

GEA Dehumidifier Units

Efficient climate control for public and commercial pools
GEA CAIR*fricostar*

Product Brochure



Competence in heat exchangers

Because our engineers are geared to the future and are always thinking about ecologically more equitable and efficient solutions. Because our key components ensure the ecological and economically efficient exchange of heat.

Swimming pool climate control with precision and efficiency

We have the know-how and the technology

GEA specialists for heat exchange

As an internationally active technology corporation, the GEA Group concentrates on process technology and components for demanding production processes in diverse final markets. GEA is recognized as an innovative market and technology leader in all its business divisions. The largest segment in the GEA Group, GEA Heat Exchangers, focuses on the exchange of heat and covers all application fields, from air conditioners up to cooling towers. The segment thus has one of the most extensive – and perhaps even the largest – portfolio of heat exchangers world-wide.

Trailblazing solutions for swimming pool climate control

Whether classical public baths, leisure pools, wellness oases or highly modern training centers for top swimmers: GEA is your experienced partner for the precise climate control of public and commercial swimming pools. Since 1969, we have been engaged with this complex topic and have developed trailblazing solutions. GEA CAIR*fricostar* represents state-of-the-art technology. With these product series, every larger swimming pool can be air conditioned with the maximum requirements of today. Safe, durable, reliable and absolutely energy-efficient – in total harmony with the philosophy of sustainability. Top swimmers in training centers demand continuously uniform air conditions during training and competition in order to bring peak performance. In pleasure- and leisure-time spas, the units must be able to check the moisture discharge of the changing attractions: the wave pool for ten minutes, then the current channel is switched on, and later the fountains in the children play area are active. Doing this requires a reliable and rapidly responding system that satisfies such diverse demands of the pool.

The climate control of swimming pools is one of the most discriminating tasks of air-treatment systems. They create an air temperature that is appropriate to the water temperature, so that swimmers do not freeze when outside of the pool. And they ensure that the air humidity is felt to be agreeable and not "oppressive". The dehumidification also protects the building substance from mildew formation – here people and masonry likewise profit from the air conditioning. Here special configurations of the units provide additional protection and guarantee a long service life. GEA CAIR*fricostar* is fitted with the most advanced technology for low energy consumption. Equipped with multi-stage heat recovery, the units can economically handle resources and keep the operating costs low. The control system does the rest: it selects the optimal operating mode depending on the opening times or current air humidity. This way only that output is required that is necessary just now.



Your partner for swimming pool technology

- More than 40 years of experience in this field
- Customized systems for all types and sizes of pools
- Technically state-of-the-art
- Certified quality
- Compact solutions with high comfort
- Optimal energy efficiency
- Simple system integration
- Low maintenance costs



Sea water pool

No opportunity for rust: with their construction of corrosion protection class 3, the units from GEA CAIR-*fricostar* are also optimally prepared for a salt content of more than 3%.

Swimming performance center

Every element counts in high-tech pools– naturally also the climate control system. GEA CAIR*fricostar* convinces with first-class, performance-promoting values.

GEA CAIR*fricostar* is flexible

Because every pool is different



The swimming pool landscape has changed considerably in the last few decades. While there were formerly hardly anything other than conventional swimming and spa pools, the situation is very different today. Especially the wellness trend has caused an enormous diversity of pool types to be built and operated – at the municipal level as well as in hotels and health facilities. The spectrum extends from the highly specialized therapy pool to generously-sized adventure pools, including ultra-modern high-tech spas for competitive swimming. The requirements on the climate control are correspondingly very different. GEA has continuously accompanied the market development and acquired unique know-how. This intense experience is manifested in the current model series of GEA CAIR*fricostar*. The development of this series impressively reflects



modern pool diversity. With GEA CAIR*fricostar*, architects and planners can find customized solutions for every type of public and commercial pool. And all of them claim greatest possible efficiency. Because of their economic operation management, their energy-saving characteristics and long service life, the life-cycle costs are corresponding low.

Efficiency and sustainability – natural with GEA CAIR*fricostar*

Sustainability is the keyword of our time. With GEA CAIR*fricostar* we have succeeded in creating a model series which also thoroughly convinces in this regard. The optimal energy efficiency of the models makes a significant contribution to the conservation of valuable resources and the preservation of the environment. Decreasing operating costs simultaneously promote cost effectiveness – an advantage which rapidly pays for itself even for smaller spas and swimming pools.

Your advantages at a glance

- Comprehensive market know-how of the GEA specialists
- Energy efficient and economical operating concepts
- GEA CAIR*fricostar* as an answer to modern swimming pool diversity
- Tailored solutions for every requirement
- Planning support right from the beginning

Quality for people and masonry

GEA CAIR*fricostar* perfects the climate

The swimming pool dehumidification with GEA CAIR*fricostar* ensures a pleasant indoor climate and reliably counteracts structural damage from too high moisture – and this with low energy input. For dehumidification, the swimming pool hall air is cooled down to the dew point. This in part already takes place in the two-stage recuperator (heat recovery systems) and, depending on unit type, at the evaporator of the heat pump. The dehumidified extract air is then partially released to the outside air, partially mixed with the fresh outside air (control strategy according to VDI2089) and reheated with the recuperator fresh air inlet. The surplus energy of the heat pump now brings the pre-heated fresh air by way of the condenser to an additional temperature level, so that the swimming pool supply air is warmer than its extract air. Since the internal components of the GEA CAIR*fricostar* are configured with regard to energy efficiency, the required electrical energy consumption can be kept low. Sophisticated control concepts regulate the most favorable operating point for every system type.

In idle mode, the swimming pool hall air is dehumidified in recirculating air mode. During the night/idle period, the controller monitors the air conditions in the swimming pool hall. The dehumidification process is then initiated depending on air condition.

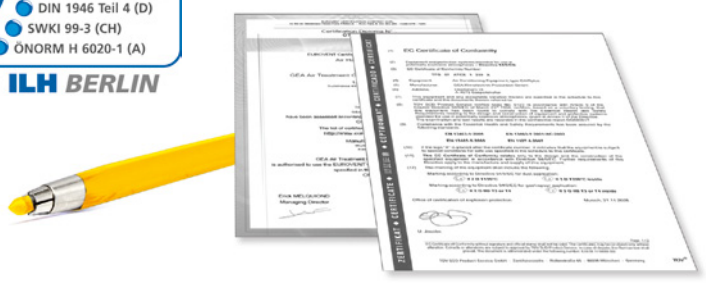
Intelligently controlled

An intelligent fan control helps to keep the energy consumption as low as possible. In pool mode, the recirculating air is mixed with fresh air according to VDI2089. The fresh air portion is continuously adapted depending on the current water evaporation and the pool utilization. In summer mode and with a possible overheating of the swimming pool hall, the outside air is conducted around the recuperator via bypass. This bypass function is continuously carried out and allows the unit to work up to a purely outgoing air/fresh air operation or to ventilate the swimming pool hall. This functional principle is also used as "Free Night Cooling" during the night in order to maintain temperatures of indoor swimming pools at the required level.

GEA CAIR*fricostar* at a glance

- Functions dehumidification, heating, ventilation
- According to the standards of swimming pool technology VDI2089
- Tested heat recovery according to EN308
- Hygiene-compliant configurations
- Electronic control or fully automatic DDC control for the continuously most favorable operating point
- 2- or 3-stage heat recovery
- Relief of the building-side heating unit
- Three corrosion protection classes
- Low air velocities in the unit, i.e. small internal pressure losses for a reduction of the fan drive energy







Fans comply with ERP2015 standards

Tested and certified

High production quality and reproducible data are the GEA CAIR*fricostar* standard. All components are tested and certified. As a member at EUROVENT and the German Association of HVAC Manufacturers, our production factory, units, and components are regularly monitored and tested by an independent agency.

The integrated and freely programmable DDC control also offers many advantages. The user can inspect all important parameters and settings on a display and adapt them at need. The control system permits use with many conventional building management systems for remote maintenance and diagnosis. The control strategies are based on the technical equipment for swimming pools. With many possible options, the unit can be adapted to every building. With an optional pool water condenser, for instance, surplus heat can be released to the basin or a tank, a humidity shift permits an additional humidity setting during the night, and a temperature shift permits the change in air temperature depending on the water temperature, to name only a few examples.



GEA Control System

GEA CAIR*fricostar* at a glance

7 series for any requirement

GEA CAIR*fricostar* Series			
	GEA CAIR*fricostar* Micro CWT	**GEA CAIR*fricostar* Micro CAT**	**GEA CAIR*fricostar* CMU**
Series type	Micro series	Micro series	Large-scale series
Model sizes and capacity range	5 model sizes from 800 – 6,500 m³/h	5 model sizes from 800 - 6,500 m³/h	6 model sizes from 750 – 6,150 m³/h
Functions	dehumidification, ventilation and heating	dehumidification, ventilation and heating	dehumidification, ventilation and heating
Model design	compact with ductwork-connections from above	compact with ductwork-connections from above	double-deck
Heat recovery	2-stage	3-stage	●
DDC Control System	●	●	●
EC fan	●	●	
Heat pump		●	●
GEA ECOPLAT2 Double-plate heat exchanger	●	●	
GEA ECOSTAT Heating pipe technology			
GEA ECOFLOW Liquid-coupled recovery system			
Corrosion protection	2 classes selectable	2 classes selectable	3 classes selectable
Application areas	Therapy, hotel and small pools halls, showers und damp areas	Therapy, hotel and small pools-halls	Baths with short bathing times (Private & Hotel)

You will find solutions for small and private swimming pools in our brochure "GEA CAIR*fricostar* – efficient climate control for small and private pools"

*) For selected double-deck units and special solutions

GEA CAIR*fricostar* CWR	GEA CAIR*fricostar* CAM	GEA CAIR*fricostar* CWP	GEA CAIR*fricostar* CMP
Large-scale series	Large-scale series	Large-scale series	Large-scale series
16 model sizes from 750 – 45,000 m³/h	16 model sizes from 750 – 45,000 m³/h	14 model sizes from 750 – 36,000 m³/h	14 model sizes from 750 – 36,000 m³/h
dehumidification, ventilation and heating	dehumidification, ventilation and heating	dehumidification, ventilation and heating	dehumidification, ventilation and heating
double-deck and side-by-side	double-deck and side-by-side	double-deck	double-deck
2-stage	3-stage	2-stage	3-stage
●	●	●	●
	●		●
		●	●
●	●		
● *)	● *)		
3 classes selectable	3 classes selectable	3 classes selectable	3 classes selectable
Large swimming halls; shower and damp areas	Large swimming halls	Large swimming halls, sport and leisure baths, wellness, showers and damp areas	Large swimming halls, sport and recreational pools



GEA CAIR*fricostar* Micro Series



GEA CAIR*fricostar* large-scale equipment series

GEA CAIR*fricostar* Micro CWT and Micro CAT

The successful Micro Series

GEA CAIR*fricostar* Micro CWT – Highly efficient and compact

- Dehumidification, ventilation, and heating
- High Performance Configuration
- 5 Model sizes, 800 to 6,500 m³/h
- Two-stage heat recovery
  With GEA ECOPLAT2 double-plate exchanger (see page 25)
- including energy-saving EC fan and modern DDC control
- Compact model design with air duct connections from above
- Use in therapy, hotels and small swimming pools as well as showers and damp areas

GEA CAIR*fricostar* Micro CAT – the compact professional

- Dehumidification, ventilation, and heating
- High Performance Configuration
- 5 model sizes, 800 to 6,500 m³/h
- 3-stage heat recovery
  With GEA ECOPLAT2 double-plate exchanger and efficient heat pump (see page 25)
- Including energy-saving EC fan and modern DDC control
- Compact model design with air duct connections from above
- Use in therapy, hotel and small swimming pools

GEA CAIR*fricostar* Micro Series: strong, comfortable, compact

The compact and ready-to-install swimming pool air conditioning equipment of GEA CAIR*fricostar* Micro Series is characterized by compact dimensions, high efficiency, and flexible assembly options. All important components were adapted to the future energetic requirements. The smaller unit type requires about 1,800 mm height and a width of only 1,640 mm. The duct connections for the supply air, extract air, outside air and outgoing air are located on the unit's upper side to save space. The access to the integrated control cabinet is on the side, so that installation becomes a plug-and-play solution. The quadratic powerhouse nevertheless offers abundant capacity: air flow treatment of up to 1,500 m³/h is possible with the smallest overall depth of 760 mm. The four additional models even bring up to 6,500 m³/h.

The dehumidification efficiencies extend from 7 kg/h for the small units up to over 41 kg/h for the large unit types. The units can always be selected with (CAT) or without (CWT) heat-pump cycles. If the dehumidification in recirculating air mode can take place during the night hours, for instance, this is likewise possible thanks to integrated recirculating air flaps. Low operating costs are ensured by a EUROVENT certified high-performance double plate heat exchanger according to EN308. It withdraws the extract air heat and makes it available again to the supply air stream. Another characteristic is the highly-efficient panel filter with a large filter surface for long service intervals. It is always found behind the fittings for extract air and outside air. The great dust-holding capacity with a 96 mm overall depth extends the exchange interval and thereby reduces operating costs. The air is driven by modern EC fans of the most recent generation. They already satisfy the energetic standards of ERP2015 and thus likewise save costs. The DDC control is already integrated at the factory, provided with the set-point values for the hall air specified by the swimming pool operator. The unit automatically selects the best mode of operation.

Corresponding to the air volume areas, the GEA CAIR*fricostar* Micro Series is suitable for pools with about 30 m² to 145 m² water surface, depending on the air conditions.



1 EC fan
2 Re-heater
3 Air condenser
4 Recuperator ECOPLAT2
Double-plate heat exchanger
5 Compact filter
6 Flat damper mixed air
7 Evaporator
8 Flexible connection fittings

GEA CAIR*fricostar* Micro CWT

Highly efficient and compact

Unit series GEA CAIR*fricostar* Micro CWT Type CWT		015	025	035	050	065
Unit dimensions						
Width	mm	760	760	760	1,080	1,440
Height	mm	1,800	1,800	2,080	2,080	2,080
Length	mm	1,640	2,280	2,760	2,760	2,760
Air flow rate						
Minimum	m^3/h	800	1,400	2,400	3,400	4,900
Maximum	m^3/h	1,500	2,500	3,500	5,000	6,500
Nominal	m^3/h	1,100	1,800	2,500	4,000	5,500
Performance $VDI_{nominal.}$	m^3/h	7.0	11.4	15.9	25.4	35.0
V Nominal	m/s	1.5	1.5	1.8	1.8	1.8
Heating capacity						
Heat recovery	%	92	91	85	87	87
Heat recovery	kW	5.6	9.1	11.8	19.4	26.5
Re-heater[1)]	kW	10.4	15.8	21.4	35.4	49.2
Ext. pressure loss						
Ext. outside/supply air, Extract air/outgoing air; each	Pa	300	300	300	300	300
Energy input according to VDI 2089						
$\hat{q}$ EL, WLV, O[2)]	kWh/kg	0.003	0.004	0.003	0.002	0.003
Current consumption						
Supply / extract fan, at air flow rating	kW	0.5/0.4	0.8/0.7	0.9/0.8	1.4/1.2	2.0/1.8
Unit total[3)]	kW/A	2/3.2	3.3/5	3.3/5	6/9.2	6/9.2

[1)] Inlet/outlet temperature 70 °C/50 °C, maximum heating power

[2)] Specific consumption of electrical energy (annual average at 60 % pool load)

[3)] Plus steering/controls/pump, etc.

All data are rounded values and only serve as an overview. Exact data from the current GEA configuration software L*plus*.

GEA CAIR*fricostar* Micro CAT

The compact professional

Unit series GEA CAIR*fricostar* Micro CAT Type CAT		015	025	035	050	065
Unit dimensions						
Width	mm	760	760	760	1,080	1,440
Height	mm	1,800	1,800	2,080	2,080	2,080
Length	mm	1.640	2.280	2.760	2.760	2.760
Air flow rate						
Minimum	m³/h	800	1,400	2,400	3,400	4,900
Maximum	m³/h	1,500	2,500	3,500	5,000	6,500
Nominal (at dehumidification)	m³/h	1,100	1,800	2,500	4,000	5,500
V Nominal	m/s	1.5	1.5	1.8	1.8	1.9
Dehumidification efficiency						
According to VDI 2089, for nominal rate of airflow [1]	kg/h	7.0	11.4	15.9	25.4	35.0
Idle mode (recirculating air)	kg/h	7.1	7.1	7.3	8.5	11.6
Heating capacity						
Air condenser, without PWC mode	kW	4.9	5.3	6.6	8.3	15
Air condenser, with PWC operation	kW	3.5	4.1	5.3	7.1	11.6
Pool water condenser (accessories)	kW	4.3	3.9	3.4	3.9	4.3
Heat recovery	kW	6.2	9.0	10.8	16.4	22.6
HCR [4]	%	92	91	85	87	87
Re-heater [2]	kW	9	14	21	33	46
Ext. pressure loss						
External outside / supply air; Extract air/outgoing air; each	Pa	300	300	300	300	300
Energy input according to VDI 2089						
q̂ EL, WU, WP, AU [5]	kWh/kg	0.611	0.335	0.221	0.164	0.145
Current consumption						
Supply / extract fan, For nominal volume flow	kW/A	0.5 / 0.4	0.7 / 0.5	0.9 / 0.8	1.4 / 1.1	1.9 / 1.6
Total unit [3]	kW/A	3.5 / 6.0	4.7 / 7.7	4.7 / 7.7	7.7 / 12.7	8.4 / 13.5

[1] Pool air condition 30 °C/54 % r.h., ambient air 5 °C/85 % r.h. [2] Inlet/outlet temperature 70 °C/50 °C; max. heat capacity [3] Plus steering/controls/pumps, etc.
[4] Recovery data = Max. values winter -12 °C/90 % rH [5] Specific consumption of electrical energy (annual average at 60 % pool load)
All data are rounded values and only serve as an overview. Exact data from the current GEA configuration software L*plus*.

GEA CAIR*fricostar* CMU, CAM, CWR, CWP and CMP

The customized large-scale equipment series

GEA CAIR*fricostar* large-scale equipment series: Modular all-rounder for big solutions

GEA CAIR*fricostar* large-scale equipment provides the broadest and most diverse range of air conditioners and dehumidifiers for indoor swimming pools on the European market. The air handling units ensure very high efficiency and a systematic air exchange. The air can for instance be evacuated at one side of the hall side and re-supplied on the opposite side.
GEA CAIR*fricostar* large-scale units feature a modular configuration and are also suitable for retrofitting for small installation openings. The integrated heat recovery ensures high amortization. The modular technology can create an individual unit for every application. The GEA specialists will gladly support you in the tendering, design and selection of the required units for your individual requirements.

GEA CAIR*fricostar* CMU – short and good

- Dehumidification, ventilation, and heating
- 6 model sizes, 750 to 6,150 m³/h
- with efficient heat pump and modern DDC control
- Double-deck model design
- Use in hotel pools

GEA CAIR*fricostar* CAM – The modern classic

- Dehumidification, ventilation, and heating
- 16 model sizes, 750 to 45,000 m³/h
- With GEA ECOSTAT heat pipe technology or GEA ECOFLOW Liquid-coupled heat exchanger (See page 25) and efficient heat pump
- including modern DDC control
- Double-deck or side-by-side model design
- Space-saving und flexible
- Universal use in all pool types

GEA CAIR*fricostar* CWR – the universal basis

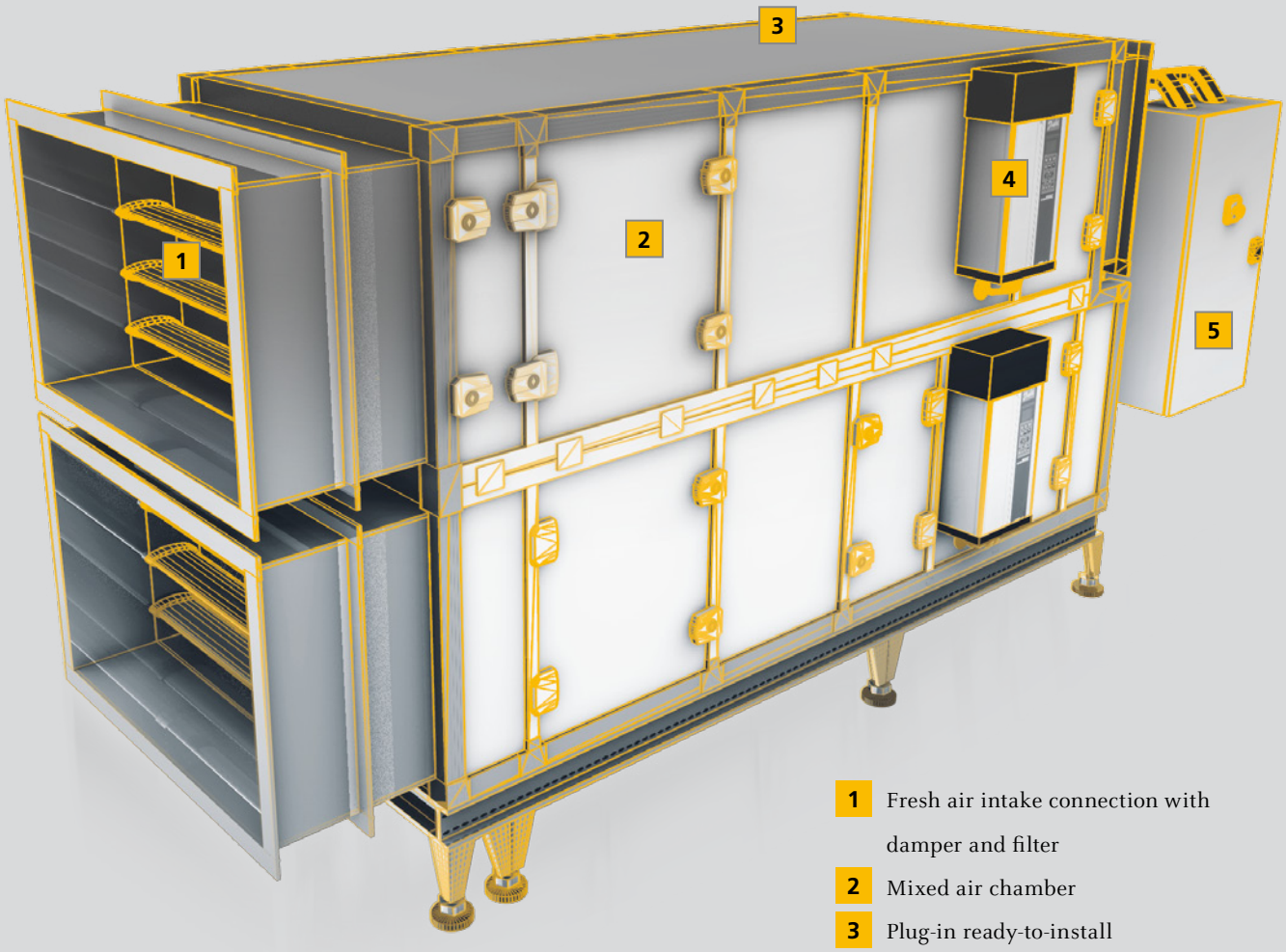
- Dehumidification, ventilation, and heating
- 16 model sizes, 750 to 45,000 m³/h
- With GEA ECOSTAT heat pipe technology or GEA ECOFLOW Liquid-coupled heat exchanger (See page 25) and modern DDC control
- Double-deck or side-by-side model design
- Space-saving and flexible
- Universal use in all public and commercial pools, showers and damp areas

GEA CAIR*fricostar* CWP – the highly efficient basis

- Dehumidification, ventilation, and heating
- High Performance Configuration
- 12 model sizes, 750 to 36,000 m³/h
- 2-stage heat recovery With GEA ECOPLAT2 double-plate exchanger (see page 25)
- including modern DDC control
- Double-deck model design
- Use in large swimming pools, sport and leisure pools, wellness areas, showers and damp areas

GEA CAIR*fricostar* CMP – the high-efficiency professional

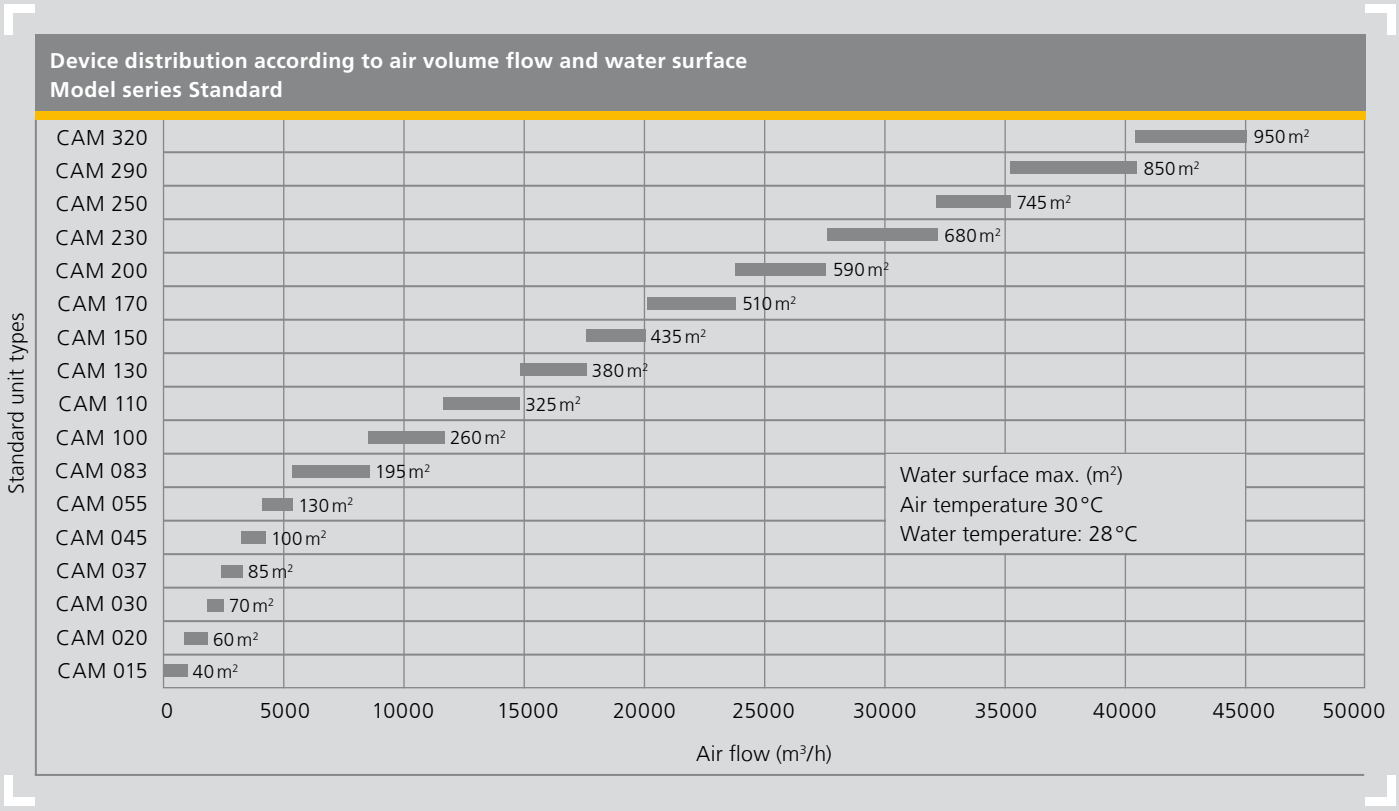
- Dehumidification, ventilation, and heating
- High Performance Configuration
- 12 model sizes, 750 to 36,000 m³/h
- 3-stage heat recovery With GEA ECOPLAT2 double-plate exchanger (see page 25) and efficient heat pump
- including modern DDC control
- Double-deck model design
- Use in large swimming pools, sport and leisure pools



1 Fresh air intake connection with damper and filter
2 Mixed air chamber
3 Plug-in ready-to-install cable conduits to the control cabinet
4 Frequency converter of the fans
5 DDC switch/control cabinet

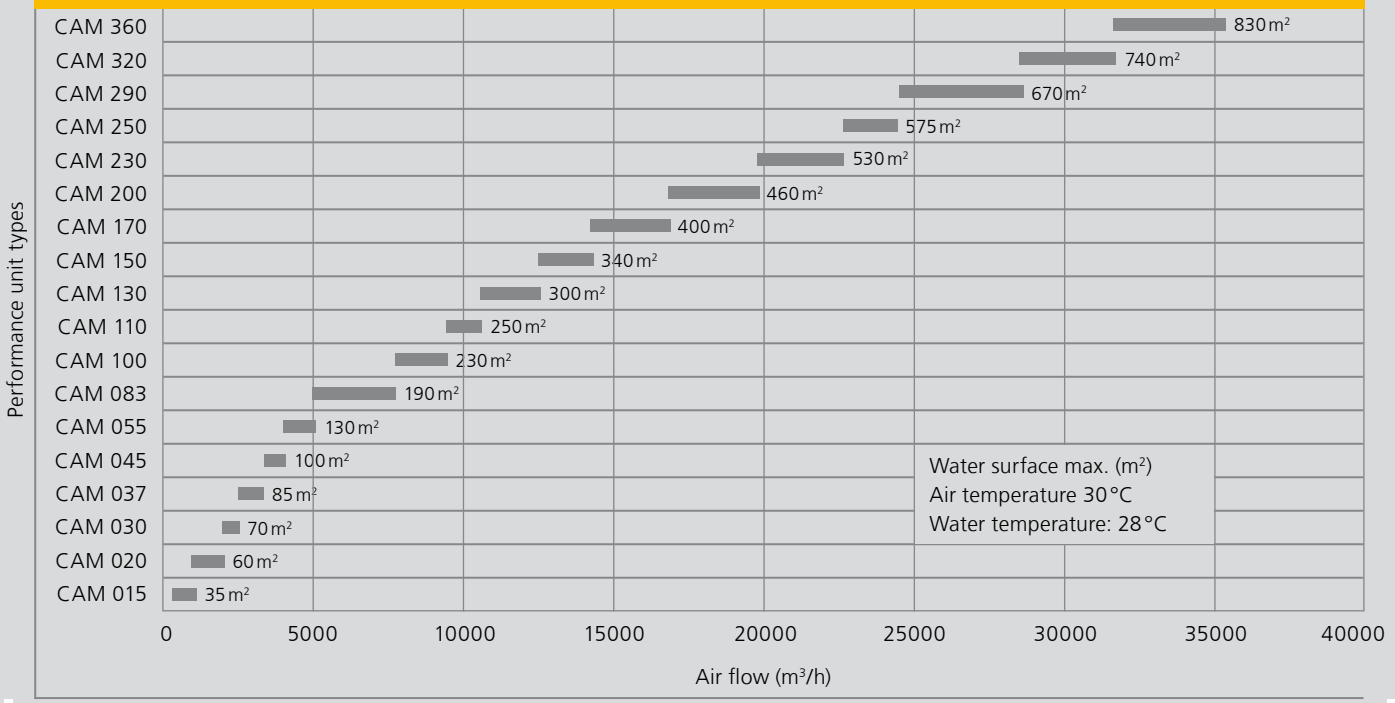
GEA CAIR*fricostar* CWR and Fricostar CAM

Performance ratings for air volumes to 45,000 m³/h



GEA CAIR*fricostar* CWR and Fricostar CAM have a performance range of 750 to maximum 45,000 m³/h. Swimming pools with pool areas of up to 1,000 m² can be dehumidified with a single unit. In the Performance Series that works with air velocities of about 2 m/s in the clear cross-section, the largest units can move up to 36,000 m³ air an hour, in the standard version even 45,000 m³ at 2.8 m/s. The units achieve a dehumidification efficiency of up to 310 kg/h. The Performance Version uses a GEA high-performance recuperator as a heat pipe with 2 x 6 rows; the Standard Version has 6 rows.

Unit distribution according to air flow and water surface
Series performance



GEA CAIR*fricostar* CWR

The universal basis

Unit series GEA CAIR*fricostar* CWR – Standard Series[1]																
Type CWR		**015**	**025**	**030**	**037**	**045**	**055**	**083**	**100**	**110**	**130**	**150**	**170**	**200**	**230**	**250**	**320**
Unit dimensions																	
Width	mm	760	760	760	760	1,080	1,080	1,080	1,400	1,720	2,000	1,720	2,000	2,320	2,640	2,320	2,920
Height	mm	1,120	1,360	1,360	1,600	1,360	1,600	2,240	2,240	2,240	2,320	2,880	2,960	2,960	2,960	3,600	3,600
Length	mm	2,520	2,560	2,560	2,680	2,680	2,720	3,320	3,360	3,480	3,520	3,840	3,800	3,880	3,880	4,200	4,320
Air flow rate																	
Minimum	m³/h	750	2,395	2,755	3,593	4,423	5,390	6,635	9,952	13,270	16,588	19,491	22,117	25,988	30,412	34,835	43,545
Maximum	m³/h	2,396	2,756	3,594	4,424	5,391	6,636	9,953	13,271	16,589	19,492	22,118	25,989	30,413	34,836	38,016	48,384
Nominal for dehumidification	m³/h	1,500	2,500	3,000	4,000	4,800	6,000	9,000	12,000	15,000	17,500	20,000	23,500	27,000	31,500	35,000	44,000
Nominal for ventilation 2/3	m³/h	1,000	1,667	2,000	2,667	3,200	4,000	6,000	8,000	10,000	11,667	13,333	15,667	18,000	21,000	23,333	29,333
Dehumidification efficiency																	
according to VDI 2089 at rated air flow[2]	kg/h	10	16	19	25	31	38	57	76	95	111	127	150	172	200	223	280
Heating capacity																	
Heat recovery	kW	2.6	4.6	5.2	6.9	8.7	10.9	16.6	22.5	28.5	32.9	37.3	44.3	51.5	60.2	66.5	84.3
Re-heater[3]	kW	12.5	19.1	20.6	28.9	34.8	43.9	66.5	88.8	110.0	133.2	147.3	177.4	188.2	227.1	242.6	321.9

[1] Standard Series = max. air velocity approx. 2.8 m/s

[2] Pool air condition 30 °C/54 % rel.h.; ambient air condition = 5 °C/85 % rel.h.

[3] Inlet/outlet temperature = 70 °C/50 °C

All data are rounded values and only serve as an overview. Exact data from current GEA configuration software L*plus*

Unit series GEA CAIR*fricostar* CWR – Performance Series [1]																	
Type CWR		**015**	**025**	**030**	**037**	**045**	**055**	**083**	**100**	**110**	**130**	**150**	**170**	**200**	**230**	**250**	**320**
Unit dimensions																	
Width	mm	760	760	760	760	1,080	1,080	1,080	1,400	1,720	2,000	1,720	2,000	2,320	2,640	2,320	2,920
Height	mm	1,120	1,360	1,360	1,600	1,360	1,600	2,240	2,240	2,240	2,320	2,880	2,960	2,960	2,960	3,600	3,600
Length	mm	2,520	2,700	2,700	2,700	2,800	3,300	3,500	3,500	3,600	3,600	3,600	3,800	4,000	4,000	4,200	4,500
Air flow rate																	
Minimum	m³/h	750	1,500	2,500	2,994	3,685	4,492	5,529	8,293	9,952	11,058	12,994	14,745	17,325	20,274	23,223	29,029
Maximum	m³/h	1,500	2,500	2,995	3,686	4,493	5,530	8,294	9,953	11,059	12,995	14,746	17,326	20,275	23,224	25,344	32,256
Nominal for dehumidification	m³/h	1,500	2,500	2,800	3,300	4,200	5,000	7,500	9,900	11,000	12,800	14,500	17,000	20,000	23,000	25,000	32,000
Nominal for ventilation 2/3	m³/h	1,000	1,667	1,867	2,200	2,800	3,333	5,000	6,600	7,333	8,533	9,667	11,333	13,333	15,333	16,667	21,333
Dehumidification efficiency																	
according to VDI 2089 at rated airflow [2]	kg/h	10	16	18	21	27	32	48	63	70	81	92	108	127	146	159	204
Heating capacity																	
Heat recovery	kW	2.9	5.2	5.7	6.8	8.8	8.9	15.8	21.2	23.9	27.8	31.4	37.0	43.6	50.2	54.6	70.1
Re-heater [3]	kW	11.9	18.0	19.5	23.2	29.7	36.0	56.3	72.7	86.9	100.4	115.4	132.7	158.9	185.2	199.3	238.2

[1] Performance Series = max. air velocity approx. 2.3 to 2.0 m/s

[2] Pool air condition 30 °C/54 % rel.h.; ambient air condition = 5 °C/85 % rel.h.

[3] Inlet/outlet temperature = 70 °C/50 °C

All data are rounded values and only serve as an overview. Exact data from current GEA configuration software L*plus*

GEA CAIR*fricostar* CAM

The modern classic

Unit series GEA CAIR*fricostar* CAM – Standard Series [1]																	
Type CAM		**015**	**025**	**030**	**037**	**045**	**055**	**083**	**100**	**110**	**130**	**150**	**170**	**200**	**230**	**250**	**320**
Unit dimensions																	
Width	mm	760	760	760	760	1,080	1,080	1,080	1,400	1,720	2,000	1,720	2,000	2,320	2,640	2,320	2,920
Height	mm	1,120	1,360	1,360	1,600	1,360	1,600	2,240	2,240	2,240	2,320	2,880	2,960	2,960	2,960	3,600	3,600
Length	mm	3,000	3,200	3,300	3,300	3,300	3,400	4,000	4,000	4,000	4,000	4,400	4,600	4,600	4,800	5,000	5,300
Air flow rate																	
Minimum	m³/h	750	1,842	2,755	3,354	4,128	5,031	6,192	9,289	12,385	15,482	18,191	20,643	24,256	28,384	32,513	40,642
Maximum	m³/h	1,843	2,756	3,355	4,129	5,032	6,193	9,290	12,386	15,483	18,192	20,644	24,257	28,385	32,514	35,482	45,128
nominal at dehumidification	m³/h	1,000	2,000	3,000	4,000	5,000	6,000	9,000	12,000	15,000	18,000	20,000	24,000	27,000	32,500	34,000	45,000
Nominal for ventilation 2/3	m³/h	667	1,333	2,000	2,667	3,333	4,000	6,000	8,000	10,000	12,000	13,333	16,000	18,000	21,667	22,667	30,000
Dehumidification efficiency																	
Pool operation (30% O.A.)	kg/h	6	12	16	19	26	31	43	57	72	86	98	117	135	158	169	219
Idle operation (circulating air)	kg/h	3	5	5	5	9	11	12	17	21	24	31	37	45	48	58	79
VDI 2089 [2]	kg/h	6	13	19	25	32	38	57	76	95	115	127	153	172	207	216	286
Heating capacity																	
Air condenser without PWC mode	kW	5.4	9.3	10.7	13.1	17.3	21.3	26.9	35.6	42.4	53.1	62.6	72.9	87.8	99.4	108.1	135.1
Air condenser with PWC mode	kW	3.0	6.7	7.9	10.8	14.5	18.7	22.5	30.7	39.0	45.6	55.7	63.2	77.1	86.6	95.4	118.5
Pool water condenser [3]	kW	2.4	2.8	3.0	2.5	2.6	2.5	4.3	5.2	4.6	6.5	8.2	10.2	10.2	13.5	14.2	15.7
Heat recovery	kW	3.0	5.9	6.9	8.9	12.2	15.0	22.0	30.6	39.3	45.4	50.8	61.8	72.,5	85.8	91.6	120.0
Re-heater [4]	kW	9.9	16.3	20.6	28.0	35.9	43.9	66.5	88.8	110.0	135.9	147.3	180.1	188.2	232.4	237.6	327.3

Standard Series = max. air velocity approx. 2.8 m/s; [2] hall air state 30 °C / 54 % rel.h.; outside air state = 5 °C / 85 % rel.h.;
[3] Pool water condenser (PWC) = accessory item; [4] Inlet/outlet temperature = 70 °C / 50 °C
All data are rounded values and only serve as an overview. Exact data from the current GEA configuration software L*plus*.

Unit series GEA CAIR*fricostar* CAM – Performance Series [1]																	
Type CAM		**015**	**025**	**030**	**037**	**045**	**055**	**083**	**100**	**110**	**130**	**150**	**170**	**200**	**230**	**250**	**320**
Unit dimensions																	
Width	mm	760	760	760	760	1,080	1,080	1,080	1,400	1,720	2,000	1,720	2,000	2,320	2,640	2,320	2,920
Height	mm	1,120	1,360	1,360	1,600	1,360	1,600	2,240	2,240	2,240	2,320	2,880	2,960	2,960	2,960	3,600	3,600
Length	mm	3,000	3,200	3,300	3,300	3,300	3,400	4,000	4,000	4,000	4,000	4,400	4,600	4,600	4,800	5,000	5,300
Air flow rate																	
Minimum	m³/h	750	1,500	2,500	2,994	3,685	4,492	5,529	8,293	9,952	11,058	12.994	14,745	17,325	20,274	23,223	29,029
Maximum	m³/h	1,500	2,500	2,995	3,686	4,493	5,530	8,294	9,953	11,059	12,995	14,746	17,326	20,275	23,224	25,344	32,256
nominal for dehumidification	m³/h	1,000	2,000	2,900	3,600	4,400	5,500	7,500	9,900	11,000	12,500	14,500	17,000	20,000	23,000	25,000	32,000
Nominal for ventilation 2/3	m³/h	667	1,333	1,933	2,400	2,933	3,667	5,000	6,600	7,333	8,333	9,667	11,333	13,333	15,333	1,6667	21,333
Dehumidification efficiency																	
Pool operation (30% O.A.)	kg/h	6	11	16	19	25	31	39	53	62	70	82	94	112	130	138	177
Idle operation (circulating air)	kg/h	4	5	6	7	10	12	14	19	25	29	36	37	45	54	49	63
VDI 2089 [2]	kg/h	6	13	18	23	28	35	48	63	70	80	92	108	127	146	159	204
Heating capacity																	
Air condenser without PWC mode	kW	5.6	7.4	10.8	12.9	16.8	20.6	23.7	30.9	36.4	43.1	52.3	54.1	67.4	77.3	79.8	101.4
Air condenser with PWC mode	kW	3.5	5.3	7.9	10.1	14.0	17.9	19.6	26.2	31.8	35.8	44.5	46.6	57.6	65.2	66.2	86.4
Pool water condenser [3]	kW	2.3	2.1	3.3	2.9	3.1	3.1	4.4	5.1	4.9	7.5	8.6	9.0	9.6	13.7	12.3	15.6
Heat recovery	kW	3.5	7.0	8,7	10.9	14.1	17.7	24.3	33.5	39.8	45.2	52.1	61.3	73.2	85.6	92.0	118.1
Re-Heater [4]	kW	9.5	15.3	20.0	24.7	30.8	38.8	56.3	72.7	86.9	98.6	115.5	132.7	158.9	185.2	199.3	288.2

Series Performance = max. air velocity approx. 2.5 up to 2.0 m/s; [2] Hall air state 30 °C/54% rel.h.; outside air state = 5 °C/85% rel.h.;
[3] Pool water condenser (PWC) = accessory item; [4] Inlet/outlet temperature = 70 °C/50 °C
All data are rounded values and only serve as an overview. Exact data from the current GEA configuration software L*plus*.

GEA CAIR*fricostar* CMU

Small and good

Unit series GEA CAIR*fricostar* CMU – Standard Series [1] Type CMU		015	025	030	037	045	055
Unit dimensions							
Width	mm	760	760	760	760	1,080	1,080
Height	mm	1,120	1,360	1,360	1,600	1,360	1,600
Length	mm	2,600	2,700	2,700	2,740	2,760	2.800
Air flow rate							
Minimum	m^3/h	750	1,842	2,755	3,354	4,128	5,031
Maximum	m^3/h	1,843	2,756	3,355	4,129	5,032	6,193
Nominal for dehumidification	m^3/h	1,000	2,000	3,000	4,000	5,000	6,000
Nominal for ventilation 2/3	m^3/h	667	1,333	2,000	2,667	3,333	4,000
Dehumidification efficiency							
Pool mode (30 % AUL)	kg/h	5	10	14	18	21	26
Idle mode (recirculating air)	kg/h	2	4	4	5	4	6
VDI 2089 [2]	kg/h	6	13	19	25	32	38
Heating capacity							
Air condenser without PWC mode	kW	7.0	13.0	16.6	21.0	24.2	30.0
Air condenser with PWC mode	kW	5.6	11.5	14.8	18.1	20.2	26.3
Pool water condenser [3]	kW	1.6	1.5	1.6	2.1	2.1	2.6
Re-heater [4]	kW	10.6	11.7	14.8	20.2	36.0	46.4

[1] Standard series = max. air velocity approx. 2.8 m/s

[2] Pool air state 30 °C / 54 % rel.h.; ambient air state = 5 °C / 85 % rel.h.

[3] Pool water condenser (PWC) = accessory item

[4] Inlet/outlet temperature = 70 °C / 50 °C

All data are rounded values and only serve as an overview. Exact data from the current GEA configuration software L*plus*.

GEA CAIR*fricostar* CWP

The high efficiency basis

Unit Series GEA CAIR*fricostar* CWP – Performance [1] Type CWP		015	025	037	055	083	110	130	150	170	200	250	320
Unit dimensions													
Width	mm	760	760	760	1,080	1,080	1,720	2,000	1,720	2,000	2,320	2.320	2.920
Height	mm	1,120	1,360	1,600	1,600	2,240	2,240	2,320	2,880	2,960	2,960	3,600	3,600
Length	mm	3,600	3,800	4,100	4,200	5,700	5,700	6,000	6,600	6,800	7,100	7,400	8,200
Air flow rate													
Minimum	m³/h	750	1,500	2,500	3,685	5,529	8,293	11,058	12,994	14,745	17,325	20,274	29,029
Maximum	m³/h	1,500	2,500	3,686	5,530	8,294	11,059	12,995	14,746	17,326	20,275	25,344	32,256
Nominal for dehumidification	m³/h	1,000	2,500	3,400	5,000	7,500	11,000	12,500	14,000	17,000	20,000	25,000	32,000
Nominal for ventilation 2/3	m³/h	667	1,667	2,267	3,333	5,000	7,333	8,333	9,333	11,333	13,333	16,667	21,333
Dehumidification performance													
According to VDI 2089 at rated air flow [2]	kg/h	6	16	22	32	48	70	80	89	108	127	159	204
Heating capacity													
Heat recovery	kW	2.1	5.1	6.8	10.1	15.3	25.3	26.1	30.0	36.4	42.8	49.9	65.0
Re-heater[3]	kW	8.4	15.4	21.2	31.6	48.9	78.9	90.9	98.1	120.7	139.3	180.4	234.5

[1] Performance series = max. air velocity approx. 2.5 to 2.0 m/s

[2] Pool air state 30 °C / 54 % rel.h.; ambient air state = 5 °C / 85 % rel.h.

[3] Inlet/outlet temperature = 70 °C / 50 °C

All data are rounded values and only serve as an overview. Exact data from current GEA configuration software L*plus*

GEA CAIR*fricostar* CMP

The highly efficient professional

Unit series GEA CAIR*fricostar* CMP – Performance [1] Type CMP		015	025	037	055	083	110	130	150	170	200	250	320
Unit dimensions													
Width	mm	760	760	760	1,080	1,080	1,720	2,000	1,720	2,.000	2,320	2,320	2,920
Height	mm	1,120	1,360	1,600	1,600	2,240	2,240	2,320	2,880	2,960	2,960	3,600	3,600
Length	mm	4,240	4,480	4,840	5,480	5,720	5,920	6,600	6,800	7,080	7,360	7,400	8,120
Air flow rate													
Minimum	m³/h	750	1,500	2,500	3,685	5,529	8,293	11,058	12,994	14,745	17,325	20,274	29,029
Maximum	m³/h	1,500	2,500	3,686	5,530	8,294	11,059	12,995	14,746	17,326	20,275	25,344	32,256
Nominal for dehumidification	m³/h	1,000	2,000	3,400	5,000	7,500	11,000	12,500	14,000	17.000	20,000	25,000	32,000
Nominal for ventilation 2/3	m³/h	667	1,333	2,267	3,333	5,000	7,333	8,333	9,333	11,333	13,333	16,667	21,333
Dehumidification performance													
Pool mode (30 % outside air)	kg/h	6	11	18	27	40	58	68	77	94	112	134	175
Idle mode (circulating air)	kg/h	4	5	8	13	17	25	31	37	46	57	61	84
VDI 2089 [2]	kg/h	6	13	22	32	48	70	80	90	108	127	159	204
Heating capacity													
Air condenser without PWC mode	kW	5.0	6.7	10.71	5.9	22.4	30.7	36.9	42.1	51.5	61.9	75.7	99.4
Air condenser with PWC mode	kW	2.6	3.9	7.7	12.1	17.6	25.2	29.0	32.9	39.9	50.0	59.9	75.6
Pool water condenser [3]	kW	2.6	2.9	3.2	3.8	5.4	5.6	8.1	8.5	12.2	12.7	16.2	21.9
Heat recovery	kW	3.6	6.9	11.3	16.6	25.6	37.5	44.2	51.8	63.0	74.5	84.2	111.4
Re-heater [4]	kW	8.4	13.4	21.2	31.6	48.9	77.8	90.9	98.1	120.7	139.3	180.4	234.6

[1] Performance series = max. air velocity approx. 2.5 to 2.0 m/s

[2] Pool air state 30 °C / 54 % rel.h.; ambient air state = 5 °C / 85 % rel.h.

[3] Pool water condenser (PWC) = accessory item

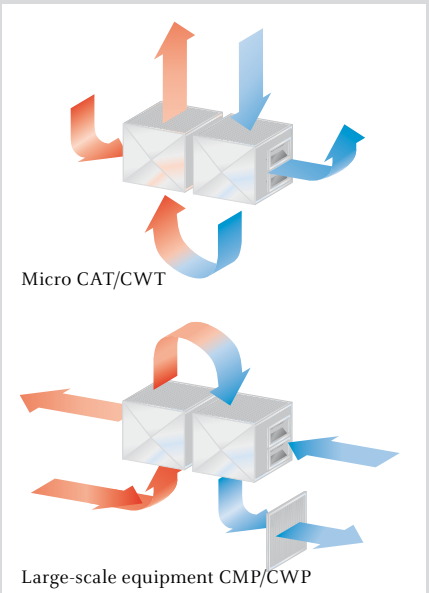
[4] Supply line/return line temperature = 70 °C / 50 °C

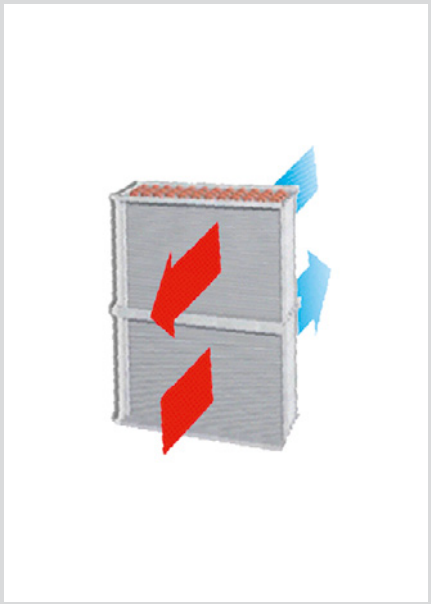
All data are rounded values and only serve as an overview. Exact data from current GEA configuration software L*plus*

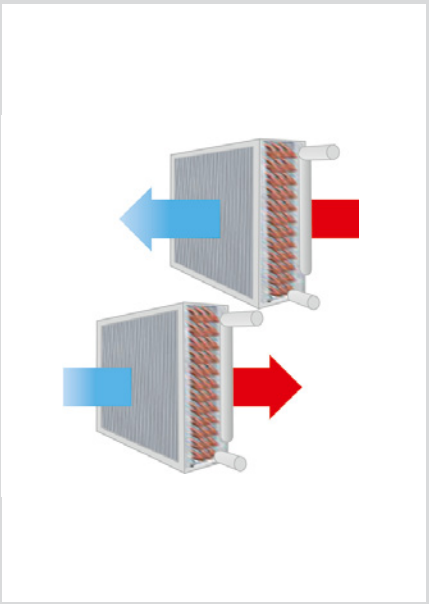
GEA heat recovery at a glance

Variants with a system for every requirement

An efficient heat recovery is one of the elementary functions of GEA CAIR*fricostar*. Different variants can be selected depending on the requirements. Depending on the structural situation and the problem of air ventilation, the heat recovery system must provide answers to different kinds of questions: are the flows of supply air and extract air spatially separated? Are there high demands on hygiene? How great is my investment volume?







GEA ECOPLAT2
Double-plate heat exchanger

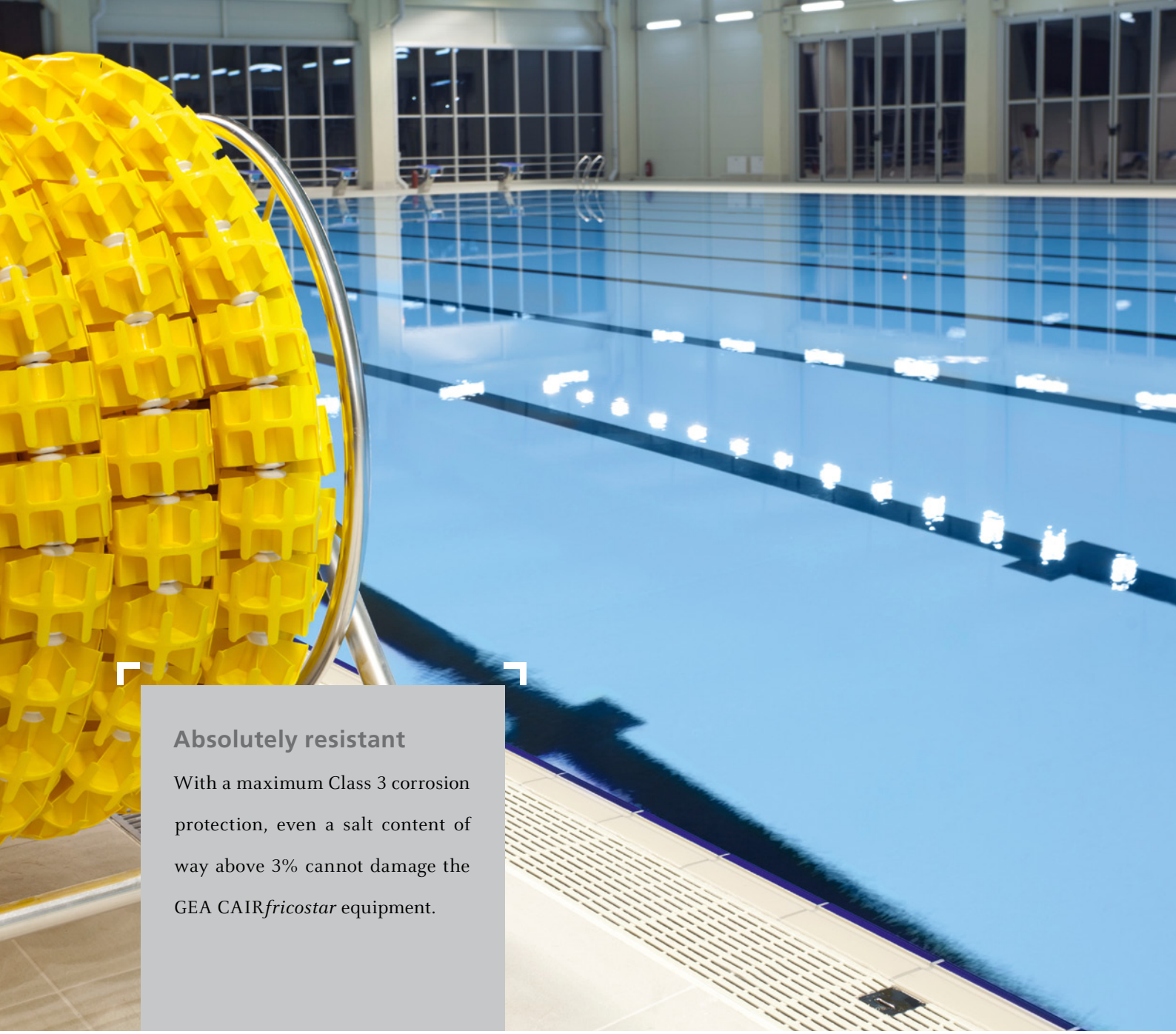
- Heat recovery efficiency to 90%
- No movable parts
- No mixing of air flows
- Low internal pressure loss
- Certified data according to EN308 and EUROVENT
- Non-inflammable material selection A1 according to DIN4102
- Profiled plates for the best temperature transfer
- Hygiene tested quality according to DIN EN ISO 846
- Corrosion-resistant configuration for swimming pools

GEA ECOSTAT
Heating pipe technology

- Heat recovery rate approx. 70%
- No moveable parts
- No mixing of air flows
- Low space requirements
- Service-free system
- Double-deck or side-by-side arrangement
- Well-proven technology
- Corrosion-resistant configuration for swimming pools

GEA ECOFLOW
Liquid-coupled energy recovery system

- Heat recovery efficiency of approx. 70%
- Air flows can be spatially separated
- Also retrofitting into existing equipment
- Compact design
- No mixing of the air currents
- Small space requirements
- Well-proven technology
- Corrosion-resistant configuration for swimming pools



Absolutely resistant

With a maximum Class 3 corrosion protection, even a salt content of way above 3% cannot damage the GEA CAIR*fricostar* equipment.

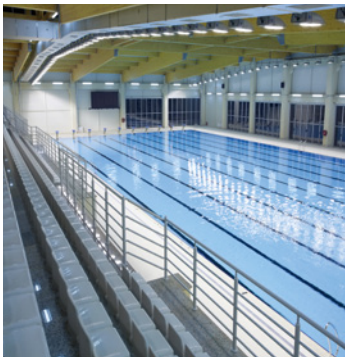
Three corrosion protection classes

That is unique on the market

Where there is water and high air humidity, the threat of corrosion is great. We therefore routinely prepare our systems with corrosion protection to prevent them from rusting. This ensures the long-term reliability of all functions. The protected quality and long service life of GEA units is a decisive factor in their low life-cycle costs. Depending on the type of pool and quality of water (water qualities according to DIN 19643), the models come in three different corrosion protection classes.

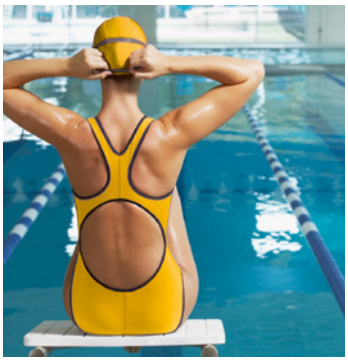
Protection Class 1 – Standard pools with drinking water supply

- Casing, internal and external skin coated with RAL 9002
- Casing frame aluminum-coated
- Fixing material of stainless steel 1.4571, aluminum or coated
- Guide rails in the floor area made of stainless steel 1.4571 coated
- Damper blades of aluminum with sealing lips, motor actuators IP54
- Fans and components are coated
- Heat exchanger Cu/Alu, frame AlMg3
- Cu lines plasticized/painted
- Chrome molybdenum Bumax screws



Protection class 2 – pools in coastal regions and/or water salt content up to 3%

- Casing - internal and external skin coated RAL 9002
- Casing frame coated green aluminum
- Fixing material of stainless steel 1.4571, or aluminum marine lacquer coating
- Guide rails in the floor area of stainless steel 1.4571-marine lacquer coating
- Damper blades of aluminum with sealing lips, coated, special motor actuators IP66
- Fans and components coated, screws painted
- Heat exchangers epoxy coated, frame AlMg3
- Cu lines plasticized/painted
- Compressor marine lacquer finishing
- Coil drip tray stainless steel 1.4571 powder-coated
- Chrome molybdenum Bumax screws
- Frost protection outside the air flow



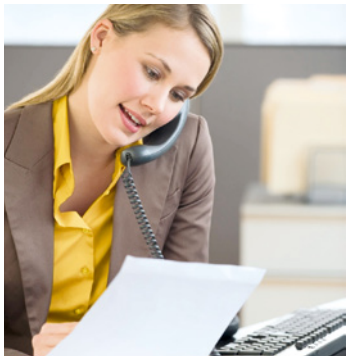
Protection class 3 – pools with thermal water and salt content above 3%

- Casing - interior and external skin coated RAL 9002, exterior coated, interior stainless steel 1.4571
- Casing frame aluminum marine coat, non-diffusive coated
- Fixing material of stainless steel 1.4571, coated
- Guide rails in the floor area of stainless steel 1.4571 marine marine lacquer coating
- Damper blades of stainless steel 1.4571, special motor actuators IP66
- Fans with special coating
- Enhanced, multiple special coating
- Motor with tropic-proof winding, special shaft seals
- Heat exchangers immersion-bath coating, frame AlMg3
- Cu-lines plasticized/painted
- Compressor marine lacquer coating
- Coil drip tray of stainless steel 1.4571 powder-coated
- Chrome molybdenum Bumax screws
- Frost protection, low-pressure, high-pressure (=cooling cycle safety chain) outside the air flow
- Evaporator Säka-Tec coated



First Service

Always at your side



Our services at a glance

- Own heat exchanger production
- Use of certified products and components
- Use of components from well-known component manufacturers
- Short delivery times for spare parts
- Commissioning of new facilities
- Periodic servicing
- Maintenance
- Factory trial run
- Upgrading and optimization of old facilities
- Maintenance agreements

Economical from the beginning

The technical developments of GEA Heat Exchangers represent state-of-the-art swimming pool climate control. Our systems support diverse applications that optimally conform to current criteria of cost effectiveness, safety and sustainability. Our products and services go far beyond pure technology. They are integrated into a comprehensive and in every respect customized service package. This program includes not only conventional services such as spare part delivery, maintenance, and repair. It unites the consulting and engineering of a technology leader with customized aftersales service and rapid response times. And this not only for installing new equipment. This service also applies for upgrading and optimizing old equipment and provides you with perfect support in all project phases. The functionality of the system is secured over its entire service life.

International service und support in experienced hands

Wherever you need us, we will be there for you in the shortest time. All over Europe, our own customer service ensures that you are able to make optimal use of our units' advantages at all times. Many technicians are ready on-call in Germany alone for rapid deployment. All services are designed for absolute safety and reliability. For example, an on-site function check is a part of our delivery service, conducted by an experienced GEA technician together with the installer. This way we directly and personally pass on our functional know-how built up over many years. In this context we should also mention the training we offer in the technology of our swimming pool climate control system. Such training is a beneficial instrument for ensuring the lasting functionality and availability of the systems.

A decision for quality

Naturally, all our swimming pool technology products are certified according to DIN ISO 9001 and insofar possible, endowed with the CE seal by the Directive on Machinery. Our services also meet these high quality standards. All our service specialists are highly experienced and devote themselves to their work with great diligence. Technically and personally convincing: this is what you can expect from us.


Initial installation
Maintenance and servicing
Assembly services
Spare parts
Customer service
Consulting
Refurbishing
Training

References

GEA CAIR*fricostar* in operation



Toskana Therme, Bad Orb

GEA CAIR*fricostar* with double-plate heat exchanger

Whether wellness temple, leisure pool, or swimming training center: GEA CAIR*fricostar* contributes precision climate control to spas of all types as a sign of the times. Feel-good quality. Economical and ecological.

Here are some selected examples.



SSE Swimming and Diving Pool in Europasportpark, Berlin
GEA CAIR*fricostar* with heat recovery



Olympic pool, Seefeld, Austria
GEA CAIR*fricostar* with heat recovery, heat pump and connection to the building services system



Leegwaterbad, Pumerend, Netherlands
GEA CAIR*fricostar* with heat recovery und heat pump



Piscinas Olimpicas de Funchal, Portugal
Special units with cooling system and Heat recovery system

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.