



GEA Searle Gas Coolers
Top-level engineering solutions

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.





Gas Coolers

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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.

Due to the models available only a summary is given in this brochure. For complete capacity information, please refer to our Selection Software program. 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.

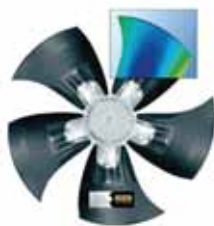
Gas Cooler general features

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Control Options

There are various optional GEA Searle control packages available, including variable speed controlled products using GEA Searle inverter control or the latest EC fan control systems. 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, GEA 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 GEA Searle's Adiabatic Section for further details or contact your GEA Searle representative)

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 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

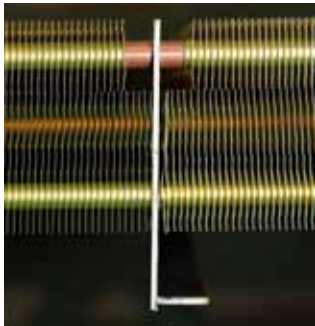


Fig 1

Shows the intermediate tube sheet with expansion gap and fin separation for the gas inlet row



Fig 4

Coil end plates have large tube clearance with tube support provided by an aluminium tube sheet. Extended coil tubes allow greater resilience against thermal expansion. Coils are nitrogen purged during assembly.



Fig 3

Coil moisture content is controlled after pressure testing.



Fig 4

Expansion gaps in the top row at all coil plates.

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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 from date of 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 ○ Option

		Options			
No. Fans	Rows of Fans	Supply	EC Fans	Adiabatic Cooling System	Fin Materials
1 - 4	1	1 & 3ph	✓	X	Al Av Cu Et Bg
1 - 20	1 or 2	3ph	✓	O	Al Av Cu Et Bg
1 - 10	1	3ph	✓	O	Al Av Cu Et Bg
1 - 10	1	3ph	✓	O	Al Av Cu Et Bg
2 - 20	2	3ph	✓	O	Al Av Cu Et Bg
2 - 20	2	3ph	✓	O	Al Av Cu Et Bg

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

Range	PG									
Module size	B (1440mm), C (1800mm)									
Bank of fans	1									
Fans per bank	1 - 4									
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, Variable speed									
Coil material	AL = Copper tubes/ Aluminium fins, AV = Copper tubes with 2 pack epoxy coated aluminium fins. CU = Copper tubes/ Copper fins, ET = Copper tubes/ Copper fns electro-tinned, Bg = Copper tube/Aluminium fin Blygold coated									



Gas Coolers

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 4 up to 12 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.





Excellence

Passion

Integrity

Responsibility

GEA-iversity

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 Exchangers

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