GEA Blu Astrum, GEA BluGenium, GEA BluAir:
A new generation of compact ammonia chillers
Balanced to your benefit, in a class of their own

Whether for food and beverage industry, process industry, or office buildings: the GEA Blu series provides turnkey refrigeration and air conditioning solutions for your needs – highly compact, masterfully designed, easy to install, energy-efficient, sustainable and always reliable.

GEA BluAstrum, GEA BluGenium, and GEA BluAir form the three product series in this new generation of GEA chillers. Thanks to their unique, compact design, these models are highly effective for small or restricted machine rooms, e.g. for shifting factory sites, outdoor, retrofit or secondary installations. The GEA Blu range includes a total of 16 chiller models, advantageously balanced with each other and optimized in each model version for significant customer benefits.
Setting benchmarks that will be standards

**Efficiency**
All GEA Blu model ranges offer outstanding efficiency that result in a European Seasonal Energy Efficiency Ratio (ESEER) up to 9.4. Their sophisticated design ensures a low temperature approach of the heat exchangers and a smaller refrigerant charge. These and other measures can reduce energy consumption by up to 30% – a major benefit that pays off with appreciably lower operating expenses.

**Sustainability**
A special factor in energy saving and in the sustainability of our solutions is the exclusive use of ammonia (R717) as refrigerant. With a global warming potential (GWP) of zero and an ozone depletion potential (ODP) of also zero, ammonia has no potential for greenhouse effects or harm to the ozone layer – the right choice for a future-oriented, environmentally compatible solution that assures planning safety in times of increasing official restrictions.

**Reliability**
The GEA Blu models ensure great availability and safety with very low maintenance effort. Low vibration and noise emission levels are the result of minimal dynamic loading of the components and a highly stable base frame – which also assures long product life. Fully welded plate heat exchangers and 3D-formed tube connections ensure hermetically closed joints and reduce leak risk to a minimum. Across the entire machine lifetime these models will prove to be a safe and pioneering solution.

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**OUTSTANDING EFFICIENCY - GEA BLU CHILLERS IN COMPARISON**

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- **GEA BluGenium 1200 (12/7 °C), ESEER 9.4**
- **Standard HFC chiller, ESEER 7.9**
- **GEA BluAstrum 1000 (12/7 °C), ESEER 8.4**
- **Standard centrifugal HFC chiller, ESEER 7.4**
- **GEA BluAir 1000 (12/7 °C), ESEER 5.9**
- **Standard outdoor ammonia chiller, ESEER 5.1**
Your 6 GEA Blu advantages

Compact chillers
- Effective solutions for all space-restricted allocations

Impressive efficiency
- Excellent ESEER up to 9.4
- Low temperature approach of heat exchangers
- Continuous speed control by frequency inverter
- Low operational and maintenance costs
- Smaller refrigerant charge

Turnkey models
- Solution of choice for secondary refrigerant outlet temperatures from –15 to +18 °C
- Easy setup and installation
- Outdoor solutions possible
- Remote versions for use with external condensers available

Reliable operation
- High availability for long operation lifetime
- Industry-proven components
- GEA on-site service

Functional design
- Advantageously balanced range of models
- Low vibration and noise emission levels
- Optimized piping for lowest pressure drop

Sustainable concept
- Ecodesign compatible according to Ecodesign Directive 2009/125
- Resource-saving thanks to operational efficiency and long-life components
- Ammonia (R717) is the climate-friendly, future-proof, and most efficient refrigerant
- Over 100 years of GEA experience with ammonia refrigeration components

Ecodesign Directive – For a Clean Future
The Ecodesign Directive is a regulation of the European Union defining minimum standards of energy efficiency for energy-using products, e.g. for chillers. All GEA chillers greatly surpass the minimum standards of energy efficiency as defined by the directive and measured by their SEPR (Seasonal Energy Performance Ratio). Thus, GEA is a true pioneer of a clean future in industrial refrigeration and air conditioning.
GEA BluAstrum – driving performance

This chiller series is especially characterized by minimal maintenance requirements and an extremely slim model design that fits through standard door-sizes.

**Compact and low-maintenance**

This series provides an economical entry into the GEA Blu series, without compromises regarding the technological concept.

The little dynamic movement of the chiller components contributes to low maintenance requirements. This benefit is the result of the latest screw compressor technology and of design features such as the elimination of an oil pump and the directly flanged motor-compressor connection.

In addition, the width of only 1.0 to 1.2 m and the resulting small footprint of approx. 5 m² for 1,000 kW cooling capacity allows simple transport as well as relocation of the chiller and installation in cramped machine rooms. In many cases, this means the possibility of using already existing installation areas – which in turn means significant cost savings. GEA engineers have consequently achieved astonishing results with great cooling capacity and a minimum footprint.

If required, the chiller is available with a casing to further reduce the already low noise emission level. A special GEA BluAstrum (R) remote edition comes without a condenser and can be connected to an external air-cooled condenser, in the event of no suitable water supply.

**Features and benefits at a glance**

- Minimum maintenance requirements
- Extremely compact equipment size
- Cooling capacity 390 – 1,730 kW (R717, 12/6 °C)
- Secondary refrigerant outlet temperature –15/18 °C
- 7 model sizes
- Screw compressor chiller
- Remote version available
1 GEA Omni™ control panel
- High definition 15.6” display (1,366 x 768 pixel)
- Remote access via GEA OmniLink™
- Full data history via GEA OmniHistorian™
- Configurable Modbus TCP Ethernet communication

2 Power panel with infinitely variable capacity
- Capacity control via frequency inverter
- Variable speed range of 1,000 – 4,500 rpm

3 Highly efficient screw compressor
- GEA designed rotor profile for industry-leading EER
- Extended and variable internal volume ratio (Vi) for better part load efficiency
- Roller bearings with long service life and inherently quiet operation
- Extended product life of all moving parts due to inverter operation

4 Enclosure
- Option available for touch protection or noise reduction
- Noise reduction of up to 5 dB(A) (indoor)

5 Expansion control system
- Control for optimal refrigerant injection in regard to the refrigerant mass flow to maximize the efficiency

6 Water-cooled condenser
- Fully-welded plate heat exchanger

7 Combined evaporator-liquid separator
- Fully-welded plate heat exchanger
- Low approach temperatures for minimum energy costs
- Suitable for all common fluids
- Flooded expansion, safe drain operation
- Integrated liquid separator for liquid-free suction gas
- Simple connection with detachable VICTULIC connections on the water side
GEA BluGenium – efficiency at its most flexible

In this line of chillers, GEA has fully exploited the potential of the technological concept employed in the GEA Blu series.

Part-load excellence

If your refrigeration plant operates primarily in part load mode, GEA BluGenium offers special energy benefits that have noticeably positive effects on the Total Costs of Ownership (TCO). With an European Seasonal Energy Efficiency Ratio (ESEER) above 9, these models offer maximum energy-efficiency under full load, and especially under part load.

The low specific power consumption is based on the structural characteristics of the piston compressor. The design of the GEA Grasso V compressor enables low discharge temperatures and small pressure drop that enhance system efficiency.

A frequency inverter allows speed control between 500 and 1,500 rpm and, in turn, infinitely variable output matching over an extensive load range. GEA BluGenium is the first choice when it comes to great efficiency even with high part load operation periods.

Features and benefits at a glance

- Excellent part load efficiency, ESEER above 9
- 280 – 1,210 kW cooling capacity (R717, 12/6 °C)
- Secondary refrigerant outlet temperature –15/18 °C
- 5 model sizes
- Piston compressor chiller
1 GEA Grasso V piston compressor
- The latest in piston compressor technology
- Welded housing with air-cooled cylinder heads
- Minimum oil carry-over and low discharge temperature
- Extended product life of all moving parts owing to inverter operation
- Optimized for low discharge temperatures

2 Combined evaporator-liquid separator
- Fully-welded plate heat exchanger
- Integrated liquid separator for liquid-free suction gas
- Optimized for lowest temperature approach

3 Water-cooled condenser
- Fully-welded plate heat exchanger
- Low approach temperatures for minimum energy costs
- Suitable for all common fluids

4 Expansion control system
- Control for optimal refrigerant injection in regard to the refrigerant mass flow to maximize the efficiency

5 Enclosure
- Optionally available for touch protection or noise reduction
- Noise reduction of up to 5 dB(A)

6 Power panel with frequency inverter
- Capacity control via frequency inverter, stepless variable from 500 to 1,500 rpm
- Capacity control via cylinder switch-off

7 GEA Omni™ control panel
- High definition 15.6” display (1,366 × 768 pixel)
- Remote access via GEA OmniLink™
- Full data history via GEA OmniHistorian™
- Configurable Modbus TCP Ethernet communication
GEA BluAir – driving outdoor performance

Amazingly simple installation
This easy-to-install product line with weatherproof enclosures enables the use of GEA Blu technology in outdoor applications, whether on ground or on rooftop level.

Thanks to effective insulation by the advanced weatherproof enclosure, these models are characterized by a very low noise level. A sound protection level of more than 20 dB(A) has been achieved. The condensers, equipped with EC fans, are efficient and quiet.

GEA BluAir models are especially created for outdoor installations and offer customers a greater flexibility for the installation site and for operation. The chillers – completely factory-assembled with air-cooled condensers – allow for simple installation and are especially suitable at sites without cooling water management.

If required, the GEA BluAir is available with water-cooled condenser or as remote version without a condenser to enable the connection of the chiller to an external customer-specific condenser.

Features and benefits at a glance
- For outdoor installation
- Screw compressor chiller
- Cooling capacity of 370 – 1,270 kW (R717, 12/6 °C)
- Secondary refrigerant outlet temperature –15/18 °C
- Ambient temperature max. –15/40 °C
- 6 model sizes
- Low noise level
- With air-cooled condenser as standard; water-cooled or as remote execution also available
1 GEA Omni™ control panel
- High definition 15.6” display (1,366 x 768 pixel)
- Remote access via GEA OmniLink™
- Full data history via GEA OmniHistorian™
- Configurable Modbus TCP Ethernet communication

2 Infinitely variable capacity
- Capacity control via frequency inverter
- Variable speed range of 1,000 – 4,500 rpm

3 Highly efficient screw compressor
- GEA designed rotor profile for industry-leading Energy Efficiency Ratio (EER)
- Extended and variable internal volume ratio (Vi) for better part load efficiency
- Roller bearings with long service life and inherently quiet operation
- Extended product life of all moving parts due to inverter operation

4 Weatherproof enclosure
- Noise reduction up to 20 dB(A)
- Integrated ventilation and heating system
- Ammonia detection system acc. to EN 378

5 Air-cooled condenser
- EC fans for great part-load efficiency and speed reduction at night if needed
- V-shaped cooling coil for compact design, even at high performance

6 Evaporator-liquid separator
- Fully-welded plate heat exchanger
- Low approach temperatures for minimum energy costs
- Suitable for all common fluids
- Integrated liquid separator for liquid-free suction gas
- Simple connection with detachable VICTUALIC connections on the water side
## TECHNICAL DATA

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<th>Model</th>
<th>Cooling capacity (kW) R717 +12/+6 °C</th>
<th>Condensing capacity (kW) Air in +35 °C</th>
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<th>Refrigerant charge¹ (kg)</th>
<th>Sound pressure (dB(A))</th>
<th>Dimensions (mm)</th>
<th>Weight (kg)</th>
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¹ for air conditioning (12/6 °C, 30/35 °C)
² double power panel with access on the long side of the chiller from 355 kW motor size up
³ double power panel with access on the long side of the chiller from 315 kW motor size up
⁴ with air-cooled condenser
⁵ Lp(A) free-field conditions at 10 m distance
⁶ without condenser

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**For GEA BluAstrum²:**
- **400:** 390 kW, EER 4.4, Refrigerant charge 30 kg, Sound pressure 4,700 dB(A), Dimensions (L x W x H): 1,000 x 2,100 x 5,000 kg.
- **500:** 550 kW, EER 4.9, Refrigerant charge 30 kg, Sound pressure 4,700 dB(A), Dimensions (L x W x H): 1,000 x 2,100 x 5,500 kg.
- **800:** 740 kW, EER 4.8, Refrigerant charge 35 kg, Sound pressure 5,100 dB(A), Dimensions (L x W x H): 1,000 x 2,100 x 6,000 kg.
- **900:** 880 kW, EER 5.1, Refrigerant charge 40 kg, Sound pressure 5,100 dB(A), Dimensions (L x W x H): 1,000 x 2,100 x 6,500 kg.
- **1,000:** 1,100 kW, EER 5.1, Refrigerant charge 50 kg, Sound pressure 5,100 dB(A), Dimensions (L x W x H): 1,000 x 2,100 x 7,000 kg.
- **1,500:** 1,450 kW, EER 5.5, Refrigerant charge 80 kg, Sound pressure 6,500 dB(A), Dimensions (L x W x H): 1,200 x 2,400 x 8,000 kg.
- **1,800:** 1,730 kW, EER 5.4, Refrigerant charge 105 kg, Sound pressure 6,900 dB(A), Dimensions (L x W x H): 1,200 x 2,400 x 8,500 kg.

**For GEA BluGenium³:**
- **300:** 280 kW, EER 5.2, Refrigerant charge 30 kg, Sound pressure 4,600 dB(A), Dimensions (L x W x H): 1,200 x 2,140 x 4,010 kg.
- **450:** 420 kW, EER 5.2, Refrigerant charge 30 kg, Sound pressure 4,600 dB(A), Dimensions (L x W x H): 1,200 x 2,140 x 4,740 kg.
- **600:** 560 kW, EER 5.3, Refrigerant charge 40 kg, Sound pressure 5,300 dB(A), Dimensions (L x W x H): 1,200 x 2,220 x 5,900 kg.
- **900:** 810 kW, EER 5.5, Refrigerant charge 50 kg, Sound pressure 5,300 dB(A), Dimensions (L x W x H): 1,200 x 2,340 x 6,270 kg.
- **1,200:** 1,210 kW, EER 5.5, Refrigerant charge 60 kg, Sound pressure 5,600 dB(A), Dimensions (L x W x H): 1,200 x 2,460 x 8,600 kg.

**For GEA BluAir⁴:**
- **400:** 370 kW, EER 3.3, Refrigerant charge 74 kg, Sound pressure 3,500 ™ 8,200 dB(A), Dimensions (L x W x H): 2,400 x 2,850 x 3,700 ™ 8,200 kg.
- **500:** 520 kW, EER 3.1, Refrigerant charge 75 kg, Sound pressure 3,500 ™ 9,000 dB(A), Dimensions (L x W x H): 2,400 x 2,850 x 5,100 ™ 9,000 kg.
- **800:** 680 kW, EER 3.1, Refrigerant charge 90 kg, Sound pressure 3,500 ™ 10,000 dB(A), Dimensions (L x W x H): 2,400 x 2,850 x 5,900 ™ 11,000 kg.
- **900:** 795 kW, EER 3.2, Refrigerant charge 110 kg, Sound pressure 3,500 ™ 11,000 dB(A), Dimensions (L x W x H): 2,400 x 2,850 x 6,700 ™ 12,000 kg.
- **1,000:** 1,010 kW, EER 3.1, Refrigerant charge 140 kg, Sound pressure 4,000 ™ 13,000 dB(A), Dimensions (L x W x H): 2,400 x 2,850 x 7,600 ™ 13,000 kg.
- **1,500:** 1,270 kW, EER 3.2, Refrigerant charge 160 kg, Sound pressure 4,000 ™ 16,000 dB(A), Dimensions (L x W x H): 2,400 x 2,850 x 8,500 ™ 15,000 kg.
We live our values.
Excellence • Passion • Integrity • Responsibility • GEA-versity

GEA Group is a global 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.