СИСТЕМЫ ОХЛАЖДЕНИЯ И ОТОПЛЕНИЯ BLUAIR, BLUASTRUM, BLUGENIUM

Технические характеристики

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 Blumodel 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.

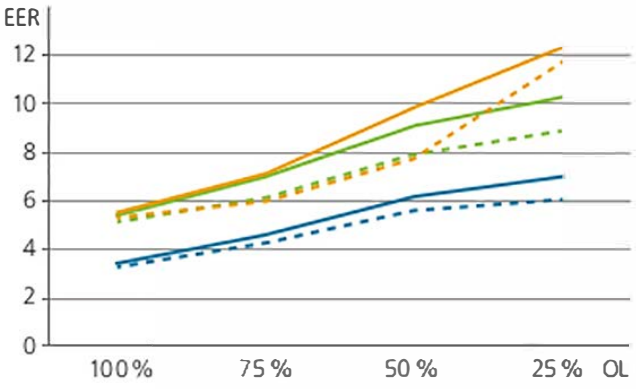
Sustainability

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.

OUTSTANDING EFFICIENCY - GEA BLU CHILLERS IN COMPARISON



EER Energy Efficiency Ratio
OL Operating load

- 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

- Ammonia (R717) is the climate-friendly, future-proof, and most efficient refrigerant
- Over 100 years of GEA experience with ammonia refrigeration components

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.

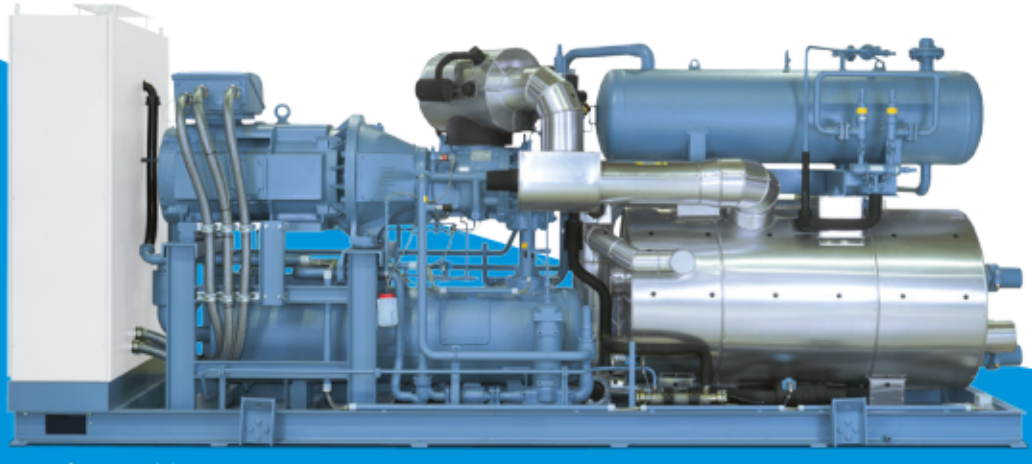
The little dynamic movement of the chiller components contributes to low maintenance requirements. This benefit is the result of the latest screw compressor technology and of design features such as the elimination of an oil pump and the directly flanged motor-compressor connection.

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.

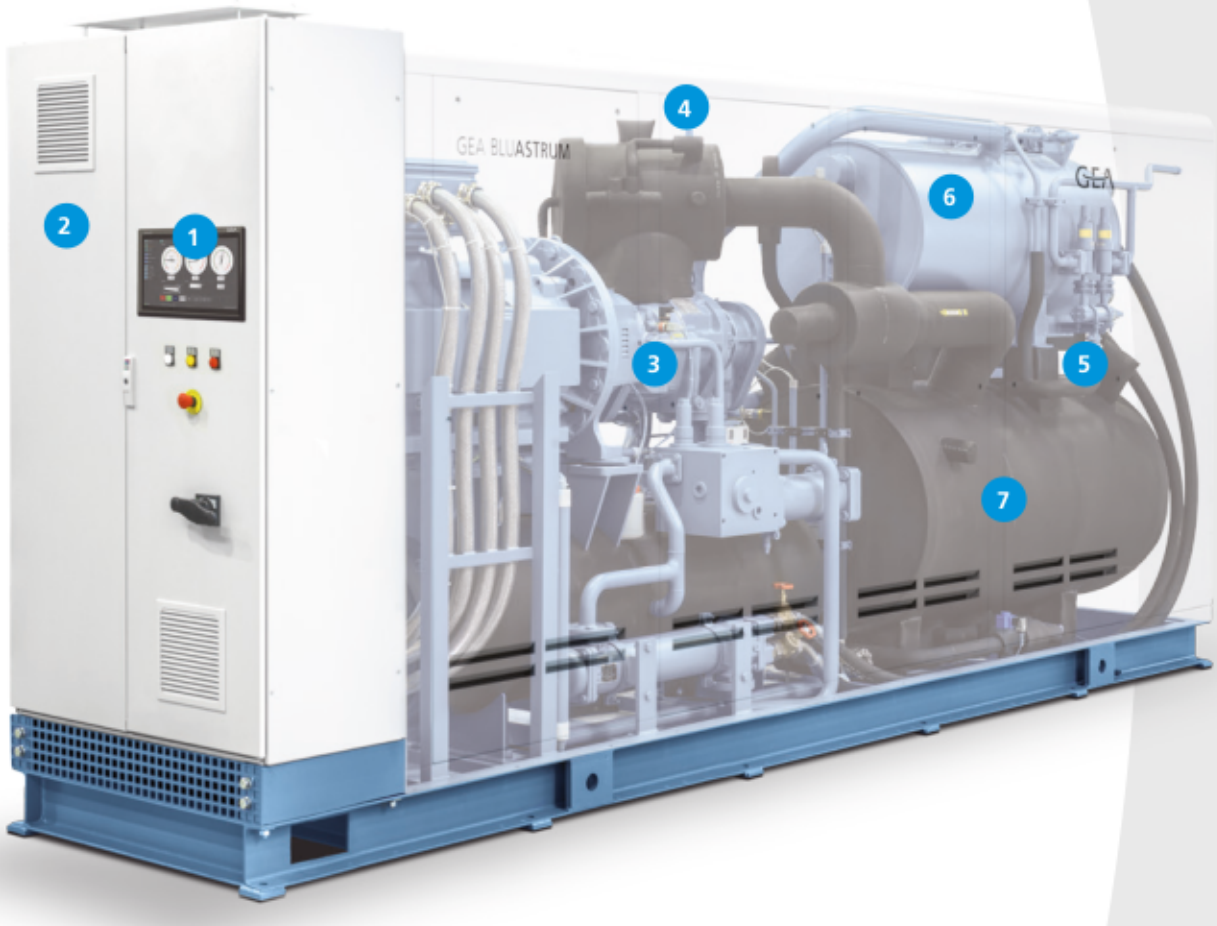
If required, the chiller is available with a casing to further reduce the already low noise emission level. A special GEA BluAstrum (R) remote edition comes without a condenser and can be connected to an external air-cooled condenser, in the event of no suitable water supply.

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



GEA BluAstrum (R) – remote execution



1 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

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

- Optionally 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 VICTUAULIC 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

GEA BluGenium with enclosure

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
- Flooded expansion, safe drain operation
- Simple connection with detachable VICTUAULIC connections on the water side

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 watercooled 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 × 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 VICTUAULIC connections on the water side

TECHNICAL DATA

Model		Cooling capacity (kW) R717 +12/+6 °C	Condensing capacity (kW) Air in +35 °C	EER	Refrigerant charge[1] (kg)	Sound pressure (dB(A))	Dimensions (mm)			Weight (kg)
							L	W	H	
GEA BluAstrum[2]	400	390	–	4.4	30	–	4,700	1,000	2,100	5,000
	500	550	–	4.9	30	–	4,700	1,000	2,100	5,500
	800	740	–	4.8	35	–	5,100	1,000	2,100	6,000
	900	880	–	5.1	40	–	5,100	1,000	2,100	6,500
	1000	1,100	–	5.1	50	–	5,100	1,000	2,100	7,000
	1500	1,450	–	5.5	80	–	6,500	1,200	2,400	8,000
	1800	1,730	–	5.4	105	–	6,900	1,200	2,400	8,500
GEA BluGenium[3]	300	280	–	5.2	30	–	4,600	1,200	2,140	4,010
	450	420	–	5.2	30	–	4,600	1,200	2,140	4,740
	600	560	–	5.3	40	–	5,300	1,200	2,220	5,900
	900	810	–	5.5	50	–	5,300	1,200	2,340	6,270
	1200	1,210	–	5.5	60	–	5,600	1,200	2,460	8,600
GEA BluAir[4]	400	370	470	3.3	74	56[5]	3,500[6] 8,200	2,400	2,850	3,700[6] 8,200
	500	520	660	3.1	75	57[5]	3,500[6] 9,000	2,400	2,850	5,100[6] 9,000
	800	680	865	3.1	90	60[5]	3,500[6] 10,000	2,400	2,850	5,900[6] 11,000
	900	795	1,010	3.2	110	61[5]	3,500[6] 11,000	2,400	2,850	6,700[6] 12,000
	1000	1,010	1,265	3.1	140	64[5]	4,000[6] 13,000	2,400	2,850	7,600[6] 13,000
	1500	1,270	1,600	3.2	160	67[5]	4,000[6] 16,000	2,400	2,850	8,500[6] 15,000

[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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