



Refrigeration technology for convenience food

In touch – hygienic solutions
for the food industry



In the convenience food sector, things are never boring. On the one hand, you as manufacturer must offer your consumers variety in the form of new products. On the other, you must take care never to betray the trust of your consumers in the quality of classical best-sellers. With the right partner for refrigeration systems on your side, however, you have every reason to feel confident.

In touch with your processes and requirements

Convenience food: cooling and freezing for premium quality

For us, "In touch" means closeness to our customers – in every respect. GEA Refrigeration Technologies is synonymous with cooling and freezing technology closely oriented to the requirements of our customers: cost-effective, long-life, energy-efficient, sustainable – and made to order.

GEA Refrigeration Technologies is a hallmark for industrial refrigeration. Since as long ago as the late 19th century, we have made it our business to cool processes and products, and to control the temperature of transported goods. Today, with a large share of our technologies, we serve the food and beverage sector – including the field of convenience food. Convenience food is more than just an in-house catchword: it is actually a reflection of our changing society. Families have become smaller, and there are more one- and two-person households. Traditional role assignments are increasingly vanishing in industrial countries. At least during the week, fewer and fewer employed people are prepared to stand for hours at a time at the stove. We all work if we can nowadays, both men and women: and this means that we have less time – and desire – to cook. But we still value healthy eating and, in addition to a rich offering of pizzas and French fries, we are increasingly eating convenience meals that by no means take second place to self-cooked food with respect to freshness and vitamin content.

Demographic developments in many countries have demanded their price: populations are aging. For many of our elderly fellow citizens, purchasing ingredients for meals is difficult – to say nothing of their preparation. As a result, deep-frozen fruit, vegetables, and convenience meals are today delivered to their doors – a godsend for such people.

And thanks to a luxurious selection of frozen cakes and pastries, it's simple as pie for your neighbor to spontaneously invite you to coffee and cake. Owing to the low water content, most of these products thaw quickly – and mood at the coffee table warms up fast as well, since wonderful taste wins over even the most critical of customers. In bakery goods, tradition is more important than innovation. Classical cakes like granny's cheesecake or apple pie will probably still be supermarket hits decades from now. To also meet the needs of many small households, manufacturers are placing greater emphasis on smaller servings: such as Berlin-style mini-pancakes.

As much as consumers look forward to new bakery products, they usually resort again and again to their old favorites. This also naturally applies to the deep-frozen favorite par excellence: fish sticks. It's still easy to win the hearts of children with these boneless, golden-yellow, crispy delights. And many adults as well love to eat fish sticks – even if only to recall the lighthearted days of childhood. And best of all: they go wonderfully well with another deep-frozen classic: French fries. As the convenience-food sector has grown, so has the requirement for refrigeration: not only for manufacture of the products, but also for their storage and distribution. Investment in effective refrigeration management pays off from the very beginning – not only for the company, but also for the environment. This brochure describes many sophisticated techniques to help you save energy in freezing and cooling. You as manufacturers save money, and the consumer has a clean conscience for enjoyment of your products. Our Clean-in-Place (CIP) systems, which can be integrated into freezer units, assure a clean conscience in every respect. They not only clean dependably, but also reduce consumption of water and cleaning agents.

Whether you manufacture a traditional convenience product, or whether you'd like to create a new product, our engineers – with their love of detail – work out an effective refrigeration solution for every type of food. Our objective is not only to create long-life and cost-effective solutions for you, but also solutions that save you energy and protect the environment. After all, what counts is the greatest-possible benefits under cost-effective conditions, with a maximum of protection for the environment and the climate. With GEA Refrigeration Technologies, your products are on everyone's lips.

Each area of the industrial branch of convenience food places its specific demands on temperature control during processing, storage, and packing. Depending on the application, refrigeration technology from GEA provides just the right temperature – cool or ice-cold, and even with one-degree precision if required.



Our guarantee for golden French fries: advanced and precise cooling and freezing systems from GEA Refrigeration Technologies.

Consumers throughout the world eat French fries with no signs of a reduction in demand. And with the same enthusiasm, our developers perfect the required cooling and freezing technology. This ensures that the crispy potato classics keep eyes lit up ... and not only children's.

In touch with French fries

Refrigeration technology for golden-yellow culinary delights



GEA Refrigeration Technologies takes care of your potatoes all the way until they become sumptuous dietary delights.

French fries, which actually originated as a Belgian specialty, are today famous around the world as a side dish or snack – but with a somewhat tarnished reputation for allegedly high fat content. These crispy delights, though, are better than their reputation. If properly prepared, their fat content is around 13 %. If consumers bake pre-deep fried and deep-frozen French fries in their own ovens, according to package instructions, they can enjoy a product with around 5 % fat. The type of fat being used, however, is crucial for effects on human health. By now, most manufacturers now use healthy vegetable oils such as sunflower-seed oil, rather than the earlier controversial hardened fats.

Tunnel freezers for French fries typically turn out 10 to 30 tons of fries per hour. This amounts to average output of six million servings per day per production line. With such orders of magnitude, energy-saving measures are naturally especially interesting – particularly since energy costs for freezing account for a major share of the overall costs for this popular deep-frozen product. This is where GEA Refrigeration Technologies goes into action: GEA cooling and freezing systems, including predictive control systems, are perfectly matched to a variety of production processes – and they keep energy consumption at a minimum.



French fries are pre-cooked at 200 °C/392 °F in deep-frying systems and then pass through a cooling and freezing tunnel. In GEA A-series IQF tunnels from GEA Refrigeration Technologies, for example, the French fries pass through various temperature zones, from the pre- and post-cooling steps, up to actual freezing at -18 °C/-0.4 °F. Pre-cooling takes place by thermo-siphon cooling, with ammonia as refrigerant. This step already removes enough heat from the product – without use of a compressor – to cool it from 95 to 50 °C/203 to 122 °F. As a result, this process step is almost energy-neutral. The next step uses water to cool the product from 50 to 30 °C/122 to 86 °F, during which the water in the heat exchanger heats from 15 to 22 °C/59 to 71.6 °F, and after which the water passes to the warm-water circulation system. This saves energy needed in the plant for hot-water heating. In addition, the waste heat produced in cooling and freezing is used in heat-pump systems from GEA Refrigeration Technologies to heat water to 80 °C/176 °F. These measures enable energy savings up to 30 %. In a production line for French fries with a capacity of 18 tons per hour, this means annual savings of around € 500,000.

But it's not only sophisticated and energy-saving technology that helps to save money. Designs on the drawing boards already reveal savings potentials, in which developers direct their attention to simple maintenance and implementation of hygiene regulations. Freezers from GEA Refrigeration Technologies are designed such that cleaning is up to 40 % faster than with other types. Some reasons for this time saving are the smooth surfaces that are easy to clean, as well as the stainless steel structures, without joints and with welded connections throughout, where dirt hardly has a chance to collect. This involves the entire enclosure, including unit floor, as well as the inner structure. In addition, the floor of the unit is sloped and all structures are elevated on welded studs, so that liquids can run off without difficulty.

Saving time or energy? With tunnel freezers from GEA Refrigeration Technologies you enjoy both. You combine a maximum of energy efficiency with completely thought-out design, so that maintenance and cleaning become secondary concerns.

Caution: hot and oily. Producing fish sticks is not child's play. Hot air and deep-frying oil in very tight spaces place strict demands on freezers. With our freezers, the golden-yellow delicacies land without difficulty – fresh and in appetizing packing – in the freezers of supermarkets and consumers.

Precise refrigeration for trendy products

Still cool: Fish Sticks & Co.



Hotly loved and deep-frozen: for decades now, fish sticks have been a classic of frozen food. Our spiral freezers are the right choice for further trendy products – such as chicken nuggets and meatballs.

Clarence Birdseye (1886 – 1956) was a biologist from Brooklyn. He watched as the Native Americans of Labrador, in Canada, caught their fish. These Eskimos placed their freshly caught fish directly on the ice, where they immediately froze at arctic temperatures around -40 °C/-40 °F. The amateur cook Birdseye was fascinated by the fresh and excellent taste of the fish when it was later cooked.

This experience with simple and fast shock freezing inspired the biologist to conduct his own deep-freezing experiments. For seven dollars he bought an electric fan and buckets with salt water and slabs of ice: an investment that was destined to fundamentally change all our lives. Birdseye in fact invented the “quick-freeze, double-plate machine”, the predecessor of the modern-day plate freezer. With this quick-freezer, he froze fish under great pressure and packed it in waxed cartons. Clarence Birdseye did nothing less than lay the foundation for industrial production of frozen foods.

The invention of fish sticks represented one degree of perfection in newly developed frozen foods. They need no further processing, you can prepare perfect fish sticks without cooking skills, they conjure up smiles on almost every face – and they have helped generations of children to love the taste of fish. Behind this stroke of genius, a great deal of know-how still hides today. Once the sticks have been formed from raw cod or pollock, they are covered with a delicious coating consisting of starch, flour, spices, salt, and breadcrumbs and then fried. A spiral freezer then decreases the temperature of the fish sticks from 80 to -18 °C/176 to -0.4 °F. These freezers are virtually made to order for individual applications. Their vertical configuration saves footprint room. In addition, the tightly meshed conveyor belts assure gentle transport of the fish sticks with their delicate coating.



Fish sticks rolling off the line: our cooling and freezing technology is reliable and long-lived. Thanks to the integrated Clean-in-Place system (CIP), even cleaning takes place in passing.

GEA Refrigeration Technologies offers reliable machines that can stand up to rough conditions and continuous operation. Each centimeter counts – which calls for really close quarters, including the individual production steps of deep-frying and freezing. Warm air inevitably enters the freezers, condenses on the heat exchangers, and impairs their function. An automatic control system minimizes these difficulties by assuring balanced conditions in the air between product entry and exit. Likewise, we counter the inevitable entry of moisture and, in turn, frost formation on the heat exchangers, with an automatic snow-removal system (SRS) or a sequential defrost system (SD). As a result, GEA spiral freezers can operate for days on end without interruption. Even dripping deep-fry oil cannot hinder the machines in their processing. GEA Refrigeration Technologies guarantees this, with matching stainless-steel conveyor belts and drives.

With respect to hygiene, our engineers certainly know what they're doing. The Clean-in-Place (CIP) system has no pity on the most stubborn grease film on the inside of a system.



Plate freezers and spiral freezers from GEA Refrigeration Technologies ensure that deep-frozen blocks of fish become golden fish sticks.



To ensure that everything is well rounded off during pizza production, these supermarket hits leave the freezer at -25 °C/-13 °F, and are then cold-stored at approx. -18 °C/-0.4 °F while they wait for transport to the customer.

As a snack in your hand, or ordered online for the office, or with extravagant toppings for a cozy evening, or as an economical and fast frozen-food dish for the family: the great diversity of this savory flatbread can hardly be outdone. And for the required cooling and freezing technology, diversity and individuality likewise play the deciding roles.

Tunnel and spiral freezers for pizzas

Refrigeration for rounding-off



Pizza is the most evident synonym for convenience food itself – throughout the entire world. In the USA, for example, we are told that Americans eat about 40 hectares of pizza every day – the area of around 90 soccer fields. Its great success is based on its versatility. Whether topped with meat, vegetables, or seafood: there is something in a pizza for practically everyone. And you can say the same about systems provided by GEA Refrigeration Technologies – whatever pizza variations are included in your product portfolio, we'll find the matching cooling and freezing technology.

Now and then, we are asked for a solution before production of these Neapolitan specialties actually begins. For example: for the harvest of broccoli, a popular pizza topping. Broccoli must be cooled still on the field with flake ice or liquid ice, since its great metabolic activity would otherwise quickly make it appear wilted. GEA Refrigeration Technologies offers the ideal ice generators for this purpose. You can also relax while depending on our systems for the subsequent cooling processes with broccoli and other vegetable types in the food-processing industry: for example, GEA IQF tunnels with individually quick frozen technology (IQF). This technology guarantees the individual freezing of fruits and vegetables, so that vegetable topping can be easily weighed later by a machine and distributed over the pizzas.

But before this stage, of course, the yeast dough must be kneaded, formed, pre-baked, and cooled again, to prevent the frozen vegetables or ground meat, for example, from immediately thawing. In the next step, the pizzas pass through the freezer, with entrance temperature between 45 °C/113 °F and 100 °C/212 °F, depending on the pizza. The temperature at the end of the production process, to be sure, is always -18 °C/-0.4 °F. The freezer cools the product down to -25 °C/-13 °F, to provide a “buffer”; otherwise, the light and thin convenience food could warm up above the specified -18 °C/-0.4 °F during packaging.

In the pizza sector, production with large-capacity facilities and three working shifts a day are typical. Cost-effective work is of course possible under these conditions only with high-performance and long-life systems that are not easily susceptible to breakdowns. Two good examples of solutions here are our GEA E-Tec and GEA A-Tec double-drum spiral freezers, with output ratings of 12 tons per hour.

With such production volumes, down times mean great loss of money. Still, the most reliable systems need maintenance now and then. To allow the service team easy access, the drive systems are installed outside the equipment housing. In addition, GEA Refrigeration Technologies, if requested, can also deliver freezers with sequential defrosting functions (SD). With these solutions, the equipment can operate without interruption for six days. But cleaning must always be quickly and effectively possible. This begins with the basic design: dirt has no chance from the very beginning to adhere to smooth and jointless stainless-steel structures. The integrated, automatic Clean-in-Place system (CIP) ensures no-compromise hygiene – and in conjunction with a special recirculation system, it also saves water.



Vegetables and spices are distributed while still frozen over the pizzas. GEA tunnels with IQF technology are the perfect solution here. Gentle movement and efficient refrigeration during the entire cooling and freezing processes provide the basis for high-quality products that can then be very easily distributed over the pizzas.



Dryish bread is only the main ingredient for French toast. Efficient and gentle cooling and freezing of this internationally popular specialty, however, demand advanced technologies: for example, from GEA Refrigeration Technologies.

French toast is a popular offering on the breakfast table throughout almost the entire world – served as a savory or sweet dish, depending on typical national or personal preferences. Whatever consumers best enjoy eating – perfectly matched freezers assure total satisfaction.

In touch with bakery products

Refrigeration technology tailored for French toast



Although the Romans of antiquity knew about it, the technology used to produce it today is brand-new. Here we're talking about French toast, a flour-based food made from dryish bread, eggs, milk, and cream. Although known around the world, this dish has many different names. If you order "French toast" in France, however, you won't get very far. What you want to order there is "pain perdu", or "lost bread". The name "French toast" is used, though, especially in the USA. Germans and the British know this specialty under the names "arme Ritter" and "poor knights", respectively. The Hungarians say "bread in a jacket". There is little difference in actual preparation of French toast, however. Many consumers prefer to buy the prepared versions, which need only to be heated and seasoned as desired.



Although French toast seems hardy enough owing to its ingredients, freezing technology – as with many other bakery and pasta goods – demands a very fine touch and technical expertise. And that's why we not only match our freezer systems to your product – we also put them to the test.

For a large manufacturer of baked goods, we have for example tailored two twin-belt spiral freezers that freeze a total of around 3 tons of French toast per hour. Each spiral freezer has two infeed and outfeed sections so that we can serve 4 production lines with 2 spiral freezers. The square toast slabs, 2 cm thick, have a temperature of 77 °C/170.6 °F after baking, and must be cooled down to -18 °C/-0.4 °F. This process must not, however, impair the form or quality, and the goods must not dry out.

A delicate matter at any rate: French toast. To assure delicious taste, it is essential that the product not dry out during freezing. Our engineers accordingly match the refrigeration technology exactly to your products.

Our Research and Development Department simulated the local characteristics and the ambient conditions of the customer's production lines, and with the aid of trial runs perfectly matched the air flow and the heat transfer to the product. In this test phase, our developers very carefully documented product characteristics, such as temperature and weight, during freezing. In order to perfect freezer operation for this special production, they in addition recorded the air velocity and the retention time in the freezer. In other words: considerable effort for the experts of GEA Refrigeration Technologies, and very little work for satisfied consumers during preparation.

Cakes and tortes with fresh fruit, and chocolate bars with glossy, silky surfaces – the mere sight of such sweet temptations causes many people to melt. But the products themselves must keep their form, with the aid of advanced refrigeration and ventilation technology.

Shock freezing for sensitive fruit

Cost-effective shock freezing for berries, without cryogenic freezing

Fragrant breakfast rolls, cakes, or cream cakes – consumers are keen to reach for deep-frozen bakery goods. The reason: quick accessibility and ease in preparation. Since these products contain small amounts of frozen water, they thaw quickly and allow the consumer to shine even when guests arrive unexpectedly. In addition, raw dough for individual further preparation is well accepted, even by gourmets: flaky pastry, for example. For good quality here, high-performance freezers are necessary. They quickly freeze not only the surface of the product, but also its core – which assures a fine crystal structure that allows baked goods to thaw in perfect form.

In the production of cakes and tortes, fruit such as berries often plays a key role. For them to really enhance the taste of baked goods, they must be ripe and aromatic – but chewy and attractive at the same time. Advanced freezer technology preserves sweet fruits in a perfect stage of eatability.

In the engineering design of freezer plants by GEA Refrigeration Technologies, culinary delight is naturally not the only key factor: we of course strictly observe all the pertinent standards involving food hygiene. In addition, our freezers guarantee IQF quality (IQF = individually quick frozen), with the result that your bakery staff can count on first-class bulk food products.

This solution developed by GEA Refrigeration Technologies offers enormous energy savings over conventional cryogenic systems. Sensitive products such as raspberries are pre-frozen in an impingement freezer and then finally frozen throughout in the downstream tunnel freezer. Then graduated shock freezing takes place under high pressure with air nozzles located above and below, to ensure high degrees of heat exchange. The conveyor belt does not move during these steps. This procedure produces only very small ice crystals. As a result, the cell structure of the fruit remains extensively undamaged during thawing, so that the fruit – despite delicate structure and high water content – do not lose their form and can serve, for example, as the crowning optical delight on a cream torte.



Sometimes GEA Refrigeration Technologies shock-freezes fruit to such a degree that it hardens. This is, to be sure, for a good purpose: as a result of shock freezing, with pre- and post-freezing, tender fruit remains in good form after thawing, and becomes exclusive constituents of delicious cakes or other delicacies.



When the ventilation units are scheduled for cleaning several times a year – such as here at Mars in the Netherlands – ease of access of the systems is absolutely critical. Thanks to its smooth and hygienic surfaces, stainless steel simplifies this work.

In touch with Mars

Not too hot, and not too cold

When chocolate covers temptingly crunchy cookie material, precise temperatures are critical. If the room temperature is too cold, the chocolate coating will become tough; if the ambient air is too warm, only an ultra-thin coating would be possible. To ensure successful chocolate coatings, ventilation systems keep air temperature constant: for example, in Mars chocolate production in the Netherlands. These systems feature heating and cooling banks. These heat exchangers – like all other parts of the equipment – are easily accessible and can be cleaned from both sides. The use of stainless steel for crucial components likewise simplifies regular cleaning.

In the bakery, in which the crunchy cores of sweet snacks are produced, the units are not required to heat. There the air cools the freshly baked products in passing. Removal of vitiated production-floor air is provided by three air-extraction fans whose motors are installed outside the air flow – which prevents dust pollution of the motors by fine particles of cookies or nuts that are suspended in the air.

Everything from one company – cooling and ventilation technology for Mars:

- Exhaust-air fans for roof installation, with two fans for non-interrupted operation during cleaning
- Installation of the motor outside the air flow for reliable operation
- Easy-to-open enclosure for simple maintenance
- Integration of the control system of the exhaust fans into the entire ventilation facilities

The trend to an increasingly extensive diversity of convenience food is associated with growing refrigeration requirements – which, in turn, means that energy saving is ever more critical. With advanced technologies for refrigeration, you can likewise exploit energy-saving potential for storage and distribution of the products.

So that good things get there in good shape

Energy-efficient storage and distribution



Once manufacture of a product is complete, the end of requirements for carefully thought-out refrigeration technology is by no means in sight. On the contrary, ever larger product portfolios mean that the areas of storage and distribution have become ever more important. For the company Johma Salades b.v. – the largest Dutch producer of delicatessen salads and sandwiches – GEA Refrigeration Technologies has modernized the refrigeration of three storage rooms. The existing system, based on R22 as refrigerant, was no longer able to assure the required room temperature of 2 °C/35.6 °F. Our engineers installed a central ammonia pump that – in accordance with the customer’s wishes – can later be connected to the central cooling system. In addition to this pump, the new facility includes a compressor, a frequency-controlled electric motor, an oil separator, an air-cooled condenser, a high-pressure float valve, ammonia separators, and evaporators.



This facility, including gas sensors and ventilation system, is installed in an insulated machine room, directly behind one of the cold-storage rooms. The piping system consists of steel, insulated with polyisocyanurate (PIR) hard foam and aluminum. It withstands high pressures and is tested for leaks. The air condenser is installed in a cold-storage room. The products are cooled by means of naturally defrosting air coolers that are positioned on the same side as the machine room.



An additional prominent reference is Great Britain’s popular supermarket chain Sainsbury’s. Sainsbury’s operates a new distribution center in Pineham, England. This warehouse complex accommodates fresh fruit and vegetables on floor space of more than 49,000 m², with a value of around 50 million euros. Starting from this advanced logistics center, Sainsbury’s delivers to 100 supermarkets in the region. The company has come up with a few ideas to improve its CO₂ balance. For example, Sainsbury’s has installed a weighing system in the access road to the distribution center. When a vehicle slowly passes over this system, this produces movement in the weighing system that in turn generates power for the warehouse complex.

GEA Refrigeration Technologies developed the entire refrigeration systems for this complex. They ensure temperatures at 1.5 °C/34.7 °F for fast-cooling storage and 8 °C/46.4 °F for the product warehouse. In order to observe the strict ecological requirements for this supermarket chain, the refrigeration systems – as for the Dutch company Johma – employ the natural and efficient refrigerant ammonia.



Convenience food business demonstrates growth figures. This of course becomes especially noticeable in business with the storage and distribution of the wide range of products. Here, nothing successfully works without energy-saving cooling and freezing technology.

Our products are not simply products. They are also solutions for the problems that you face. We present you with a great number of pre-defined as well as individually configurable solutions. This enables you to find the optimal configuration for your application – one that balances out expenses for planning and equipment installation, functionality, as well as investment and operational costs.

GEA refrigeration technology for convenience food

Our products for your products

Tunnel freezers

The energy-efficient GEA IQF tunnels are the right selection for cooling and freezing loosely rolling products. The IQF process assures that peas, raspberries and other berries, as well as French fries do not stick together and remain in separable bulk form. Frequency-controlled fans assure matching of the air flow to light-weight products to efficiently prevent product blow-off. The various options for the conveyor belts, as well as a choice of many possible temperature zones, enable selection of any required application: pre-cooling, cooling, freezing, or shock freezing. GEA designers have placed great emphasis on hygiene: GEA IQF tunnels are made of stainless steel with modular, fully welded enclosures and unit floors. GEA Refrigeration Technologies offers a wide range of pre-assembled IQF tunnel freezers from 0.5 to 3 t/h – and from 3 t/h upward, with pre-assembled modules.



Spiral freezers

GEA A-Tec and GEA E-Tec spiral freezers process products such as fish sticks, chicken nuggets, and other convenience foods, with capacity of up to 7 t/h. In spiral freezers, the products are conveyed in a homogeneous and efficient stream of cold air, over hundreds of meters, in order to keep the equipment footprint small. On this spiral you decide how to implement the entry and exit points, to perfectly integrate them into the production line. Frost-management systems, sequential defrosting (SD), and snow-removal systems (SRS) can extend the operational cycle of one shift up to 14 days, without interruptions for defrosting. Our Clean-in-Place (CIP) system guarantees thorough cleaning with little human effort and low water consumption. Our spiral freezers have been especially designed such that they satisfy very strict hygiene regulations and simplify cleaning: the entire structure, including unit floor and housing, consists of fully welded stainless steel.



Packages and skids

Perfectly inter-coordinated compressors, including their complete periphery, on stable, low-vibration frames – these are the GEA packages and skids. With our package solutions for refrigeration, you can rest assured that everything has been well thought out for you at our factory. And you can also be satisfied with low installation costs, since the units are completely delivered on a skid – ready to be hooked up and plugged in.



Piston and screw compressors

With its extensive offerings of piston and screw compressors, GEA Refrigeration Technologies covers all normally encountered requirements placed on the provision of refrigeration in the field of convenience food. These functions begin with the production process itself, and extend to product storage in cold- and deep-freeze facilities. As varied as the temperature requirements for sensitive products may be, our components always assure that even easily perishable goods reach their consumers in outstanding quality.



Valves and fittings

They are inconspicuous at first glance, but immensely important at second: the most suitable GEA valves and fittings. They are matched to their particular application – and not only with regard to maximum permissible pressures. The response behavior of the valves, the resistance of the components to the media used and to external influences, and a great number of additional functions and features mean that these small components make a major contribution to the service life and the safety of your systems.



Control systems

Similarly to valves and fittings, control systems often remain unnoticed, since their performance cannot be measured in impressive kilowatt ratings or volumetric flow. But it can be evaluated intelligence – which helps to find the optimal operating point, to save energy, to determine machine operating times and capacity utilization, and to thus enable maintenance based on the operating state. Whether for individual units or complete refrigeration systems – we deliver the control systems that assure you maximum benefits.

The products named here represent only a small selection from our comprehensive portfolio. But this selection should make it clear that refrigeration technology from GEA has many facets. This enables us to assemble those products for you – from the correct standpoint and from the great options in our portfolio – that will optimally satisfy your requirements. In this process you will profit from tried and proven system components that are assembled to provide a harmonious overall solution, and to offer you what you are looking for: moderate investments, minimum operating costs, and maximum benefits.



Are you looking for a company that understands your sector? A company that realizes the many and various demands that convenience foods place on cooling and freezing technology, that knows the reliability demanded of each individual component, and that has full knowledge of what happens during harvest on the field and during further processing in a factory? Then you have come to the right place with us. We solve your refrigeration problems – because we offer not only products, but also solutions – just as individual as your business and as customized as your production facility. And we are not only at your side during the planning phase: we also take care of the project engineering, implementation, commissioning, and maintenance of your equipment.

In touch – customer proximity with top priority With a view to your success

Engineering

Tempting raspberry tortes or golden French fries: processing and later storage of your products cannot be implemented with standard refrigeration solutions. Virtually all large refrigeration systems are thought out on an individual basis, so that your investments remain low and your benefits come out high. Nevertheless, in your factory, where every cubic meter is precious and many trades compete for space in cramped quarters, there is still the possibility of combining standard components in customized manner, and thus to arrive at a tailored solution. A solution that is optimally matched to your requirements with respect to investment, functionality, space requirements, a minimum of maintenance, and long life cycles. And, on top of everything, our solutions are energy efficient, to ensure thrifty application of valuable resources.

In dialog with our experts, you will soon realize that you are speaking not only to refrigeration engineers. You will see that your contacts at GEA Refrigeration Technologies for development and engineering speak your language and understand your sector. That promotes dialog with you, simplifies formulation of problems, and finally leads to implementation of safe and reliable systems that have been harmonized with the transport and production functions required. And, since we deliver complete measurement, control, and instrumentation technology in addition to the hardware, interface problems simply do not exist.

After signing the contract, our team will by no means desert you. It will support the setup of your systems, as well as assembly and commissioning of your equipment. After all: we bear responsibility for the success of your business.



Engineering and redesign

It is a paradox, but one of which we are well aware: even on the largest factory floor, space can be at a premium. This is why we help you to find the optimal solution and to arrive at optimal integration of the required technology in existing infrastructure – even without interrupting production. In many cases, enhancement of your benefits will also occur. This is because, for example, our systems require less space, enable a fluctuation of cooling or freezing output, allow completely different products to be frozen at the same time – and because they simply save energy. After all, we are well aware that special standards apply in work with food. Place your trust in the experience of our engineers. They create solutions with a long view, to assure that your investments bring in maximal returns.

Service

French fries run off the conveyor belt all day long. In processing such products, you are at work not only during the week, but often on weekends as well. Preventive and restorative maintenance cannot therefore be concretely scheduled at prescribed intervals. No problem. We are there if and when you need us. And to ensure that down time remains at a minimum, we would be glad to flexibly plan human resources as well. This flexibility will likewise be reliably supported by the mechanical engineering involved – which is why we place such value on low-maintenance, rugged equipment assemblies. And, if intervention should now and then become necessary to maintain the reliability of our equipment, we stand ready with advice for your staff and train them in the most important maintenance work for “in-between”.

Spare parts

Whether as part of regular maintenance or owing to unplanned down time: even the longest-lived system now and then needs a spare part. And such parts must be available not only when you need them, but also where. This is why we have support points around the entire world that stock the normal wear, spare, and exchange parts from GEA Refrigeration Technologies for you. This means, for example, that minor repairs or maintenance won't become a major problem. To simplify logistics, we also pay attention as early as the machine-design phase that the same wear parts will be used in as many different modules as possible – which eliminates unnecessary proliferation of part types. For us, this means simpler warehousing operations at the service support points – and for you this enhances the chances of spontaneous availability and fast assignment of our service team. A win-win situation that saves both of us time and money.

GEA Refrigeration Technologies works toward the following:

- Comprehensive consulting and responsible project support
- Great investment security
- Future-proof solutions
- A maximum of equipment operating time
- Long equipment life cycles
- Low energy consumption
- Minimal operating expense
- Highly competent service
- Fast spare-parts delivery
- Technologies that are friendly to the climate and the environment

Would you like to learn more about us and our solutions? Then go to the right place, at this Web site: www.gearefrigeration.com





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.



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