engineering for a better world



AFC Compact Systems: GEA Searle JG Air Cooler

Top-level engineering solutions

GEA Heat Exchangers

For full selection data either refer to the Selection data tables or use the Searle selection software, either online or via your local GEA Searle representative.





Commercial Air Coolers
AFC Compact Systems

GEA Searle's wide range of commercial unit coolers guarantee the continued excellence of our product range in 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.

For more information, please refer to our Selection Software program or selection data tables. Alternatively a fully interactive version of selection software is available online at www.searle.co.uk, where it is possible to view all brochures and Installation & Maintenance manuals.

Commercial Air Coolers general features
AFC Compact Systems



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 and TEC Cooler range uses EC fansets as standard making them the most energy efficient cooler products 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 "Energy Efficient Fansets" in this catalogue

Casework

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

Blygold® Coating (Optional)

GEA Searle 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.





The duties presented in the specification tables are nominal. Tests are conducted in accordance with EN 328 under dry conditions which allows performance to stabilise 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.



Refrigeration	R404A	R134a	R507A	R407A/F	R407C
Capacity factor (dew point, DT1)	1.00	0.91	0.97	1.18*	1.35*
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 Air Coolers
AFC Compact Systems

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 GEA Searle representative or dowloaded from the GEA 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 GEA Searle coolers utilise fansets which offer significant energy savings over traditional motor assemblies. The KEC and TEC cooler have high efficiency EC fans as standard across the range.

Assured performance

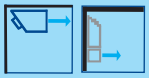
All our commercial unit coolers where applicable are certified under the Eurovent Certify All" programme to guarantee that every unit will perform as specified.

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

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

✔ Yes X No O Option

	Options							Capacity KW @ 8 kTD
	Suppy	EC Fans	Standard Electric Defrost	Heavy Electric Defrost	Hot Gas Defrost A/B/C/D	CO2	Fin Materials	1 — 10 — 100
	1 ph	X	✔ Kit	X	X	X	Al	0.3 - 1.6 kW
	1 ph	✔	✔ Kit	X	X	X	Al	0.5 - 3.4 kW
	1 ph	X	✔	X	X	X	Al	1.7 - 6.9 kW
	1 ph	✔	✔	X	✔	✔	Al	1.2 - 10.5 kW
	1 & 2 ph	O	✔	✔	✔	✔	Al	5.7 - 28 kW
	3 ph	✔	✔	X	✔	✔	Al	8 -51 kW
	1 ph	X	✔	X	✔	✔	Al	0.8 - 15 kW

Note: * See page 196 for CO2 variations of these coolers

JG Air Cooler
AFC Compact Systems



JG	3	4	L	AV	
Range	JG				
Model	1,2,3,4,5,6,7,8				
Fin Spacing	4mm				
Defrost	Blank = No defrost, L = Standard Electric Defrost.				
Fin Material	Blank = Aluminium				
Coil	Blank = HCFC				

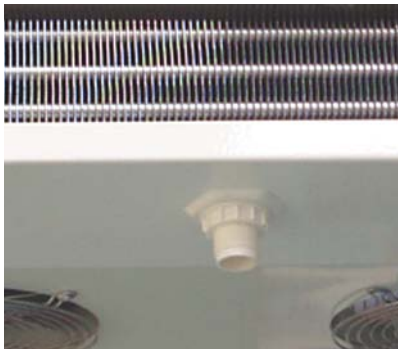


JG Unit Coolers

The JG 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.

Refrigeration	R404A	R134a	R507A	R407A/F	R407C
Capacity factor (dew point, DT1)	1.00	0.91	0.97	1.18*	1.35*
Refrigerant charge density (kg/dm^3)	0.312	0.338	0.313	0.332	0.332



JG Selection data, Drawings and Dimensions

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	0.1	3.5	50	38	0.25	0.81	0.264	0.09	275
JG2	520	470	1	0.08	3.0	49	38	0.25	1.63	0.527	0.18	550
JG3	660	600	1	0.09	3.0	49	38	0.25	2.31	0.707	0.24	700
JG4	800	728	1	0.08	3.0	49	38	0.25	3.47	1.060	0.36	700
JG5	1000	910	2	0.16	4.0	52	76	0.50	3.05	0.901	0.3	900
JG6	1210	1100	2	0.14	3.5	52	76	0.50	4.57	1.350	0.46	900
JG7	1360	1240	3	0.23	4.5	54	114	0.75	4.10	1.174	0.4	1000
JG8	1640	1490	3	0.21	4.0	54	114	0.75	6.14	1.760	0.6	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.

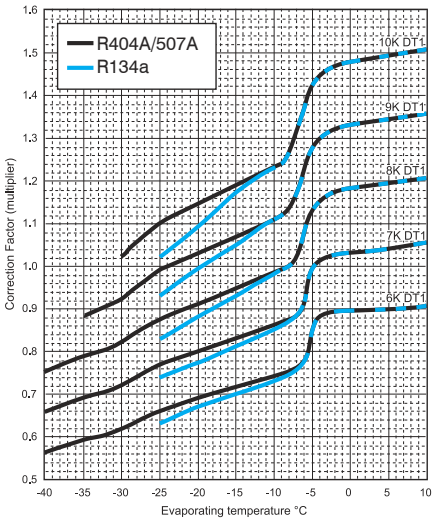
*** Terminal air velocity 0.25m/s, free air conditions at 10°C. Air throw cannot be considered on absolute value because many factors have a substantial effect on the distance achieved.

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

Options and Spares

Description	Part Number	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 Cooler DT1 - WET



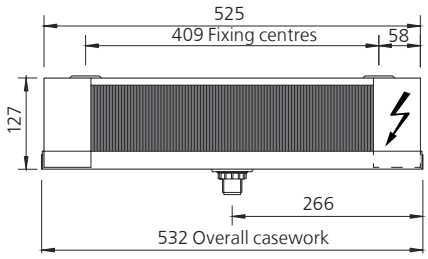
Rating Conditions

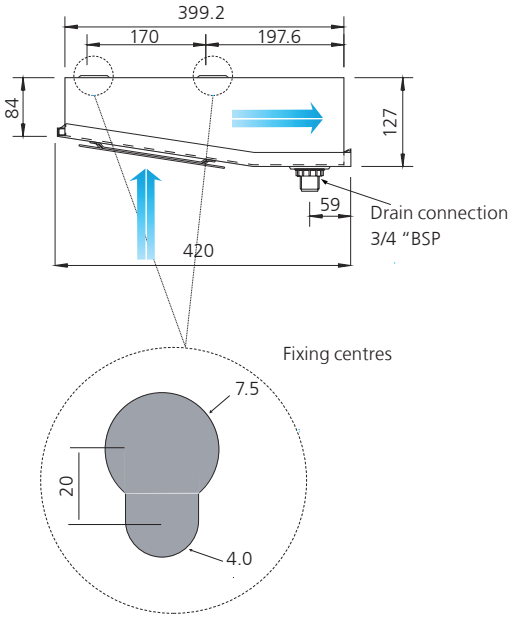
The duties shown in this catalogue are at EN 328 Standard Condition 2 (-8°C saturated suction temperature, 0°C air entering).

Correction factors

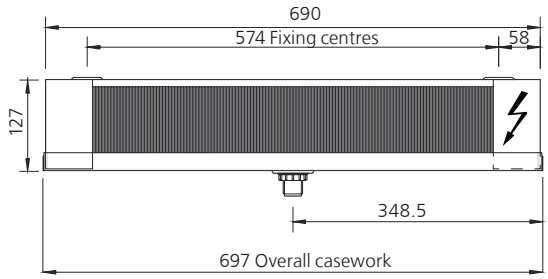
These are provided for calculating duties at other conditions and with alternative refrigerants. Correction Factors (multipy capacity)

JG 1, 2

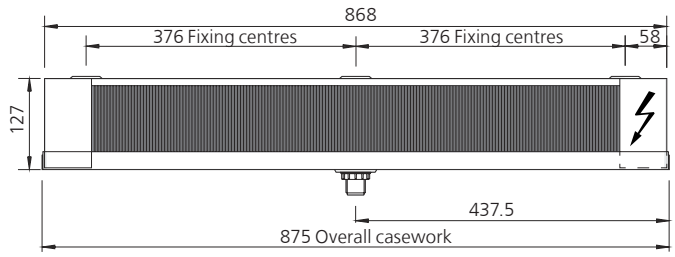




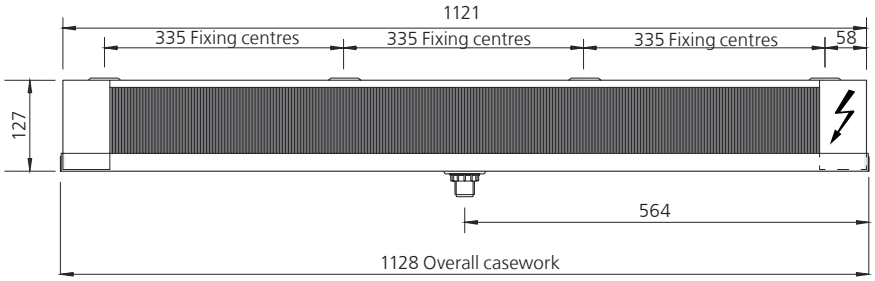
JG 3, 4



JG 5, 6



JG 7, 8



Model	No. of fans	Approx Dry weight (kg) Av/Cu	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"

Excellence Passion Integrity Responsibility GEA-versity

GEA Group is a global mechanical engineering company with multi-billion euro sales and operations in more than 50 countries. Founded in 1881 the company is one of the largest providers of innovative equipment and process technology. GEA Group is listed in the STOXX Europe 600 Index.

GEA Heat Echangers

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