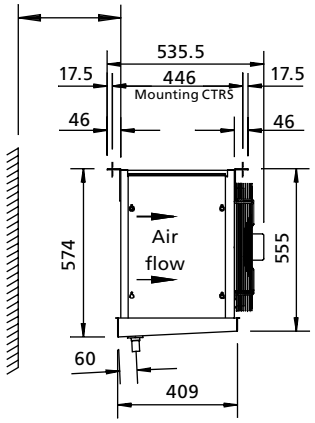


Mounting bracket details

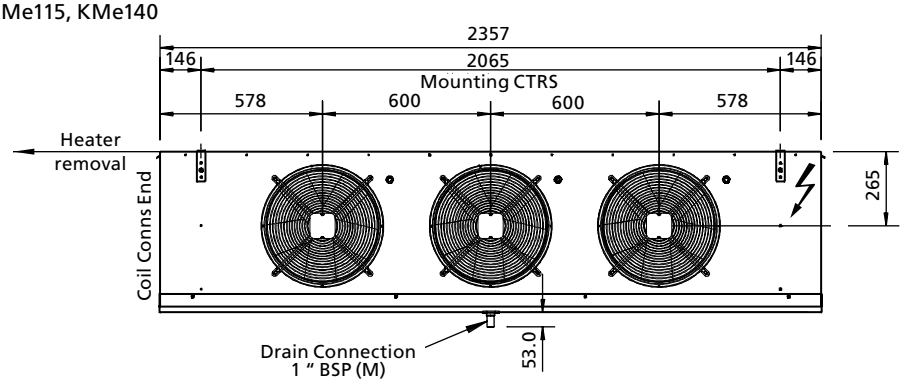


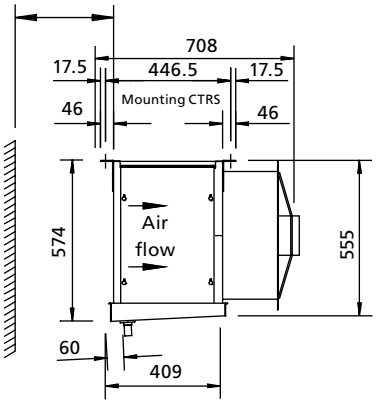
KMe80, KMe95



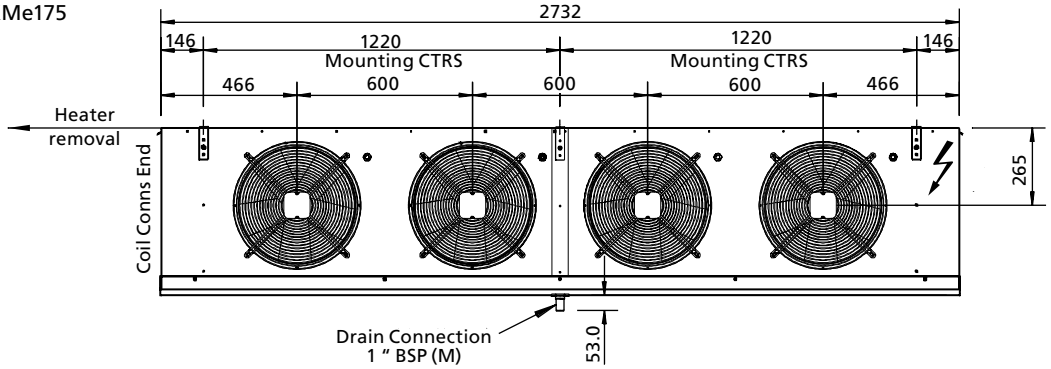


KMe115, KMe140





KMe175



Note: All dimensions in mm

KLe Air Cooler

The KLe range extends the K series to coolers with up to 52kW with an operating temperature range of -30°C to +50°C. The KLe range of coolers are ideally suited to larger coldstores, small food storage warehouses and various commercial applications.

With the large number of coolers and available refrigerants it is recommended to employ the Searle Selection Software to find the optimum model. The Searle Selection Software can be obtained from your local representative or downloaded from our website www.searle.co.uk

The KLe has smooth aluminium casework, with a high quality powder coated finish which makes the KLe easy to clean and offers considerable corrosion protection, ideal for all applications were food is present. Both end panels are easily removed for access to the terminal box and fitting of an expansion valve.

The coils are constructed of copper tubes with aluminium fins and coil end plates, and and are available in a choice of 5mm or 7mm fin spacing

The 500mm 3-phase fans motors are wired to the internal terminal box and offer built-in motor protection with a voltage range of 400V +/- 10%, 50/60Hz.

The KLe is available as a low temperature model with electric defrost heaters which are mounted in special tube sleeves for rapid and even defrosting. These are also wired back to the internal terminal box.

KLe Options

- EC fansets
- Air streamers - To extend the air throw of the standard 500mm fanset.
- Mounting set for hinged drain tray - for easy and quick cleaning
- Wall bracket - Galvanised steel

KLe 75 - 5 L

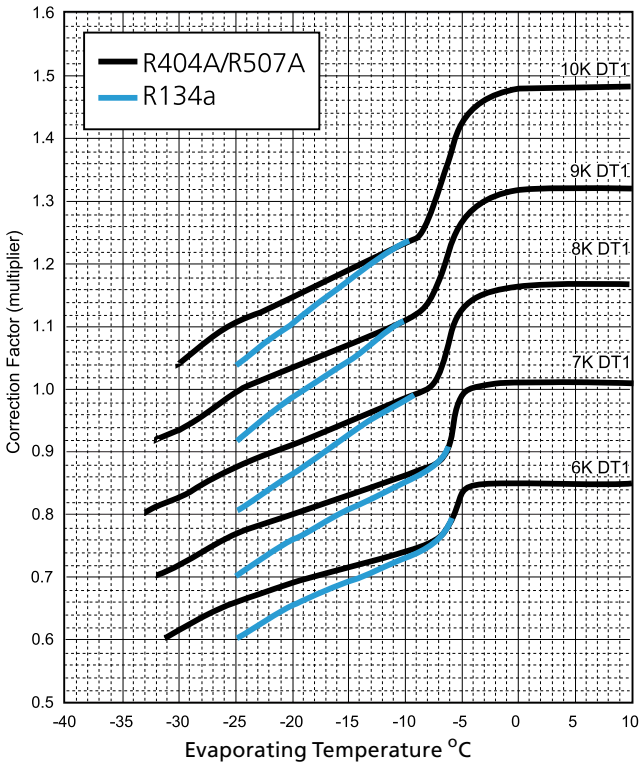
Range	KLe
Model	75, 90, 130, 165, 195, 245, 260, 330
Fin Spacing	5 mm , 7 mm
Defrost	Blank = No Defrost, L = With Electric Defrost

Refrigerant	R404A	R134a	R507A	R407A	R407C
Capacity Factor (dew point, DT1)	1.00	0.91	0.97	1.18*	1.35*
Capacity Factor (MID point, DT1)	0.97	0.91	0.97	0.91	1.01
Refrigerant charge Density (kg/dm$^{3)}$	0.312	0.338	0.313	0.332	0.332

* Capacity factors for refrigerants with high glide apply only at the nominal rating condition.
Refrigerant charge densities are based on 25% of the internal volume being liquid.

Correction Factors (multipy capacity by appropriate correction factor to give performance at chosen conditions)

KLe Cooler DT1 - WET



KLe Selection Data

	Model	Capacity kW 8K DT1 (SC2)				Air Volume	Coil Data					
		R404A	R507A	R134a	R407C		Total Surface Area	Internal Volume	Refrigerant charge	Connections		Dry weight
										Inlet	Outlet	
						m^3/s	m^2	dm^3	kg	mm	mm	kg
5 mm	KLe75-5	11.3	11.0	10.3	11.4	1.62	36.3	7.6	2.3	15	35	50
	KLe90-5	13.1	12.7	11.9	13.2	1.46	54.2	11.1	3.4	15	35	60
	KLe130-5	21.7	21.0	19.7	21.9	3.22	72.7	14.3	4.4	15	42	89
	KLe165-5	25.7	24.9	23.4	26.0	2.92	108.3	21.5	6.6	22	42	109
	KLe195-5	33.4	32.4	30.4	33.7	4.84	109.2	21.3	6.5	22	54	136
	KLe245-5	38.3	37.2	34.9	38.7	4.4	162.7	32.2	9.8	22	54	164
	KLe260-5	43.5	42.2	39.6	43.9	6.44	145.5	28.6	8.7	22	54	178
	KLe330-5	51.6	50.1	47.0	52.1	5.86	216.9	41.0	12.5	28	54	221
7 mm	KLe75-7	8.8	8.5	8.0	8.8	1.74	24.3	7.6	2.3	15	35	48
	KLe90-7	11.1	10.8	10.1	11.2	1.64	36.3	11.1	3.4	15	35	58
	KLe130-7	17.1	16.6	15.6	17.3	3.48	48.6	14.3	4.4	15	42	86
	KLe165-7	21.9	21.2	19.9	22.1	3.26	72.5	21.5	6.6	22	42	105
	KLe195-7	26.0	25.2	23.7	26.3	5.2	73.0	21.3	6.5	22	54	132
	KLe245-7	32.6	31.6	29.7	32.9	4.9	108.8	32.2	9.8	22	54	159
	KLe260-7	34.2	33.2	31.1	34.5	6.94	97.1	28.6	8.7	22	54	173
	KLe330-7	43.8	42.5	39.9	44.2	6.54	144.8	41.0	12.5	28	54	215

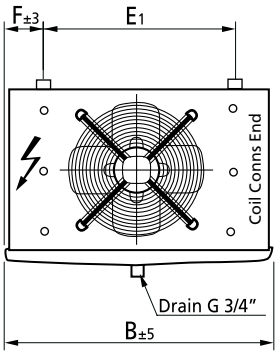
Model	Fans & Motors							Electric Defrost		
	No of fans	Speed	Air Throw terminal velocity 0.25 m/s	Noise Level **	400V-3ph-50			400V-3ph-50		
					(†) Total power	FLC Amps	SC Amps	Standard		
								Coil	Pan	Total
		rpm	m	dB(A)	Input W	Per Fan	Per Fan	W	W	W
KLe75	1	1360	17	83	560	1.01	5.0	3520	500	4020
KLe90	1	1360	16	83	560	1.01	5.0	5520	500	6020
KLe130	2	1360	22	86	1120	1.01	5.0	6740	860	7600
KLe165	2	1360	21	86	1120	1.01	5.0	10110	860	10970
KLe195	3	1360	26	88	1680	1.01	5.0	9200	1820	11020
KLe245	3	1360	24	88	1680	1.01	5.0	13800	1820	15620
KLe260	4	1360	28	89	2240	1.01	5.0	12720	2390	15110
KLe330	4	1360	26	89	2240	1.01	5.0	19080	2390	21470

Note:

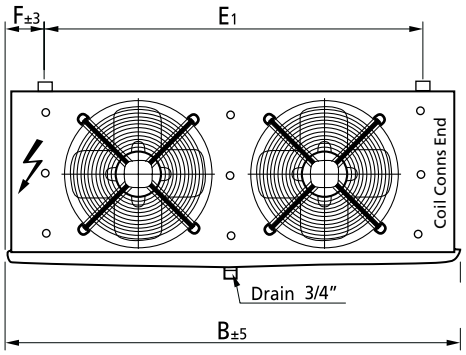
** For average sound pressure levels at 3 m in free field conditions, deduct 18 dB

** For a typical cold store, reflection could create noise levels up to 8 dB higher.

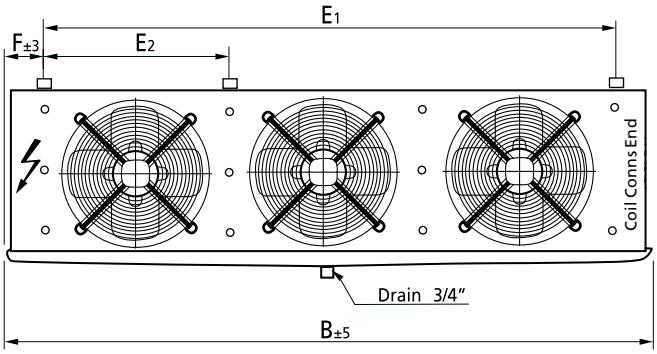
KLe 75 - 90

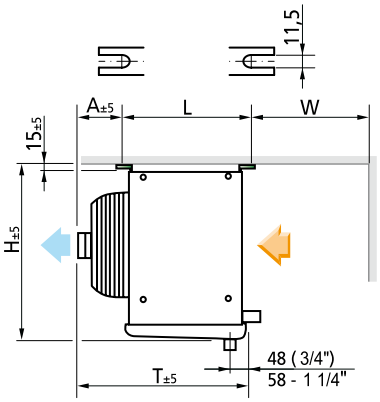


KLe 130 - 165

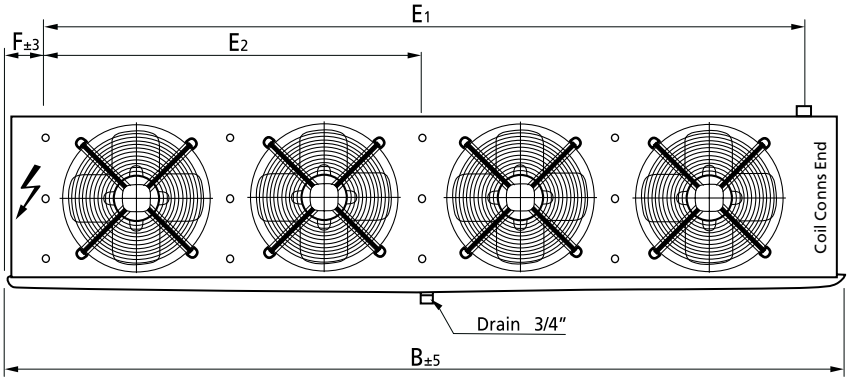


KLe 195 - 245

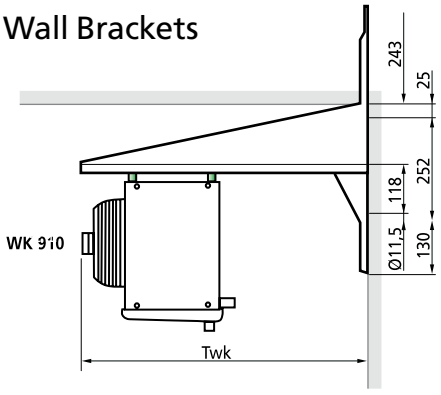




KLe 260 - 330



Wall Brackets



Model	Dimensions (mm)										Dry Weights	
	H	B	T	L	E_1	E_2	E_3	F	A	W	5mm	7mm
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	kg
KLe75	661	1430	592	500	1030	-	-	200	110	400	50	48
KLe90	661	1430	592	500	1030	-	-	200	110	400	60	58
KLe130	661	2430	592	500	2030	-	-	200	110	400	89	86
KLe165	661	2430	592	500	2030	-	-	200	110	400	109	105
KLe195	661	3430	592	500	3030	1000	-	200	110	400	136	132
KLe245	661	3430	592	500	3030	1000	-	200	110	400	164	159
KLe260	661	4430	592	500	4030	2000	-	200	110	400	178	173
KLe330	661	4430	592	500	4030	2000	-	200	110	400	221	215

DSR Air Cooler

The DSR range of low profile, low air velocity, ceiling mounted, dual discharge coolers has been designed for cold rooms, laboratories, food preparation areas and similar applications.

The 11 DSR models have from one to four fans and are available in three fin spacings, providing capacities from 0.8kW to 15.1kW. Nine models have two speed motors and all can be fitted with optional speed control.DSR coolers are available for low temperature or high temperature applications. The revolutionary design combines compactness with efficiency and attractiveness, as well as accessibility and serviceability.

The casework is white epoxy painted galvanised steel. The coil is made from 1/2" O/D internally grooved copper tube with mechanical bonding to the proven Searle 'D' fin available in 3mm, 4mm or 6mm spacing. For ease of installation, the wiring and drain connection can be from either end of the unit.

The range calls on the experiences and designs of previous Searle coolers and provides the opportunity for close temperature control, with minimum energy demands from a compact, unobtrusive unit.

Casework

All external metalwork is finished in a white high gloss epoxy powder. The coil is supported by the coil end plates and supports which are in turn connected to the hanger brackets. These enable the cooler to be mounted flush to the ceiling. Efficient condensate drainage is achieved inside the unit by sloping inner drain trays, enabling the cooler to be mounted square to the ceiling. The drain assembly is reversible for convenience of installation. The DSR design includes a space allocation at the refrigerant connection end to allow the TEV to be housed inside the unit.

Corrosion Protection

The rigid case structure is fabricated from galvanised sheet steel. Paint is applied to external surfaces in Searle's modern electrostatic powder paint plant then baked and cured at 180°C, ensuring an even, flexible and durable finish.

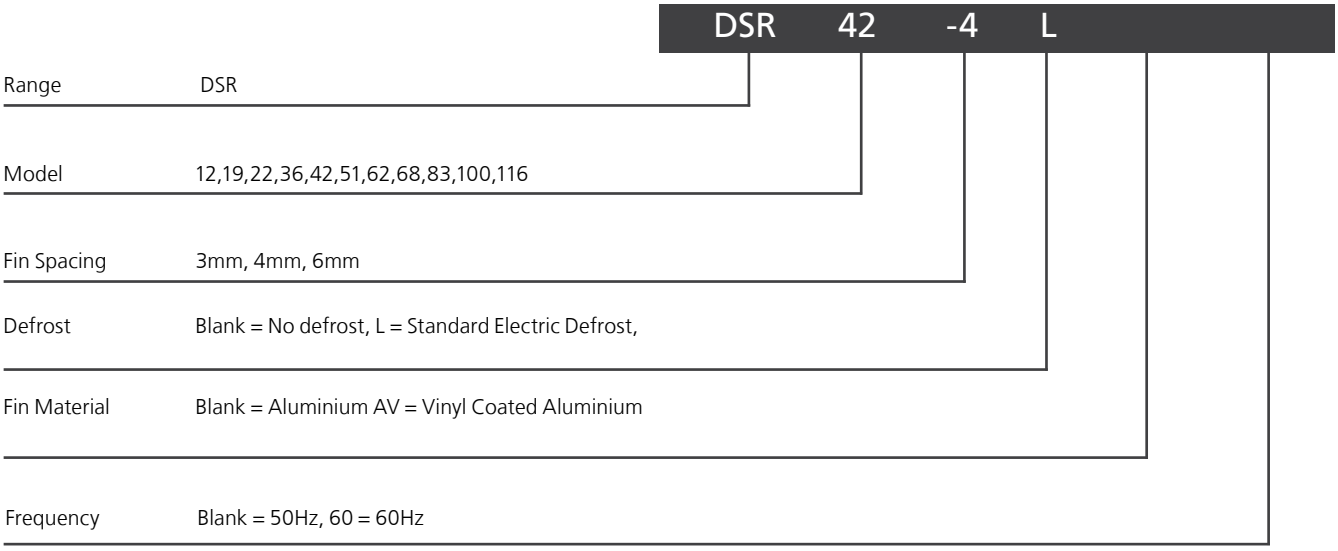
Coils

The coil block comprises 1/2" diameter copper tubes with an extended inner surface ensuring maximum heat transfer efficiency and minimum refrigerant charge. The tubes are mechanically expanded to form a tight interference fit into the collars of the aluminium fins. This efficient design

reduces the cooler's physical size thus maximising storage capacity. Standard coils are tested to 35.8 bar before they leave the factory.

Coil Options:

- Cu/AL - Copper tubes with Aluminium fins
- Cu/AV - Copper tubes with vinyl-coated
- Aluminium fins (3mm and 4mm fin spacing).
- Coils circuited for glycol.



Specification

Motors and Fans

All DSR units utilise internally protected single phase squirrel cage motors of a totally enclosed, air cooled, permanent capacitor type in an IP44 enclosure. They are individually wired via plug and socket connectors and cable trays back to a robust junction box, where an electrical bridging facility is provided. High or low speed operation (excluding DSR 100 & 116) is obtained by connecting the electrical supply to the appropriate terminals. The motors on the DSR 100 & 116 are suitable for speed control via an optional Searle Triac controller (See below).

Models DSR 12 to DSR 83 use a 305mm propeller-type five-bladed fan with a fractional dual speed 25W motor. A pitch of 24° is supplied for 50Hz applications and 20° for 60Hz.

Models DSR 100 and DSR 116 are fitted with four-bladed 305mm fans and 70W single speed motors, running at 4-pole speed. A pitch of 32° is supplied for 50Hz applications and 26° for 60Hz.

Speed Control on DSR 100 & DSR 116

Speed control on DSR models 100 & 116 can be utilised to tailor air velocities to suit various applications - e.g to minimise possible personnel discomfort caused by airflow or noise. To achieve lower speeds on the single speed 70 Watt motors found on DSR100 and 116 models, Searle offers a manually operated, Triac type speed controller which must be ordered separately. Performances for a typical speed of 800rpm are given in the Selection data.

For other speeds, air flow and thermal performance are approximately proportional to speed. Operation at any speed between 600 rpm and maximum is approved.

Noise Levels

The noise levels given in the tables are a guide to users where noise pollution is an important factor. The test figures are based on 'free field', defined as: 'unit mounted over a reflective plane with no other reflective surface'. Individual installations will have differing acoustic characteristics which will affect the noise levels. If noise is critical, advice should be sought from an acoustic consultant.

Defrost Options

Where electric defrost is specified, heater elements are installed beneath each coil block. Models DSR 100 and DSR 116 have an additional element within each coil. (A one metre space must be allowed at one end of these two models to facilitate element withdrawal). Hot gas defrost with electric drain pan heaters can also be specified. Low temperature operation is not recommended on the 3mm fin spacing option.

Natural defrost with fans operating is not suitable for coolers operating with a room temperature of less than 5°C. For applications below -20°C it is recommended that the optional sump heater is used.

Air Heaters

Electric air heaters can be factory fitted to 2 or 4 row coil units (DSR 12, 19, 36, 51, 68 and 100). Up to 6kW is possible on larger units - contact your supplier for details.

Specification

Installation

Units are designed to be flush-mounted to the ceiling, using the brackets incorporated into the casework. Electrical and refrigeration connections are at opposite ends but provision has been made for the electrical cabling to be ducted through a channel to the refrigeration end if required. Access is provided for service connections through the top of the unit at each end.The drain tray assembly can be reversed, allowing the drain connection to be sited at the preferred end. The standard drain connection is a 3/4" BSP horizontal connection, 35mm long and welded to the end of the sump.

Serviceability

Serviceability and accessibility were paramount in the design of the DSR range. Access to components such as fans, motors and defrost heaters is simple and rapid through either the fan guard or heater covers/drain trays. Removable end panels enable easy access to the electrical junction box and refrigeration connections. Motors can be removed rapidly, due to a simple plug and socket connector and straightforward mounting plate.

Quality Assurance

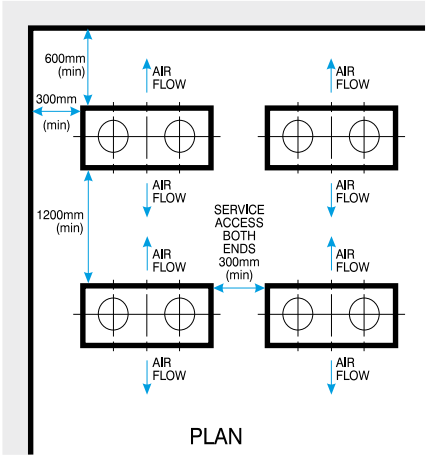
Searle is a certified company to BS EN ISO 9001 which is the highest Quality Assurance qualification currently available, covering Performance Testing, Manufacturing Systems and Inspection Procedures.

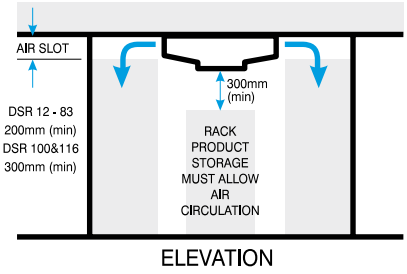
Rating Conditions

The duties shown in this catalogue are at EN 328 Standard Condition 2 (-8°C saturated suction temperature, 0°C air entering).

Certification

The range is certified under the Eurovent CERTIFY-ALL direct expansion air coolers program, with performances tested in accordance with EN 328.





Location

The DSR is designed to draw air in the bottom and discharge it horizontally through the coils fitted on each side. For the best performance, the cooler should be placed at the geometric centre of the room or module in which it is operating.

Mounting

The DSR is primarily designed for flush ceiling mounting but may also be hung on rods. The cooler must be level in both horizontal directions to ensure free drainage of condensate.

Condensate Drainage

The horizontal drain connection is a 3/4" BSP(T) steel stub which is welded into the base of the drain sump. The drain line must pitch down with a minimum 2% gradient and must terminate outside the cold room with a 'U' trap seal.

TEV Selection

It is important that the TEV is sized correctly and that the valve is fitted directly onto the distributor inlet or as close to it as possible. The TEV should be sized for the maximum capacity at the minimum pressure drop across it, which occurs at the minimum condensing pressure. In addition, the following allowance must be made for the cooler's distributor and leads:

Distributor system pressure drop
R404A, R507A, R407A 1.5 Bar
R134a 1.0 Bar

Externally equalised expansion valves should be used on all models except DSR12.

Standard (High speed)

	Model	Capacity kW (SC2)	Motor details 230V - 1ph - 50Hz					Fan Data		
		R404A	No.of fans	Total power input**	FLC per fan	SC per fan	Speed	Air Volume	Air throw	Noise level
				W	Amps	Amps	RPM	m³/s	m	dB(A)
3 mm	DSR12-3	1.72	1	64	0.3	0.38	1300	0.32	10	49
	DSR19-3	2.55	1	64	0.3	0.38	1300	0.31	10	49
	DSR22-3	3.02	1	64	0.3	0.38	1300	0.30	10	49
	DSR36-3	4.75	2	128	0.3	0.38	1300	0.60	11	51
	DSR42-3	5.57	2	128	0.3	0.38	1300	0.58	10	51
	DSR51-3	7.24	3	192	0.3	0.38	1300	0.90	11	54
	DSR62-3	8.19	3	192	0.3	0.38	1300	0.86	10	54
	DSR68-3	9.54	4	256	0.3	0.38	1300	1.20	11	55
	DSR83-3	11.05	4	256	0.3	0.38	1300	1.15	10	55
	DSR100-3	13.60	4	640	0.81	1.85	1400	1.65	10	60
	DSR116-3	15.09	4	640	0.81	1.85	1400	1.47	9	60
4 mm	DSR12-4	1.47	1	64	0.3	0.38	1300	0.32	10	49
	DSR19-4	2.14	1	64	0.3	0.38	1300	0.31	10	49
	DSR22-4	2.67	1	64	0.3	0.38	1300	0.30	10	49
	DSR36-4	4.06	2	128	0.3	0.38	1300	0.61	11	51
	DSR42-4	4.95	2	128	0.3	0.38	1300	0.59	10	51
	DSR51-4	6.15	3	192	0.3	0.38	1300	0.92	10	54
	DSR62-4	7.40	3	192	0.3	0.38	1300	0.88	10	54
	DSR68-4	8.19	4	256	0.3	0.38	1300	1.22	11	55
	DSR83-4	9.90	4	256	0.3	0.38	1300	1.18	10	55
	DSR100-4	11.98	4	640	0.81	1.85	1400	1.72	10	60
	DSR116-4	13.70	4	640	0.81	1.85	1400	1.56	10	60
6 mm	DSR12-6	1.16	1	64	0.3	0.38	1300	0.32	11	49
	DSR19-6	1.78	1	64	0.3	0.38	1300	0.32	10	49
	DSR22-6	2.29	1	64	0.3	0.38	1300	0.31	10	49
	DSR36-6	3.33	2	128	0.3	0.38	1300	0.63	12	51
	DSR42-6	4.22	2	128	0.3	0.38	1300	0.61	11	51
	DSR51-6	4.95	3	192	0.3	0.38	1300	0.94	12	54
	DSR62-6	6.35	3	192	0.3	0.38	1300	0.92	11	54
	DSR68-6	6.68	4	256	0.3	0.38	1300	1.25	12	55
	DSR83-6	8.44	4	256	0.3	0.38	1300	1.22	11	55
	DSR100-6	10.05	4	640	0.81	1.85	1400	1.84	11	60
	DSR116-6	12.34	4	640	0.81	1.85	1400	1.72	10	60

Low noise (Low speed)

	Model	Capacity kW (SC2)	Motor details 230V - 1ph - 50Hz					Fan Data		
		R404A	No.of fans	Total power input**	FLC per fan	SC per fan	Speed	Air Volume	Air throw	Noise level
				W	Amps	Amps	RPM	m³/s	m	dB(A)
3 mm	DSR12-3	1.20	1	26	0.14	0.14	750	0.17	7	34
	DSR19-3	1.67	1	26	0.14	0.14	750	0.17	7	34
	DSR22-3	1.89	1	26	0.14	0.14	750	0.16	6	34
	DSR36-3	3.13	2	52	0.14	0.14	750	0.33	7	37
	DSR42-3	3.44	2	52	0.14	0.14	750	0.31	7	37
	DSR51-3	4.64	3	78	0.14	0.14	750	0.49	7	39
	DSR62-3	5.05	3	78	0.14	0.14	750	0.47	7	39
	DSR68-3	6.25	4	104	0.14	0.14	750	0.66	7	40
	DSR83-3	6.77	4	104	0.14	0.14	750	0.62	7	40
	DSR100-3▼	9.01	4	376	0.87	1.85	800	0.93	6	48
	DSR116-3▼	9.79	4	376	0.87	1.85	800	0.86	6	48
4 mm	DSR12-3	1.04	1	26	0.14	0.14	750	0.18	7	34
	DSR19-4	1.46	1	26	0.14	0.14	750	0.17	7	34
	DSR22-4	1.67	1	26	0.14	0.14	750	0.16	7	34
	DSR36-4	2.76	2	52	0.14	0.14	750	0.34	7	37
	DSR42-4	3.18	2	52	0.14	0.14	750	0.32	7	37
	DSR51-4	4.06	3	78	0.14	0.14	750	0.50	7	39
	DSR62-4	4.79	3	78	0.14	0.14	750	0.49	7	39
	DSR68-4	5.52	4	104	0.14	0.14	750	0.67	8	40
	DSR83-4	6.41	4	104	0.14	0.14	750	0.65	7	40
	DSR100-4▼	8.23	4	376	0.87	1.85	800	0.98	7	48
	DSR116-4▼	9.01	4	376	0.87	1.85	800	0.89	6	48
6 mm	DSR12-6	0.84	1	26	0.14	0.14	750	0.18	7	34
	DSR19-6	1.25	1	26	0.14	0.14	750	0.17	7	34
	DSR22-6	1.51	1	26	0.14	0.14	750	0.17	7	34
	DSR36-6	2.29	2	52	0.14	0.14	750	0.34	8	37
	DSR42-6	2.86	2	52	0.14	0.14	750	0.34	7	37
	DSR51-6	3.44	3	78	0.14	0.14	750	0.52	8	39
	DSR62-6	4.22	3	78	0.14	0.14	750	0.50	7	39
	DSR68-6	4.64	4	104	0.14	0.14	750	0.69	8	40
	DSR83-6	5.64	4	104	0.14	0.14	750	0.67	7	40
	DSR100-6▼	7.08	4	376	0.87	1.85	800	1.05	7	48
	DSR116-6▼	8.44	4	376	0.87	1.85	800	0.98	7	48

Selection Data

Model (All fin spacings)	Coil Data							Defrost 230V (4/6mm only)
	Total surface area m^2			Internal volume	Approx. ref charge	Connections		
	3mm	4mm	6mm	dm^3	kg	Inlet	Outlet	kW
DSR12	9.00	6.85	4.70	1.25	0.36	1/2"	1/2"	1.58
DSR19	18.00	14.0	9.40	2.50	0.72	1/2"	5/8"	1.58
DSR22	27.00	21.0	14.0	3.74	1.07	1/2"	5/8"	1.58
DSR36	33.0	25.0	17.0	4.22	1.21	1/2"	7/8"	2.85
DSR42	49.0	37.0	26.0	6.34	1.82	1/2"	7/8"	2.85
DSR51	49.0	37.0	26.0	6.14	1.76	1/2"	7/8"	4.27
DSR62	74.0	56.0	38.0	9.22	2.64	1/2"	1 1/8"	4.27
DSR68	66.0	50.0	34.0	8.07	2.31	1/2"	1 1/8"	5.70
DSR83	98.0	75.0	51.0	12.10	3.47	1/2"	1 1/8"	5.70
DSR100	98.0	75.0	51.0	12.10	3.47	5/8"	1 3/8"	7.67
DSR116	148.0	112.0	77.0	18.14	5.20	5/8"	1 3/8"	7.67

Notes:

▼ Models 100 and 116 should only be operated at reduced speed through the Searle Triac speed controller, which must be purchased separately. Duties shown are based on fan speed of 800 rpm.

* DT1 is the difference between the entering air temperature and the saturated suction temperature at the outlet of the cooler.

** Total Power Input at Standard Condition 2 (-8°C saturated suction temperature, 0°C air entering). For data on refrigerants not shown in the tables please refer to your supplier.

Refrigerant	R404A	R134a	R507A	R407A	R407C
Capacity Factor (dew point, DT1)	1.00	0.91	0.97	1.18*	1.35*
Capacity Factor (MID point, DT1)	0.97	0.91	0.97	0.91	1.01
Refrigerant charge Density ($kg/dm^{3)}$	0.312	0.338	0.313	0.332	0.332

*Dew point capacity factors for refrigeration with high glide apply only at the nominal rating condition. Mid point factors can be used for all conditions. Refrigerant Charge Densities based on 25% of the internal volume being liquid

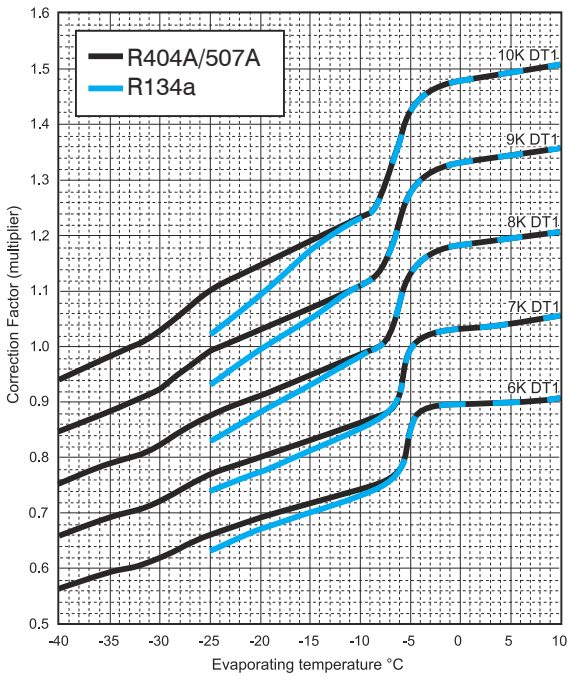
Capacity

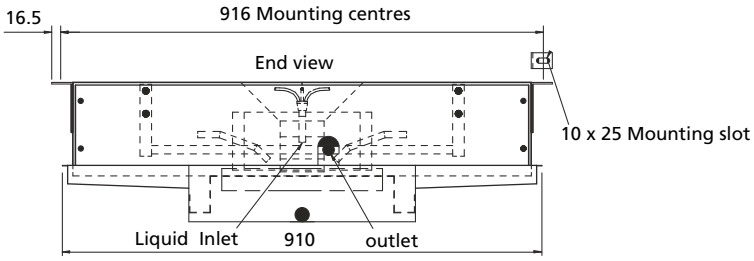
The duties presented in the specification tables are nominal capacities for operational (or "wet") conditions. They have been calculated from the tested 'dry' conditions, conducted in accordance with EN 328, using ratios as specified by Eurovent Standard 7/C/001 which are shown. Tests are conducted under dry conditions wich allows performance to stabilise and permits measurements over a prolonged period. Please note that these ratios are already included in the performance data.

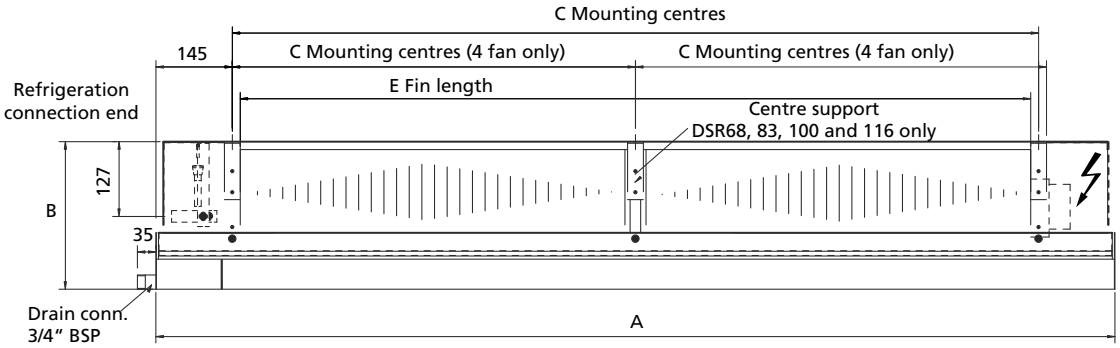
Standard condition	Air on Temp./ Evap. Temp	Relative humidity	Ratio
SC1	10°C / 0 °C	85%	1.35
SC2	0°C / -8 °C	85%	1.15
SC3	-18°C / 25 °C	95%	1.05
SC4	-25°C / -31 °C	95%	1.00

Correction Factors (multipy capacity by appropriate correction factor to give performance at chosen conditions)

DSR Cooler DT1 - WET







Model	Length	Depth	Fixing centres	Depth + trays	Fin length	Weight (kg)		
	A	B	C	D	E	3mm	4mm	6mm
DSR12	870	266	580	445	550	53	52	52
DSR19	870	266	580	445	550	57	56	56
DSR22	870	266	580	445	550	61	59	58
DSR36	1320	266	1030	445	1000	81	79	78
DSR42	1320	266	1030	445	1000	88	85	83
DSR51	1820	266	1530	445	1500	107	104	102
DSR62	1820	266	1530	445	1500	118	113	111
DSR68	2320	266	1015 x 2	445	2000	136	132	130
DSR83	2320	266	1015 x 2	445	2000	150	144	141
DSR100	2320	351	1015 x 2	530	2000	161	155	152
DSR116	2320	351	1015 x 2	530	2000	181	172	167

Note: All dimensions in mm

Industrial Air Coolers

GEA Searle's range of industrial cooling products, offer a wide range of solutions for industrial refrigeration, both standard and special. In addition, GEA Searle also offer unmatched technical support and excellent manufacturing capabilities and capacity. Based on many years experience in these market places, GEA Searle can combine these resources to work with customers in designing and manufacturing bespoke solutions to meet any industrial application.

Fresh ideas from Searle

Motors & Fansets

GEA Searle selects the optimum combination of motors and fans to deliver the best performance for the cooler size and application range. All motors and fansets are verified for power input and air volume in our Research & Development department. Specific motor data details are provided in the relevant section for each cooler type.

Casework

The LSR , SM and FM coolers are manufactured using galvanised sheet case work, white or grey power coated, oven cured at 180 ^{o}c to provide a gard durable finish.

Blygold Coating (Optional)

GEA Searle has installed a purpose built coating facility to apply the Blygold coil protection coating to any size of coil. Blygold withstands almost all chemical vapour exposure conditions and is ideal for the following application areas :-

- Corrosive environments
- Aggressive industrial areas

Industrial Air Coolers

The duties presented in the specification tables are nominal capacities for operational (or 'wet') conditions. They have been calculated from the tested 'dry' conditions, conducted in accordance with EN 328, using ratios as specified by Eurovent Standard 7/C/001.

Tests are conducted under dry conditions which allows performance to stabillise and permits measurement over a prolonged period. Please note that these ratios are already included in the performance data.

Refrigerant	R404A	R134a	R507A	R407A	R407C
Capacity Factor (dew point, DT1)	1.00	0.91	0.97	1.18*	1.35*
Capacity Factor (mid point, DT1)	0.97	0.91	0.97	0.91	1.01
Refrigerant Charge Density (kg/dm^3)	0.312	0.338	0.313	0.332	0.332

*Dew point capacity factors for refrigerants with high glide apply only at the nominal rating condition. Mid point factors can be used for all conditions. Refrigerant Charge Densities based on 25% of the internal volume being liquid.

LSR Industrial Cooler

Features

- Versatile range of dual discharge coolers.
- Ideallly suited to production/preparation stores.
- Robust construction, designed to withstand demanding applications.
- Easy access via hinged drainpan's and fan plate(s) for maintenance and cleaning.
- Fin design provides high surface area for frost build-up.
- Minimal refrigerant charge.

General

The LSR range of dual discharge coolers has been developed to meet the demands of general cold storage along with those associated with food production and preparation halls. The range is divided into 3 main sections based upon fan speed.

Refrigerant

Capacity data is shown for R404A, with correction factors provided for other common refrigerants. For refrigerants and fluids not shown, including ammonia and water/glycol mixes, please consult your supplier.

Coil

The 'D' fin when fitted with extended inner surface tubes delivers high performance with competitive pricing. Within the catalogue we offer 4 and 6mm fin pitch variants, for other fin spacing's please consult your supplier.

Fans/Motors

The 4 pole (nominal 1340rpm) high speed, high velocity and higher noise level units are suitable for all temperatures although it should be noted that when operating above 0°C there is a high likelihood of moisture carryover. The 6 pole (nominal 930rpm) mid speed, velocity and noise units are suitable for all temperatures and offer the best compromise between noise and performance. The 8 pole (nominal 680rpm) offers the lowest noise, lowest speed, air velocity and noise and is particularly suited to production/ preparation halls where operators work for prolonged periods.

Noise Levels

Noise levels are quoted at a distance of 3m from the unit at an angle of 45° to the horizontal within a free field condition. The figures are

supplied as a guide only, showing comparative noise levels between models and fan selections. If the application was noise sensitive we would advise the appointment of an independent noise consultant.

Air Throws

Air throws quoted within this catalogue are based on a terminal velocity of 0.25m/s in ideal conditions. Store layout, cooler location and discharge orientation can affect the air throw. Please refer to your supplier for further information.

Pump Circulation

Arranged as bottom feed for pump rates between 3:1 and 5:1. For other pump rates please refer to your supplier.

LSR 12 1 - 4 4D - 4 - EL CU/AL

Range	LSR
Height of case	12 tube high
No. of fans	1, 2, 3, 4
Coil depth No. of rows	4, 6
Fin spacing	4mm, 6mm
Fan speed (delta wired)	4D, 6D, 8D
Defrost	El = Electric defrost in coil and drain tray, HGEA,B,C,D = hot gas coil, electric drain tray defrost, HGDA,B = hot gas coil and drain tray defrost, HGDC = hot gas coil and drain tray defrost, HGDD = hot gas coil and drain tray defrost,
Coil materials	Cu/Al = Copper, Aluminium fin, Cu/Av = Copper tube, vinyl coated Aluminium fin (4mm only) Cu/Cu = Copper tube, copper fin, Cu/ET = Copper tube, copper fin electro - tinned

Defrost Options

Electric defrost coil and draintray Stainless steel heater elements with hermetically sealed terminals are pre-wired to a common junction box. Hot gas coil, electric draintray (HGEA, HGEB, HGEC, HGED) Incorporating four circuiting options all with electric heater rods within the draintray. Hot gas coil and draintray (HGDA, HGDB, HGDC, HGDD) Generally as above but units are supplied with a hot gas tube matrix within the draintray.

Location

Incorrect unit location will adversely affect unit performance and air throw. For advice on unit location, please contact your supplier.

Options

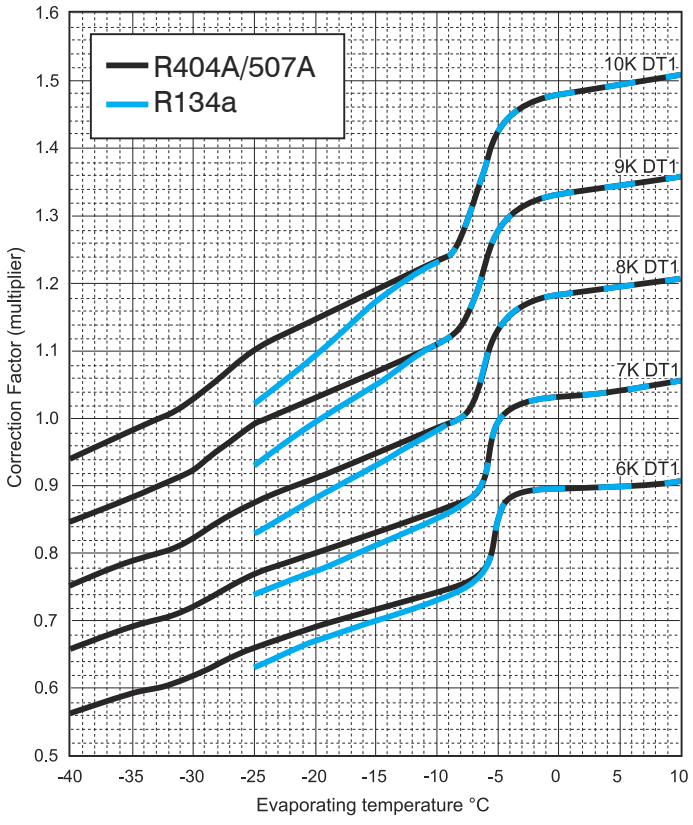
Additional options available include double skinned and insulated drainpans, and isolator per fan.

Rating Conditions and Correction Factors

The duties shown in this catalogue are at Eurovent Standard 7/C/001, Standard Condition 2 - (-8°C saturated suction temp. (dew point), 0°C air entering). Capacities are based on DT1 the difference between the entering air temperature and the saturated suction temperature at the outlet of the cooler.

Correction Factors (multipy capacity by appropriate correction factor to give performance at chosen conditions)

LSR Cooler DT1 - WET



Fin spacing	Model	Capacity R404A	Motor details 400V - 3ph - 50Hz					Fan Data (500mm diameter)			Connections		Internal volume	Surface area	Defrost heater loads at 400V	
			No.of fans	Total power input	FLC per fan	SC per fan	Speed	Air Volume	Air throw	Noise level @3m	Inlet (2 off)	Outlet (2 off)			Coil	Tray
		kW		W	Amps	Amps	RPM	m³/s	m	dB(A)			dm³	m²	kW	kW
4 mm	LSR121-44-4D	12.7	1	700	1.50	5.0	1340	1.93	11	59	1/2"	1 1/8"	9.5	50	3.2	1.6
	LSR121-64-4D	14.6	1	700	1.50	5.0	1340	1.78	9	59	1/2"	1 1/8"	13.9	76	3.2	1.6
	LSR122-44-4D	25.4	2	1400	1.50	5.0	1340	3.86	11	62	1/2"	1 1/8"	17.5	101	6.4	3.2
	LSR122-64-4D	29.7	2	1400	1.50	5.0	1340	3.55	9	62	5/8"	1 1/8"	26.3	151	6.4	3.2
	LSR123-44-4D	38.2	3	2100	1.50	5.0	1340	5.78	11	64	5/8"	1 1/8"	25.7	151	9.5	4.8
	LSR123-64-4D	44.51	3	2100	1.50	5.0	1340	5.33	9	64	5/8"	1 1/8"	38.6	227	9.5	4.8
	LSR124-44-4D	51.0	4	2800	1.50	5.0	1340	7.71	11	65	7/8"	1 1/8"	32.6	202	12.7	6.4
	LSR124-64-4D	59.3	4	2800	1.50	5.0	1340	7.10	9	65	7/8"	1 1/8"	48.8	303	12.7	6.4
6 mm	LSR121-46-4D	10.9	1	700	1.50	5.0	1340	2.15	13	59	1/2"	1 1/8"	9.5	35	3.2	1.6
	LSR121-66-4D	13.4	1	700	1.50	5.0	1340	2.07	11	59	1/2"	1 1/8"	13.9	52	3.2	1.6
	LSR122-46-4D	21.5	2	1400	1.50	5.0	1340	4.29	13	62	1/2"	1 1/8"	17.5	69	6.4	3.2
	LSR122-66-4D	27.3	2	1400	1.50	5.0	1340	4.13	11	62	5/8"	1 1/8"	26.3	103	6.4	3.2
	LSR123-46-4D	32.2	3	2100	1.50	5.0	1340	6.43	13	64	5/8"	1 1/8"	25.7	103	9.5	4.8
	LSR123-66-4D	40.9	3	2100	1.50	5.0	1340	6.20	11	64	5/8"	1 1/8"	38.6	155	9.5	4.8
	LSR124-46-4D	42.9	4	2800	1.50	5.0	1340	8.57	13	65	7/8"	1 1/8"	32.6	138	12.7	6.4
	LSR124-66-4D	54.6	4	2800	1.50	5.0	1340	8.27	11	65	7/8"	1 1/8"	48.8	207	12.7	6.4

Note: 4 pole coolers can be used in high temperature applications, however due to the high air velocity water carry over may occur.

Refrigerant	R404A	R407A	R507A	R134a	R407C
Capacity Factor (dew point, DT1)	1.00	1.18*	0.97	0.91	1.35*
Refrigerant charge Density (kg/dm³)	0.312	0.332	0.313	0.338	0.332

* Capacity factors for refrigerants with high glide apply only at the nominal rating condition. Refrigerant charge desities are based on 25% of the internal volume being liquid.

Fin spacing	Model	Capacity R404A	Motor details 400V - 3ph - 50Hz					Fan Data (500mm diameter)			Connections		Internal volume	Surface area	Defrost heater loads at 400V	
			No.of fans	Total power input	FLC per fan	SC per fan	Speed	Air Volume	Air throw	Noise level @3m	Inlet (2 off)	Outlet (2 off)			Coil	Tray
		kW		W	Amps	Amps	RPM	m³/s	m	dB(A)			dm³	m²	kW	kW
4 mm	LSR121-44-6D	9.5	1	250	0.75	1.65	930	1.30	8	50	1/2"	1 1/8"	9.5	50	3.2	1.6
	LSR121-64-6D	10.6	1	250	0.75	1.65	930	1.17	6	50	1/2"	1 1/8"	13.9	76	3.2	1.6
	LSR122-44-6D	19.1	2	500	0.75	1.65	930	2.60	8	53	1/2"	1 1/8"	17.5	101	6.4	3.2
	LSR122-64-6D	21.3	2	500	0.75	1.65	930	2.34	6	53	5/8"	1 1/8"	26.3	151	6.4	3.2
	LSR123-44-6D	28.6	3	750	0.75	1.65	930	3.88	8	55	5/8"	1 1/8"	25.7	151	9.5	4.8
	LSR123-64-6D	32.0	3	750	0.75	1.65	930	3.51	6	55	5/8"	1 1/8"	38.6	227	9.5	4.8
	LSR124-44-6D	38.1	4	1000	0.75	1.65	930	5.18	8	56	7/8"	1 1/8"	32.6	202	12.7	6.4
	LSR124-64-6D	42.7	4	1000	0.75	1.65	930	4.69	6	56	7/8"	1 1/8"	48.8	303	12.7	6.4
6 mm	LSR121-46-6D	8.4	1	250	0.75	1.65	930	1.45	10	50	1/2"	1 1/8"	9.5	35	3.2	1.6
	LSR121-66-6D	10.2	1	250	0.75	1.65	930	1.40	9	50	1/2"	1 1/8"	13.9	52	3.2	1.6
	LSR122-46-6D	16.6	2	500	0.75	1.65	930	2.89	10	53	1/2"	1 1/8"	17.5	69	6.4	3.2
	LSR122-66-6D	20.7	2	500	0.75	1.65	930	2.79	9	53	5/8"	1 1/8"	26.3	103	6.4	3.2
	LSR123-46-6D	25.0	3	750	0.75	1.65	930	4.33	10	55	5/8"	1 1/8"	25.7	103	9.5	4.8
	LSR123-66-6D	31.1	3	750	0.75	1.65	930	4.18	9	55	5/8"	1 1/8"	38.6	155	9.5	4.8
	LSR124-46-6D	33.2	4	1000	0.75	1.65	930	5.77	10	56	7/8"	1 1/8"	32.6	138	12.7	6.4
	LSR124-66-6D	41.4	4	1000	0.75	1.65	930	5.57	9	56	7/8"	1 1/8"	48.8	207	12.7	6.4

Refrigerant	R404A	R407A	R507A	R134a	R407C
Capacity Factor (dew point, DT1)	1.00	1.18*	0.97	0.91	1.35*
Refrigerant charge Density (kg/dm³)	0.312	0.332	0.313	0.338	0.332

* Capacity factors for refrigerants with high glide apply only at the nominal rating condition. Refrigerant charge desities are based on 25% of the internal volume being liquid.

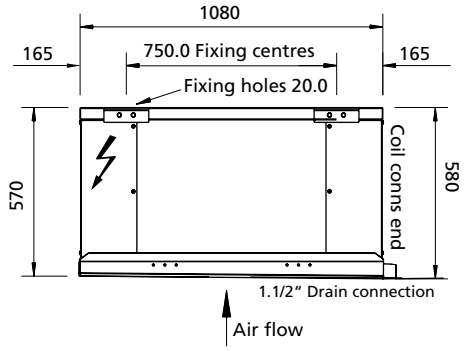
Fin spacing	Model	Capacity R404A	Motor details 400V - 3ph - 50Hz					Fan Data (500mm diameter)			Connections		Internal volume	Surface area	Defrost heater loads at 400V	
			No.of fans	Total power input	FLC per fan	SC per fan	Speed	Air Volume	Air throw	Noise level @3m	Inlet (2 off)	Outlet (2 off)			Coil	Tray
		kW		W	Amps	Amps	RPM	m³/s	m	dB(A)			dm³	m²	kW	kW
4 mm	LSR121-44-8D	7.6	1	130	0.43	1.4	680	0.94	7	44	1/2"	1 1/8"	9.5	50	3.2	1.6
	LSR121-64-8D	8.2	1	130	0.43	1.4	680	0.84	6	44	1/2"	1 1/8"	13.9	76	3.2	1.6
	LSR122-44-8D	15.1	2	260	0.43	1.4	680	1.87	7	47	1/2"	1 1/8"	17.5	101	6.4	3.2
	LSR122-64-8D	16.5	2	260	0.43	1.4	680	1.68	6	47	5/8"	1 1/8"	26.3	151	6.4	3.2
	LSR123-44-8D	22.6	3	390	0.43	1.4	680	2.80	7	49	5/8"	1 1/8"	25.7	151	9.5	4.8
	LSR123-64-8D	24.7	3	390	0.43	1.4	680	2.53	6	49	5/8"	1 1/8"	38.6	227	9.5	4.8
	LSR124-44-8D	30.2	4	520	0.43	1.4	680	2.74	7	50	7/8"	1 1/8"	32.6	202	12.7	6.4
	LSR124-64-8D	32.9	4	520	0.43	1.4	680	3.37	6	50	7/8"	1 1/8"	48.8	303	12.7	6.4
6 mm	LSR121-46-8D	6.5	1	130	0.43	1.4	680	1.07	7	44	1/2"	1 1/8"	9.5	35	3.2	1.6
	LSR121-66-8D	8.0	1	130	0.43	1.4	680	1.03	6	44	1/2"	1 1/8"	13.9	52	3.2	1.6
	LSR122-46-8D	13.1	2	260	0.43	1.4	680	2.14	7	47	1/2"	1 1/8"	17.5	69	6.4	3.2
	LSR122-66-8D	16.1	2	260	0.43	1.4	680	2.06	6	47	5/8"	1 1/8"	26.3	103	6.4	3.2
	LSR123-46-8D	19.7	3	390	0.43	1.4	680	3.21	7	49	5/8"	1 1/8"	25.7	103	9.5	4.8
	LSR123-66-8D	24.1	3	390	0.43	1.4	680	3.09	6	49	5/8"	1 1/8"	38.6	155	9.5	4.8
	LSR124-46-8D	26.3	4	520	0.43	1.4	680	4.28	7	50	7/8"	1 1/8"	32.6	138	12.7	6.4
	LSR124-66-8D	32.2	4	520	0.43	1.4	680	4.13	6	50	7/8"	1 1/8"	48.8	207	12.7	6.4

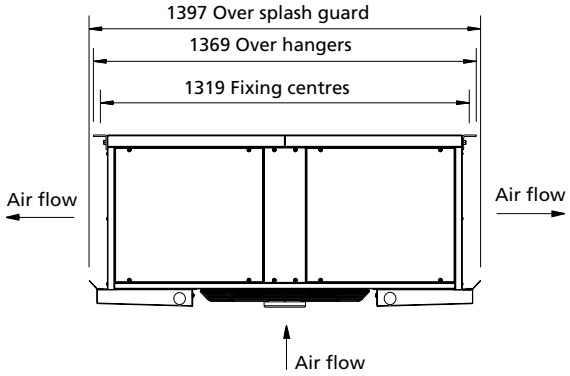
Refrigerant	R404A	R407A	R507A	R134a	R407C
Capacity Factor (dew point, DT1)	1.00	1.18*	0.97	0.91	1.35*
Refrigerant charge Density (kg/dm³)	0.312	0.332	0.313	0.338	0.332

* Capacity factors for refrigerants with high glide apply only at the nominal rating condition. Refrigerant charge desities are based on 25% of the internal volume being liquid.

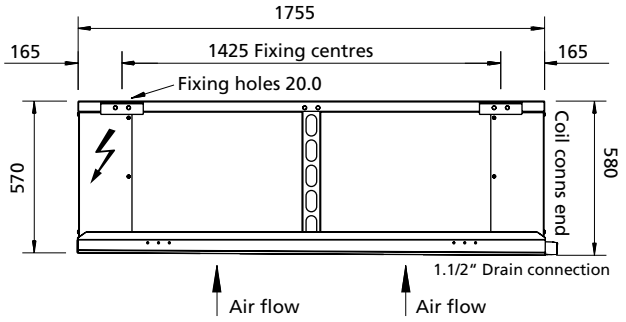
Dimensions & Weights

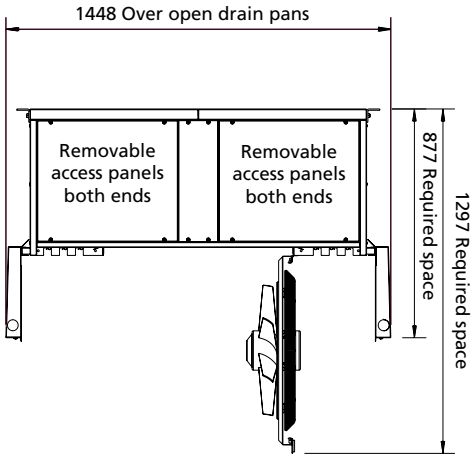
LSR121



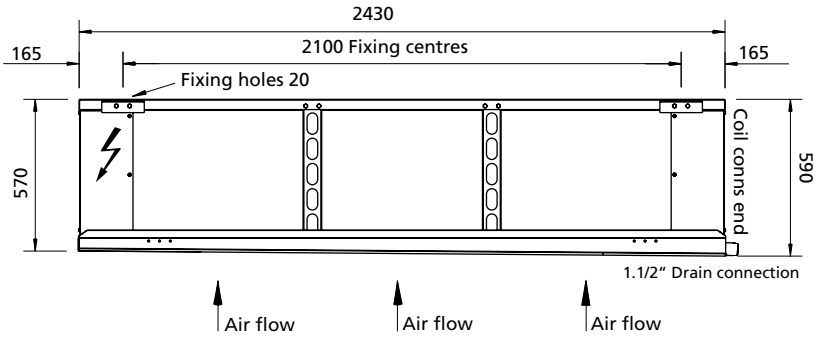


LSR122



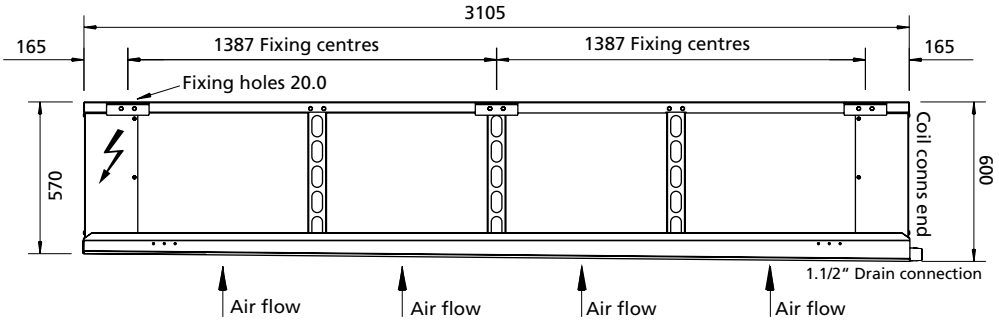


LSR123



Model	Cu/Al weight (kg)	Cu/Cu weight (kg)
LSR121-44	108	140
LSR121-64	120	166
LSR122-44	105	130
LSR122-64	115	152
LSR123-44	180	232
LSR123-64	200	277
LSR124-44	237	314
LSR124-64	266	382
LSR121-46	301	405
LSR121-66	341	496
LSR122-46	175	216
LSR122-66	192	254
LSR123-46	230	291
LSR123-66	256	348
LSR124-46	292	374
LSR124-66	326	446

LSR124



Note: All dimensions in mm

FM Industrial Cooler

Features

- Versatile range of floor mounted coolers.
- Robust construction, designed to withstand demanding applications.
- Capacities can be achieved with many choices of size, fin spacing and air volume.
- Easy access for maintenance and cleaning.
- Double-skinned, insulated draintray assists defrost in low temperature applications and prevents condensation in high temperature applications.
- Structural, one-piece draintray allows units to be lifted, fully-assembled, from underneath.
- Fin design provides high secondary surface extending operating times between defrosts.
- Minimal refrigerant charge.

General

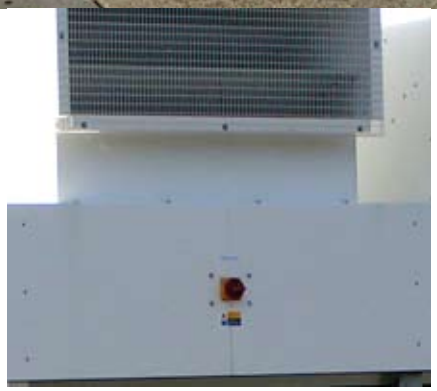
The FM range is versatile with a large number of configurations. This catalogue layout allows quick and easy selection of the correct unit for each application. The range is divided into 4 heights; the FM20, FM24, FM30 and the FM36, with up to 4 fans and 3 coil depths. Data is shown for 4, 6 and 8mm fin spacing. As a rough guide for 12mm fin spacing multiply 8mm duty figures by 0.8. The discharge of the cooler can be vertical or horizontal.

Refrigerant

Capacity data is shown for R404A, with correction factors provided for other common refrigerants. For refrigerants and fluids not shown, including ammonia and water/glycol mixes, please consult your supplier.

Coil

The 'S' fin featured in this cooler has been designed to offer a large secondary cooling surface which is beneficial for industrial refrigeration applications. Frost can build over a larger surface, reducing the number of defrost cycles, and



allowing the cooler to operate efficiently for longer periods. This will lead to reduced ongoing energy costs. In addition, the relatively low internal coil volume results in reduced refrigerant charge

Fans/Motors

Ducted axial fans with 125Pa of external static pressure are standard, other pressure requirements can be designed on application. Standard fans are supplied with 4 pole, nominal 1440rpm fan speeds, for working areas with noise restrictions please consult our applications department.

FM 20 1 - 6 6 - A AV EL - CU/AL C

Range	FM
Case Height	Tubes high = 20, 24, 30, 36
No of Fans	1, 2, 3, 4
Coil Depth (No of rows)	4,6,8
Fin Spacing	4, 6, 8
Fan/Motor Type	Ducted Axial AA, AB, AC, AD
Discharge orientation	V = Vertical, H = Horizontal
Defrost	El = Electric defrost in coil and drain tray, HGEA,B,C,D = hot gas coil, electric drain tray defrost, HGDA,B = hot gas coil and drain tray defrost, HGDC = hot gas coil and drain tray defrost, HGDD = hot gas coil and drain tray defrost,
Coil Materials	Cu/Al = Copper tube, aluminium fin, Cu/Av = Copper tube, vinyl coated aluminium fin (4mm only), Cu/Cu = Copper tube, copper fin, Cu/ET = Copper tube, copper fin electro-tinned, St/Al = Stainless Steel tube, aluminium fin
Extras	C = Cowl 90° (V Models only) Damp Air operated butterfly damper

Noise Levels

Noise levels are quoted at a distance of 3m from the unit at an angle of 45° to the horizontal within a free field condition. The figures are supplied as a guide only, showing comparative noise levels between models and fan selections. If the application is noise sensitive we would advise the appointment of an independent noise consultant.

Air Throws

Air throws quoted within this catalogue are based on a terminal velocity of 0.25m/s in ideal conditions. Store layout, cooler location and discharge orientation can affect the air throw. Please refer to your supplier for further information.

Pump Circulation

Arranged as bottom feed for pump rates between 3:1 and 5:1. For other pump rates please refer to your supplier.

Location

Incorrect unit location will adversely affect unit performance and air throw. For advice on unit location, please contact your supplier.

Defrost

Electric defrost coil and draintray Stainless steel heater elements with hermetically sealed terminals are pre-wired to a common junction box.

Hot gas coil, electric draintray (HGEA, HGEB, HGEC, HGED) Incorporating four circuiting options all with electric heater rods within the draintray.

Hot gas coil and draintray (HGDA, HGDB, HGDC, HGDD) Generally as above but units are supplied with a hot gas tube matrix within the draintray.

Peripheral Heaters Recommended for use on all ducted axial fan options when operating below freezing, with horizontal discharge.

Options

A full range of turning cowls (for vertical discharge units no external static pressure) and air operated dampers are available. Other options may be available please consult our applications department for further details.

Rating Conditions and Correction Factors

The duties shown in this catalogue are at Eurovent Standard 7/C/001, Standard Condition point), 0°C air entering). Capacities are based on DT1 the difference between the entering air temperature and the saturated suction temperature at the outlet of the cooler.

4mm and 6mm Specification

4mm

Model	Capacity	Air Volume at 125Pa	Surface area	Section	Inlet	Outlet	Internal volume	Defrost power	Sound power level	Sound pressure level	Air throw
	kW	m³/s	m²		Inchs	Inchs	dm³	kW	dB(A)	dB(A)	m
FM201-44-AA	26	4.5	137.5	1	5/8	1 3/8	26	10	94	77	51
FM201-64-AA	32	4.2	206.3	1	5/8	1 3/8	38	12	94	77	47
FM202-44-AA	52	9.1	275.0	1	3/4	1 5/8	49	19	97	80	51
FM202-64-AA	64	8.4	412.5	1	3/4	1 5/8	72	24	97	80	47
FM203-44-AA	80	13.6	412.5	1	3/4	2 1/8	71	29	99	82	51
FM203-64-AA	97	12.6	618.8	2	2 x 3/4	2 x 1 5/8	106	36	99	82	47
FM241-44-AB	29	4.8	165.0	1	5/8	1 3/8	31	10	94	77	54
FM241-64-AB	35	4.5	247.5	1	3/4	1 3/8	46	12	94	77	51
FM242-46-AB	58	9.5	330.0	1	3/4	1 5/8	59	19	97	80	54
FM242-66-AB	71	8.9	495.1	1	3/4	1 5/8	87	24	97	80	51
FM243-46-AB	88	14.3	495.1	1	3/4	2 1/8	85	29	99	82	54
FM243-66-AB	107	13.4	742.6	2	2 x 3/4	2 x 1 5/8	128	36	99	82	51
FM302-46-AC	74	12.0	412.5	2	2 x 5/8	2 x 1 3/8	74	19	101	84	55
FM302-66-AC	92	11.6	618.8	2	2 x 3/4	2 x 1 3/8	109	29	101	84	50
FM303-46-AC	111	18.0	618.8	2	2 x 3/4	2 x 1 5/8	107	29	103	86	55
FM303-66-AC	138	17.5	928.2	2	2 x 3/4	2 x 1 5/8	158	43	103	86	50
FM304-44-AC	147	24.0	825.1	2	2 x 3/4	2 x 1 5/8	140	38	104	87	55
FM304-64-AC	183	23.3	1237.6	2	2 x 3/4	2 x 2 1/8	208	58	104	87	50
FM362-64-AD	118	15.4	742.6	2	2 x 3/4	2 x 1 5/8	130	34	103	86	52
FM362-84-AD	132	15.0	990.1	2	2 x 3/4	2 x 1 5/8	172	45	103	86	49
FM363-64-AD	177	23.1	1113.9	3	3 x3/4	3 x 1 5/8	191	50	105	88	52
FM363-84-AD	197	22.5	1485.2	2	2 x 3/4	2 x 2 1/8	254	67	105	88	49
FM364-64-AD	234	30.8	1485.2	3	3 x 3/4	3 x 2 1/8	252	67	106	89	52
FM364-84-AD	265	30.0	1980.2	3	3 x 3/4	3 x 2 1/8	336	90	106	89	49

6mm

Model	Capacity	Air Volume at 125Pa	Surface area	Section	Inlet	Outlet	Internal volume	Defrost power	Sound power level	Sound pressure level	Air throw
	kW	m³/s	m²		Inchs	Inchs	dm³	kW	dB(A)	dB(A)	m
FM201-66-AA	26	4.4	140.0	1	5/8	1 3/8	38	12	94	77	50
FM201-86-AA	30	4.3	186.8	1	5/8	1 3/8	50	14	94	77	48
FM202-66-AA	53	8.9	280.0	1	3/4	1 5/8	72	24	97	80	50
FM202-86-AA	61	8.6	373.7	1	3/4	1 5/8	95	29	97	80	48
FM203-66-AA	79	13.3	420.1	1	2 x 3/4	2 x 1 3/8	106	36	99	82	50
FM203-86-AA	91	12.8	560.5	2	3/4	1 3/8	141	43	99	82	48
FM241-66-AB	29	4.7	168.0	1	5/8	1 3/8	46	12	94	77	54
FM241-86-AB	33	4.5	224.2	1	3/4	1 3/8	61	14	94	77	51
FM242-66-AB	58	9.4	336.1	1	3/4	1 5/8	87	24	97	80	54
FM242-86-AB	67	9.0	448.4	1	3/4	1 5/8	115	29	97	80	51
FM243-66-AB	88	14.1	504.1	1	2 x 3/4	2 x 1 3/8	128	36	99	82	54
FM243-86-AB	101	13.5	672.6	2	2 x 3/4	2 x 1 3/8	171	43	99	82	51
FM302-66-AC	74	12.0	420.4	2	2 x 3/4	2 x 1 3/8	109	29	101	84	54
FM302-86-AC	86	11.6	560.5	2	2 x 3/4	2 x 1 3/8	144	38	101	84	52
FM303-66-AC	112	18.0	630.6	2	2 x 3/4	2 x 1 5/8	158	43	103	86	54
FM303-86-AC	129	17.5	840.8	2	2 x 3/4	2 x 1 5/8	209	58	103	86	52
FM304-66-AC	150	24.0	840.8	2	2 x 3/4	2 x 1 5/8	208	58	104	87	54
FM304-86-AC	173	23.3	1121.1	2	3 x 3/4	3 x 1 5/8	276	77	104	87	52
FM362-66-AD	94	15.8	504.5	2	2 x 3/4	2 x 1 5/8	130	34	103	86	56
FM362-86-AD	111	15.5	672.6	2	2 x 3/4	2 x 1 5/8	172	45	103	86	54
FM363-66-AD	142	23.7	756.7	3	3 x3/4	3 x 1 5/8	191	50	105	88	56
FM363-86-AD	166	23.3	1009.0	2	2 x 3/4	2 x 2 1/8	254	67	105	88	54
FM364-66-AD	190	31.6	1009.0	3	3 x 3/4	3 x 1 5/8	252	67	106	89	56
FM64-86-AD	222	31.1	1345.3	3	3 x 3/4	3 x 1 5/8	336	90	106	89	54

8mm

Model	Capacity	Air Volume at 125Pa	Surface area	Section	Inlet	Outlet	Internal volume	Defrost power	Sound power level	Sound pressure level	Air throw
	kW	m^3/s	m^2		Inchs	Inchs	dm^3	kW	dB(A)	dB(A)	m
FM201-68-AA	22	4.63	107.1	1	5/8	1 3/8	38	12	94	77	52
FM201-88-AA	26	4.45	142.8	1	5/8	1 3/8	50	14	94	77	50
FM202-68-AA	45	9.23	214.1	1	3/4	1 5/8	72	24	97	80	52
FM202-88-AA	52	8.89	285.5	1	3/4	1 5/8	95	29	97	80	50
FM203-68-AA	66	13.86	321.2	1	2 x 3/4	2 x 1 5/8	106	36	99	82	52
FM203-88-AA	79	13.34	428.3	2	3/4	2 1/8	141	43	99	82	50
FM241-68-AB	24	4.80	128.5	1	5/8	1 1/8	46	12	94	77	55
FM241-88-AB	29	4.67	171.3	1	3/4	1 3/8	61	14	94	77	53
FM242-68-AB	49	9.60	257.0	1	3/4	1 5/8	87	24	97	80	55
FM242-88-AB	58	9.34	342.6	1	3/4	1 5/8	115	29	97	80	53
FM243-68-AB	73	14.40	385.4	1	2 x 3/4	2 x 1 3/8	128	36	99	82	55
FM243-88-AB	87	14.01	513.9	2	2 x 3/4	2 x 1 3/8	171	43	99	82	53
FM302-68-AC	62	12.21	321.2	2	2 x 3/4	2 x 1 3/8	109	29	101	84	56
FM302-88-AC	73	12.00	428.3	2	2 x 3/4	2 x 1 3/8	144	38	101	84	54
FM303-68-AC	93	18.32	481.8	2	2 x 3/4	2 x 1 3/8	158	43	103	86	56
FM303-88-AC	110	18.00	642.4	2	2 x 3/4	2 x 1 5/8	209	58	103	86	54
FM304-68-AC	124	24.42	642.4	2	2 x 3/4	2 x 1 5/8	208	58	104	87	56
FM304-88-AC	145	24.00	856.6	2	2 x 3/4	2 x 1 5/8	276	77	104	87	54
FM362-68-AD	78	15.95	385.4	2	2 x 3/4	2 x 1 5/8	130	34	103	86	58
FM362-88-AD	93	15.77	513.9	2	2 x 3/4	2 x 1 5/8	172	45	103	86	56
FM363-68-AD	118	23.92	578.2	3	3 x3/4	2 x 1 5/8	191	50	105	88	58
FM363-88-AD	140	23.65	770.9	2	2 x 3/4	2 x 2 1/8	254	67	105	88	56
FM364-68-AD	157	31.89	770.9	3	3 x 3/4	3 x 1 5/8	252	67	106	89	58
FM364-88-AD	187	31.53	1027.9	3	3 x 3/4	3 x 1 5/8	336	90	106	89	56

Defrost

Defrost loads include drain pan power as below

Modules	FM--1	FM--2	FM--3	FM--4
Drainpan	1.6	3.2	4.8	6.4

Peripheral heater load (where fitted) for ducted axial fan sets:
800mm diameter = 630W, 900mm diameter = 710W per fan

Correction Factors

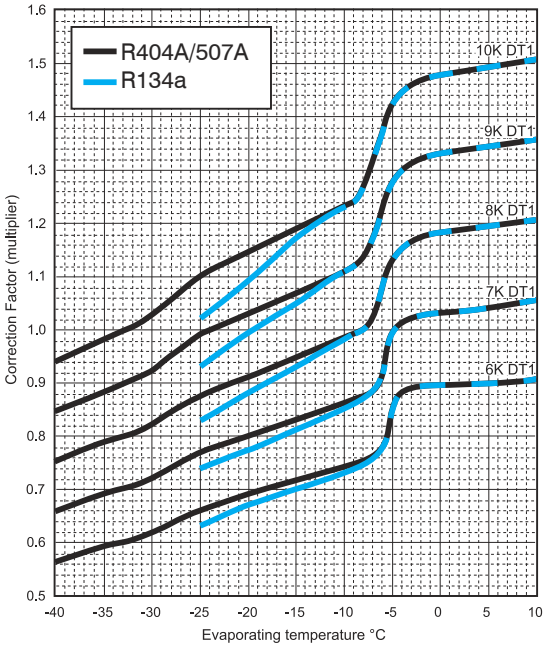
Refrigerant	R404A	R134a	R507A	R407A	R407C
Capacity Factor (dew point, DT1)	1.00	0.91	0.97	1.18*	1.35*
Capacity Factor (MID point, DT1)	0.97	0.91	0.97	0.91	1.01
Refrigerant charge Density (kg/dm^3)	0.312	0.338	0.313	0.332	0.332

* Capacity factors for refrigerants with high glide apply only at the nominal rating condition.
Refrigerant charges densities are based on 25% of the internal volume being liquid.

Fan data

Fanset	Diameter	Pole	FLC/SC	Power input kW
AA	800mm	4 pole	5.8 / 30A	3.3
AB	800mm	4 pole	5.8 / 30A	3.3
AC	900mm	4 pole	5.8 / 30A	3.3
AD	900mm	4 pole	9.4 / 55A	5.3

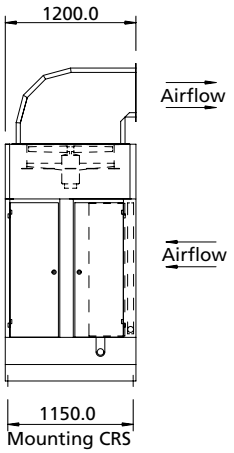
FM Cooler DT1 - WET

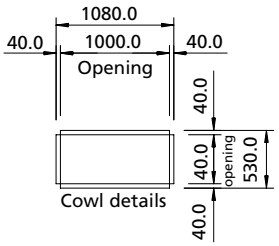


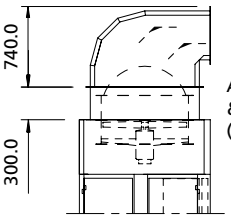
General notes

All data for 400V, 3 phase, 50Hz supply.
Noise levels are quoted at a distance of 3m from the units (free field).
Capacities are nominal, based on DT1 dew point and stated at Eurovent standard condition 2 (-8°c saturated suction temp, 0°c air entering).

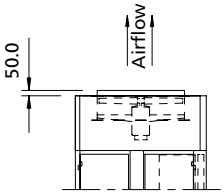
Dimensions - Vertical



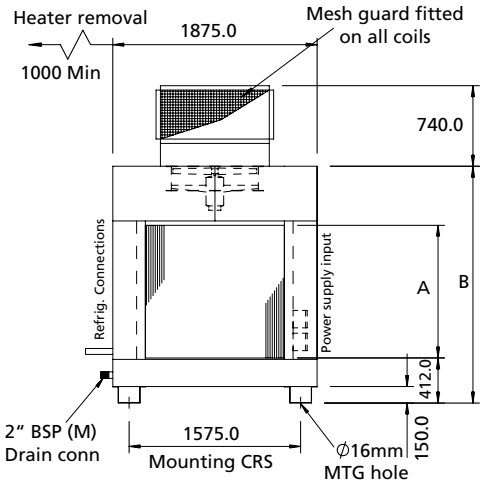


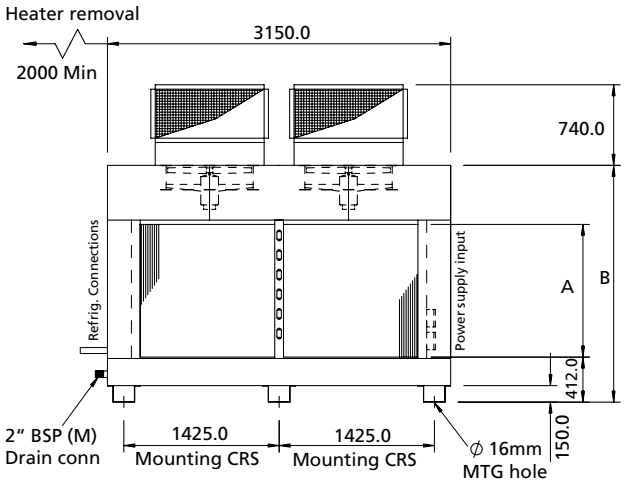


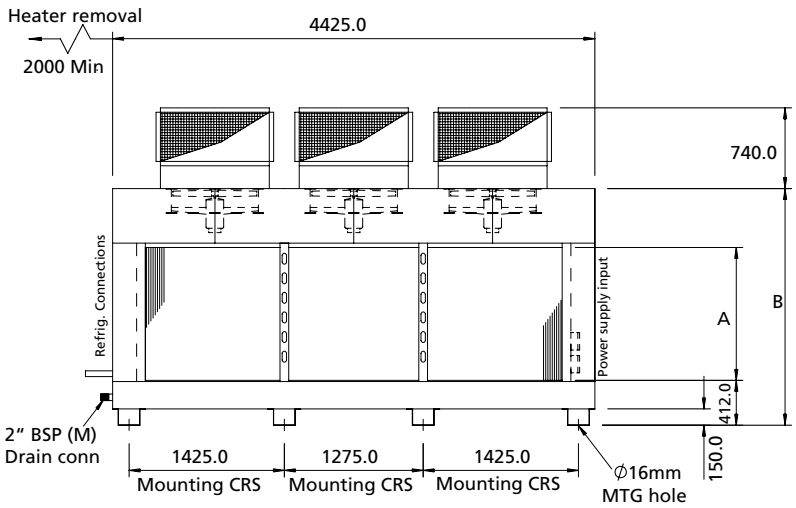
Air operated damper & cowl extension (defrost units)

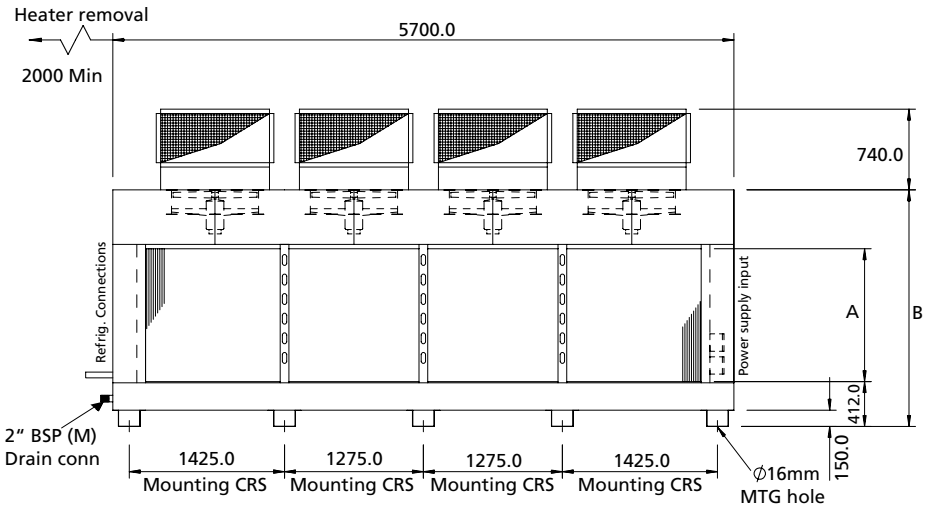


Vertical discharge with spigot attachment option



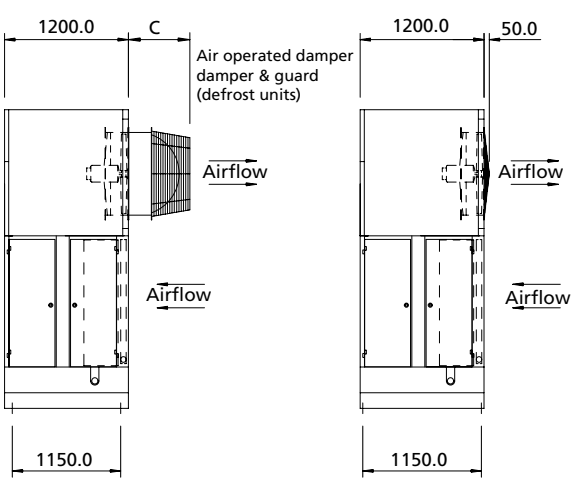


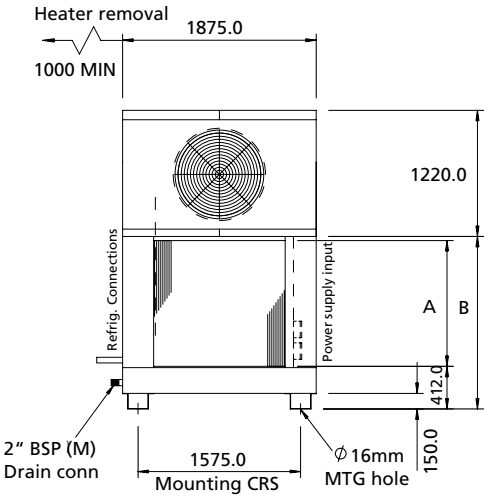


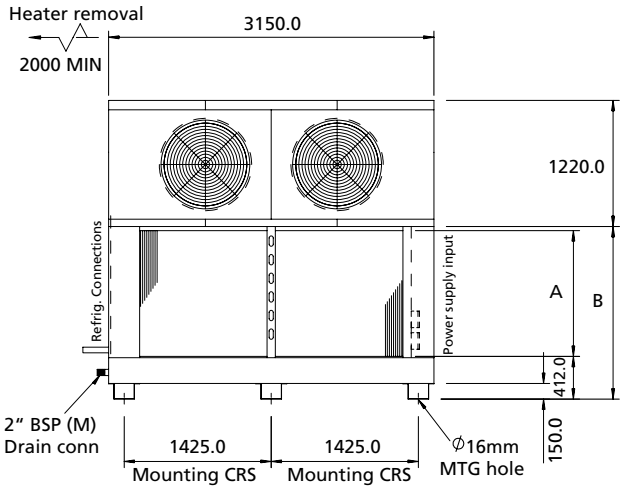


Model	Dim. A	Dim. A
FM20	1016	1969
FM24	1219	2173
FM30	1524	2477
FM36	1829	2782

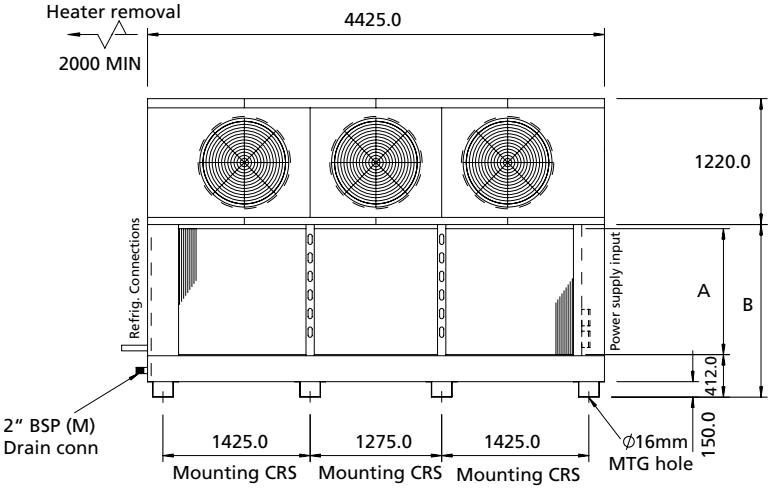
Dimensions - Horizontal

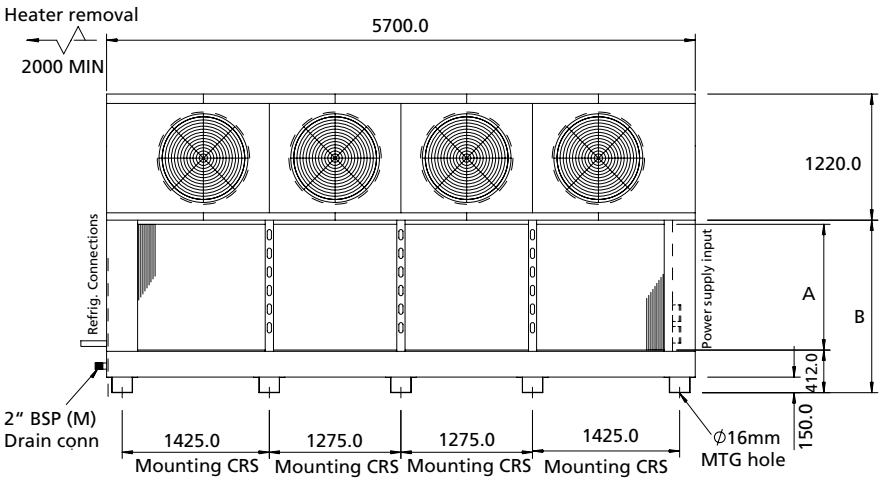






Model	Dim. A	Dim. B	Dim. C
FM20	1016	1468	595
FM24	1219	1671	595
FM30	1524	1976	573
FM36	1829	2281	573





Model		201-4x	201-6x	201-8x	241-4x	241-6x	241-8x	301-4x	301-6x	301-8x	361-4x	361-6x	361-8x	202-4x	202-6x	202-8x	242-4x	242-6x	242-8x	302-4x	302-6x	302-8x	362-4x	362-6x	362-8x
Weight (kg)	Cu/Al	451	488	525	489	533	578	556	612	667	612	679	745	686	759	832	742	830	917	849	958	1067	933	1064	1195
	Cu/Al	502	565	627	550	625	700	633	726	820	704	816	929	788	911	1035	864	1013	1161	1001	1187	1372	1116	1338	1561

Model		203-4x	203-6x	203-8x	243-4x	243-6x	243-8x	303-4x	303-6x	303-8x	363-4x	363-6x	363-8x	204-4x	204-6x	204-8x	244-4x	244-6x	244-8x	304-4x	304-6x	304-8x	364-4x	364-6x	364-8x
Weight (kg)	Cu/Al	921	1029	1138	996	1126	1256	1141	1304	1467	1253	1449	1644	1156	1300	1444	1249	1422	1595	1433	1650	1866	1574	1833	2093
	Cu/Al	1073	1258	1443	1179	1401	1622	1370	1647	1924	1528	1861	2193	1359	1605	1857	1493	1789	2084	1739	2108	2477	1940	2383	2826

SM Industrial Cooler

Features

- Versatile range of ceiling or base mounted coolers.
- Robust construction, designed to withstand demanding applications.
- Capacities can be achieved with many choices of size, fin spacing and air volume.
- Can be flush-mounted to ceiling.
- Easy access for maintenance and cleaning. Structural, one-piece draintray allows units to be lifted, fully-assembled, from underneath.
- Fin design provides high surface area for frost build-up.Minimal refrigerant charge.
- Double-skinned, insulated draintray assists defrost in low temperature applications and prevents condensation in high temperature applications.

General

The SM range has been designed to be as versatile as possible, whilst allowing unit selections to be easily made. The following specification pages have been laid out to ease the selection process. Unit sizes and coils have been matched with differentfan/motor combinations to broadly meet two common operatingconditions:

1. High temperature applications such as store rooms and occupied areas.These units, with either propeller or ducted axial fans, feature low face velocities, low noise and high efficiency. These fans have also been selected to ensure that there is no water carry-over.

2. Low temperature applications such as cold storage or blast freezing in generally unoccupied areas. These units, with ducted axial fans, feature high face velocities and high air throws where low noise levels are not required. These units offer greater duty for a given size than high temperature units.

The choice of particular units is not restricted to these operating conditions, but greater care will need to be taken in the application of units

outside the given conditions. For example, water carry-over could occur when operating 'low temperature' units in certain high temperature applications.

The range is divided into 4 heights; the SM16, SM20, SM24 and the SM30, with up to 4 fans - either propeller or ducted axial - and 3 coil depths. Data is shown for 4, 6 and 8mm fin spacing. For 12mm fin spacing multiply 8mm duty figures by 0.8

Refrigerant

Capacity data is shown for R404A, with correction factors provided for other common refrigerants. For refrigerants and fluids not shown, including ammonia and water/glycol mixes, please consult your supplier.

SM 16 1 - 4 4 - AA EL - CU/AL

Range	SM
Case Height	Tubes high = 16, 20, 24, 30
No of Fans	1, 2, 3, 4
Coil Depth (No of rows)	4,6,8
Fin Spacing	4, 6, 8
Fan/Motor Type	Ducted Axial = AA, AB, AC, AD
Defrost	El = Electric defrost in coil and drain tray, HGEA,B,C,D = hot gas coil, electric drain tray defrost, HGDA,B = hot gas coil and drain tray defrost, HGDC = hot gas coil and drain tray defrost, HGDD = hot gas coil and drain tray defrost,
Coil Materials	Cu/Al = Copper tube, aluminium fin, Cu/Av = Copper tube, vinyl coated aluminium fin (4mm only), Cu/Cu = Copper tube, copper fin, Cu/ET = Copper tube, copper fin electro-tinned, St/Al = Stainless Steel tube, aluminium fin

Coil

The 'S' fin featured in this cooler has been designed to offer a large secondary cooling surface which is beneficial in certain applications. Frost can build over a larger surface, reducing the number of defrost cycles, and allowing the cooler to operate efficiently for longer periods. This will lead to reduced on going energy costs. In addition, the relatively low internal coil volume results in reduced refrigerant charge.

Fan/Motors

Propeller or ducted axial fans with varying face velocities and airthrows are offered to provide optimum performance in the two broad operating conditions outlined in 'General' above.

Air Throws

Arranged as bottom feed for pump rates between 3:1 and 5:1. For other pump rates please refer to your supplier.

Location

Air throws quoted within this catalogue are based on a terminal velocity of 0.25m/s in ideal conditions. Store layout, cooler location and type of fan can affect the air throw. Please refer to your supplier for further information.

Noise Levels

Noise levels are quoted at a distance of 3m from the unit at an angle of 45° to the horizontal within a free field condition. The figures are supplied as a guide only, showing comparative noise levels between models and fan selections. If the application is noise sensitive we would advise the appointment of an independent noise consultant.

Pump Circulation

Arranged as bottom feed for pump rates between 3:1 and 5:1.For other pump rates please refer to your supplier.

Location

Incorrect unit location will adversely affect unit performance and air throw. Units should be adequately spaced from walls to ensure even air coverage over the coil block. For advice on unit location, please contact your supplier.

Defrost

Electric defrost coil and draintray Stainless steel heater elements with hermetically sealed terminals are pre-wired to a common junction box.

Hot gas coil, electric draintray (HGEA, HGEB, HGEC, HGED) Incorporating four circuiting options all with electric heater rods within the draintray.

Hot gas coil and draintray (HGDA, HGDB, HGDC, HGDD) Generally as above but units are supplied with a hot gas tube matrix within the draintray. Fan Plate Heaters. For high latent load applications, fan plate heaters are available as an option on propeller fan units. Peripheral Heaters recommended for use on all ducted axial fan options when operating below freezing.

Rating Conditions and Correction Factors

The duties shown in this catalogue are at Eurovent Standard 7/C/001, Standard Condition 2 - (-8°C saturated suction temp. (dewpoint), 0°C air entering). Capacities are based on DT1 the difference between the entering air temperature and the saturated suction temperature at the outlet of the cooler.

4mm Specification

High/low temperature

Low face velocity, low capacity, low air throw, compact unit

Model	Air entering -25 °C TO + 20 °C					Air entering -25 °C TO + 20 °C					Connections		Surface area	Internal volume	Defrost power
	Propeller					Ducted Axial									
	Fan / Motor	R404A capacity	Air volume	Air throw	Noise	Fan / Motor	R404A capacity	Air volume	Air throw	Noise	Suction	Liquid			
		kW	m³/s	m	dB(A)		kW	m³/s	m	dB(A)			m²	dm³	kW
SM161-44	P1 Dia. = 630mm 6 pole FLC/SC = 1.8/5.4A input = 810W	18.0	2.56	18	59	A1 Dia. = 630mm 6 pole FLC/SC = 1.8/6.3A input = 680W	18.8	2.72	35	58	1 3/8"	1/2"	110	20	7
SM161-64		21.0	2.40	17	59		22.2	2.56	33	58	1 3/8"	5/8"	165	30	10
SM162-44		35.6	5.10	18	62		37.0	5.44	35	61	1 5/8"	5/8"	220	38	14
SM162-64		43.0	4.82	17	62		44.8	5.12	33	61	1 5/8"	5/8"	330	58	19
SM163-44		54.0	7.66	18	64		56.4	8.18	35	63	2 1/8"	1 1/8"	330	57	22
SM163-64		63.8	7.22	17	64		67.0	7.68	33	63	2 1/8"	1 1/8"	495	84	29
SM201-44	P1 Dia. = 630mm 6 pole FLC/SC = 1.8/5.4A input = 810W	21.4	3.24	20	59	A2 Dia. = 710mm 6 pole FLC/SC = 1.8/6.3A input = 620W	21.4	3.02	34	60	1 3/8"	5/8"	137	26	10
SM201-64		25.2	3.04	19	59		25.6	2.84	32	60	1 3/8"	5/8"	206	38	12
SM202-44		42.7	6.48	20	62		43.0	6.04	34	63	2 1/8"	5/8"	275	49	19
SM202-64		50.3	6.08	19	62		51.0	5.66	32	63	2 1/8"	1 1/8"	412	72	24
SM203-44		64.4	9.72	20	64		65.2	9.06	34	65	2 1/8"	1 1/8"	412	71	29
SM203-64		76.0	9.14	19	64		72.6	8.50	32	65	2 1/8"	1 1/8"	619	106	36
SM242-44		-	-	-	-	A4 Dia. = 800mm 8 pole FLC/SC = 2.7/6.8A input = 950W	54.8	7.70	39	66	2 1/8"	1 1/8"	330	59	19
SM242-64		-	-	-	-		63.8	7.22	36	66	2 1/8"	1 1/8"	495	87	24
SM243-44		-	-	-	-		82.6	11.60	39	68	2 1/8"	1 1/8"	495	85	29
SM243-64		-	-	-	-		97.2	10.84	36	68	2 5/8"	1 5/8"	742	128	36
SM244-44		-	-	-	-		108.6	15.40	39	69	2 5/8"	1 5/8"	660	114	38
SM244-64		-	-	-	-		131.1	14.44	36	69	2 x 2 1/8"	2 x 1 1/8"	990	166	48
SM302-44		-	-	-	-	A4 Dia. = 800mm 8 pole FLC/SC = 2.7/6.8A input = 950W	61.2	8.18	41	66	2 1/8"	1 1/8"	412	74	19
SM302-64		-	-	-	-		73.4	7.80	39	66	2 1/8"	1 1/8"	419	109	29
SM303-44		-	-	-	-		92.2	12.26	41	68	2 x 2 1/8"	2 x 7/8"	619	107	29
SM303-64		-	-	-	-		109.8	11.68	39	68	2 x 2 1/8"	2 x 1 1/8"	928	158	43
SM304-44		-	-	-	-		123.1	16.34	41	69	2 x 2 1/8"	2 x 1 1/8"	825	140	38
SM304-64		-	-	-	-		147.2	15.58	39	69	2 x 2 1/8"	2 x 1 1/8"	1237	208	58

low temperature

High face velocity, high capacity, high air throw, compact unit

Model	Air entering -35 °C TO 0 °C					Connections		Surface area	Internal volume	Defrost power
	Ducted Axial									
	Fan / Motor	R404A capacity	Air volume	Air throw	Noise	Suction	Liquid			
		kW	m³/s	m	dB(A)			m²	dm³	kW
SM161-44	A3 Dia. = 630mm 4 pole FLC/SC = 3.8/14A input = 1800W	22.8	3.76	48	69	1 5/8"	5/8"	110	20	7
SM161-64		28.0	3.58	46	69	1 5/8"	5/8"	165	30	10
SM162-44		45.6	7.52	48	72	2 1/8"	7/8"	220	38	14
SM162-64		56.0	7.14	46	72	2 1/8"	1 1/8"	330	58	19
SM163-44		68.4	11.28	48	74	2 1/8"	1 1/8"	330	57	22
SM163-64		84.4	10.72	46	74	2 1/8"	1 1/8"	495	84	29
SM201-44	A5 Dia. = 800mm 6 pole FLC/SC = 3.6/15A input = 2000W	29.8	5.04	51	71	1 5/8"	5/8"	137	26	10
SM201-64		36.4	4.66	47	71	1 5/8"	5/8"	206	38	12
SM202-44		59.4	10.08	51	72	2 1/8"	1 1/8"	275	49	19
SM202-64		73.2	9.32	47	72	2 1/8"	1 1/8"	412	72	24
SM203-44		90.4	15.10	51	74	2 5/8"	1 1/8"	412	71	29
SM203-64		109.8	13.96	47	74	2 x 2 1/8"	2 x 1 1/8"	619	106	36
SM242-44	A5 Dia. = 800mm 6 pole FLC/SC = 3.6/15A input = 2000W	67.2	10.74	54	72	2 1/8"	1 1/8"	330	59	19
SM242-64		81.6	10.08	51	72	2 1/8"	1 1/8"	495	87	24
SM243-44		101.2	16.16	54	74	2 1/8"	1 1/8"	495	85	29
SM243-64		123.0	15.4	51	74	2 x 2 1/8"	2 x 1 1/8"	742	128	36
SM244-44		132.2	21.48	54	75	2 x 2 1/8"	2 x 1 1/8"	660	114	38
SM244-64		162.2	20.14	51	75	2 x 2 1/8"	2 x 1 1/8"	990	166	48
SM302-44	A6 Dia. = 1000mm 6 pole FLC/SC = 5.8/24A input = 2500W	83.8	13.38	54	78	2 1/8"	1 1/8"	412	74	19
SM302-64		99.8	12.22	49	78	2 x 2 1/8"	2 x 1 1/8"	419	109	29
SM303-44		126.5	20.08	54	79	2 x 2 1/8"	2 x 1 1/8"	619	107	29
SM303-64		150.7	18.34	49	79	2 x 2 1/8"	2 x 1 1/8"	928	158	43
SM304-44		165.6	26.78	54	81	2 x 2 1/8"	2 x 1 1/8"	825	140	38
SM304-64		199.0	24.44	49	81	2 x 2 5/8"	2 x 1 1/8"	1237	208	58

High/low temperature

Low face velocity, low capacity, low air throw, compact unit

Model	Air entering -25 °C TO + 20 °C					Air entering -25 °C TO + 20 °C					Connections		Surface area	Internal volume	Defrost power
	Propeller					Ducted Axial									
	Fan / Motor	R404A capacity	Air volume	Air throw	Noise	Fan / Motor	R404A capacity	Air volume	Air throw	Noise	Suction	Liquid			
		kW	m³/s	m	dB(A)		kW	m³/s	m	dB(A)			m²	dm³	kW
SM161-46	P1 Dia. = 630mm 6 pole FLC/SC = 1.4/5A input = 650W	14.8	2.70	19	59	A1 Dia. = 630mm 6 pole FLC/SC = 1.8/6.3A input = 680W	15.4	2.88	37	58	1 3/8"	1/2"	75	20	7
SM161-66		18.6	2.56	18	59		19.4	2.72	35	58	1 3/8"	5/8"	112	30	10
SM161-86		-	-	-	-		21.4	2.56	33	58	1 3/8"	5/8"	149	40	12
SM162-66		37.4	5.10	18	62		39.0	5.44	35	61	1 5/8"	5/8"	224	57	19
SM162-86		-	-	-	-		43.2	5.12	33	61	2 1/8"	7/8"	299	77	24
SM163-66		56.2	7.66	18	64		58.6	8.18	35	63	2 1/8"	1 1/8"	336	84	29
SM163-86		-	-	-	-		65.0	7.68	33	63	2 1/8"	1 1/8"	448	112	36
SM201-66	P1 Dia. = 630mm 6 pole FLC/SC = 1.4/5A input = 650W	21.9	3.14	21	59	A2 Dia. = 710mm 6 pole FLC/SC = 1.8/6.3A input = 620W	22.2	2.98	34	60	1 3/8"	5/8"	140	38	12
SM201-86		-	-	-	-		24.8	2.88	33	60	1 5/8"	5/8"	187	50	14
SM202-66		44.0	6.28	21	62		44.6	5.94	34	63	2 1/8"	7/8"	280	72	24
SM202-86		-	-	-	-		49.4	5.76	33	63	2 1/8"	1 1/8"	374	96	29
SM203-66		66.0	9.42	21	64		47.0	8.92	34	65	2 1/8"	1 1/8"	420	106	36
SM203-86		-	-	-	-		74.0	8.64	33	65	2 1/8"	1 1/8"	561	140	43
SM242-66		-	-	-	-	A4 Dia. = 800mm 8 pole FLC/SC = 2.7/6.8A input = 950W	57.0	7.70	39	66	2 1/8"	1 1/8"	336	87	24
SM242-86		-	-	-	-		63.2	7.32	37	66	2 1/8"	1 1/8"	448	115	29
SM243-66		-	-	-	-		85.8	11.60	39	68	2 1/8"	1 1/8"	505	127	36
SM243-86		-	-	-	-		95.8	11.02	37	68	2 x 2 1/8"	2 x 1 1/8"	673	168	43
SM244-66		-	-	-	-		114.4	15.40	39	69	2 x 2 1/8"	2 x 1 1/8"	673	166	48
SM244-86		-	-	-	-		126.4	14.64	37	66	2 x 2 1/8"	2 x 1 1/8"	897	221	58
SM302-66		-	-	-	-	A4 Dia. = 800mm 8 pole FLC/SC = 2.7/6.8A input = 950W	63.4	8.18	41	66	2 1/8"	1 1/8"	420	109	29
SM302-86		-	-	-	-		71.4	7.88	40	66	2 1/8"	1 1/8"	561	144	38
SM303-66		-	-	-	-		96.0	12.26	41	68	2 x 2 1/8"	2 x 1 1/8"	631	158	43
SM303-86		-	-	-	-		107.4	11.88	40	68	2 x 2 1/8"	2 x 1 1/8"	841	210	58
SM304-66		-	-	-	-		127.7	16.34	41	69	2 x 2 1/8"	2 x 1 1/8"	841	208	58
SM304-86		-	-	-	-		142.6	15.78	40	69	2 x 2 1/8"	2 x 1 1/8"	1121	276	77

low temperature

High face velocity, high capacity, high air throw, compact unit

Model	Air entering -35 °C TO 0 °C					Connections		Surface area	Internal volume	Defrost power
	Ducted Axial									
	Fan / Motor	R404A capacity	Air volume	Air throw	Noise	Suction	Liquid			
		kW	m³/s	m	dB(A)			m²	dm³	kW
SM161-46	A3 Dia. = 630mm 4 pole FLC/SC = 3.8/14A input = 1800W	17.8	3.86	50	69	1 5/8"	5/8"	75	20	7
SM161-66		23.2	3.62	46	69	1 5/8"	5/8"	112	30	10
SM161-86		26.8	3.52	45	69	1 5/8"	5/8"	149	40	12
SM162-66		46.8	7.24	46	72	2 1/8"	1 1/8"	224	57	19
SM162-86		52.8	7.06	45	72	2 1/8"	1 1/8"	299	77	24
SM163-66		70.2	10.86	46	74	2 1/8"	1 1/8"	336	84	29
SM163-86		80.8	10.58	45	74	2 1/8"	1 1/8"	448	112	36
SM201-66	A5 Dia. = 800mm 6 pole FLC/SC = 3.6/15A input = 2000W	30.8	4.94	50	71	1 5/8"	5/8"	140	38	12
SM201-86		34.8	4.76	48	71	1 5/8"	5/8"	187	50	14
SM202-66		61.8	9.88	50	72	2 1/8"	1 1/8"	280	72	24
SM202-86		71.0	9.50	48	72	2 1/8"	1 1/8"	374	96	29
SM203-66		93.0	14.82	50	74	2 x 2 1/8"	2 x 1 1/8"	420	106	36
SM203-86		105.8	14.26	48	72	2 5/8"	1 1/8"	561	140	43
SM242-66	A5 Dia. = 800mm 6 pole FLC/SC = 3.6/15A input = 2000W	69.2	10.64	54	72	2 1/8"	1 1/8"	336	87	24
SM242-86		79.0	10.16	51	72	2 1/8"	1 1/8"	448	115	29
SM243-66		104.0	15.96	54	74	2 x 2 1/8"	2 x 1 1/8"	505	127	36
SM243-86		118.4	15.30	52	74	2 x 2 1/8"	2 x 1 1/8"	673	168	43
SM244-66		139.2	21.28	54	75	2 x 2 1/8"	2 x 1 1/8"	673	166	48
SM244-86		154.2	20.34	51	75	2 x 2 1/8"	2 x 1 1/8"	897	221	58
SM302-66	A6 Dia. = 1000mm 6 pole FLC/SC = 5.8/24A input = 2500W	86.0	13.20	53	78	2 x 2 1/8"	2 x 7/8"	420	109	29
SM302-86		97.8	12.52	51	78	2 x 2 1/8"	2 x 1 1/8"	561	144	38
SM303-66		130.0	19.78	53	79	2 x 2 1/8"	2 x 1 1/8"	631	158	43
SM303-86		146.0	18.82	51	79	2 x 2 1/8"	2 x 1 1/8"	841	210	58
SM304-66		173.7	26.38	53	81	2 x 2 5/8"	2 x 1 1/8"	841	208	58
SM304-86		191.0	25.02	51	81	2 x 2 5/8"	2 x 1 1/8"	1121	276	77

8mm Specification

High/low temperature

Low face velocity, low capacity, low air throw, compact unit

Model	Air entering -25 °C TO + 20 °C					Air entering -25 °C TO + 20 °C					Connections		Surface area	Internal volume	Defrost power
	Propeller					Ducted Axial									
	Fan / Motor	R404A capacity	Air volume	Air throw	Noise	Fan / Motor	R404A capacity	Air volume	Air throw	Noise	Suction	Liquid			
		kW	m³/s	m	dB(A)		kW	m³/s	m	dB(A)			m²	dm³	kW
SM161-48	P1 Dia. = 630mm 6 pole FLC/SC = 1.4/5A input = 650W	12.2	2.70	19	59	A1 Dia. = 630mm 6 pole FLC/SC = 1.8/6.3A input = 680W	12.8	2.88	37	58	1 3/8"	1/2"	57	20	7
SM161-68		15.8	2.60	18	59		16.6	2.78	36	58	1 3/8"	5/8"	86	30	10
SM161-88		-	-	-	-		19.2	2.68	34	58	1 3/8"	5/8"	114	40	12
SM162-68		31.8	5.20	18	62		33.2	5.56	36	61	1 5/8"	5/8"	171	57	19
SM162-88		-	-	-	-		38.2	5.34	34	61	2 1/8"	7/8"	228	77	24
SM163-68		48.0	7.80	18	64		50.0	8.34	36	63	2 1/8"	1 1/8"	257	84	29
SM163-88		-	-	-	-		58.2	8.02	34	63	2 1/8"	1 1/8"	343	112	36
SM201-68	P1 Dia. = 630mm 6 pole FLC/SC = 1.4/5A input = 650W	18.7	3.20	21	59	A2 Dia. = 710mm 6 pole FLC/SC = 1.8/6.3A input = 620W	18.8	3.02	34	60	1 3/8"	5/8"	107	38	12
SM201-88		-	-	-	-		20.0	2.92	33	60	1 5/8"	5/8"	143	50	14
SM202-68		37.4	6.40	21	62		37.6	6.04	34	63	2 1/8"	7/8"	214	72	24
SM202-88		-	-	-	-		44.2	5.86	33	63	2 1/8"	1 1/8"	286	96	29
SM203-68		56.7	9.60	21	64		57.2	9.06	34	65	2 1/8"	1 1/8"	321	106	36
SM203-88		-	-	-	-		66.0	8.78	33	65	2 1/8"	1 1/8"	428	140	43
SM242-68		-	-	-	-	A4 Dia. = 800mm 8 pole FLC/SC = 2.7/6.8A input = 950W	48.6	7.88	40	66	2 1/8"	1 1/8"	257	87	24
SM242-88		-	-	-	-		56.4	7.70	39	66	2 1/8"	1 1/8"	343	115	29
SM243-68		-	-	-	-		73.6	11.88	40	68	2 1/8"	1 1/8"	386	127	36
SM243-88		-	-	-	-		86.0	11.60	39	68	2 x 2 1/8"	2 x 7/8"	514	168	43
SM244-68		-	-	-	-		97.4	15.78	40	69	2 x 2 1/8"	2 x 1 1/8"	514	166	48
SM244-88		-	-	-	-		113.4	15.40	39	66	2 x 2 1/8"	2 x 1 1/8"	685	221	58
SM302-68		-	-	-	-	A4 Dia. = 800mm 8 pole FLC/SC = 2.7/6.8A input = 950W	55.0	8.36	42	66	2 1/8"	1 1/8"	321	109	29
SM302-88		-	-	-	-		63.8	8.18	41	66	2 1/8"	1 1/8"	428	144	38
SM303-68		-	-	-	-		82.4	12.54	42	68	2 x 2 1/8"	2 x 7/8"	422	158	43
SM303-88		-	-	-	-		94.2	12.26	41	68	2 x 2 1/8"	2 x 1 1/8"	643	210	58
SM304-68		-	-	-	-		108.2	16.72	42	69	2 x 2 1/8"	2 x 1 1/8"	643	208	58
SM304-88		-	-	-	-		127.6	16.34	41	69	2 x 2 1/8"	2 x 1 1/8"	857	276	77

low temperature

High face velocity, high capacity, high air throw, compact unit

Model	Air entering -35 °C TO 0 °C					Connections		Surface area	Internal volume	Defrost power
	Ducted Axial									
	Fan / Motor	R404A capacity	Air volume	Air throw	Noise	Suction	Liquid			
		kW	m³/s	m	dB(A)			m²	dm³	kW
SM161-46	A3 Dia. = 630mm 4 pole FLC/SC = 3.8/14A input = 1800W	15.2	3.94	51	69	1 3/8"	1/2"	57	20	7
SM161-66		20.0	3.80	49	69	1 5/8"	5/8"	86	30	10
SM161-86		24.0	3.72	48	69	1 5/8"	5/8"	114	40	12
SM162-66		40.0	7.62	49	72	2 1/8"	7/8"	171	57	19
SM162-86		48.0	7.42	48	72	2 1/8"	1 1/8"	228	77	24
SM163-66		60.0	11.42	49	74	2 1/8"	1 1/8"	257	84	29
SM163-44		72.2	11.14	48	74	2 1/8"	1 1/8"	343	112	36
SM201-66	A5 Dia. = 800mm 6 pole FLC/SC = 3.6/15A input = 2000W	26.2	5.14	52	71	1 5/8"	5/8"	107	38	12
SM201-86		30.6	4.94	50	71	1 5/8"	5/8"	143	50	14
SM202-66		52.8	10.26	52	72	2 1/8"	1 1/8"	214	72	24
SM202-86		62.6	9.88	50	72	2 1/8"	1 1/8"	286	96	29
SM203-66		78.4	15.40	52	74	2 x 2 1/8"	2 x 1 1/8"	321	106	36
SM203-86		93.6	14.82	50	74	2 5/8"	1 1/8"	428	140	43
SM242-66	A5 Dia. = 800mm 6 pole FLC/SC = 3.6/15A input = 2000W	57.6	10.84	55	72	2 1/8"	1 1/8"	257	87	24
SM242-86		69.6	10.54	53	72	2 1/8"	1 1/8"	343	115	29
SM243-66		86.4	16.24	55	74	2 x 2 1/8"	2 x 1 1/8"	386	127	36
SM243-86		104.8	15.86	53	74	2 x 2 1/8"	2 x 1 1/8"	514	168	43
SM244-66		118.5	21.66	55	75	2 x 2 1/8"	2 x 1 1/8"	514	166	48
SM244-86		135.6	21.10	53	75	2 x 2 1/8"	2 x 1 1/8"	685	221	58
SM302-66	A6 Dia. = 1000mm 6 pole FLC/SC = 5.8/24A input = 2500W	72.8	13.68	55	78	2 x 2 1/8"	2 x 7/8"	321	109	29
SM302-86		87.0	13.10	53	78	2 x 2 1/8"	2 x 1 1/8"	428	144	38
SM303-66		110.2	20.56	55	79	2 x 2 1/8"	2 x 1 1/8"	428	158	43
SM303-86		131.1	19.70	53	79	2 x 2 1/8"	2 x 1 1/8"	643	210	58
SM304-66		148.4	27.36	55	81	2 x 2 5/8"	2 x 1 1/8"	643	208	58
SM304-86		169.1	26.20	53	81	2 x 2 5/8"	2 x 1 1/8"	857	276	77

Defrost

Defrost loads include drain pan power as below

Modules	FM--1	FM--2	FM--3	FM--4
Drainpan	1.6	3.2	4.8	6.4

Fan plate heater load (where fitted) for propeller fan units: 500W per fan
Peripheral heater load (where fitted) for ducted axial fan:

Correction Factors

Refrigerant	R404A	R134a	R507A	R407A	R407C
Capacity Factor (dew point, DT1)	1.00	0.91	0.97	1.18*	1.35*
Capacity Factor (MID point, DT1)	0.97	0.91	0.97	0.91	1.01
Refrigerant charge Density (kg/dm$^{3)}$	0.312	0.338	0.313	0.332	0.332

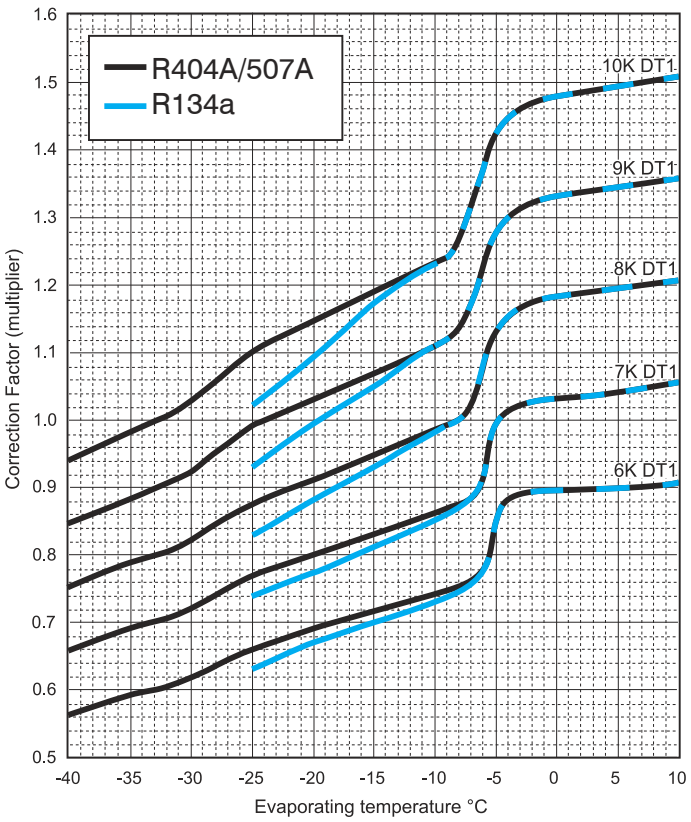
*Dew point capacity factors for refrigerants with high glide apply only at the nominal rating condition. Mid point factors can be used for all conditions. Refrigerant charge densities based on 25% of the internal volume being liquid.

General notes

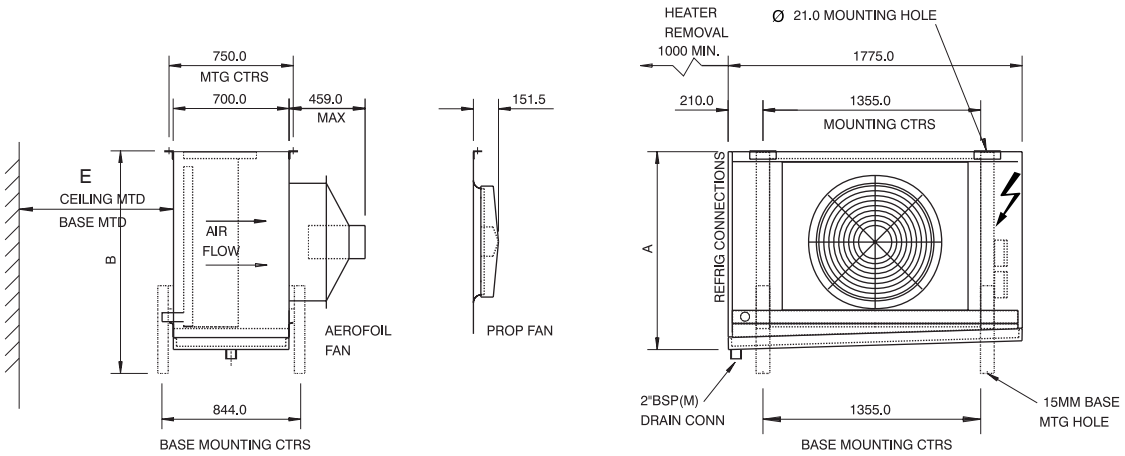
All data for 400V, 3 phase, 50Hz supply.
Noise levels are quoted at a distance of 3m from the units (free field).
Capacities are nominal, based on DT1 dew point and stated at Eurovent standard condition 2 (-8^{O}C saturated suction temp, 0^{O}C air entering).

Correction Factors (multipy capacity by appropriate correction factor to give performance at chosen conditions)

SM Cooler DT1 - WET



Dimensions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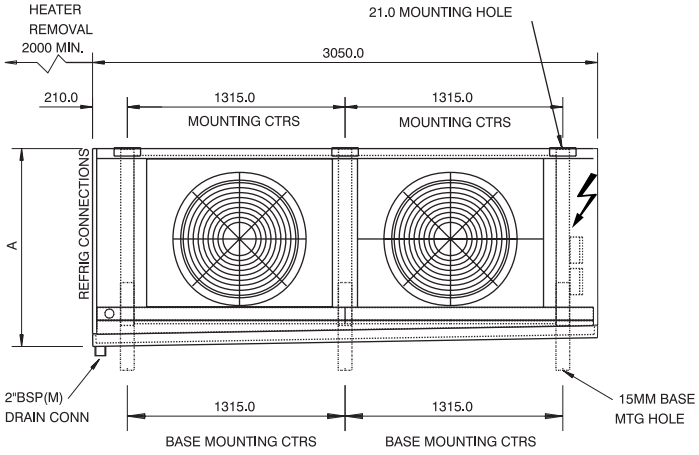
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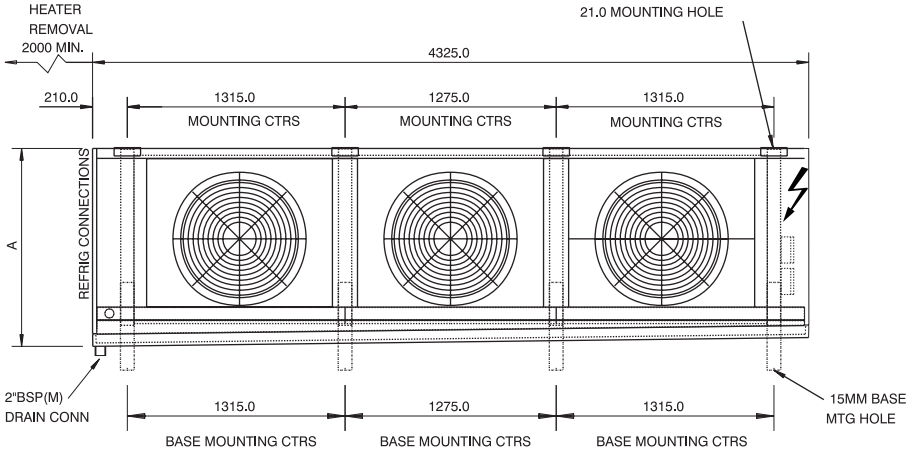
MTG HOLE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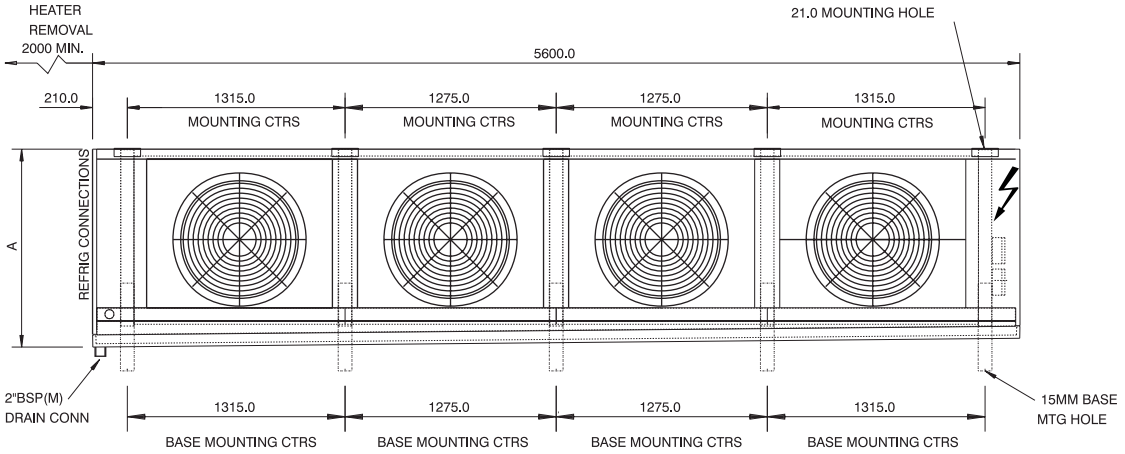
MTG HOLE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2"BSP(M)
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BASE MOUNTING CTRS
15MM BASE
MTG HOLE

Dimensions and Weights

Model	Case height in rows	No. of fans	No. of rows	Unit height ceiling mounted	Unit height base mounted	Unit weight Cu/Al	Unit weight Cu/Cu
				(A) mm	(B) mm	kg	kg
161 - 4x	16	1	4	970	1141	218	259
161 - 6x			6			248	309
161 - 8x			8			251	-
201 - 4x	20	1	4	1173	1344	258	309
201 - 6x			6			296	372
201 - 8x			8			299	-
162 - 4x	16	2	4	970	1141	378	459
162 - 6x			6			436	558
162 - 8x			8			442	-
202 - 4x	20	2	4	1173	1344	448	545
202 - 6x			6			520	673
202 - 8x			8			535	-
242 - 4x	24	2	4	1376	1547	504	626
242 - 6x			6			591	774
242 - 8x			8			607	-
302 - 4x	30	2	4	1681	1852	618	765
302 - 6x			6			727	956
302 - 8x			8			739	-
163 - 4x	16	3	4	992	1141	538	661
163 - 6x			6			625	808
163 - 8x			8			635	-
203 - 4x	20	3	4	1195	1344	642	795
203 - 6x			6			750	979
203 - 8x			8			773	-
243 - 4x	24	3	4	1398	1547	714	1098
243 - 6x			6			844	1119
243 - 8x			8			872	-
303 - 4x	30	3	4	1703	1852	883	1113
303 - 6x			6			1045	1389
303 - 8x			8			1064	-
244 - 4x	24	4	4	1398	1547	926	1170
244 - 6x			6			1099	1466
244 - 8x			8			1139	-
304 - 4x	30	4	4	1703	1852	1148	1120
304 - 6x			6			1365	1822
304 - 8x			8			1389	-

Note: Weights are maximums, based on 4mm fin spacing

CO2 Coolers - 75 Bar

GEA Searle offers an expanded range of CO2 unit coolers for commercial and retail refrigeration applications. The coolers have been optimised to meet the diverse requirements of the developing CO2 system designs; variables include transcritical, subcritical and standing pressures. GEA Searle have designed a "one size fits all" specification to apply to our most popular ranges.

Fresh ideas from Searle

General

The cooler ranges detailed within this brochure are hybrid versions of our tried and tested TEC, KEC, KME and DSR coolers. Whilst the coil technology employed is different the overall dimensions and electrical loadings remain as per our standard (non CO2) ranges.

Coils

Maximum operating pressure 75 BarG with aluminium fins as standard. Other fin materials and coatings are available upon request. Flow direction arrows added to connections to reduce on site confusion with the smaller pipe sizes and single circuit (non distributor) coils.

Defrost

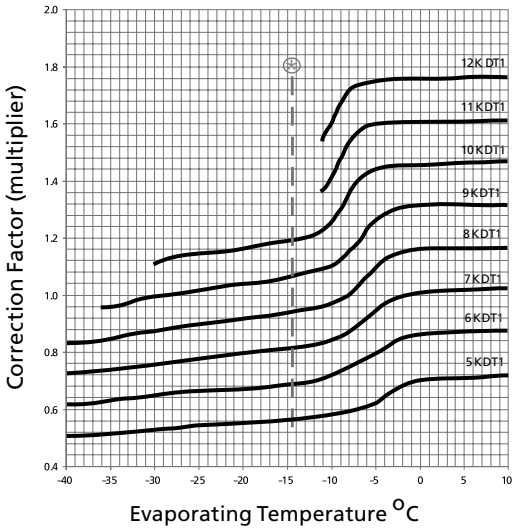
Option for electric coil and tray.

Quality Assurance

GEA Searle is a quality assured under the BSEN ISO 9001 encompassing Performance Testing, Manufacturing Systems and Inspection Procedures. The coolers are covered by Searle's full technical support and 24 months warranty.

CO2 Coolers - 75 Bar

Factors apply to all CO2 Coolers



General Notes:

1 Capacities shown at SC2 conditions i.e. 8KDT1, -8°C evaporation temperature

2 Air throws based upon terminal velocity of 0.25m/s.

3 Fan power is total fan power for the unit.

4 HS - High speed, LS - Low speed

5 Noise levels quoted @3m 45° directivity within free field conditions

6 designates units which have a low circuit loading. Refer to your supplier for selections below -15°C evaporating temperature.

Designation

KE C X 30 L

Range KE, KM, DS, TE

CO_2 C

Type X = Direct Expansion, P = Pump Circulation

Model Various

Defrost Blank = No Defrost, L = Electric

				Options			Capacity kW @ 8 KDT1
	Models	No fans	Configuration	Supply	EC Fans	Standard Electric Defrost	1 10 100
	KEC	1 - 3		1 ph	✔	✔	1.2 - 10.7
	KMC	1 - 4		1 & 3ph	o	✔	5.8 - 28
	DSC	1 - 4		1 ph	x	✔	0.8 - 15
	TEC	1 - 3		1 ph	x	✔ Kit	0.5 - 3.4

✔ Yes X No O Option

KEC Evaporator Range

Direct expansion - CX

Model	Capacity kW	Air Vol. m³/s	Surface m²	Int. Vol. dm³	Weight AL - kg	Conn Size		Air Throw m
						inlet	outlet	
KECX10 ⊛	1.26	0.28	5.05	2	29	3/8"	5/8"	16
KECX15 ⊛	1.50	0.28	5.05	2	30	3/8"	5/8"	16
KECX20	1.86	0.29	6.94	3	35	3/8"	5/8"	16
KECX25	2.40	0.42	6.94	3	35	3/8"	5/8"	22
KECX30	3.05	0.40	10.41	4	38	3/8"	5/8"	22
KECX35	3.63	0.58	12.62	4	51	3/8"	5/8"	16
KECX40	4.40	0.83	12.62	4	51	3/8"	5/8"	22
KECX45	6.10	0.81	18.94	6	59	1/2"	5/8"	22
KECX55	7.09	1.25	18.94	6	73	1/2"	5/8"	22
KECX70	9.04	1.21	28.40	9	83	1/2"	5/8"	22

Pump circulation - CP

Model	Capacity kW	Air Vol. m³/s	Surface m²	Int. Vol. dm³	Weight AL - kg	Conn Size		Air Throw m
						inlet	outlet	
KECP10 ⊛	1.62	0.28	5.05	2	29	3/8"	5/8"	16
KECP15 ⊛	1.85	0.28	5.05	2	30	3/8"	5/8"	16
KECP20	2.17	0.29	6.94	3	35	3/8"	5/8"	16
KECP25	2.85	0.42	6.94	3	35	3/8"	5/8"	22
KECP30	3.51	0.40	10.41	4	38	3/8"	5/8"	22
KECP35	4.27	0.58	12.62	4	51	3/8"	5/8"	16
KECP40	5.36	0.83	12.62	4	51	3/8"	5/8"	22
KECP45	7.00	0.81	18.94	6	59	5/8"	7/8"	22
KECP55	8.38	1.25	18.94	6	73	5/8"	7/8"	22
KECP70	10.37	1.21	28.40	9	83	5/8"	7/8"	22

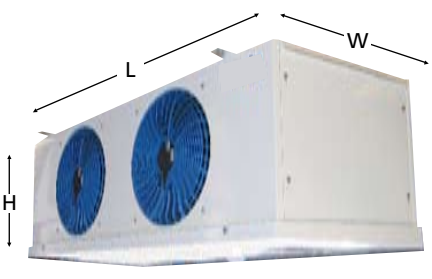
Fan & Noise Data

Model	Fan Detail						Noise
	Qty	Dia mm	Speed rpm	Power W	FLC A	SC A	dB(A) @3m
KEC*10	1	300	1370	30	0.35	0.5	44
KEC*15	1	300	1370	30	0.35	0.5	44
KEC*20	1	300	1370	30	0.35	0.5	44
KEC*25	1	300	1750	70	0.70	1.0	52
KEC*30	1	300	1750	70	0.70	1.0	52
KEC*35	2	300	1370	60	0.35	0.5	47
KEC*40	2	300	1750	140	0.70	1.0	55
KEC*45	2	300	1750	140	0.70	1.0	55
KEC*55	3	300	1750	210	0.70	1.0	57
KEC*70	3	300	1750	210	0.70	1.0	57

Note: Power per unit , currents per motor

Dimensions and Defrost Data

Model	Dimensions			Defrost	
	Length mm	Height mm	Width mm	Coil kW	Tray kW
KEC*10	726	461	524	0.68	0.34
KEC*15	726	461	524	0.68	0.34
KEC*20	876	461	524	0.92	0.46
KEC*25	876	461	524	0.92	0.46
KEC*30	876	461	524	0.92	0.46
KEC*35	1326	461	524	1.60	0.80
KEC*40	1326	461	524	1.60	0.80
KEC*45	1326	461	524	1.60	0.80
KEC*55	1826	461	524	2.40	1.20
KEC*70	1826	461	524	2.40	1.20



Note: ⊛ See general notes on page 203

KMC Evaporator Range

Direct expansion - CX

Model	Capacity kW	Air Vol. m^3/s	Surface m^2	Int. Vol. dm^3	Weight AL - kg	Conn Size		Air Throw m
						inlet	outlet	
KMCX50	6.36	0.89	18.26	6	91	1/2"	5/8"	17
KMCX60	7.65	0.96	27.05	9	120	1/2"	5/8"	19
KMCX80	10.08	1.89	24.35	8	137	1/2"	5/8"	19
KMCX95	12.92	1.78	36.52	11	150	1/2"	5/8"	17
KMCX115	15.12	2.83	36.52	11	181	1/2"	5/8"	19
KMCX140	19.53	2.68	54.78	17	212	5/8"	7/8"	17
KMCX175	24.57	3.45	64.92	19	237	5/8"	7/8"	17

Pump circulation - CP

Model	Capacity kW	Air Vol. m^3/s	Surface m^2	Int. Vol. dm^3	Weight AL - kg	Conn Size		Air Throw m
						inlet	outlet	
KMCP50	7.40	0.89	18.26	6	91	5/8"	7/8"	17
KMCP60	8.65	0.96	27.05	9	120	5/8"	7/8"	19
KMCP80	12.02	1.89	24.35	8	137	5/8"	7/8"	19
KMCP95	14.92	1.78	36.52	12	150	7/8"	1 1/8"	17
KMCP115	18.03	2.83	36.52	11	181	7/8"	1 1/8"	19
KMCP140	22.49	2.68	54.78	17	212	7/8"	1 1/8"	17
KMCP175	28.38	3.45	64.92	20	237	7/8"	1 1/8"	17

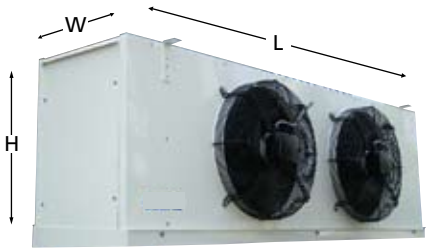
Fan & Noise Data

Model	Fan Detail								Noise
	Qty	Dia mm	Speed rpm	Power W	230V - 1ph - 50Hz		400V - 3ph - 50Hz		
					FLC A	SC A	FLC A	SC A	dB(A) @3m
KMC*50	1	400	1410	190	1.05	4.5	0.65	2.75	60
KMC*60	1	400	1410	190	1.05	4.5	0.65	2.75	60
KMC*80	2	400	1410	380	1.05	4.5	0.65	2.75	63
KMC*95	2	400	1410	380	1.05	4.5	0.65	2.75	63
KMC*115	3	400	1410	570	1.05	4.5	0.65	2.75	65
KMC*140	3	400	1410	570	1.05	4.5	0.65	2.75	65
KMC*175	4	400	1410	760	1.05	4.5	0.65	2.75	66

Note: Power per unit, currents per motor

Dimensions and Defrost Data

Model	Dimensions			Defrost	
	Length mm	Height mm	Width mm	Coil kW	Tray kW
KMC*50	1007	575	536	1.59	0.80
KMC*60	1332	575	536	2.40	1.20
KMC*80	1682	575	536	3.18	1.59
KMC*95	1682	575	536	3.18	1.59
KMC*115	2357	575	536	4.80	2.40
KMC*140	2357	575	536	4.80	2.40
KMC*175	2732	575	536	5.64	2.82



Note: ⊛ See general notes on page 203

DSC Evaporator Range

Direct expansion - CX

Model	Capacity		Air Vol		Surface	Int. Vol	Weight	Conn Size		Air Throw	
	HS - kW	LS - kW	HS - m³/s	LS - m³/s	m²	dm³	AL - kg	Inlet	outlet	HS - m	LS - m
DSCX12 ⊛	0.94	0.68	0.32	0.18	2.98	2	53	3/8"	5/8"	11	7
DSCX19 ⊛	1.92	1.21	0.31	0.17	5.95	3	58	3/8"	5/8"	11	7
DSCX22	2.47	1.52	0.30	0.16	8.93	3	62	3/8"	5/8"	11	7
DSCX36	3.60	2.31	0.61	0.34	10.82	4	82	1/2"	5/8"	12	8
DSCX42	4.77	2.95	0.59	0.32	16.23	6	90	1/2"	5/8"	11	7
DSCX51	5.80	3.78	0.92	0.50	16.23	5	109	1/2"	5/8"	12	8
DSCX62	7.02	4.61	0.88	0.49	24.35	8	121	1/2"	5/8"	11	7
DSCX68	7.62	5.16	1.22	0.67	21.64	7	139	1/2"	5/8"	12	8
DSCX83	9.61	6.00	1.18	0.65	32.46	10	154	1/2"	5/8"	11	7
DSCX100	11.17	7.51	1.72	0.98	36.07	11	166	1/2"	5/8"	11	7
DSCX116	13.06	8.64	1.56	0.89	54.10	16	189	1/2"	5/8"	11	7

Pump circulation - CP

Model	Capacity		Air Vol		Surface	Int. Vol	Weight	Conn Size		Air Throw	
	HS - kW	LS - kW	HS - m³/s	LS - m³/s	m²	dm³	AL - kg	inlet	outlet	HS - m	LS - m
DSCP12 ⊛	1.18	0.83	0.32	0.18	2.98	2	53	3/8"	5/8"	11	7
DSCP19 ⊛	2.26	1.41	0.31	0.17	5.95	3	58	3/8"	5/8"	11	7
DSCP22	2.78	1.66	0.30	0.16	8.93	3	62	3/8"	5/8"	11	7
DSCP36	4.31	2.71	0.61	0.34	10.82	4	82	5/8"	7/8"	12	8
DSCP42	5.38	3.23	0.59	0.32	16.23	6	90	5/8"	7/8"	11	7
DSCP51	6.74	4.25	0.92	0.50	16.23	5	109	5/8"	7/8"	12	8
DSCP62	8.02	5.03	0.88	0.49	24.35	8	121	5/8"	7/8"	11	7
DSCP68	8.92	5.78	1.22	0.67	21.64	7	139	5/8"	7/8"	12	8
DSCP83	10.81	6.57	1.18	0.65	32.46	10	154	5/8"	7/8"	11	7
DSCP100	12.87	8.41	1.72	0.98	36.07	11	166	5/8"	7/8"	11	7
DSCP116	14.74	9.34	1.56	0.89	54.10	16	189	5/8"	7/8"	11	7

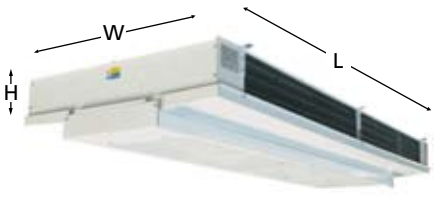
Fan & Noise Data

Model	Fan Detail									Noise	
	Qty	Dia mm	Speed rpm HS/LS	HS - High Speed			LS - Low Speed				
				Power W	FLC A	SC A	Power W	FLC A	SC A	dB(A) @3m	dB(A) @3m
DSC*12	1	305	1300/750	64	0.30	0.4	26	0.14	0.14	49	34
DSC*19	1	305	1300/750	64	0.30	0.4	26	0.14	0.14	49	34
DSC*22	1	305	1300/750	64	0.30	0.4	26	0.14	0.14	49	34
DSC*36	2	305	1300/750	128	0.30	0.4	52	0.14	0.14	51	37
DSC*42	2	305	1300/750	128	0.30	0.4	52	0.14	0.14	51	37
DSC*51	3	305	1300/750	192	0.30	0.4	78	0.14	0.14	54	39
DSC*62	3	305	1300/750	192	0.30	0.4	78	0.14	0.14	54	39
DSC*68	4	305	1300/750	256	0.30	0.4	104	0.14	0.14	55	40
DSC*83	4	305	1300/750	256	0.30	0.4	104	0.14	0.14	55	40
DSC*100	4	305	1400/800	640	0.81	1.9	376	0.87	1.98	60	48
DSC*116	4	305	1400/800	640	0.81	1.9	376	0.87	1.98	60	48

Note: Power per unit, currents per motor

Dimensions and Defrost Data

Model	Dimensions			Defrost	
	Length mm	Height mm	Width mm	Coil kW	Tray kW
DSC*12	870	266	910	0.00	1.58
DSC*19	870	266	910	0.00	1.58
DSC*22	870	266	910	0.00	1.58
DSC*36	1320	266	910	0.00	2.85
DSC*42	1320	266	910	0.00	2.85
DSC*51	1820	266	910	0.00	4.27
DSC*62	1820	266	910	0.00	4.27
DSC*68	2320	266	910	0.00	5.70
DSC*83	2320	266	910	0.00	5.70
DSC*100	2320	351	910	2.00	5.67
DSC*116	2320	351	910	2.00	5.67



Note: ⊛ See general notes on page 203, HS = High speed, LS = Low speed

TEC Evaporator Range

Direct expansion - CX

Model	Capacity kW	Air Vol. m³/s	Surface m²	Int. Vol. dm³	Weight AL - kg	Conn Size		Air Throw m
						inlet	outlet	
TECX1 ⊛	0.34	0.16	1.07	1	8	3/8"	5/8"	4
TECX2 ⊛	0.66	0.14	2.13	1	9	3/8"	5/8"	4
TECX3 ⊛	0.84	0.16	3.02	2	11	3/8"	5/8"	4
TECX3.5 ⊛	1.00	0.17	3.99	2	14	3/8"	5/8"	4
TECX4 ⊛	1.37	0.28	3.99	2	15	3/8"	5/8"	4
TECX5	1.81	0.31	5.36	2	19	3/8"	5/8"	5
TECX6	2.22	0.34	7.14	3	21	3/8"	5/8"	5
TECX7	2.86	0.47	7.57	3	27	3/8"	5/8"	5
TECX8	3.30	0.50	10.10	4	31	3/8"	5/8"	5

Pump circulation - CP

Model	Capacity kW	Air Vol. m³/s	Surface m²	Int. Vol. dm³	Weight AL - kg	Conn Size		Air Throw m
						inlet	outlet	
TECP1 ⊛	0.50	0.16	1.07	1	8	3/8"	5/8"	4
TECP2 ⊛	0.84	0.14	2.13	1	9	3/8"	5/8"	4
TECP3 ⊛	1.02	0.16	3.02	2	11	3/8"	5/8"	4
TECP3.5 ⊛	1.19	0.17	3.99	2	14	3/8"	5/8"	4
TECP4 ⊛	1.75	0.28	3.99	2	15	3/8"	5/8"	4
TECP5	2.17	0.31	5.36	2	119	3/8"	5/8"	5
TECP6	2.56	0.34	7.14	3	21	3/8"	5/8"	5
TECP7	3.35	0.47	7.57	3	27	3/8"	5/8"	5
TECP8	3.82	0.50	10.10	4	31	3/8"	5/8"	5

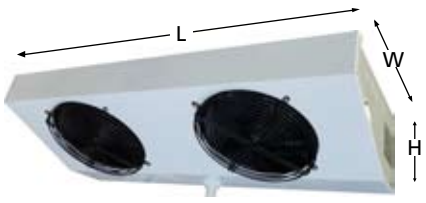
Fan & Noise Data

Model	Fan Detail						Noise
	Qty	Dia mm	Speed rpm	Power W	FLC A	SC A	dB(A) @3m
TEC*1	1	230	1440	20	0.16	0.6	51
TEC*2	1	230	1440	20	0.16	0.6	50
TEC*3	1	230	1440	20	0.16	0.6	50
TEC*3.5	1	230	1440	20	0.16	0.6	50
TEC*4	2	230	1440	40	0.16	0.6	53
TEC*5	2	230	1440	40	0.16	0.6	52
TEC*6	2	230	1440	40	0.16	0.6	51
TEC*7	3	230	1440	60	0.16	0.6	54
TEC*8	3	230	1440	60	0.16	0.6	53

Note: Power per unit, currents per motor

Dimensions and Defrost Data

Model	Dimensions			Defrost	
	Length mm	Height mm	Width mm	Coil kW	Tray kW
TEC*1	525	180	375	275	2 x 250
TEC*2	525	180	375	550	2 x 250
TEC*3	690	180	375	700	2 x 325
TEC*3.5	865	180	375	900	2 x 425
TEC*4	865	180	375	900	2 x 425
TEC*5	1120	180	375	1000	2 x 575
TEC*6	1120	230	375	1000	2 x 675
TEC*7	1530	180	375	1400	2 x 1030
TEC*8	1530	230	375	1400	2 x 1030



Note: ⊛ See general notes on page 203

New generation EC fans and motors

EC technology plays an integral role in GEA Searle's condensers and dry coolers providing effective capacity control whilst retaining high energy efficiency and low noise levels, all at a competitive price. These speed control fansets can provide significant benefits over alternative motors and are ideally suited to the following application areas:-

- Commercial refrigeration
- Building HVAC
- Industrial refrigeration
- Process Cooling
- Power Generation

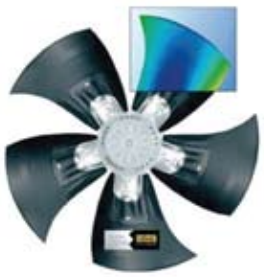
Fresh ideas from Searle

- Convenience Stores

GEA Searle has the technical expertise to advise and select products for any application where energy efficiency, low-noise and cost-effective solutions are required.

What is EC Technology?

EC (Electronically Commutated) technology is a tried and tested technology which has been utilised by Searle for a number of years. The motors used in EC fansets are simply brushless DC motors with characteristics similar to a "shunt" motor. Unlike the conventional motors where an AC current in the stator induces the magnetic field in the rotor, EC motors use permanent magnets, so the current in the stator is used solely to generate the torque not secondary magnetic fields. Therefore, with fewer losses the EC motor is inherently more efficient than the AC motor. Conventional DC motors use brushes to switch the supply and these wear over time; the new generation of EC motors use commutation electronics to sense the rotor position and switch supply. As switching is undertaken electronically with no physical contacts there is no wear and so reliability is increased..



The Adantages of EC Fansets

- Reduced energy usage and low operating cost, providing short pay-back periods
- Continuous speed control across the full operating range
- Low noise compared to a similar unit fitted with step control
- High efficiency across the full operational range
- High efficiency across the full operational range to an asynchronous motor and 3 year warranty
- Operation at peak load via the overspeed function is pre-programmed into the control system
- Night-time set back - at night, operation at extremely low noise can be achieved through step-less speed control
- Built in fail-safe features, including individual integrated electronics, self-regulating motors and internal motor protection
- Power input lost as heat is reduced by 1/3 compared to a conventional AC motor
- Integrated protective features; Phase failure detection; Over-current and temperature

New generation EC fans and motors

- Networked and bus-linked installations are easy to realise (RS485)

High Energy-saving potential

The cost of energy has nearly tripled in recent years and is predicted to rise in the future. Rising energy costs means energy efficiency is becoming a key industry issue and is rising in importance on end-user criteria. A Searle unit equipped with EC technology has a high energy-saving rating, which in turn, translates into lower running costs.

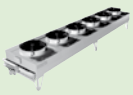
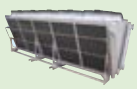
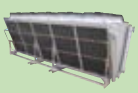
The energy savings gained by relying on EC technology translates into short payback times when measured against the initial procurement costs Moreover, the maintenance-free and exceptionally high service life results in additional big savings.

High efficiency and low noise

The EC motor has a high efficiency at every speed. At nominal speed, there is energy saving of around 10% when compared to conventional AC options. At reduced speed the saving is substantially more pronounced. Where noise levels are a key consideration, a unit with EC technology helps by reducing perceived noise when compared to a similar unit with step control.

Fail-safe safety

Refrigeration plants operate 24 hours a day, therefore, both energy costs and fail-safety are crucial factors. EC motors are equipped with several fail-safe features helping to ensure disruption is minimal in the event of a failure.

	Models	Eurovent	No. Fans	Bank of Fans	Supply	EC Fans	Adiabatic Cooling System	Fin Materials
	DE/ME		1 - 8	1 or 2	1 & 3ph	O	X	Al, Av Cu, Et Bg
	DG/MG		1 - 1 6	1 or 2	3ph	O	O	Al, Av Cu, Et Bg
	DM/MM		1 - 8	1	3ph	O	O	Al, Av Cu, Et Bg
	DX/MX		1 - 8	1	3ph	O	O	Al, Av Cu, Et Bg
	DVM/ MVM		2 - 16	2	3ph	O	O	Al, Av Cu, Et Bg
	DVL/ MVL		2 - 16	2	3ph	O	O	Al, Av Cu, Et Bg

✔ Yes X No O Option

Integrated housing

GEA Searle offers a wide range of Condensers to satisfy the requirements of many refrigeration applications. There are literally 1000s of models, created through a modular design and variety of fan sizes.

A recent development is to provide Condensers with an Integrated Housing to enable the compressors and controls to be sited close to the Condenser and supply a complete "turnkey" solution. This option also reduces pipe runs and significantly improves the turnaround time for the installation and commissioning.

Fresh ideas from Searle

By using an internal compressor frame for mounting the compressors and other components, the assembly time for the completed unit can be further reduced. Alternatively Searle are able to offer a "full package" with Condenser + Integrated Condenser Housing + Compressor + Controls.

Housing

The GEA Searle housings are manufactured from galvanised steel, which is then powder coated and oven cured to provide a hard and durable finish. When supplied as part of an Integrated Condenser Housing, they are mounted on a base channel, suitable for crane-lifting. Additional housing features include :-

- Lockable front doors
- Door stays to keep doors fixed open
- Acoustic lining
- Forced air circulation using centrifugal fans
- Cable glands (where applicable)
- Rain shield

Condensers

The full range of MG, MM, MX condensers are available for use with integral housings.This brochure indicates the standard models that have proven the most popular.

The Condensers are available with 6, 8, 12 pole or EC fansets and with a variety of fin materials, dependant on the siting of the condenser. The fin material options available are :-

- Cu tube / Aluminium fin
- Cu tube / Vinyl coated aluminium fin
- Cu tube / Aluminium Magnesium alloy fin
- Cu tube / Blygold™ coated fin
- Cu tube / Copper fin
- Cu tube / Electro-tinned copper fin

Condenser Selection

Due to the large number of models in the Condenser range, selection of the optimum model is best performed using the Searle Selection Software, available on a CD, or to download from the website at www.searle.co.uk Alternatively you can use the selection software interactively on-line.

Integrated housing

EC Fans

EC fans are a popular and efficient choice for Condenser applications due to their efficient performance and simple control. The M Condenser range uses the 910mm EC fan, which can be supplied with a control system and optional backup control, or simply wired to a control box for connection to the customer's own control system.

Fan Isolators

The fan motors can be supplied with adjacent individual fan isolators

Controls

GEA Searle is able to supply all Condensers with controls, for both AC and EC fan motors. These can include an optional backup system.

Remote RPH Housing

For the occasions where an Integrated Condenser Housing is not suitable, GEA Searle can supply a separate RPH Housing unit, which has all the features of the standard housing, but supplied as a remote unit for siting elsewhere. The RPH Housings are available in 4 sizes :-

- 2300mm x 800mm
- 2700mm x 800mm
- 2300mm x 1200mm
- 2700mm x 1200mm

Compressor Frame

The Integrated Condenser Housings have been designed for use with both scroll and semi-hermetic compressors, which are best mounted on separate Compressor Frames. These frames can be simply lifted into place once complete. This enables full access to the compressors during manufacture and also allows for assembly of these items to take place remotely from the Condenser + Housing or at a suppliers location.

Terms and Conditions

1. GENERAL

Special attention is drawn to the Warranty.

The following words shall have the following meanings in these Conditions.

(a) The "Buyer" is the person firm or company with whom the Seller has entered into the Contract.

(b) The "Conditions" shall mean the terms and conditions set out below.

(c) The "Contract" is the agreement (as referred to in clause 2) to supply particular Goods.

(d) The "Goods" are the goods sold by the Seller to the Buyer.

(e) The "Seller" is GEA Searle LTD.

(f) "Warranty" shall mean the warranty to be given to the Buyer pursuant to clause 14.

(g) In "Writing" is any memorandum or letter signed on behalf of the Seller by a duly authorised representative. In the case of a letter sent to the Buyer the Seller shall be entitled to assume that its terms are agreed unless notified to the contrary in writing within 7 days.

2. THE CONTRACT

(a) The Goods are sold subject to the Conditions which shall supersede all other terms and conditions, representations or undertakings made by the Buyer or the Seller or otherwise and nothing said or written during the course of negotiations between the Buyer and Seller shall have contractual or other legal effect unless agreed in accordance with the Conditions.

(b) The Contract shall not be varied unless the Seller expressly agrees the variation in Writing or the Conditions expressly provide otherwise.

(c) The giving of any delivery instructions, the acceptance of or payment for the Goods or any conduct in confirmation of the transaction hereby contemplated shall constitute unqualified acceptance by the Buyer of the Conditions.

d) The buyer can only cancel the contract with written consent of the seller. Cancellation chargers may be imposed.

3. PRICE

Unless otherwise agreed in Writing the price of the Goods shall be calculated in accordance with the Seller's price list in force at the date of delivery of the Goods.

4. PAYMENT

(a) Payment is due by the end of the month following the month during which risk passed to the Buyer, unless other terms have been agreed in Writing. These terms of payment must be strictly observed. If the Buyer is in breach of the Contract then all payments shall become immediately due and payable.

(b) If any sum due hereunder or any other sum due to the Seller is not paid in full by the due date or if before such date the Seller believes that the Buyer is unable or unwilling to make such payment in full then the Seller shall have the right either to suspend delivery of the Goods pending payment of such sums or to terminate the Contract forthwith.

(c) Interest shall be payable by the Buyer from the date by which payment should have been made till the date of payment (both before and after judgement) on the unpaid amount on a daily basis at the rate of 4% per annum above the base lending rate of Lloyds TSB Bank Plc from time to time in force unless otherwise specified.

(d) The Buyer shall not be entitled to withhold payment of all or any of the purchase price while any claim in relation to the Goods or other dispute is being investigated by the Seller and without limitation no deduction shall be made by the Buyer in respect of any set-off or counter-claim howsoever arising.

5. DELIVERY

(a) The place of and the date of delivery shall be as agreed between the Buyer and the Seller. However the date for delivery is the Seller's best estimate based on present information and subject to sub-clause (b) below the Seller shall not be liable for delay in delivery in any circumstances whatsoever (even if caused by the negligence of the Seller its servants or agents) nor for any loss, damage or expense which the Buyer may suffer by reason of such delay.

(b) If the date of delivery is important to the Buyer the Seller is prepared to provide a definite date of delivery provided that the date and a limit on the Seller's liability under this sub-clause have both been agreed in Writing as a variation to the Contract.

6. RISK IN THE GOODS

(a) The risk in the Goods shall pass to the Buyer on the sooner of the Buyer paying the price in full or the Buyer taking delivery of the Goods or the Seller notifying the Buyer that the Goods are ready for delivery and the Buyer having failed to take delivery of the Goods within 7 days thereafter for whatever reason.

(b) Without limitation after risk has passed to the Buyer if the Goods or any item thereof are lost, damaged or destroyed from any cause whatsoever (including the negligence of the Seller, its servants or agents) whether or not the Goods are still in the possession of the Seller then the Buyer shall remain liable to pay the price of the Goods in full and if the Seller repairs the Goods the Buyer shall pay the reasonable cost of repairing the Goods.

7. TITLE TO THE GOODS

(a) Property in the Goods shall not pass to the Buyer until the Buyer has paid to the Seller the whole of the price of the Goods in full and any other payments due from the Buyer.

(b) Until the payments referred to in sub-clause (a) above have been made in full the Buyer shall hold the Goods as fiduciary agent for the Seller and shall mark the Goods with an indication that they remain the Seller's property, and they shall be kept separate and identifiable from any other products in the Buyer's possession and shall be returned to the Seller upon request and all the incidence associated with a fiduciary relationship shall apply.

(c) Without prejudice to any of the Seller's other remedies the Seller shall have the right with or without prior notice at any time to retake possession of the whole or any part of the Goods (and for that purpose shall be granted an irrevocable licence to go upon any premises occupied by the Buyer or which the Buyer is entitled access to) and to dismantle the Goods or detach the Goods from any items in which they may have been incorporated.

(d) The Buyer shall indemnify the Seller against all costs and liabilities which the Seller incurs in retaking possession of the Goods (or any part thereof) or in exercising any of its rights under this Clause including without limitation any liability in respect of any damage (including damage caused to such premises in such retaking of possession and removal of goods) which it was not reasonably practicable to avoid.

(e) If any of the Goods supplied by the Seller are incorporated or used as material for other goods before title has passed to the Buyer the property in the whole of such goods shall be and remain with the Seller until such payment has been made. Any sale of such goods by the Buyer shall take place upon the basis that the buyer shall hold on trust for the seller with effect from the date of receipt of the sale proceeds by the Buyer such proportion of those proceeds as is equal to the outstanding price payable by the buyer to the Seller for the Goods.

8. ACCEPTANCE OF GOODS

Unless the Seller is notified to the contrary in writing within 10 days of the date of actual delivery the Goods shall be deemed to have been accepted by the Buyer as being in good condition and in accordance with the Contract.

9. FORCE MAJEURE

(a) Without prejudice to the other terms of the Conditions the Seller shall not be liable if manufacture or delivery or installation is prevented, hindered or delayed by reason of strikes, sit-ins, trade disputes, lock-outs or any other actual or threatened industrial action or by difficulty in obtaining labour, plant, materials or bought in components or by breakdown of plant or machinery (including transport) or by interruption of power supplies, or by fire or by legal action by a third party (whether or not any of the aforesaid are caused by the negligence of the Seller, its servants or agents) or by reason of any circumstances outside the Seller's control which shall include, but not be limited to national emergency, war, civil riot, intervention by Government and all other cases of force majeure.

(b) If the manufacture or delivery of the full quantity of Goods due under the Contract is prevented, hindered or delayed by reason of any circumstances within sub-clause (a) for a period greater than 3 months after the agreed delivery date then both the Seller and the Buyer shall be released from their respective obligations in respect of any goods which have not been delivered by that time.

10. PACKING

(a) Where specified in the Seller's sales literature the cost of the Goods will include the cost of packaging. Such packaging shall be non-returnable and suitable for the protection of the Goods under normal transport conditions and for dry indoor storage in temperate climates for up to 3 months from the date of such delivery provided that the packaging is not damaged or disturbed.

(b) All other goods will (unless otherwise agreed in Writing) be delivered by the Seller without packaging. Where the Seller so agrees the packaging will be as agreed and if not specified will be non-returnable and suitable for the protection of the Goods under normal transport conditions and for dry indoor storage in temperate climates for up to 3 months from the date of such delivery provided that the packaging is not damaged or disturbed. The Seller shall be entitled to make an additional charge as agreed with the Buyer or (if no charge has been agreed) a reasonable charge for packaging. The additional charge will be payable by the Buyer at the same time and on the same terms as the price of the Goods.

11. TRADE NAMES AND TRADE TERMS

(a) The Buyer undertakes not to hold himself out in any circumstances or in any manner whatsoever as having authority to sell, service, maintain or deal with the Goods as agent or dealer or other authorised representative of the Seller.

(b) In particular and without prejudice to the provisions of sub-clause (a) the Buyer undertakes not to use or reproduce any trade name or registered trade mark of the Seller on goods, premises, vehicles, letter headings and other stationery, sales literature or in any way whatsoever and not to do or authorise to be done any infringing act to which the Trade Marks Act 1994 applies.

(c) The Buyer's undertakings under this Clause are conditions of this Contract so that any breach thereof shall entitle the Seller to terminate the Contract and to recover damages in respect of all loss, damage and expense occasioned thereby. The Seller at its option shall be entitled to recover the profit made by the Buyer during the period of the breach from sales, servicing, maintenance and other dealings with goods manufactured by the Seller.

(d) Notwithstanding the terms of the Conditions no document purporting to authorise the Buyer to do any act which would otherwise be a breach of the Buyer's undertakings under this Clause or purporting to consent thereto on behalf of the Seller shall be binding on the Seller unless it is a formal licence agreement bearing the Seller's corporate seal.

12. DRAWINGS, PRINTS AND SPECIFICATIONS

(a) Any technical drawings, prints and specifications supplied by the Seller under or in connection with a quotation or the Contract shall remain the property of the Seller who shall reserve the copyright, design right and any registered design right therein. The Buyer shall not copy them or communicate their contents to any third party without the Seller's consent (which consent shall not be unreasonably withheld) and shall comply with the Seller's reasonable requirements as to their use, return and otherwise.

(b) The property in the design of the Goods shall (subject to any existing rights of any third party or the Buyer in any design or invention incorporated or used in the design of Goods) remain the exclusive property of the Seller and neither the buyer not any agent contractor or other person authorised by the Buyer nor any other person, firm or company shall at any time make use of the design or any part thereof.

(c) The Seller gives no warranty or indemnity in respect of any actual or alleged infringement of any patents, registered designs, design copyright, or any other industrial property right relating to the Goods.

13. DESCRIPTION OF GOODS

(a) Illustrations, photographs, descriptions (including descriptions relating to technical performance, capacity, output, consumption and dimensions) and general literature relating to the Goods are intended as a general guide only and such material shall not form part of the Contract. The Goods will not necessarily correspond in all respects with the goods shown in those illustrations and photographs or such descriptions or general literature. Without limitation the Seller reserves the right to make without notice to the Buyer any improvement or alteration in the material, specification, dimensions or design of the Goods which it thinks reasonable or desirable or which it is required to make by law and such improvement or alteration shall be deemed to have been accepted by the Buyer and the Seller as a variation to the Contract.

(b) The Seller can provide goods which are suitable to meet the Buyer's purpose or which will meet specified technical performance provided that the Buyer provides written details of its requirements and obtains the Seller's advice (as to which goods will be suitable) in Writing. Unless the Seller has agreed in Writing to provide equipment for a specified purpose or of a specified technical performance the Buyer shall be deemed to have selected the Goods without having made its purpose or requirements known to the Seller.

14 WARRANTY

(a) Subject to clause 16 the Seller warrants to the Buyer that as from the date of supply and for a period of twenty four months from the date when installation is completed (as to which the Seller's determination is final) or thirty months from the date of shipment by the Seller whichever shall be the shorter the Seller will free of charge replace or repair any part or parts thereof proved to the Seller's satisfaction to be defective owing to faults in workmanship of the Seller or materials comprised in the Goods. All labour, travel and carriage costs involved in effecting such replacements or repairs will be borne by the Buyer.

(b) If the Buyer requires a warranty greater than that set out above any such warranty to be effective must be in Writing and signed by either the Secretary or a Director of the Seller and shall in any event be limited to the amount that the Seller can recover under the product liability insurance policies held by the Seller at the date of the Contract.

(c) Save as expressed in this Clause the Seller shall be under no liability for any personal consequential or other loss or damage of whatsoever kind or howsoever caused as a result of any goods supplied or work done being defective or not in accordance with any order or as a result of anything done or omitted in connection with any work done or omitted to be done by the Seller including any breach by the Seller of any fundamental term of any order and the Seller's liability under this Clause shall be in lieu of and to the exclusion of any liability, condition, guarantee, warranty, term undertaking or representation whether express or implied, statutory or otherwise and shall in any event be limited to the value of the Goods to which any claim relates or the amount received by the Seller in relation to the Goods under any product liability insurance held by the Seller at the date of the Contract.

(d) Nothing contained in the Clause shall exclude:-

(i) any liability for breach of the Seller's implied undertakings as to title

(ii) where the Buyer deals as a consumer (as defined by the Unfair Contract Terms Act 1977) any liability for breach of the Seller's implied undertakings as to conformity of goods with description or sample or as to their quality or fitness for a particular purpose.

(iii) any liability arising from the Seller's negligence causing death or personal injury.

15. EXCLUSIONS

The Warranty shall not apply to:-

(a) Any defect which in the opinion of the Seller arises by reason of misuse, misapplication, neglect or accident occurring after risk has passed to the Buyer.

(b) Any defect not notified to the Seller or its authorised distributors or dealers within 5 working days of the Buyer having become aware of such defect.

(c) Any equipment which shall in the opinion of the Seller have been improperly installed, serviced, repaired or altered (other than by the Seller) or in or to which any part not manufactured or sold by the Seller has been fitted.

(d) Goods not of the Seller's manufacture in which case the Buyer is entitled only to such benefit as the Seller may receive under any warranty given in respect thereof.

(e) Any equipment on which service has been carried out by anyone other than the Seller or any approved service agent.

(f) Any equipment installed or situated outside Great Britain, Isle of Man, Northern Ireland, Eire and the Channel Islands without the Seller's consent in Writing.

16. TERMINATION OF THE CONTRACT

If the Buyer becomes insolvent or goes into bankruptcy, receivership, administration or liquidation or enters into any voluntary arrangement with its creditors or commits a breach of the Contract or any other contract with the Seller or has any process of distress or execution levied upon its goods or the Seller reasonably considers that any of the above events is likely to occur then the Seller may forthwith on written notice to the Buyer terminate the Contract without incurring any liability to the Buyer and without prejudice to the Seller's right to recover the Price and / or damages for any breach of the Contract by the Buyer.

17. MISCELLANEOUS

(a) The Contract is between the Seller and the Buyer as principals and is not assignable without the Seller's consent.

(b) Each of the Clauses and sub-clauses of the Conditions shall be construed as separate and severable.

(c) None of the provisions of any of the clauses or sub-clauses of the Conditions shall in any way limit any of the other clauses or sub-clauses of the Conditions.

(d) The law governing the Contract shall be the law of England. Any disputes arising out of or in connection with the Contract shall be submitted to the jurisdiction of the English Courts, except that the Seller may elect and be entitled to proceed in Scotland or Northern Ireland or any foreign jurisdiction wherever proceedings may lawfully be brought against the Buyer.

(e) The Buyer recognises that the Conditions and (without limitation) the limitations of liability contained in the Conditions are reasonable in that the prices quoted by the Seller are dependent upon such limitations being incorporated in the Contract and because greater liability can be accepted if expressly agreed in Writing in accordance with the Conditions.

(f) Any notice may be served by either party on the other by leaving it at or sending it by post or facsimile to the address of the party contained in the Contract. Such notice shall be deemed to be served if by hand when delivered if by facsimile when sent and if by first class post two working days after posting.

Warranty Procedure

For products and services supplied directly by Searle or Dawmec, you should follow the procedure outlined below. For products supplied via a wholesaler, distributor or agent, your warranty agreement is with them and therefore you should supply the same information as outlined below to your contact.

Warranty Procedure

This warranty applies to all units detailed in this price list and, unless otherwise stated in product literature or specific contracts, provides for a manufacturer's guarantee of twenty four months from date of installation or fifteen months from date of delivery whichever shall be the shorter against faults in workmanship or materials. (See link to Terms & Conditions of Sale).

When submitting a warranty claim the following information is required:

Customer's original reference number job / order number.
Searle's job number / advice note number.
Type of unit and serial number.
Date of installation.
Details of defect.

when providing details of the defect, please give as much information as possible, ie.

Was the unit satisfactory on delivery?
Frequency of fault (continuous / intermittent)
Is the unit leaking ? (+ location of leak)
Items manufactured by Searle :

No work should be undertaken to resolve the problem either by the customer or a 3rd party until approved by Searle – failure to do so could invalidate the warranty.

The item may be replaced or rectified if the guarantee claim is valid.
For items that have been installed, Searle have the right to decide if rectification on site is suitable and who should undertake the work or whether to return / replace the unit(s). For items where Searle decides to replace, the original faulty item must be returned. All items which are returned will be inspected.

If the guarantee claim is not valid the customer will be advised and further instructions requested, either to return the item or to issue an official order to replace or rectify the item.

Items NOT manufactured by Searle:

The item will be replaced and the customer will be invoiced
The item will be returned to the supplier for evaluation.
If the claim is valid the credit received from the supplier will be passed on to the customer.
Items supplied by Dawmec

The item will be replaced and the customer will be invoiced
The item will be returned to the supplier for evaluation.
If the claim is valid the credit received from the supplier will be passed on to the customer.

GEA Heat Exchangers

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