



Reap results, freeze energy costs

Intelligent cooling systems



ABSOLUTE LEADER WORLDWIDE

GEA is a step ahead of the competition with respect to efficient cooling: As a glance at our market share shows, the high quality of the GEA milk cooling tanks is valued worldwide. Around the globe, GEA supplies milk producers via production facilities in the USA, Brazil and France.

Let profits flow, put energy costs on ice

You and your cows produce precious milk every day. Ultimately, the greater the quantity and quality, the higher the exchange value. It is high time to protect your valuable product as well as you can, but at the same time to produce it at the lowest cost per litre. GEA, your partner for total solutions, shows you how to perfect your milk cooling and make it profitable on a sustainable basis by freezing your energy costs: You will not only earn maximum revenue from your milk, but also significantly increase the return through minimal cooling costs!

Intelligent cooling strategies, individual tailoring

We provide you with the perfect, long lasting cooling strategy. Ensure that your milk is of the highest quality by minimising energy use and ongoing operating costs at the same time. Also take advantage of the extensive selection of tank variants and volumes. In combination with high-performance cooling units, the cold chain can be individually tailored to your production method from the milking to the tank. On request, compatible heat recovery systems also transform your cooling centre into a small power plant. Produce free hot water, purely as a sideline and at zero expense!

ICool 4 – 5
Tank controller

TCool 6 – 9
The milk tank series

GEA Cooling C5920 - Silo Tank 10 – 13
Premium vertical milk cooling tank

PCool 14 – 15
Milk cooling vat

Buffer tank 16
Controlled intermediate stop

Heat recovery (HRI) 17
Absorbing and generating heat

GEA Cooling C5430 – Modular Chiller 18
Flexible instant cooling solution

PK plate cooler 19
Universal power packs with top efficiency





- Documentation of all running processes including the individual cooling phases, agitation processes and cleaning intervals over long periods of time
- ICool Analyzer provides information on factors such as capacity trends, temperature values, agitation processes, the status of up to four cooling units and the last hundred washing phases directly on screen, as well as the original data for further analysis. Via USB-Stick data can be stored up to 10 years.
- The electricity meter and digital dipstick can be used to monitor energy usage and its relationship to milk volumes during cooling and cleaning in order to help you develop optimisation strategies
- Seamless integration into GEA herd management systems
- Safety thermostat ensures complete safety and prevents the milk from freezing
- Ergonomic design for simple, convenient operation and fast access to components during maintenance.

ICool – The intelligent milk management

Clever control unit ensures maximum milk safety

Food safety is a hot topic for the modern milk industry, but intelligent management and precise controls right on the tank can make things an awful lot easier. ICool is the latest generation of tank control units from GEA, specifically designed to support you as a milk producer in every aspect of your business.

Secure monitoring, documentation and valuable energy savings

ICool not only cools, homogenises and monitors your valuable milk yields automatically, it also provides comprehensive documentation of storage and tank hygiene data. So you can face the future with confidence, safe in the knowledge that the tailored functions will allow you to react flexibly to the ever-shifting standards of processors and dairies. The intelligent ICool control unit's low consumption values mean that it is also incredibly energy-efficient. Because sustainably produced milk and proven, documented quality are the keys to achieving the highest profits!

Simple to use

The main screens on the touchscreen monitor can be used to tailor the central cooling, washing and milk collection processes to meet your business' unique requirements quickly and easily. The device's wide range of functions give you access to all parameters of the agitators, compressors, pumps and relays. Regardless of if

you milk by group, in an AutoRotor or using an automatic system, you can configure your individual cooling centre clearly, conveniently and intuitively in just a few simple steps.

Alternative remote access via WebGate

Operate the ICool control unit and take a look inside your milk cooling tank right from the herd management office. Remote access via Ethernet and Internet enables you to analyse all system components and optimise your parameters easily, wherever you happen to be.

Up to the minute information via SMS

The optional GSM module adds a notification feature to the ICool control unit. If there is an error, you can have your staff notified automatically via SMS, so they can intervene quickly and ensure the problem is resolved as soon as possible.



FLEXIBLE:

ICool enables you to control every tank in the TCool and GEA Cooling C5920 Silo series, regardless of volume. It can also be retrofitted onto older tanks currently using an Expert control unit in the near future. And to ensure that milk producers around the world can benefit from GEA's cooling expertise, ICool's functions are available in 22 different languages.





TCool – The milk tank series

Innovative energy balance for a high return all round.
Thanks to intelligent cooling the profits flow with the milk!

You and your farm take care of the animals, bear the costs of feed, staff and operation and employ effective milking technology, but how does all of that expenditure pay off? Invest in a cooling concept that guarantees the best results when it comes to milk quality, with simultaneous low energy use. Achieve maximum money for your milk with minimum energy costs with TCool!

From milking through to the arrival of the milk truck, the clever ICool control system keeps a close watch on all TCool

parameters. Using the combination of high-performance cooling units with the highly effective tank insulation reduces not only the milk temperature but also the operating costs to the ideal level. In addition, the unique cleaning procedure and the patented AED cleaning equipment guarantee excellent hygiene.

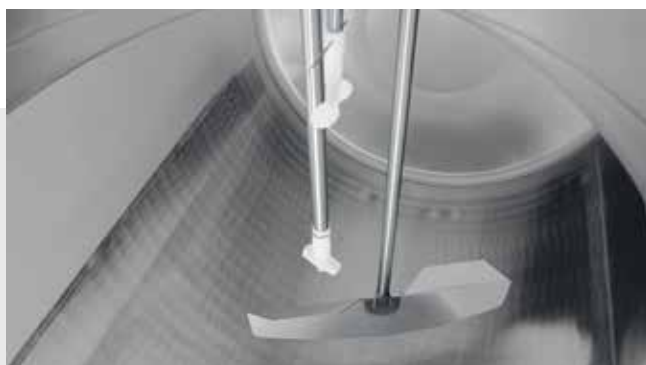
Finally, the investment in TCool remains manageable, since the high-performance equipment can be re-paid rapidly. Your profit flows with the milk and in the end you reap the benefits!



Suitable preferred connection and safe hygiene:
Professional robot connection via patented 3-way valve technology separates water and milk during cleaning and milking processes



Concentrated cleaning down to the last millimetre:
The metering pumps measure acid and alkaline cleaning agents autonomously and always economically. Optionally, a third metering pump can be used for disinfection.



Here everything revolves around the best milk quality:
The agitator stirs the milk gently and the spray nozzles ensure spotless cleaning at turbo speed. Depending on the tank volume, a 1 or 3-blade agitator is used.



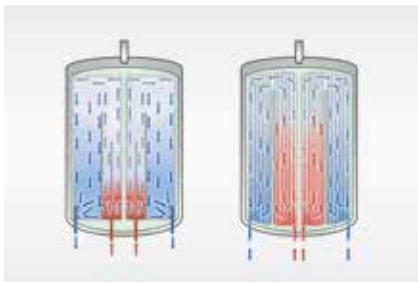
Fresh milk, packed in an especially energy-efficient way:
The CFC-free insulation, which has an especially high density, maintains the milk at an ideal storage temperature over long periods of time and reduces the power requirement to a minimum.

A network of individual options

TCool stands is both an independent and high-performance cooling centre at the end of your production chain. Use the numerous equipment and connection options to integrate the TCool seamlessly into your herd management and the barn and operating concept!



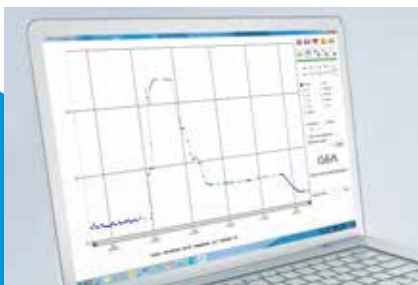
Officially approved: The patented and digital dipstick records the quantity of milk automatically. The measuring method is recognised by numerous gauging offices.



Innovative design for effective performance: STI and STIL evaporators cool the milk with minimum use of energy in the fastest possible way. With these evaporators you receive a durable, pressure resistant heat exchanger with highly efficient performance.



Safe cooling into the future with ICool: The intelligent tank control unit reliably cools, agitates and monitors your valuable, high-quality milk while you are waiting for it to be taken away from the farm. Regular cleaning intervals ensure the tank is kept as hygienic as possible. And ICool is already looking towards the future: all processes can be configured and adapted individually to suit changing requirements.



Excellent energy-efficiency, documented hygiene procedures: As ICool ensures that the cooling units and components are supplied with only the energy they need, it plays a key role in keeping your operation running as efficiently as possible. And the included ICool-Analyzer system keeps logs of all of the processes so you can generate detailed documentation as needed. See for yourself how convenient the functions and features of the ICool controller can be!



Designed to save energy: The scroll compressor and highly efficient condensers can be adjusted to the expected milk quantity. Altogether, 25 different cooling units with a refrigerating capacity of between 3.82 and 30.7 kW/h and a milk cooling efficiency of between 110 to 945 l/h are available.





A choice of tank volumes ranging from 1,010 to 33,500 litres in 24 variants is available.

Tank volumes ranging

Diameter (mm)	Liter	Height (mm)	Length (mm)
1,260	1,010	1,741	1,829
	1,500	1,733	2,339
	2,110	1,736	3,070
Diameter (mm)	Liter	Height (mm)	Length (mm)
1,510	2,500	2,020	2,406
	3,100	2,025	2,798
	3,600	2,030	3,104
	4,200	2,050	3,507
	5,200	2,060	4,147
	6,200	2,080	4,821
Diameter (mm)	Liter	Height (mm)	Length (mm)
1,785	5,000	2,299	3,083
	6,000	2,305	3,570
	7,000	2,333	4,058
	8,000	2,343	4,534
	9,000	2,359	5,012
	10,000	2,370	5,518
Diameter (mm)	Liter	Height (mm)	Length (mm)
2,250	10,000	2,805	3,905
	12,000	2,810	4,500
	15,000	2,815	5,385
	19,000	2,880	5,975
	25,000	2,921	8,362
	30,000*	2,977	10,010
Diameter (mm)	Liter	Height (mm)	Length (mm)
3,000	25,000	3,585	5,130
	30,000	3,610	5,980
	33,500	3,625	6,580

*The newly created 30,000 l tank is designed to allow transport in container

AS IS GENERALLY KNOWN,
THE FINAL RESULT IS WHAT
COUNTS:



The TCool cooling tank series combines individual volume with minimum use of energy and optimal hygienic standards. Ensure that your milk yield is of the highest quality and benefit from the maximum milk revenue for your farm!





GEA Cooling C5920 – High storage for maximum returns

Milk cooling in top form: Full yields in any weather.

The Silo C5920 protects up to 40,000 litres of milk in weather-proof tanks outdoors. Through the vertical orientation the concept combines maximum storage capacity with a minimum floor space.

Low space requirement, full yields: The Silo C5920 represents a sustainable cooling concept that stores very large quantities of milk on a very small foot print. At the centre stands the vertically oriented tank with its robust casing of double-walled stainless steel. Equipped for all weather conditions, Silo C5920 is the stable solution for outdoor milk storage. With Silo C5920 you are ideally positioned. Because the evaporators, high-performance cooling units have been designed for the most sparing use of energy with the highest reliability at the same

time. The high-quality insulation of the tank proves to be a particularly efficient component, ensuring that the ideal storage temperature is maintained over long periods. Therefore, cool the milk to the ideal storage temperature completely automatically after milking and put your energy costs on ice at the same time. In doing so, you can count on the ICool control system at all times. It monitors all processes, including cooling and agitation, and starts the integrated cleaning system for a high standard of hygiene with minimum water consumption.

With generous volumes of up to 40,000 litres, the Silo C5920 is the ideal solution for all herd sizes. In addition, the flexible positioning of the tank opens up new perspectives in building planning.

Tailor-made to your requirements

Silo C5920 is available with two evaporators.

Tank volume GEA Cooling C5920

Outer diameter (mm)	Capacity (Liter)	Height (mm)	Hight with venting pipe (mm)	Weight without alcove (kg)
2,250	8,000	3,230	3,450	995
2,250	10,000	3,730	4,050	1,020
2,250	12,000	4,330	4,650	1,160
2,250	16,000	5,530	5,850	1,435
2,250	18,000	6,030	6,350	1,550
2,250	20,000	6,630	6,950	1,690
2,250	24,000	7,830	7,830	1,965

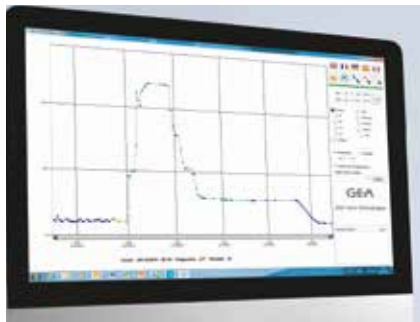
Tank volume GEA Cooling C5920

Outer diameter (mm)	Capacity (Liter)	Height (mm)	Hight with venting pipe (mm)	Weight without alcove (kg)
3,000	15,000	3,450	3,680	1,500
3,000	18,000	3,900	4,130	1,650
3,000	20,000	4,260	4,490	1,770
3,000	25,000	5,072	5,302	2,025
3,000	30,000	5,900	6,130	1,320
3,000	35,000	6,700	6,930	2,610
3,000	40,000	7,600	7,830	2,974



Best milk quality thanks to a team of specialists

With the Silo C5920 all eyes are focused on the milk quality, from both outside and inside. For minimum use of energy, the units communicate in a network, while all routine programs are started automatically and reliably.



Seamless integration into operating processes: ICool can be fully integrated into your herd management system to provide a continuous data exchange. Plus, secure GEA-patented remote access and control features via a network or WebGate mean that you have a variety of options for monitoring the system and optimising parameters on the go. You can also have alerts by SMS, E-mail via Wifi, 4G or Ethernet. Modernise your management system with ICool!



Flexible configuration for new construction and retrofitting: An extended outlet and a separately installed ICool tank control system enable the tank to be positioned at a certain spatial distance from the building.



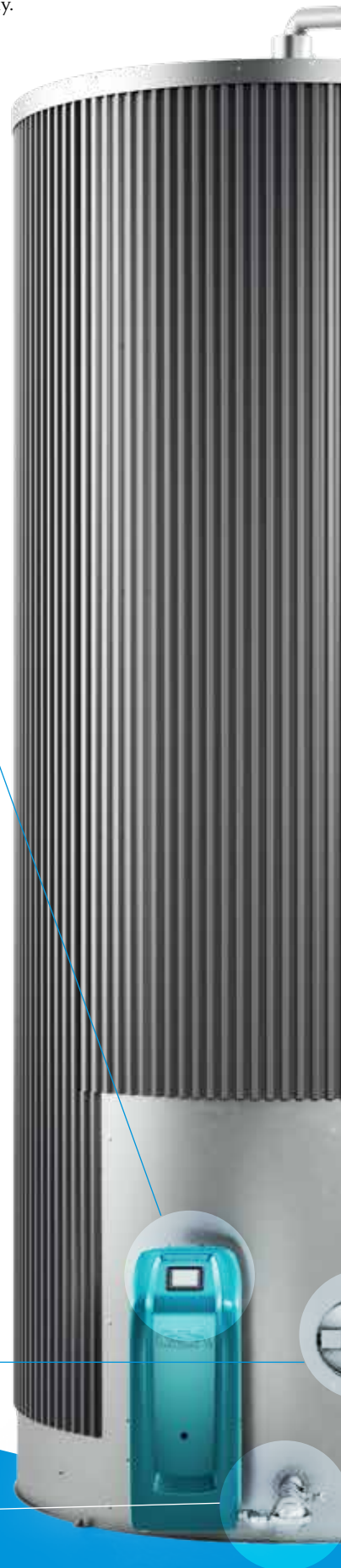
Easy access when needed: The inspection hatch offers a view into the tank interior. Optionally, the hatch can be equipped with a sampling device.



Easy mounting alcove – Simple, fast and safe: The positioning features enable an easy and fast installation of the alcove. Thanks to the air vent in the alcove, more safety is ensured.



Connected according to your wishes: The inflow and outflow of milk and water can be managed flexibly thanks to different connection options. Optionally equipped with a self-cleaning outlet.



All costs are paid off

All expenditure such as investments and feed, personnel and operating costs only pays off when the milk quality and, with it, the milk revenue are right. The intelligent cooling systems from GEA take into account all of these factors so that you can save at exactly the right place.

Secured vent pipe: Reliably prevents contamination of the milk.

Innovation for optimum efficiency: Cooling units adapted to the cooling requirements enable a higher cooling capacity up to 50 kw with simultaneously lower energy consumption.



For the best quality everything is agitated: Until the milk truck comes, gentle agitation keeps the milk in motion. The gentle stirring ensures that the texture of the valuable commodity remains uniform and homogeneous.



Optimized inside design – Better washing, stability and insulation:

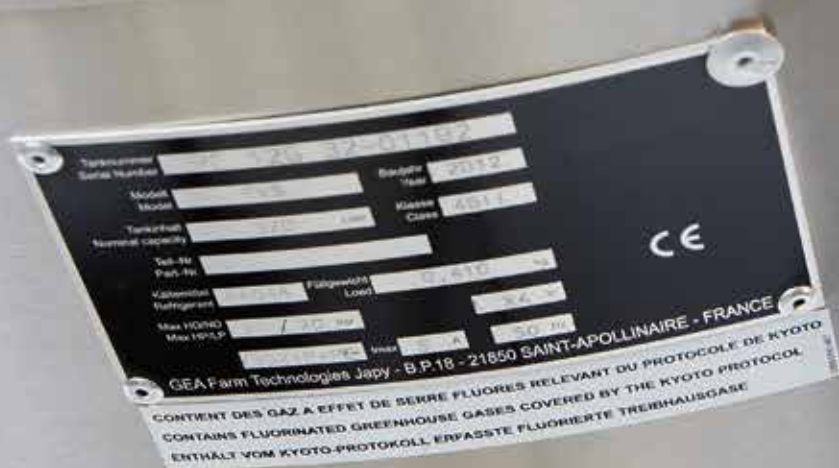
The sloped bottom ensures a better washing and a good drainage while the extra frame stands for a better stability. To save cleaning water the Silo tank is equipped with an anti-vortex. The outlet diameter 104 mm with reduction compatible with different threads enables faster milk collection. Maximum milk conservation is achieved by the polyurethane insulation.

Milk volume by pressure sensor – Safe and transparent: The measurement of the milk quantity in the tank avoids milk overflow. To be informed about the milk quality, it is displayed on the ICool.



ENERGY-SAVING TIP:

Use a heat recovery system, so that the heat emitted by the milk can be used for the hot water circuit or heating system!



PCool

PCool – Milk cooling vat

High efficiency for production that pays off, no matter what the size

Intelligent cooling all round, which translates into profit even for small scale operations

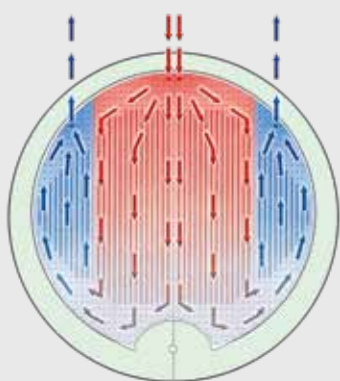
PCool milk cooling vats from GEA are an ideal solution all round for small-scale milk production and points where milk is collected. Ensuring that even small-scale production is profitable, the product series combines maximum efficiency and outstanding hygiene for volumes ranging from 320 litres up to 1,950 litres.

The faster the cooling, the better the milk!

Do not, therefore, give away even a litre of milk and place your trust in the sophisticated PCool concept: While the STI evaporator ensures ideal cooling efficiency, a programmable agitator gently keeps your milk in motion. The vat itself is manufactured from high-quality stainless steel and prevents temperature losses through its high-quality CFC-free polyurethane insulation. The tried and tested A4 control system helps you keep an eye on all of your processes. You can rely on it. Bundled dairy know-how pays off, as it is precisely in small-scale milk production that the quality of the milk ultimately determines its value.

Electric control unit – hygiene firmly under control

The A4 electric control unit keeps the desired temperature inside the vat constant via a thermostat. In addition, the user-friendly display can be used to programme the time intervals in which the agitator starts working and thus maintain the homogeneous texture of the milk. Through an automatic cooling start delay during the first milking and the subsequent automatic monitoring of the cooling time, the milk is cooled in a product-friendly way throughout its entire storage time.



STI evaporator

Maximum heat exchange with minimum expenditure of energy: STI evaporators are the centrepiece of the PCool concept. You achieve the best possible exchange of heat by an ideal distribution of the refrigerant over the entire surface. In addition, the evaporators are extremely pressure-resistant and impress with their excellent oil return system.

Buffer tank

Controlled intermediate stop for uninterrupted production



Clever parking, since every litre of milk counts

When using automatic milking systems it is particularly important to bridge the time gap between the emptying of the milk cooling tank and the end of the cleaning interval.

Here a buffer tank from GEA offers the ideal solution. Because instead of blocking access to the milking robot you are essentially parking the milk on the hard shoulder for a short time.

Once all of the processes are finished, the control system directs the milk, freely flowing once again, into the milk cooling tank. The milk then flows quite automatically out of the buffer tank into this stream. Do not lose a single drop, as every litre of milk counts!

With the buffer tank you can simply allow your cows to continue being milked, as you like. Stress-free, undisturbed and always in the habitual milking rhythm, the cows feel more at ease and give the maximum quantity of milk.

Heat recovery system (HRI)

Absorbing and generating heat –
each a specialist in their field

Clever parking, since every litre of milk counts

Your cows deliver not only a precious commodity but also valuable thermal energy.

Exploit this free energy using the heat recovery system from GEA, and transform your cooling system into a thermal power plant, at virtually no cost.

While your cooling system extracts the heat from the udder-warm milk to make it fit for storage, the heat recovery system exploits the released heat and stores it in the hot water tank with the greatest efficiency. Water temperatures up to 55 °C can be easily achieved in this way. Depending on the quantity of milk and the hot water requirement, hot water tanks ranging from 100 litres up to 2,000 litres are available.

Seize the chance: This hot water - for cleaning of milking equipment or the TCool or alternatively this free hot water can be used for a heating system - is not available more cheaply!



A HOT WATER GENERATING PLANT, IN THE MIDDLE OF THE COOLING SYSTEM:

- In the layer system hot water is already available shortly after cooling begins
- High-quality insulation prevents heat losses, and anodes protect against corrosion
- Optional heating element ensures constant water temperature
- Upright tanks ranging from 200 l up to 2,000 l, operation via external plate heat exchanger
- Safety circuit as a preventive for lime and corrosion according to EN1717 standards and regulation drinking water ordinance

GEA Cooling C5430 – Modular Chiller

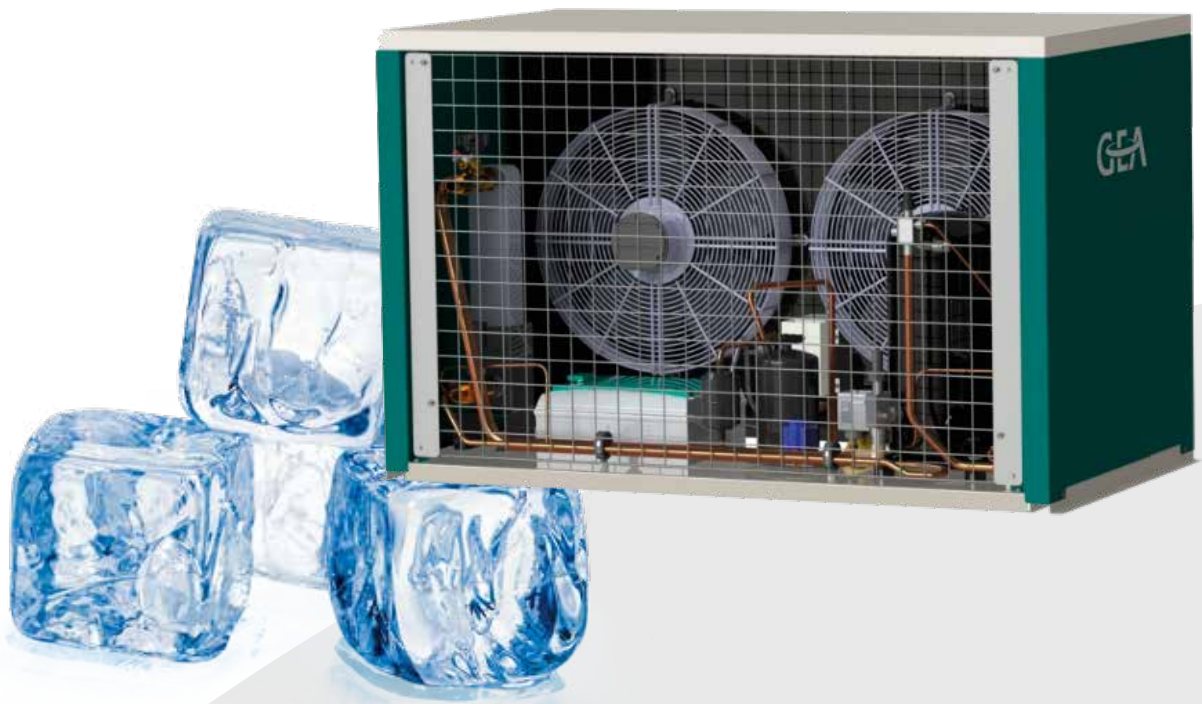
Flexible instant cooling solution to
secure milk quality

The suitable capacity supplement

Especially in combination with a 24-hour operating automated milking system, an instant cooling solution adapted to the small milk flow perfectly complements the cooling system.

The GEA Cooling C5430 chiller reliably ensures rapid cooling of the milk to maintain its high quality.

GEA Cooling C5430 is also suitable for larger or growing dairy farms as up to six chiller modules can be combined and controlled via the same controller as ICool. Simply increase the cooling capacity by adding more modules to your system!



PK plate cooler

Universal power packs with top efficiency



Rapid exchange in a counterflow arrangement

In your cooling strategy, focus on the highest efficiency throughout. The outstanding efficiency of GEA plate coolers impresses on two counts:

Firstly, the flow-optimised profile of the polished stainless steel cooling plates, which operate according to the counterflow principle, provides for outstanding cooling efficiency during milking. Secondly, the extremely low flow resistance results in optimum swirling during the cleaning process. GEA plate coolers also provide double the benefits: Rapid cooling for the perfect energy balance, and residue-free cleaning for a high standard of hygiene!



USAGE AS A PRE-COOLER AND, IF REQUIRED, AS A COMBI MODEL FOR PRELIMINARY AND RAPID COOLING:

- In the counterflow of 1 l of well or tap water per litre of raw milk the milk temperature is cooled to a value of approx. 3 °C above the water temperature
- The water heated in the heat transfer can be used for other purposes, e.g. watering the cows
- Operation with ice water for rapid cooling
- Buffer storage tanks ranging from 300 l up to 1,500 l operation via external plate heat exchanger

MASTERS OF THEIR CRAFT IN EACH MILK ROOM:

- Capacity of 1,500-12,000 litres per hour, all sizes available, increased capacity upon request
- Cooling plates of chlorine and pressure-resistant 316 TI stainless steel
- Approval for well water of drinking water quality
- Universal installation on wall and floor

We live our values.

Excellence • Passion • Integrity • Responsibility • GEA-versity

“Engineering for a better world” is the driving and energizing principle connecting GEA’s workforce. As one of the largest systems suppliers, GEA makes an important contribution to a sustainable future with its solutions and services, particularly in the food, beverage and pharmaceutical sectors. Across the globe, GEA’s plants, processes and components contribute significantly to the reduction of CO₂ emissions, plastic use as well as food waste in production.

GEA is listed on the German MDAX and the STOXX® Europe 600 Index and also included in the DAX 50 ESG and MSCI Global Sustainability indexes.

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