HEATING AND REFRIGERATION PRODUCTS & SERVICES

Sustainable solutions for a world of applications.

GEA Engineering for a better world.

GEA.com

Welcome to the world of GEA Heating & Refrigeration Technologies.

Explore our cooling and heating products and services, the applications to which they suit, and the benefits of our world-class equipment.

GEA Heating & Refrigeration Technologies combines extensive production process knowledge and integrated heating and cooling expertise to deliver sustainable, energy-saving solutions for customers in the food, beverage and other key industries.

We play an important role in the decarbonization of production processes, cities and other areas of the market. With a sustainable energy solutions platform – which includes a comprehensive portfolio of refrigeration and heating equipment and services – GEA delivers the precise temperatures that our customers' operations require. Our proven technologies can provide you with integrated, high-efficiency solutions that significantly reduce CO_2 emissions and energy costs.

Explore the world of GEA equipment and services designed to keep your company's critical cooling and heating systems running reliably and efficiently.

SMALL STEPS, GIANT LEAP.

At GEA our mission is crystal clear:
We safeguard future generations by providing sustainable solutions for the nutrition and pharmaceutical industries.

Such a bold mission naturally leads to the question: how do we do that? Achieving market-leading status is difficult, maintaining it is even harder. Sustainability is imperative, and urgent. Improving people's lives requires an unwavering focus on what matters to our customers. Success is never granted, it must be earned.

So, faced with such a list of seemingly daunting tasks, our approach has always been the same – focus on the small things, look to the detail; and the breakthroughs, the rewards, will come. Small steps, giant leap.

Our customers drive everything we do. By helping their businesses thrive, we thrive, too. By helping them become more sustainable, we protect the environment for us all. Switching to natural refrigerants, opting for innovative energy-efficient solutions, replacing a boiler with a high-performance heat pump, choosing the right components, or setting the parameters of a compressor to be more efficient may all seem like small steps but, in the end, they allow giant leaps to be made. Getting those decisions right determines how significant those giant leaps are for you, for us and, ultimately, for the generations to come.

At GEA, engineering for a better world is our purpose.
We welcome you to join us on the journey.

A WORLD OF GEA APPLICATIONS.

Our temperature range

-60 -35 -30 -25 -20 -16 -10 -0 +5 +6 +18 +21 +50 +95 °C

Freeze Drying of Coffee

Freezing of shrimps

Cold Storage & Distribution

Process Cooling for Oil, Gas & Chemical

Ice Rinks

Process Cooling for Beverage

Process Cooling for Cheese

Air Conditioning for Buildings

Low temperature heat pumps

High temperature heat pumps

Our experience in the refrigeration and heating field, as well as our continuous striving for improvement, lead us to a wide temperature range between -60°C to +95°C*. Between these temperatures we can provide a comprehensive application range for freezing, cooling, air conditioning and heating.

* Applies to solutions with the fully natural refrigerant ammonia (R717).

EQUIPMENT OVERVIEW.

The following pages show a brief overview of our range of screw compressors, reciprocating compressors, compressor packages, chillers, heat pumps, control systems and valves and ancillary equipment.

It's a wide range of equipment for applications wherever cooling or heating is required, and especially if you need both together. All our equipment has one thing in common: GEA engineering. It's engineering that has been honed over many years, focusing our combined knowledge and know-how into making our equipment better and your life easier. With continual innovation, often spanning decades, we bring you the performance, reliability, economy and environmental sustainability that you need now, with the confidence that you can rely on GEA technology for many years into the future.

GEA Screw Compressors

GEA Reciprocating Compressors

GEA Compressor Packages

GEA Chillers

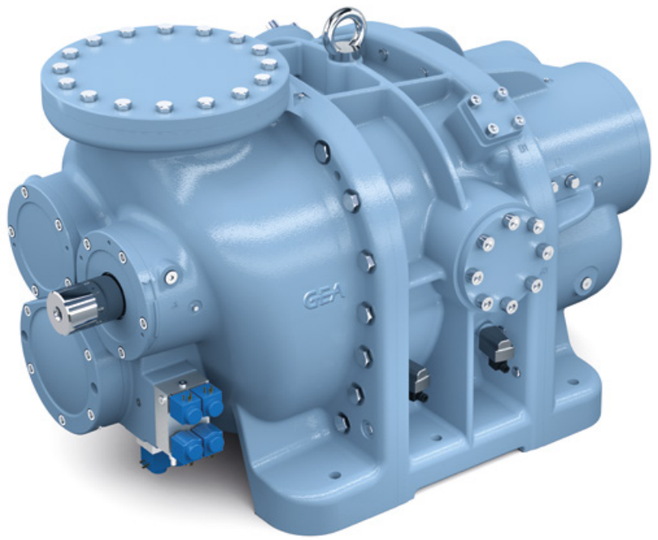
GEA Heat Pumps

GEA Omni Control Panel

GEA Valves & Components

Service Products

GEA SCREW COMPRESSORS.



GEA screw compressors provide smooth, quiet, and highly reliable compression for a wide range of applications throughout industry. GEA brings engineering excellence and ingenuity together to blend functionality with energy efficiency and sustainability in its range of technology-leading products.

Natural refrigerant

Easy to service

Reliability

Compact build

GEA screw compressors have been developed to meet the compression needs of industry wherever high-quality cooling and heating is required. Applications include industrial refrigeration and heating, air conditioning, gas compression and heat pumps.

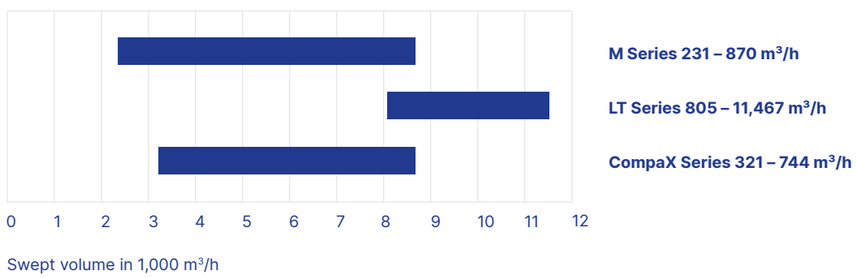
Capacities range from 140 to 7,800 kW (NH_3, -10/+35°C, 2,950 rpm) with equipment suitable for booster and high-pressure operations (28 bar/52 bar), for single or dual-stage systems, and for heat pump applications up to 52 bar. The GEA range includes screw compressors that are suitable for use with conventional and natural refrigerants such as CO_2 and NH_3. GEA screw compressors comply with all relevant international regulations. They feature “infinitely-variable” capacity control for high efficiency under part- and full-load conditions, high-performance bearings, and the patented GEA rotor that combine to provide efficient operation, smooth running, long operating life and easy maintenance.

GEA CompaX
This compressor, including a smart three-in one design with integrated oil separator and electric motor, is available in two sizes. The GEA CompaX is particularly suitable for centralized air conditioning systems for large office buildings, shopping malls and airports.

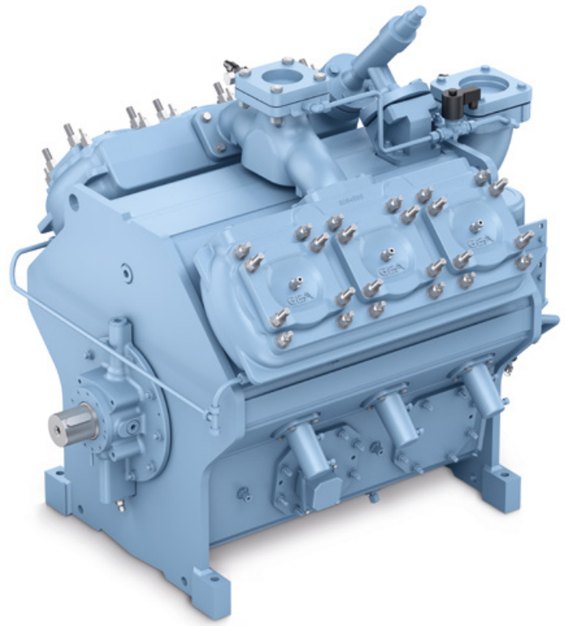
GEA Grasso M
The first screw compressors with an integrated, pressure-activated check valve to ensure a low pressure drop is available in eight sizes. The GEA Grasso M series compressors are highly energy efficient, with infinitely adjustable capacity and can operate efficiently at speeds from 1,000 to 6,000 rpm under full- or part-load conditions.

GEA Grasso LT
Available in 16 sizes within a speed range from 1,500 to 4,500 rpm, the GEA Grasso LT series features rotors with combined sleeve and roller bearings making them quiet, with low vibration, extremely long operating life, high availability and easy maintenance.

Swept volume ranges



GEA RECIPROCATING COMPRESSORS.



NH_3 CO_2 Reliability TCO

GEA reciprocating compressors offer users a sustainable, reliable and simple solution with not only low total cost of ownership, but also high coefficient of performance.

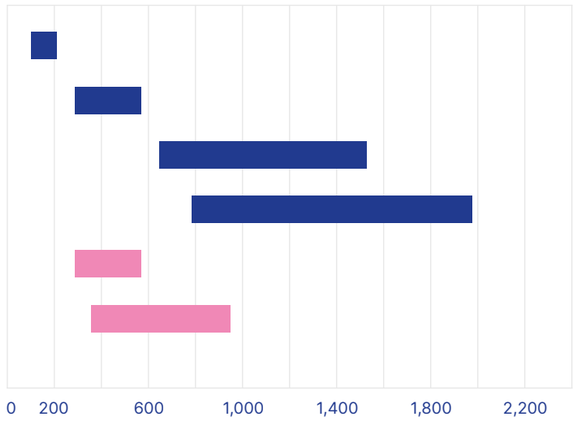
The GEA reciprocating compressors are specifically designed for use with natural refrigerants, like ammonia, combining environmental responsibility and energy efficiency. They are used widely in food processing, storage and distribution for heat pump or other industrial applications that require cooling or heating.

GEA Grasso 5 HP
The GEA Grasso 5HP is a series of 50-bar compressors for CO_2 freezing systems that includes four single-stage models providing a wide range of operational flexibility. There are also four models of the Grasso 5 HP as an integral part of NH_3 heat pump systems that perform a vital role in many industrial applications and in municipal district heating systems.

GEA Grasso V and V HS
The Grasso V is a series of of seven single and seven two-stage compressors. These compressors are among the most efficient of their type available on the market. GEA has honed every element for energy efficiency, ease and cost of maintenance, reliability and low downtime. The Grasso V HS combines the advantages of the V series with up to 25% more capacity in four sizes.

GEA Grasso V HP and V XHP
The Grasso V HP series introduces three ammonia compressors with a maximum design pressure of 39 bar. These models are the first choice for hot water applications up to 70°C to meet most industrial requirements in the food industry. The new Grasso V XHP is designed to reach water temperatures up to 95°C and a larger capacity range with a maximum design pressure of 63 bar.

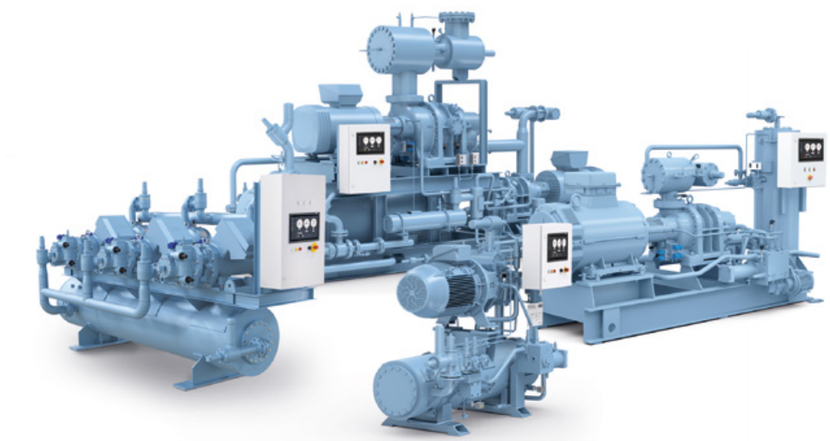
Swept volume range

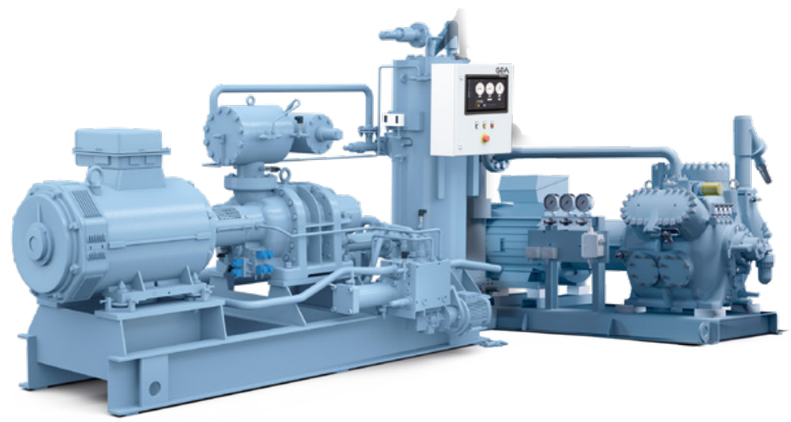


Grasso 5HP 101 – 202 m³/h[1]
Grasso V 290 – 580 m³/h[1]
Grasso V 637 – 1,592 m³/h[2]
Grasso V HS 796 – 1,990 m³/h[1]
Grasso V HP 290 – 580 m³/h[3]
Grasso V XHP 376 – 941 m³/h[3]

Swept volume in 200 m³/h
1) At 1,500 rpm | 2) At 1,200 rpm | 3) Heating at 1,500 rpm

GEA COMPRESSOR PACKAGES.





GEA supplies compressor packages for many industries to suit various applications. Packages include complementary, proven technology configured by GEA to meet each customer's specific requirements.

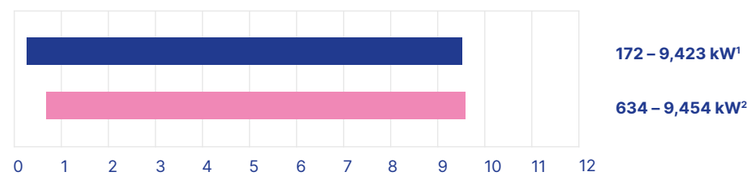
Compressor packages, based around GEA's trusted range of screw and reciprocating compressors, are designed based on decades of continual innovation, technological leadership and GEA know-how to provide high quality with maximum efficiency and reliability. While they are designed to work with all common refrigerants, including Freons (screw packages), GEA focuses on the natural refrigerants CO_2 and NH_3 as its preferred choices for future-proof installations.

Screw compressor packages
GEA offers packages based on screw compressors in single-stage, two-stage, and parallel-stage configurations. They offer a maximum of configuration and application flexibility, and completed with a comprehensive oil circuit management, modular high-end components and GEA Omni control panel (option) for the integration in any refrigeration and/or heat pump system.

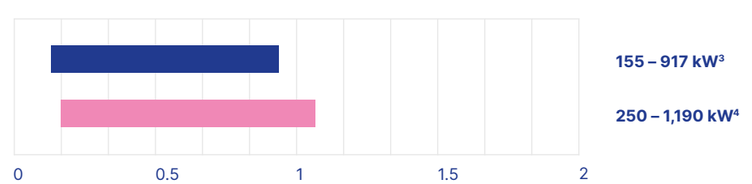
Reciprocating compressor packages
GEA reciprocating compressor packages are trusted for their simple installation, efficient oil separation, low-maintenance V-belts or direct-coupling drivelines, and advanced electronic and control systems. They are available as single-stage or two-stage models.

NH_3 CO_2 Reliability Range

Capacity range screw compressor package



Capacity range reciprocating compressor package



Capacity in 1,000 kW
1) Cooling, at 3,600 rpm, with NH_3, -10/+35°C
2) Heating, at 3,600/3,300 rpm, with NH_3, +30/+75 °C
3) Cooling, at 1,200 rpm, with NH_3, -10/+35°C
4) Heating, at 1,500 rpm, with NH_3, +25/+70°C

GEA CHILLERS.

The GEA range of low-charge ammonia chillers provides safe, efficient and reliable refrigeration and climate control. The range includes equipment for processing and air conditioning applications with all units benefiting from GEA's extensive refrigeration experience and engineering know-how.

NH_3

Efficiency

Reliability

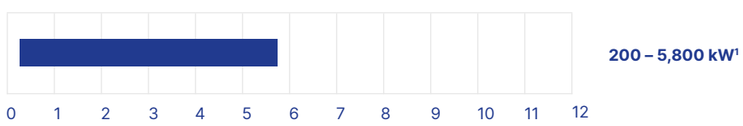
Cooling -60°C

GEA chillers are supplied as stand-alone equipment or as complete modular systems, and with either screw or reciprocating compressors. They are available for indoor or outdoor use and all are trusted for their safety, reliability, performance and energy efficiency. GEA chillers are used for freezing food products, process cooling and air conditioning of large premises. They are also perfectly suited to work with heat pumps by providing their condensing energy as a heat source.

Modular systems and turnkey solutions
Modular chiller systems and customized chillers, such as the GEA Grasso FX P and Pduo series, provide chilling down to -60°C. The capacity range and necessary flexibility can be specified for the customer's individual needs.

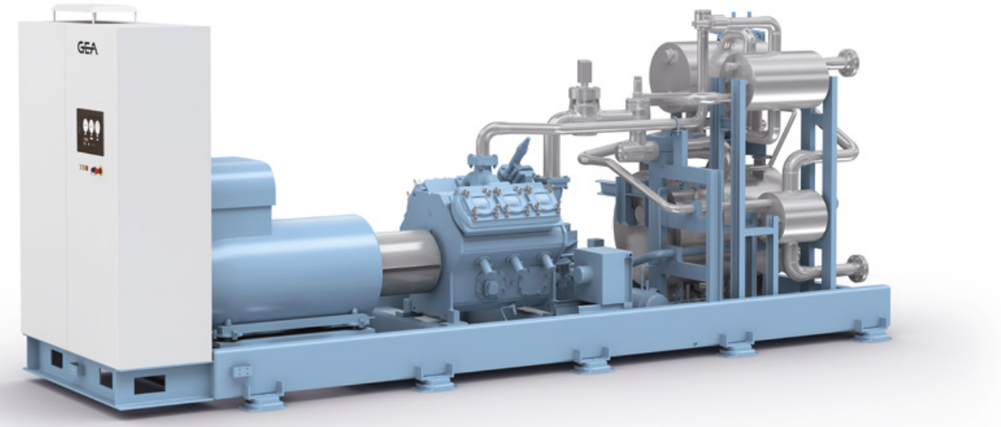
Turnkey solutions, such as the GEA Blu chiller series, provide cooling with secondary refrigerant outlet temperatures of -15°C up to +18°C. GEA Blu chillers are standardized, high-efficiency products that are factory tested and ready to "plug-and-play".

Cooling capacity



Capacity in 1,000 kW
1) Secondary refrigerant temperature +12/+6 °C

GEA HEAT PUMPS.



GEA ammonia heat pumps are an innovative, proven way to generate heat by reusing energy within a plant or from the wider environment. By using electric energy instead of primary fossil energy, heat pumps are a key element in the necessary and urgent need to decarbonize industries and communities.

NH_3

Efficiency

Reliability

Heating +95°C

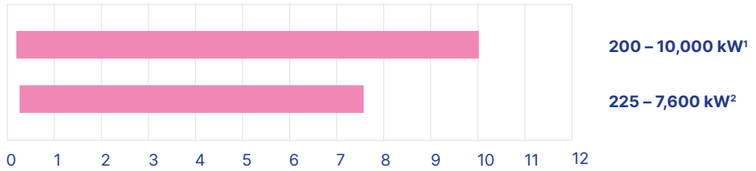
Whenever industrial process, facility or district heating is required, heat pumps from GEA find their application. They can be combined with heat sources from the environment, or added onto a refrigeration installation to be directly and efficiently charged with the refrigerant from the low-stage chiller. Thanks to robust compressor technology, GEA heat pumps can also be operated in a combined application at large temperature lifts providing cooling energy to a secondary refrigerant and heating energy to the heat carrier.

Thanks to long-term experience and know-how, GEA provides reliable and highly efficient ammonia heat pumps. Not only do they reduce energy consumption and emissions, they are also economically more attractive than old fossil-fuel-based heating equipment.

Modular systems and turnkey solutions
Alinged with GEA chillers, there are modular and customized heat pumps based on all high-pressure compressors. They provide supply temperatures up to +95°C, capacities up to approximately 10 MW with one unit, and a maximum of configuration and application flexibility.

Turnkey solutions are represented by the GEA Red heat pump family, which includes standardized screw and reciprocating compressor heat pump ranges for temperatures up to +95°C and capacities up to 3 MW. The latest innovation, GEA Blu-Red Fusion, is a highly efficient chiller-heat pump combination in one smart product which fulfills the most fluctuant cooling and heating demands.

Heating capacity



Capacity in 1,000 kW
1) Heat carrier temperature +50/+70°C
Heat source at ambient temperature (approx. +30°C)
2) Heat carrier temperature +40/+65°C
Secondary refigerant temperature +12/+6°C

GEA OMNI CONTROL PANEL.

An advanced, digital solution for compressor control, refrigeration & heating system control, and retrofit upgrades for existing equipment

High-definition, easy-to-use HMI
Featuring a 15.6-inch, high-definition (1366 x 768 pixels) color display, the GEA Omni human-machine interface (HMI) provides clear visualization of drawings, images, and text. Furthermore, GEA Omni incorporates single- and multiple-finger gestures used in many modern consumer electronics, adding an instinctive aspect to paging through selections and zooming documents or historical graphs. An intuitive menu system, where the information you need remains only a touch or two away, ensures routine functions are easy to perform by non-technical personnel. On-screen buttons and commands required for daily operations have been clearly and logically grouped and includes Omni's QR code function, which creates a quick operating data report by simply scanning the QR code on the main compressor screen. The GEA Omni HMI makes membrane keypads and tedious navigation obsolete.

One solution
GEA Omni has been designed as an open system. As a result, it can monitor and control not only the relevant components from GEA, but also those from other companies. Configuration of the control system and the operation modes takes place initially at the GEA factory and then may be adjusted during commissioning on-site, directly at the GEA Omni. The system openness makes it an all-inclusive command center, eliminating the need for auxiliary control systems. GEA Omni shows operating states not only for main components, but also for ancillary equipment. Whether it be monitoring and managing the position of a valve or the operation of a pump, the entire refrigeration, heating or gas compression system can be controlled from one panel.

The "Classic" view gives operators essential information that's easy to check at a glance, even from a distance.

Market-driven innovation
GEA is synonymous with precision-engineered solutions, and the GEA Omni control panel extends its history of leadership and innovation. Featuring a high-definition, multi-touch screen, GEA Omni delivers the flexibility, ease of use and technical wow factor that industry professionals have come to expect from GEA. Powerful, yet approachable. Cerebral, yet intuitive. Sophisticated, yet simple. Simply – GEA Omni.

GEA Omni offers what operators expect from a control panel: maximum efficiency and reliable operation of their system. This advanced, industrial control panel integrates and optimally coordinates all required system components, resulting in a demand-driven and highly energy-efficient facility operation.

GEA Omni Energy Saver functions allow operators to evaluate system energy usage and adjust for maxi mum benefit.

Live operating data can be captured using the QR-code scanner from a mobile device.

The GEA Omni advantage

Complete system control in one panel
Control your entire refrigeration, heating or gas compression system with one GEA Omni

Hardware layout
Standard industrial components with modular layout

High-definition display
15.6” display with 1,366 x 768 resolution

Unique user setup and auditing
Create 25 unique users and monitor usage/actions

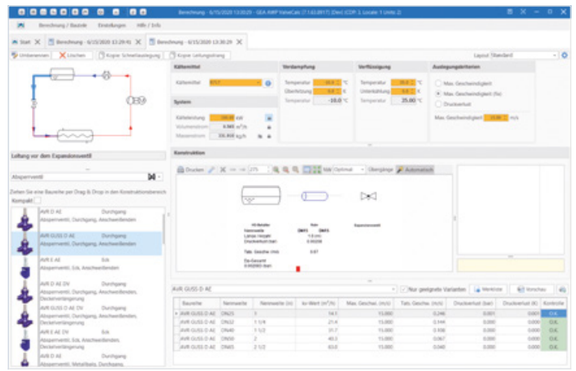
GEA OmniLink
Remotely view, manage and automatically backup all data

Configurable communication
Read and write information to and from other controllers without additional wiring

Projective-capacitive, multi-touch technology
Natural and intuitive operation

GEA VALVES & COMPONENTS.

GEA valves & components operate with natural refrigerants, non-corrosive gases and liquids, and cooling brine.
They are designed by GEA precisely to meet customers’ requirements in a wide range of industrial applications.



Screenshot of user interface of GEA ValvCalc

GEA peace of mind
Invented, manufactured and supported by a global industry leader

Digital content
Drawings, manuals, reports and videos at your fingertips

Field configurable
Easily make compressor configuration changes on site to facilitate panel retrofits

Predictive maintenance
Notifications for recommended service

Global product with local sales and support
- Manufactured in North America, Europe and Asia
- Preconfigured in more than 30 languages
- Worldwide, original spare parts availability

GEA OmniHistorian
Application to remotely view historical data from GEA Omni panels and perform detailed analysis

GEA combines its extensive engineering and refrigeration experience in its range of valves and components. Each is precision engineered to provide many years of reliable service, even in the harshest environments. GEA’s innovative stemsealing system, that features an extremely fine surface finish, helps to maintain smooth operation throughout the lifetime of the component with less than 5g leakage a year.

GEA is certified to ISO 9001 and with the Pressure Equipment Directive 2014/68/EU demonstrating the company’s commitment to international quality standards. If desired, GEA valves can get third-party approvals by most any classification society. A selection of the most important ones is shown below.

GEA ValvCalc
GEA ValveCalc is available free of charge to help customers accurately and independently select valves and ancillary equipment online. Users can identify the valves and equipment best suited to their unique operating processes and conditions. This includes safety and overflow valves (optionally with supply and blow off lines and equipment for dry expansion, brine circuits and oil management).

SERVICE PRODUCTS.

When you choose GEA equipment you can count on reliable, highly efficient, sustainable, precision-engineered products from one of the world's leading process technology companies. Therefore, it makes sense to keep these critical components in peak operating condition throughout their service life. Our service products help to ensure that your GEA equipment will deliver maximum performance by preventing and minimizing wear, while reducing energy consumption and environmental emissions. But with GEA, there is even more. You'll have access to the industry's very strong comprehensive after-sales and technical back-up service. Our experienced process technologists and engineers are available to you around the clock to prevent problems and provide advice to help you stay efficient and create the high-quality products your customers demand.

GEA Spare Parts

GEA Compressor Service Centers

GEA Grasso Compressor Conversion Kit

GEA Omni Retrofit Panel

GEA PR-OLEO® Ammonia Cooling & Heating Oil

GEA Ammonia Dryers and Purgers

GEA VTrac Condition Monitoring

GEA Training

GEA SPARE PARTS.

Original GEA spare parts are designed and tested to provide long-lasting and fault-free operation with all GEA machines, maintaining high performance and low total cost of ownership.

Using only original spare parts for GEA refrigeration and heating equipment helps to ensure its long life, safety and high performance. GEA parts are available worldwide, on short-term delivery and are precision engineered to match the original equipment specifications. This allows users to be confident that equipment will continue to perform as designed throughout its operational life.

Inauthentic parts may look similar but are not manufactured to the same exacting specifications as original GEA parts. Their use may increase the risk of unscheduled stoppages or catastrophic failure that will increase costs and could represent a severe safety risk. The use of non-original parts may also invalidate warranties or compromise GEA service and support agreements.

Advantages:

- 24/7 availability and quickest delivery
- Maximum reliability and durability
- Maximum safety of operation
- Lowest total operational costs
- Full GEA support

GEA Compressor Service Centers are located around the world.

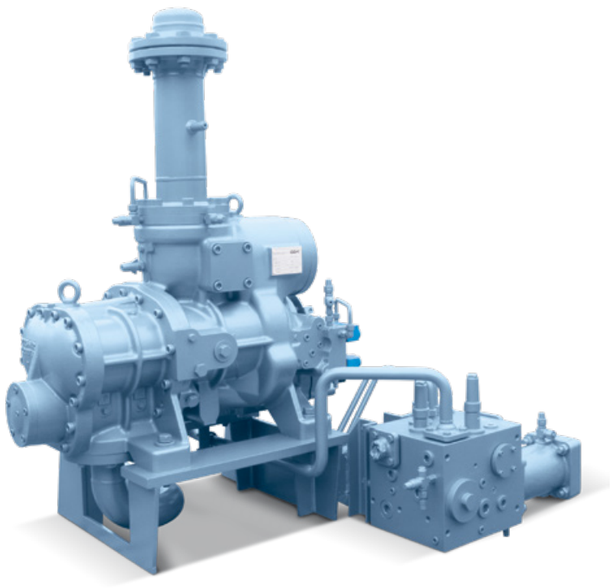
GEA COMPRESSOR SERVICE CENTERS.

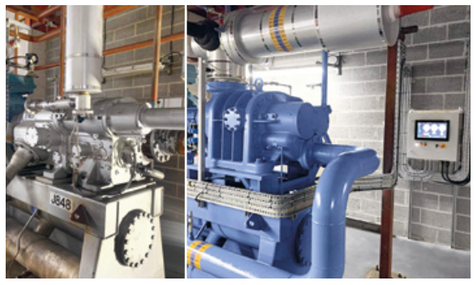
Aging GEA compressors can be brought back to their former glory in GEA Service Centers, giving them new life at a much lower cost than new equipment.

GEA refurbishes and rebuilds GEA equipment as well as that of other manufacturers. Standard, fixed-price overhauls include sandblasting, dismantling and a full inspection report. All wear parts, bearings, gaskets, O-rings and shaft seals are replaced before testing, re-painting and shipping. All work benefits from a full GEA warranty. This service extends the working life of valuable equipment, lowers overall maintenance costs, ensures efficient operation and helps prevent the unscheduled downtime often associated with on-site overhauls.

GEA COMPRESSOR CONVERSION KIT.

Replace existing screw compressors of any make with a new GEA compressor to improve performance and reduce operating costs.





Before After

An aging compressor can seriously affect the performance of a refrigeration system. Using the award winning GEA Compressor Conversion Kit, users can save money by upgrading their old equipment with a new GEA screw compressor. This will reduce ongoing operating costs by improving system capacity and energy efficiency, reducing downtime and maintenance costs and lowering noise levels due to decreased vibration. The control system can also be upgraded. All work is performed to a fixed price and backed by a standard GEA warranty.

GEA OMNI RETROFIT PANEL.

Powerful, yet approachable.
Cerebral, yet intuitive.
Sophisticated, yet simple.
Simply – GEA Omni.

Upgrade your compressor control
GEA offers both standard and engineered retrofit control panel solutions for industrial screw and piston/reciprocating compressors.

Virtually any industrial screw or piston/reciprocating compressor can utilize the GEA Omni Retrofit Panel – those manufactured by GEA as well as those of other manufacturers.**

Easy to connect
The GEA Omni Retrofit Panel includes hardware designed to allow the connection of different types of compressor sensors, motor current sensors and solenoid coil voltages. This reduces the number of loose shipped items to a minimum, thus simplifying and reducing installation time. Compressor-specific electrical drawings and preconfigured software are provided electronically.

Easy communications
By simply connecting GEA Omni Retrofit Panels to an Ethernet network, the use of wireless technology and smart phone or tablet viewing is possible. With IT security in place, which is the customer's sole responsibility, authorized service staff and service companies can access the control system remotely and GEA Omni can send email and text message notifications. For connection to other control systems, GEA Omni Retrofit Panels support both Modbus TCP/IP and EtherNet/IP protocols for data exchange.

** Certain products and services may not be available in all areas.
Please contact your local GEA contact for additional information.

The intuitive touch for compressor control

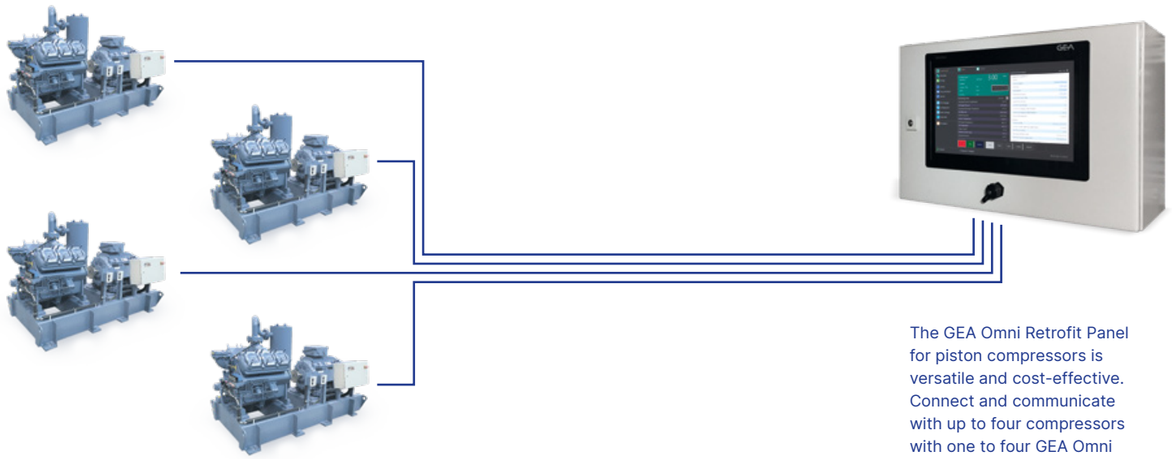
The GEA Omni retrofit kit includes all the items necessary for easy installation and on site configurability, with minimal downtime. With the latest software release, available via Internet download or on an included USB memory device, the GEA Omni will have all current built in features and functions.

Lifetime software updates and the ability to evaluate system performance further enhance the value of GEA Omni Retrofit Panels.

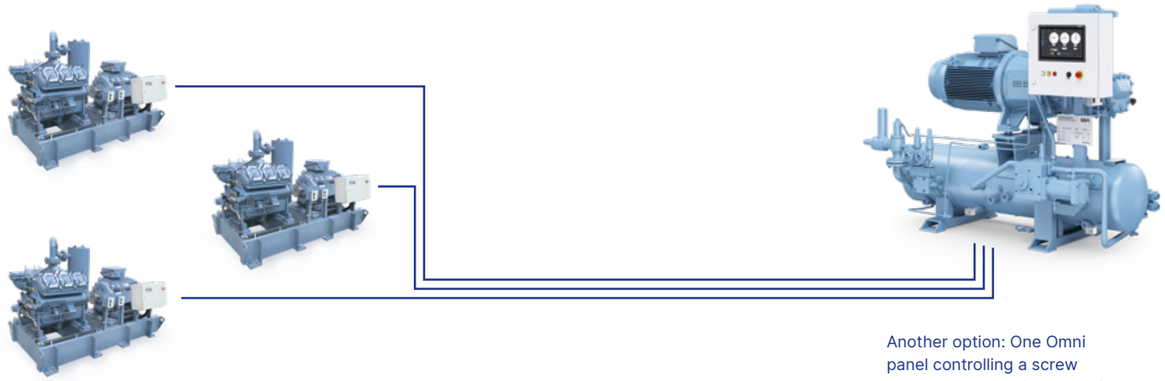
Quick access to invaluable on screen tools:

- Maintenance tracking and alerts
- Historical trending
- Manuals, drawings and videos
- Ability to upload user generated materials
- Diagnostic tools and troubleshooting aids

For piston/reciprocating compressors



The GEA Omni Retrofit Panel for piston compressors is versatile and cost-effective. Connect and communicate with up to four compressors with one to four GEA Omni panels and I/O Box.



Another option: One Omni panel controlling a screw compressor can also control up to three piston compressors.

For screw compressors

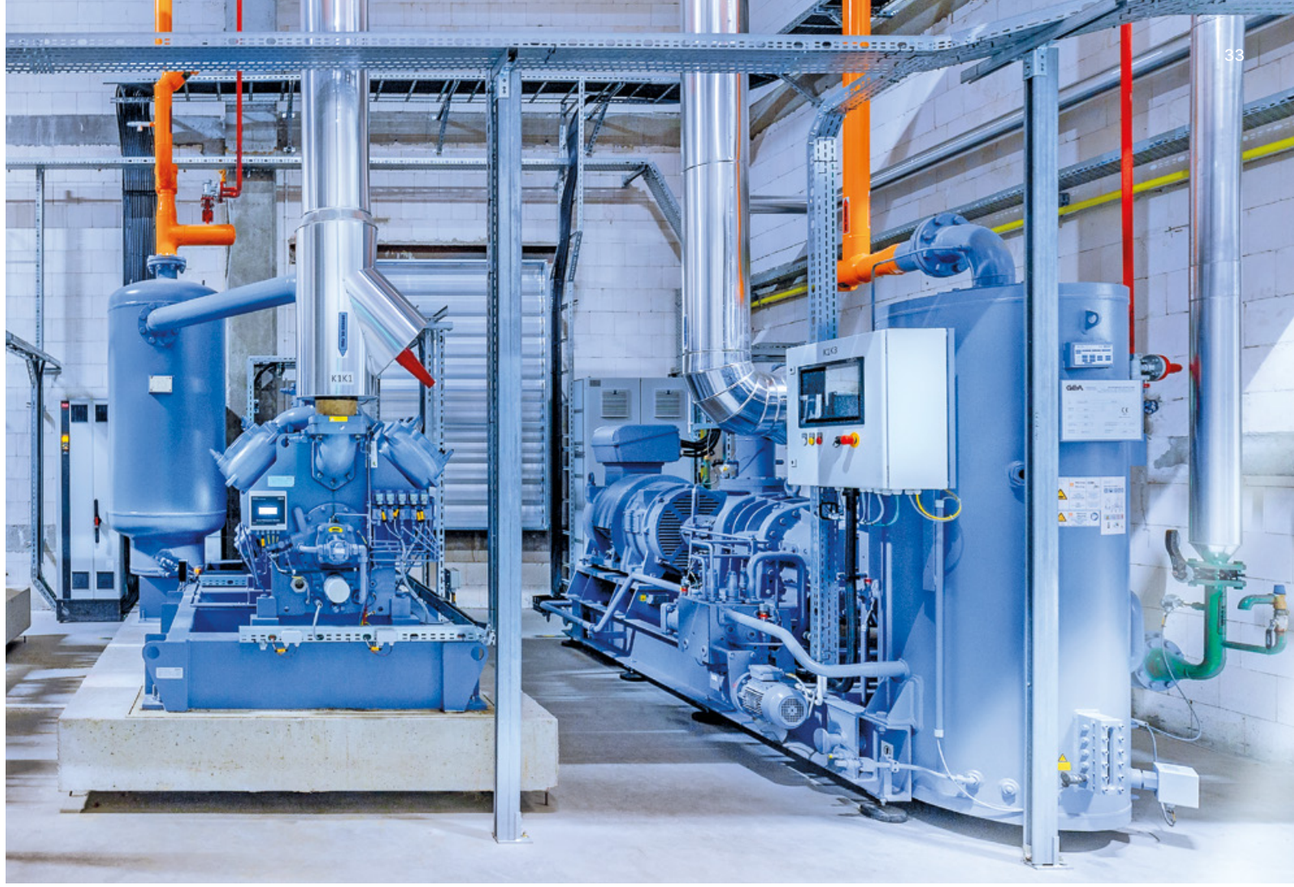
An off-the-shelf solution designed to be retrofitted to standard, single compressor screw packages of any brand with minimal installation and commissioning time.

The 600mm x 600mm panel enclosure allows a dedicated display per screw compressor package or piston package. The panel is designed to link and blend seamlessly into the engine room along side standard GEA compressor packages.

GEA Omni can be designed and supplied to fit any other compressor package, including multiple compressor configurations.

GEA PR-OLEO® AMMONIA OILS.

PR-OLEO® ammonia oils are the natural choice to optimize industrial cooling and heating applications operating with reciprocating or screw compressors.



Operating costs

Service costs

Reliability

Safety

All GEA PR-OLEO® products are available as NSF H1 registered food-grade lubricants meaning they are safer for the plant and the production process.

Utilizing ultra-pure base oils and additives, PR-OLEO® lubricants offer significant advantages over common ammonia refrigeration oils, including better system efficiency, lower service and maintenance costs and improved safety.

PR-OLEO® Type	Viscosity cSt @ 40°C	Viscosity Index	Pour Point (°C)	Applications	NSF Registered
C-MH68A	64	108	-42	**Ammonia Cooling:** For industrial screw and reciprocating compressors. Premium-quality, two-stage hydrotreated mineral oil suitable for applications across a wide temperature range. Contains seal conditioning additive making retrofit upgrades simple.	H2 Registration No 155239
C-MH68A-FG	62	107	-42	**Ammonia Cooling:** For industrial screw and reciprocating compressors. Premium-quality, two-stage hydrotreated mineral oil suitable for applications across a wide temperature range. Highly recommended for food, beverage and pharmaceutical customers. Retrofit upgrades from other oils to NSF H1 made simple.	H1 Registration No 155950
C-MH100A-FG	102	105	<=-30	**Ammonia Heating and Cooling:** For industrial screw and reciprocating compressors. Premium-quality, two-stage hydrotreated mineral oil suitable for heat pump applications including add on heat pump cooling compressors. Highly recommended for food, beverage and pharmaceutical customers. Retrofit upgrades from other oils to NSF H1 made simple.	H1 Registration No 163557
C-PAO68-FG	64	145	-54	**Ammonia Cooling:** Suitable for industrial screw compressors. Premium-quality polyalphaolefin oil suitable for screw compressor applications, particularly when operating with low temperatures. Highly recommended for food, beverage and pharmaceutical customers. Retrofit upgrades from other oils to NSF H1 made simple.	H1 Registration No 163556

GEA AMMONIA DRYERS AND PURGERS.

Keep refrigeration systems free of moisture and non-condensable gasses that would otherwise inhibit performance, increase energy consumption and affect long-term system reliability.

GEA Ammonia Dryer

GEA Purger

Operating costs

Efficiency

Reliability

Operating costs

Efficiency

R290

GEA Ammonia Dryer
Ammonia is hydrophilic. That means, water can easily accumulate in NH_3 refrigeration systems. The GEA ammonia dryer takes advantage of the different evaporation temperatures of water and ammonia, to separate the two substances from each other again. This can only happen efficiently in clean and dry systems.

GEA Purgers
GEA self-limiting automatic purgers are simple “plug-and-play” devices that reduce the concentration of non-condensable gasses in refrigerants. The presence of non-condensable gases can seriously affect the efficiency and operating characteristics of a refrigeration plant thereby increasing energy consumption. A negligible amount of refrigerant is lost during purging. GEA Purgers are suitable for indoor and outdoor operation.

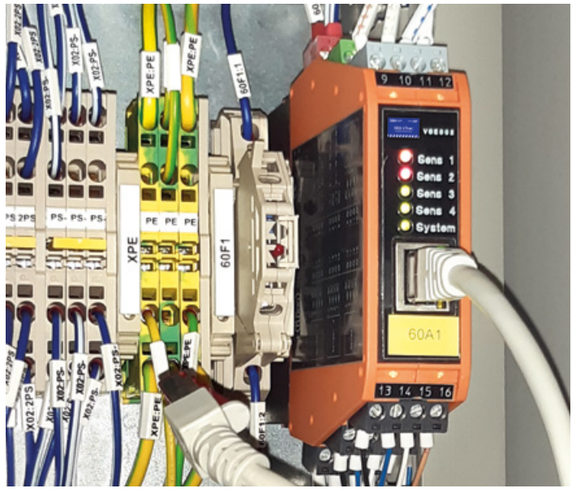
GEA Engineering for a better world. Service

GEA VTrac
Condition Monitoring

GEA VTRAC CONDITION MONITORING.

GEA VTrac Continuous Vibration Monitoring on screw packages

To minimize equipment unplanned downtime and reduce costly compressor rebuilds, GEA offers VTrac continuous vibration monitoring for industrial Heating/Refrigeration screw packages. GEA VTrac equipment consists of 4 vibration sensors on compressor-motor. They are wired to a plug-in module integrated in the Omni control panel. VTrac helps detecting common mechanical problems that may developpe over time.



VTrac Surveillance module

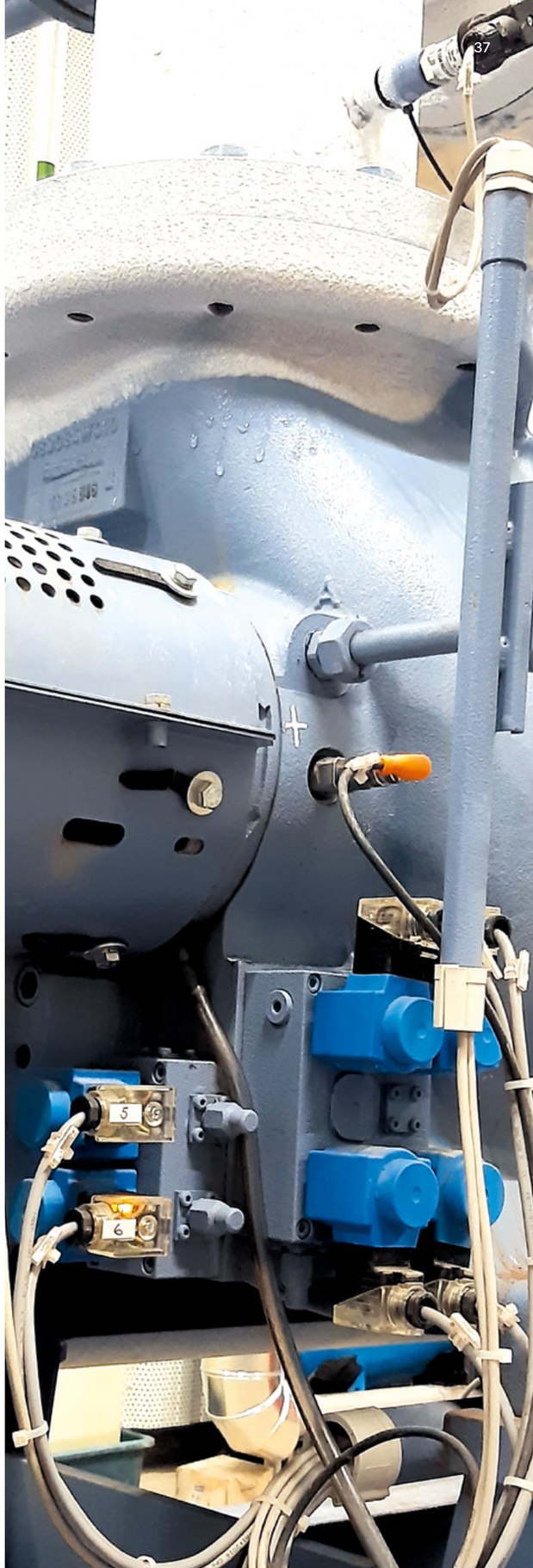
Omni screen with bar-graphs

Operator benefits include:

- GEA Omni displays the vibration levels in easily understood bar graphs.
- “Warning” and “Damage” level alerts are annunciated.
- Vibration data are historically stored and accessible via communication.
- GEA OmniHistorian app can be used as a tool to carry out modern maintenance diagnosis.
- It will help you detecting vibration value deviations on each monitored objects.
- When compressor package operational data are correlated to vibration levels, GEA Omni brings you proactive info for further maintenance actions.

Customers benefits include:

- Peace of mind: Continuous Monitoring of your Strategic assets.
- Better knowledge of machines availability
- Optimization Solution: Decision-making tool that helps you managing maintenance priorities.



GEA TRAINING.

Regular training is essential for operators of GEA refrigeration and heating equipment to ensure that they continually utilize it to its full potential and that best industry practices are consistently being applied.

GEA operates a continuous program of training events for operators of its screw and reciprocating compressor packages, as follows:

GEA Grasso reciprocating compressors
- Introduction to VM and VL single- and two-stage models
- Practical workshop dismantling and rebuilding of V compressors
- Commissioning advice (Dos & Don'ts)

GEA Grasso Screw Compressors
- Introduction to screw compressors and packages
- Practical workshop for dismantling and rebuilding screw compressors
- Commissioning advice (Dos & Don'ts)

GEA control systems
- Introduction to the GEA Omni control panel
- Practical workshop focusing on the navigation of the GEA Omni
- Commissioning advice (Dos & Don'ts)

NATURAL REFRIGERANTS.

The earth is getting hotter and hotter. By 2050, we will need 3.5 times as much refrigeration as we do now. The way we handle cooling will therefore become more and more important.

We already know that refrigerants like CFCs and HFCs are contributing to the ozone depletion and global warming, so it is our responsibility to replace them. The only future-proof solution is a change to natural refrigerants.

The use of refrigerants, like ammonia, carbon dioxide and hydrocarbons, is sustainable in two important ways: first, they make no or only a small contribution to global warming; second, they are a secure investment, because they are inexpensive compared to synthetic refrigerants and have long-term availability resulting in efficient operation. In addition, natural options offer an energy-efficient solution that contributes directly to climate protection.

Ammonia (R717) is a particularly climate-friendly and efficient refrigerant with an ozone depletion potential (ODP) and a global warming potential (GWP) of zero.

GEA offer the natural refrigerant to engineer for a better world, today and tomorrow.

It’s time to change.

Engineering for a better world.

GEA.com

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