Engineering for a better world.

GEA.com

GEA BLU CHILLERS

GEA BluAstrum, GEA BluGenium, GEA BluAir (duo), GEA BluX (duo):
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, GEA BluAir duo and GEA BluX (duo) 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 29 chiller models, advantageously balanced with each other and optimized in each model version for significant customer benefits.

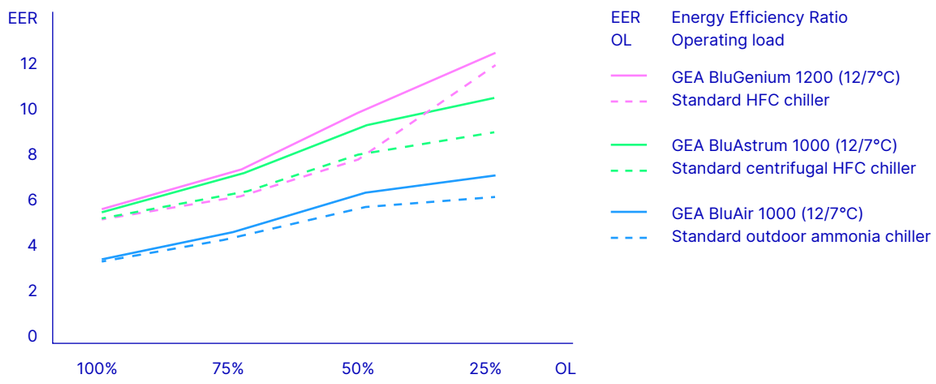
SETTING BENCHMARKS THAT WILL BE STANDARDS

Efficiency
All GEA Blu model ranges offer outstanding efficiency that result in fullfilling the latest Ecodesign regulations in terms of the Seasonal Energy Performance Ration for high (SEPR high) and low (SEPR low) temperatures as well as the Seasonal Energy Efficiency Ratio (SEER). 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 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 safe and pioneering solution.

Outstanding efficiency – GEA Blu Chillers in comparison



YOUR 6 GEA BLU ADVANTAGES

Compact chillers
- Effective solutions for all space-restricted allocations

Impressive efficiency
- Excellent EER to fullfill Ecodesign regulations
- 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 operations 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 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.

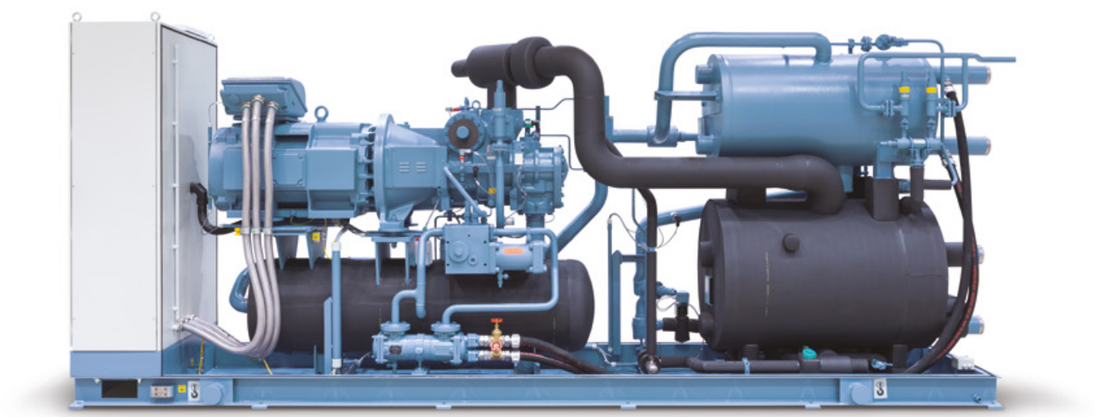
The little dynamic movement of the chiller components contributes to low maintenance requirements. This benefit is the result of the latest screw compressor technology and of desgin features such as the elimination of an oil pump and the directly flanged motor compressor connection.

In addition, the width of only 1.0 to 1.2 m and the resulting small footprint of aproxx. 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



Unique features and advantages:

1. 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

2. 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

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

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

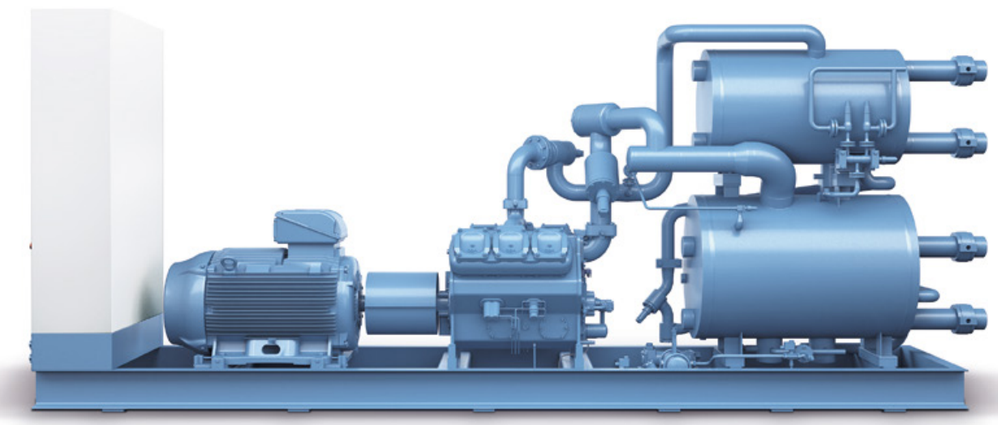
In this line of chillers, GEA has fully exploited the potential of the technological concept employed in the GEA Blu series.

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). The offered models provide maximum energy-efficiency under full load, and especially under part load.

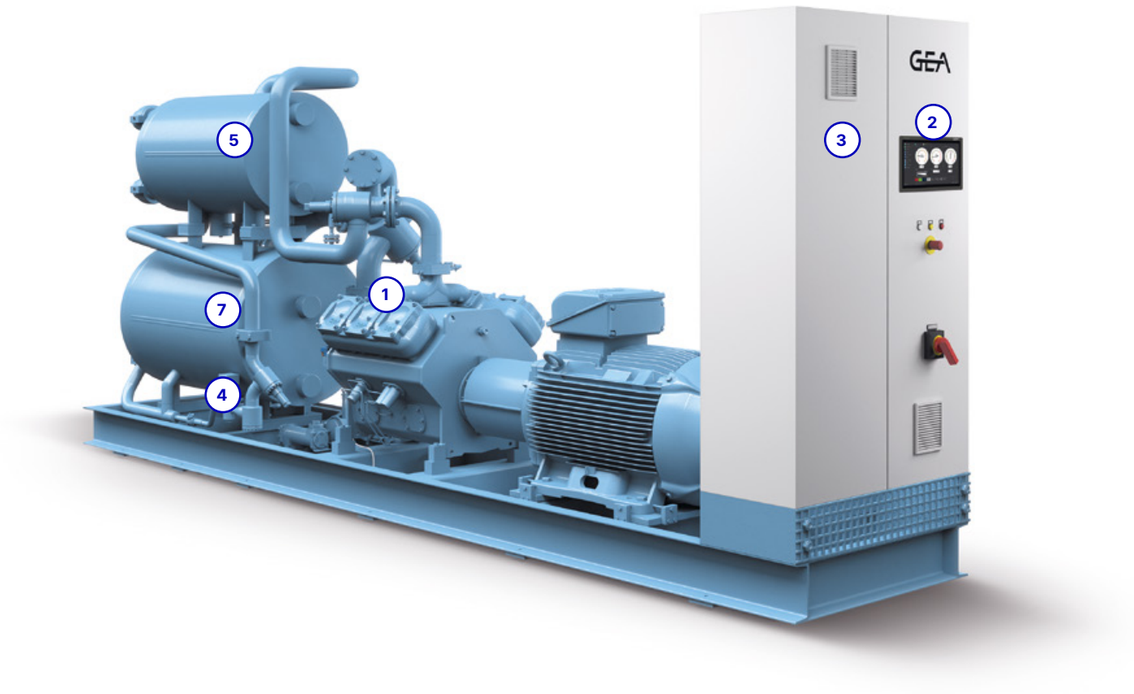
The low specific power consumption is based on the structural characteristics of the piston compressor. The design of the GEA Grasso V compressor enables low discharge temperatures and small pressure drop that enhance system efficiency.

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 event with high part load operation periods.

Features and benefits at a glance
- Excellent part load efficiency
- 280 – 2040 kW cooling capacity (R717, 12/6°C)
- Secondary refrigerant outlet temperature -15/18°C
- 7 model sizes
- Piston compressor chiller



Unique features and advantages:



1. GEA Grasso V piston compressor
- The latest 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. 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

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

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

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

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

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

If required, the GEA BluAir (duo) 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
- 5 model sizes for duo
- Low noise level
- With air-cooled condenser as standard: water-cooled or as remote execution also available

Unique features and advantages:

1. 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

2. 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

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

4. Weatherproof enclosure
- Noise reduction uo 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.

GEA BLUX (DUO) – THE CLIMATE-FRIENDLY CHILLER FOR A GREENER FUTURE

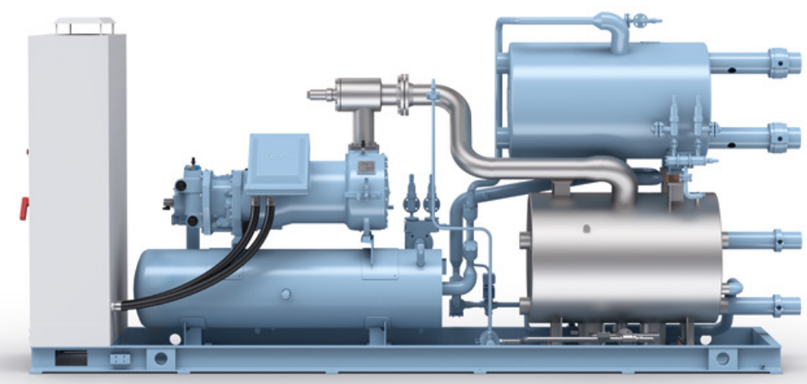
This chiller series is the ideal choice for air conditioning systems and seasonal cooling applications offering a sophisticated design and maximized safety in a sustainable and compact product.

Air conditioning of commercial, residential and public buildings
GEA BluX is an ideal chiller for air conditioning systems. Almost every type of modern commercial, residential or public building needs systems to ensure a comfortable air temperature and healthy living conditions. All technology solutions for this area of application must meet special safety standards. GEA BluX is distinguished by its sophisticated design that minimizes the risk of gas emissions or technical defects to safeguard the well-being of people in every location. Based on the semi-hermetic GEA CompaX compressor, this chiller offers minimized leakage risk and maximum plant efficiency.

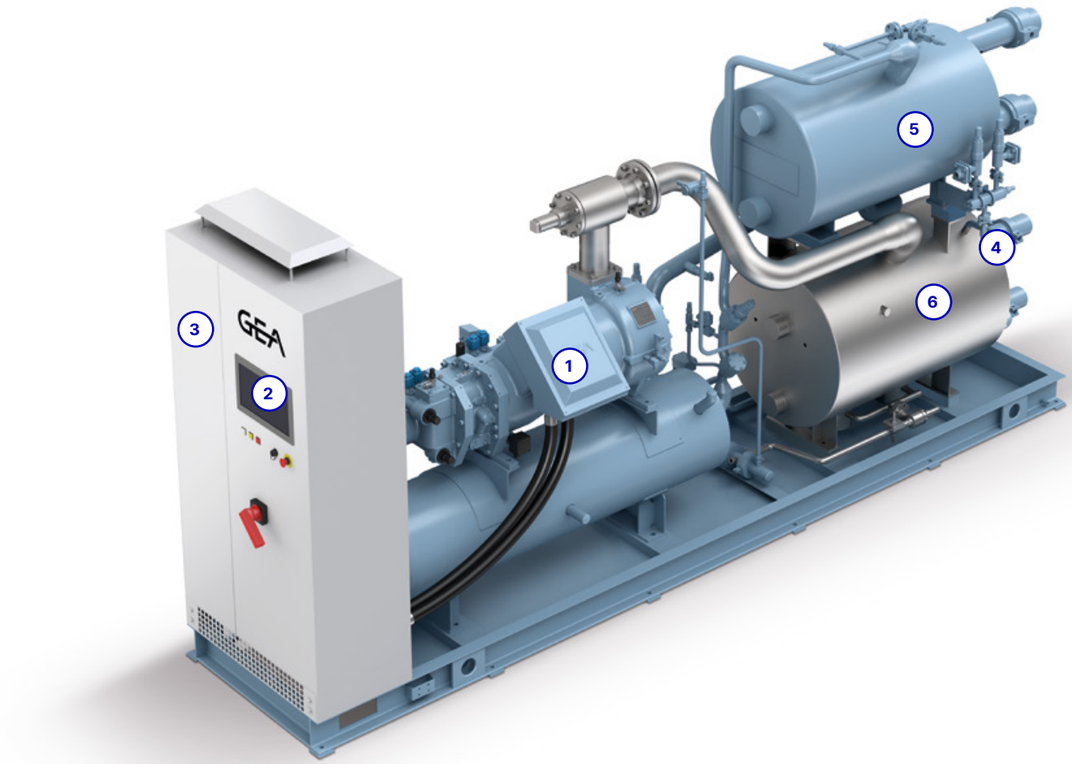
Industrial refrigeration for the food, beverage and process industry
Modern, fast transportation networks and sophisticated refrigeration technologies make sensitive fresh foods from all over the world available year-round. Strict temperature control and careful handling are crucial for maintaining their quality and to meet official requirements. The new GEA BluX chiller has been designed to offer compact solutions to safely maintain the cold chain. Especially for seasonal refrigeration applications, the GEA BluX convinces with its significant safety benefits. Examples of applications include wine fermentation, cheese maturing and process cooling for breweries.

High evaporation & condensation temperatures
BluX is GEA's most efficient screw chiller when it comes to high evaporation & condensation temperatures. This makes it most favorable for data center cooling, cooling water production in chemical plants and detergent or pet food factories, as low temperature heat pump or as a low stage for a high temperature heat pump.

Features and benefits at a glance
- Future-proof ammonia chiller
- Best efficiencies for air conditioning and industrial refrigeration at high evaporation and condensation temperatures
- Secondary refrigerant outlet temperatures from -15/+18 °C
- Coolant outlet temperatures up to 55°C
- Smallest refrigerant charge 40–50 g/kW
- Optimal for peak-load and efficient part-load operating demands
- Two model sizes for both duo and single



Unique features and advantages:



1. With a semi-hermetic compressor using ammonia
- World's first semi-hermetic ammonia compressor with aluminum winding
- Operation without shaft seal for minimized leakage risk
- Low vibration and sound level
- Compact design

2. 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

3. Power panel with infinitely variable capacity
- Capacity control via frequency inverter
- Variable speed range of 1,000–6000 rpm

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

5. Water-cooled condenser
- Fully-welded plate heat exchanger

6. 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

TECHNICAL DATA

Model		Cooling capacity (kW)[1] R717 +12/+6 °C	Cooling capacity (kW)[1] R717 +25/+18°C	Condensing capacity (kW) Air inlet +25°C	ERR at net	Refrigerant charge (kg)[1]	Sound pressure (dB(A))[5]	Dimensions (mm) L	W	H	Weight (kg)
GEA BluAstrum[2]	**400**	450	–	–	5.34	56	88	4,700	1,000	2,100	5,000
	500	635	–	–	5.38	67	89	4,700	1,000	2,100	5,500
	800	800	–	–	5.4	66	89	5,100	1,000	2,100	6,000
	900	915	–	–	5.37	86	89	5,100	1,000	2,100	6,500
	1000	1,175	–	–	5.4	86	89	5,100	1,000	2,100	7,000
	1500	1,485	–	–	5.47	83	90	6,500	1,200	2,400	8,000
	1800	1,730	–	–	5.27	83	91	7,200	1,300	2,400	9,000
GEA BluGenium[3]	**300**	310	–	–	5.87	50	70	4,600	1,400	2,250	5,700
	450	460	–	–	5.85	50	67	5,000	1,400	2,250	6,100
	600	615	–	–	5.97	65	67	5,600	1,400	2,250	7,600
	900	860	–	–	5.98	65	76	5,600	1,400	2,300	8,100
	1200	1,290	–	–	5.93	82	77	6,000	1,400	2,300	9,700
	1400	1,665	–	–	5.69	82	77	6,800	1,400	2,300	11,100
	1800	2,040	–	–	5.59	85	80	7,800	1,400	2,300	12,500
GEA BluAir[4]	**400**	450	–	530	5.04	72	54[6]	8,400	2,400	3,100	8,200
	500	635	–	745	4.87	76	56[6]	9,700	2,400	3,100	10,100
	800	805	–	945	4.88	84	60[6]	11,000	2,400	3,100	11,000
	900	925	–	1,090	4.75	88	62[6]	12,500	2,400	3,100	12,000
	1000	1,215	–	1,420	4.87	102	64[6]	14,000	2,400	3,100	14,000
	1500	1,465	–	1,730	4.54	107	67[6]	17,000	2,400	2,850	17,000
GEA BluAir duo[4]	**500**	585	–	690	4.66	72	55[6]	11,000	2,400	3,100	13,000
	600	705	–	830	4.65	78	57[6]	11,500	2,400	3,100	14,300
	700	840	–	995	4.53	84	60[6]	14,000	2,400	3,100	16,300
	900	995	–	1,175	4.51	93	63[6]	14,500	2,400	3,100	16,900
	1000	1,065	–	1,260	4.49	97	62[6]	14,500	2,400	3,100	18,000
GEA BluX	**350**	–	600	–	7.74	47	77	4,700	1,000	2,200	5,600
	350	–	800	–	7.86	50	82	4,700	1,000	2,200	5,700
	350	–	1,000	–	7.99	59	84	5,100	1,000	2,200	5,800
	400	–	800	–	8.36	50	80	4,700	1,000	2,200	5,600
	400	–	1,000	–	8.48	62	82	5,100	1,000	2,200	5,700
	400	–	1,200	–	8.56	61	84	5,100	1,000	2,200	5,800
GEA BluX duo	**350**	–	1,200	–	7.66	86	80	4,930	2,000	2,400	8,500
	350	–	1,400	–	7.69	86	83	4,930	2,000	2,400	8,500
	350	–	1,600	–	7.74	94	85	4,930	2,000	2,400	8,700
	350	–	1,800	–	7.73	94	87	4,930	2,000	2,400	8,700
	400	–	1,400	–	8.19	86	80	4,930	2,000	2,400	8,500
	400	–	1,600	–	8.22	94	83	4,930	2,000	2,400	8,700
	400	–	1,800	–	8.20	94	85	4,930	2,000	2,400	8,700

[1] Or air conditioning with cooling water temperatures of 30°C inlet and 35°C outlet
[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, air inlet temp. +25 °C relates to approx. +35 °C condensing
[5] Emission sound pressure level at 1m distance in a free ambient area
[6] Emission sound pressure level at 10 m distance in a free ambient area

GEA Refrigeration Technologies GmbH
Holzhauser Str. 165
13509 Berlin, Germany
Phone +49 30 43592-600