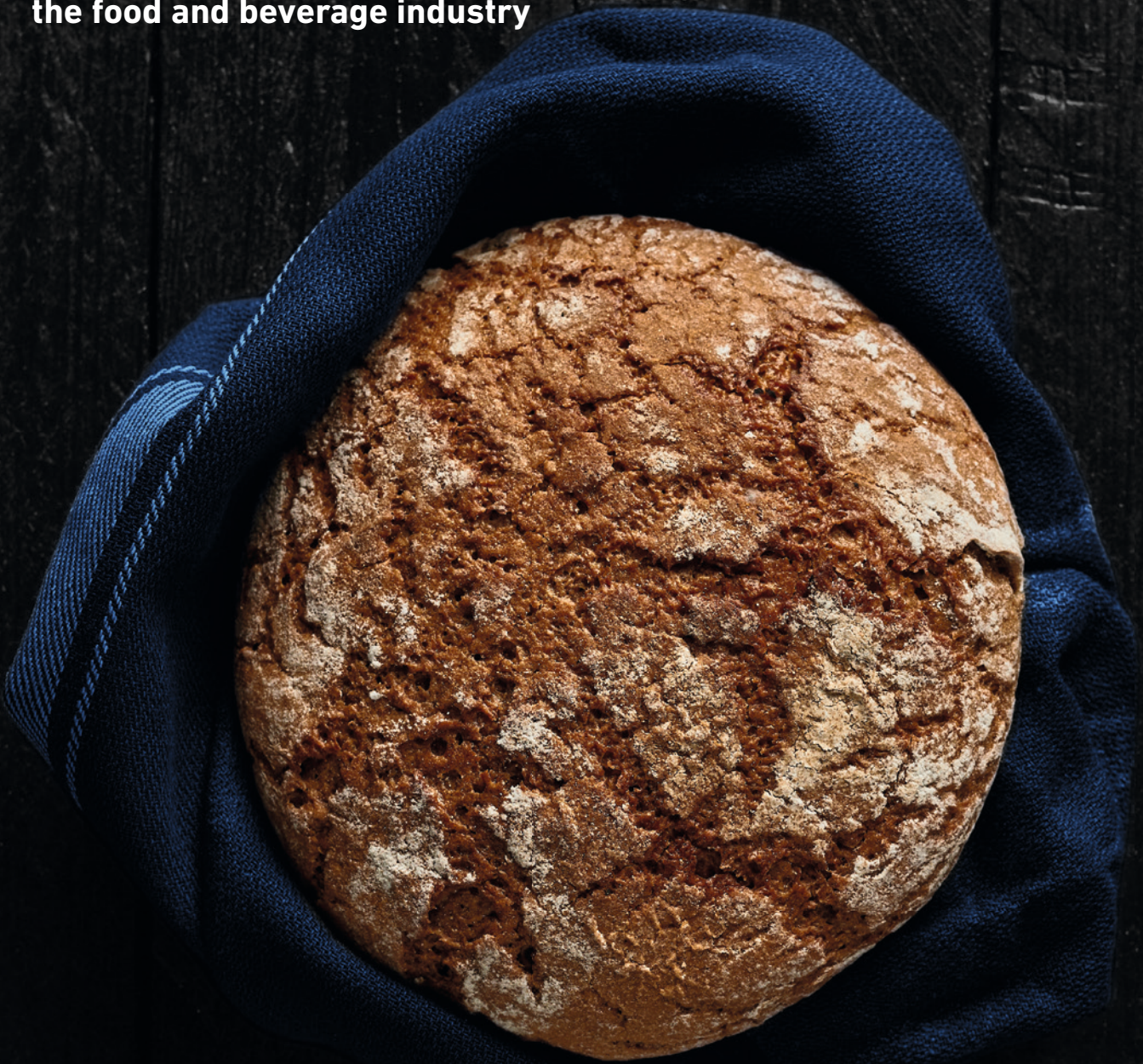


GF Piping Systems

+GF+

# Ensuring faultless quality

Innovative piping solutions for  
the food and beverage industry







From the field to the plate

# Reliable piping systems along the whole production line

**Food and beverage producers face demanding challenges: increasing energy and personnel costs, stringent hygiene and environmental conditions, and more complex production processes. GF Piping Systems is a partner you can rely on as a full solution provider. With customized solutions, we help you to improve the end-product quality, minimize the risks of downtimes, and with our lightweight, corrosion-free solutions, we help you to improve the energy efficiency across your enterprise.**



The maintenance-free, lightweight, and long-lasting plastic piping systems suit various food and beverage production applications. These include process cooling and air conditioning, water transport and water treatment, transport and metering of auxiliary materials, cleaning in place (CIP), and building technology for production and office facilities.

#### **Peace of mind for at least 25 years**

GF Piping Systems' solutions are approved for use with drinking water and foods, and can also withstand abrasive and aggressive media such as process chemicals and fermented foods (e.g., vinegar or seasoning sauces). With an operational lifespan of 25 years, our solutions, including the pre-insulated systems, can be cleaned with high-pressure cleaning without damage. Thanks to high-performance materials that withstand harsh in- and outdoor conditions and GF Piping Systems' planning and installation services, our systems can be installed on a raised floor, outdoors, on rooftops, and in very confined spaces.

## **Your key benefits**

- **No leakages caused by corrosion which means no production downtimes**
- **No contamination thanks to smooth surfaces and suitable jointing technologies**
- **Reduced maintenance**
- **Improved energy efficiency**
- **Low operation costs due to lower repair and energy requirements**
- **Lower risk of fouling in your piping systems**

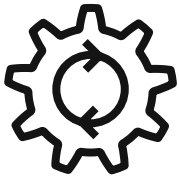


Our solutions

# Seeking for solutions where simply everything fits together







## A high-quality piping system is more than the sum of its components: only their optimal interoperability allows you to realize all advantages of the solution.



### Solutions beyond compliance

Humid conditions and aggressive media, often used for cleaning, pose a risk to metal piping systems, causing corrosion and thus, leakages and downtimes. Reduce maintenance and repair costs by investigating the benefits of corrosion-free, thermoplastic piping solutions.



### Transport of highly aggressive media

Plastics have excellent resistance to chemical and mechanical stresses. These include applications with drinking and wastewater, cooling liquids, acids, alkalis, and other chemicals, and abrasive water-solid mixtures. Therefore, plastic piping systems have significantly less leakage than traditional metal solutions. At the same time, they show comparable mechanical behavior and, in certain situations, are even more advantageous due to typical material flexibility.



### Energy efficiency and sustainability in production

Energy-efficient and sustainable production becomes more and more important for food and beverage producers. The production of thermoplastic solutions is less CO<sub>2</sub> intensive than for metal piping systems. Also, they show excellent efficiency characteristics during operation and recycling possibilities. For example, the pre-insulated solution COOL-FIT leads the way when it comes to energy-efficient cooling- and refrigeration applications. COOL-FIT saves at least 30% of energy compared to traditional cooling systems, helping to reduce operating costs and CO<sub>2</sub> emissions drastically. GF Piping Systems is using bio-attributed materials in all of its market leading PVC-U metric pressure pipes, fittings, and valves produced in Europe.



### CIP (Cleaning in Place)

Cleaning in place (CIP) processes require highly concentrated cleaning solutions to be transported from storage into dilution skids within the production area. Unexpected leakages can damage the environment, health, safety, and quality.



### Process Automation

We use our know-how and experience of the complete control loop to solve the entire process challenges. Supporting you in every step of the process, enabling the design, selection, and installation of Process Automation systems. With Process Automation, GF Piping Systems can supply every customer not just with the highest quality parts but with an interoperable all-in-one solution.



### Approvals and tests

Transporting and storing food is regulated by law. The Dekadur LHP and transparent Dekadur G pipes provide a unique combination of the advantages of PVC with the requirements of EC 10/2011 and EU 1935/2004. Besides that, our PVC-U and PP-H systems also achieved different approvals like KTW-BWGL, ACS, KIWA ATA, WRAS, FDA, and NSF 61.





## Application overview

# Support in each step of your production

**Refrigeration processes in breweries, wineries, dairies, and meat and fish production often require accurate temperature control combined with high cooling capacity. The regulated flow of glycol, brines and chilled water in pre-insulated plastic pipes within the secondary cooling loop allows precise and cost-effective management and control.**

A clean and fresh water supply for irrigation is also key to helping ingredients grow appropriately and become good quality food at the end of the whole journey.

GF Piping Systems is a reliable partner to support during the whole process. Various applications along the production line such as vegetable and fruit cultivation, meat and fish processing, secondary refrigeration in breweries, and the secure cold food chain are common in the food and beverage industry.





Scan the QR code and discover the Food & Beverage application world and our suitable solutions.



### 1. Fish farms

Food production halls, packaging areas for fresh fish, and the production processes are all areas where temperature-controlled environments are essential. Also, fish food and clean water are carried to the tanks while wastewater is pumped out of them, purified, and recirculated.

### 2. Dairies

The dairy industry has numerous requirements for cooling, refrigeration, CIP and water treatment. The most common applications are cooling of milk via a plate heat exchanger, cooling of the storage tanks for the milk or storage areas for other milk-based products and foodstuffs.

### 3. Animal farms

Animal farms require sufficient access to drinking and clean water to take good care of the animals and to secure growth. Furthermore gas scrubbers are needed to capture the ammonia and to clean the air.

### 4. Greenhouses and vertical farms

Greenhouses have to create different environmental conditions such as humidity, temperature, and soil aeration, often in very demanding environments. Especially vegetable and fruit cultivation and mushroom farms are important applications where a secure, watertight distribution and a reliable cooling system are necessary.

### 5. Agriculture

Water is a valuable resource during production, and a sustainable piping system for irrigation is an important factor in optimizing the crop. The irrigation system needs to be optimized to avoid over-watering and minimize the leaching of nutrients and pesticides.

### 6. Wineries

Throughout the wine production process, a temperature-controlled environment is of paramount importance to the efficiency of the winery and the quality of the wine.

### 7. Breweries

The history of secondary refrigeration in breweries is also long, with brines and salt solutions often being used to cool and control the fermentation process and climate control in the storage rooms. Simple and cost-effective installation followed by an efficient, maintenance-free system is what every brewery manager requires.

### 8. Industrial food and beverage processing and production

Innovative cooling solutions for the manufacturing and processing of food and beverage are both faultlessly hygienic and economically efficient, for example needed in sauce production, fish and meat processing and instant food production.

### 9. Cold stores and ripening rooms

Cold stores are a vital link in the cold food chain. The responsibility of the cold store for the smooth functioning of the cold food chain logistics process is huge. Ripening rooms have adequate refrigeration capacities to remove the heat that climacteric fruits generate during ripening.

### 10. Supermarkets

Supermarkets are the best examples of securing the cold food chain, with consumers expecting fresh and high-quality food. Relocating part of the installation outdoors, such as on the roof, is often necessary to use production areas efficiently and keep food fresh.

### 11. Hospitality

Uninterrupted cooling processes and air conditioning ensure an ambient and comfortable environment at restaurants and bars.



Agriculture and farms

# Partner for the modern growth

Growing and producing food sustainably and efficiently is more important than ever. The global environmental crisis, growing populations, and decreasing resources are major challenges for modern agriculture and farming. New solutions like vertical farms require smart and reliable solutions. GF Piping Systems has a variety of plastic piping systems which support your growth.

## ELGEF Plus

ELGEF Plus is the correct choice for all water, gas, and multiple industrial pressure applications. With numerous advantages, including corrosion-free, low weight, high chemical resistance, low overall costs, and extended service life of installations, the extensive customization of ELGEF Plus products, coupled with the system's flexibility, offers decisive advantages.



## iJOINT

iJOINT compression fittings are the perfect choice for water supply applications. iJOINT is ready for use and installed without special tools. Even with large diameters, installation is effortless, as the pipes do not touch the internal components during the insertion process. iJOINT is suitable for PN16 bar throughout the complete range, including couplings, reductions, T-pieces, elbows, threaded connections, and end caps in dimensions from d 16 mm to d 110 mm.



## ecoFIT

All ecoFIT components are suitable for the safe and efficient distribution of water, wastewater, and chemicals. The corrosion-free system withstands UV, sunlight, and weather influences while being usable in a wide temperature range from -50 °C to 60 °C. Thanks to a long service life of over 25 years and low installation and maintenance costs, ecoFIT is the perfect solution for many applications.







## Key applications

### Irrigation

Irrigation includes drainage, soil reclamation, and erosion control. If you ignore any of these factors due to either a lack of understanding or planning, agricultural productivity will decline. It is a system extending across many technical and non-technical disciplines and only works efficiently and continually by integrating all the components seamlessly. GF Piping Systems provides excellent and technically competent products for both new builds and the maintenance and repair of today's irrigation networks.



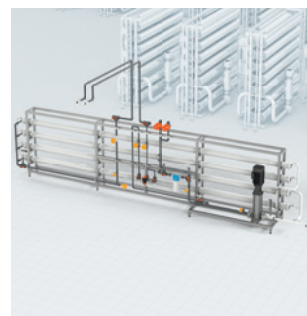
### Fertigation

One of the most important innovations recently in vegetable cultivation is fertigation. It is now also present in open-air cultivation. Today, fertigation introduces a specific nutrient into the irrigation water to increase the quality and yield of the cultivation. It limits water waste and manure distribution, reducing soil pollution due to lower nitrogen consumption. GF Piping Systems has numerous solutions to produce fertigation units.



### Water and waste water treatment

Water is an essential and indispensable element in almost all industrial processes. It is a primary product in sectors like food and beverage and is used in cooling, steam generation, or boiler feed systems. Using water in the industrial environment requires consistently high water quality, specifically defined physical parameters like ion purity, acidity, or conductivity.







# Faultless and energy-saving industrial production

Unlike conventional systems made of metal, COOL-FIT has a uniformly closed surface, minimizing the risk of poisoning during cleaning and operation. All surfaces are sealed, UV-resistant, and protected from rain and other influences.

## COOL-FIT 2.0 and 4.0

Make your cooling circuit more efficient with robust pre-insulated plastic piping systems. COOL-FIT is a cutting-edge technology piping system including pipes, fittings, valves, flexible hoses, and tools, ensuring complete system integrity and a perfect seal. Designed and optimized for fast and easy installation and at least 25 years of operations with zero interruptions and maintenance. The reliable and efficient alternative to post-insulated metal piping systems.

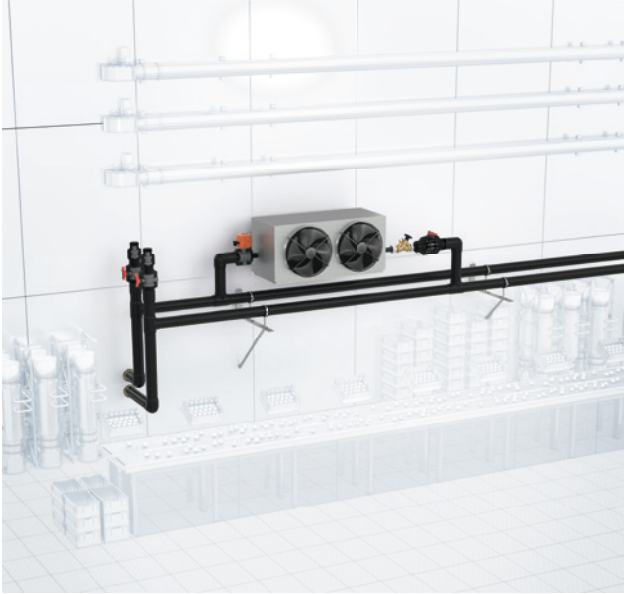
### Applications

We have designed our cutting-edge technology for versatile use in cooling applications, combining corrosion and maintenance-free components with a reliable and efficient system with factory pre-insulation. Safe, easy, and quick to install, the system is ideal for food and beverage production, storage, and HVAC applications.



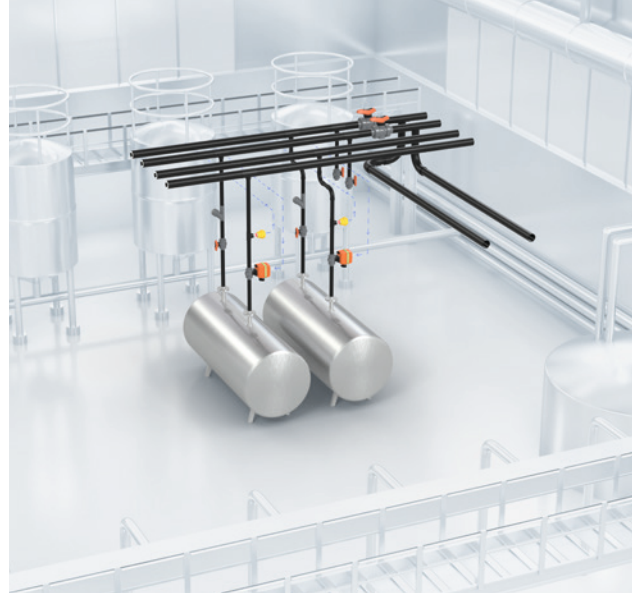


## Key applications



### Food production and processing

During the manufacturing and processing of foods, reliable cooling is essential for faultlessly hygienic and economically efficient production.



### Dairies

The dairy industry has numerous requirements for cooling and refrigeration. The most common applications are cooling milk via a plate heat exchanger, cooling the storage tanks for the milk, or storage areas for other milk-based products and foodstuffs.



### Breweries and wineries

Corrosion resistance is particularly vital in the cooling processes of beverage production because of the constant use of water and liquid primary products.



### Meat and fish

Food production halls, packaging areas for fresh food, and the production processes are all areas where temperature-controlled environments are essential. Especially in working areas where foodstuffs are exposed to the surrounding environment, secondary refrigeration systems with propylene glycol (MPG) are common and often required by law due to possible food contamination by leaking refrigerant gases.



# Food and beverage production and processing



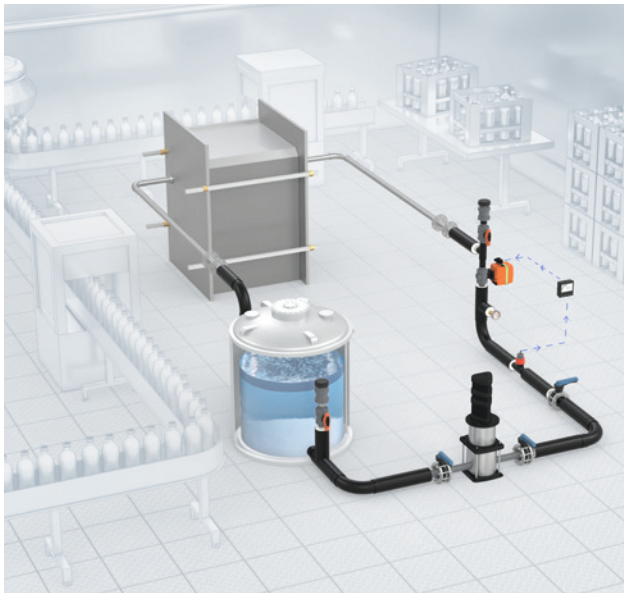
## Bakeries

The baking process is a highly temperature-sensitive process. The cooling system is critical in bakery operations for large industrial bakeries or smaller regional plants. Chilled water and glycol solutions must be distributed efficiently, accurately, and safely in such plants.



## Process cooling

Production processes require stable temperatures for machinery. Reliable and maintenance-free cooling systems help to make production more efficient.



## Carbonated drinks

The fizz and characteristic taste of soft drinks and carbonated water come from dissolving CO<sub>2</sub> in water, causing a reaction of dilute carbonic acid. Cooling is an essential part of the bottling process for all carbonated drinks.



## Cold stores

Cold stores are a vital link in the cold food chain. As we know it, the modern world is dependent on fresh or refrigerated foodstuffs. The cold food chain is an integral part of our daily life where products must be stored reliably and with accurate temperature control. The energy costs of cold stores are high, so any technological advancements that can be made will have economic and ecological benefits. The huge reduction in refrigerant charge, the stable temperature control, and the practically maintenance-free running of such a system make secondary systems an economically viable option in terms of the total cost of ownership.



# Handling media safe and clean

Double containment systems are essential where unexpected leakages can damage the environment, health, safety, and quality. Combined with PVC-U pipes, it gives you peace of mind for your food and beverage application.

## CONTAIN-IT Plus

CONTAIN-IT Plus is the ideal solution for the safe transport of hazardous media. It combines the chemical resistance of dedicated inner pipe materials with a containment pipe's additional safety.

### Applications

The extremely flexible system offers many applications for the chemical process industry, water and wastewater treatment, and the food and beverage industry.



## FUSEAL Squared®

FUSEAL Squared double containment piping is ideal for corrosive waste conveyance systems where secondary containment is required or desired.

### Applications

FUSEAL Squared has chemical and physical properties that make it an ideal and complete solution for handling corrosive chemical waste in buried laboratory and industrial DWV applications. FUSEAL Squared is suitable for use in virtually every application where acids, bases, and solvents are drained, and environmental protection is key.



## PVC-U

With its excellent chemical and corrosion resistance, the PVC-U System offers numerous fields of application. GF DEKA is synonymous with high-quality pipes with individual properties tailored to the exact application area. The variety of materials and continuous development of the processing technology, combined with a deep understanding of the relevant material properties, make us the ideal partner for PVC pipes. GF Piping Systems offers the first infrared welded PVC-U system to ensure faultless quality.

### Applications

The system is widely used in the food and beverage industry for water and drinking water treatment and vacuum lines.







Supermarkets and hospitality

# Keeping the right temperature

Refrigeration and air conditioning play a vital role in cooling applications. Supermarkets, restaurants and bars can benefit from the corrosion and maintenance-free alternative to post-insulated metal. COOL-FIT enables constant temperatures of your cooling system and ensures a healthy and pleasant atmosphere concerning temperature and humidity.





## Key applications



### Refrigeration

Refrigeration processes always require accurate temperature control combined with high cooling capacity. The regulated flow of glycol, brines and chilled water in pre-insulated plastic pipes within the secondary cooling loop allows precise and cost-effective management.



### Air conditioning

Uninterrupted cooling processes and air conditioning ensure an ambient and comfortable environment at workplaces, residential buildings, hospitals, restaurants, and bars.



## References

# Reliable systems for sustainable processes – approved by the markets

At GF Piping Systems, we use cutting-edge technology designed for versatile use in cooling applications. It combines corrosion and maintenance-free components with a reliable and efficient factory pre-insulated system. We've successfully delivered more than 500 customer projects in multiple industries and installed more than 500,000 kilometers of COOL-FIT pipe globally.



### **Bischofszell Nahrungsmittel AG, Bischofszell, Switzerland**

The Swiss Bischofszell Nahrungsmittel (BINA) is a leading manufacturer of convenience and fruit products as well as instant meals and beverages for retailers, industry, bulk consumers, and export. Its operation poses the highest demands on the cooling system – to keep the cooling chain of the foods intact at all times, pipes carry a glycol mixture. With the COOL-FIT 4.0 system, the food manufacturer has now modernized its cooling system during ongoing operation.



### Champinter Soc. Cooperativa, Villamalea, Spain

The Spanish mushroom production and processing cooperative Champinter was looking to expand its facilities and needed a new piping system for its plant – one which met the strict temperature and humidity requirements of high-quality mushroom cultivation. The COOL-FIT system not only meets all the technical requirements for stable growing conditions; it has also reduced costs for the customer at both ends. The plastic piping made installation as quick and cost-efficient as possible, eliminating the need for welding, insulation and mechanical protection. In addition, the durability and reliability of the energy-efficient COOL-FIT system radically reduces maintenance costs, resulting in substantial customer savings over the long term.



### Zonzo Estate - The Yarra Valley, Yarra Glen, Australia

In late 2019, the business embarked on an ambitious project to convert an empty warehouse into its brand-new winery, born from a simple aspiration to bring friends the best drop possible. The cooling circuit, custom-designed for the project, uses a mixture of glycol and water, circulating at a temperature of  $-5^{\circ}\text{C}$  and 4 bar of pressure, and is supported by 200 kW of chiller capacity. The glycol circuit is the main pipe run for the winery production for white and red wine. Thanks to the pre-insulated piping, it looks beautiful and has incredible energy efficiency, with minimal transfer and energy loss.



### Erusbacher & Paul, Villmergen, Switzerland

The Erusbacher & Paul brewery, founded in 2000 and based in Villmergen, has eight employees who produce a total of 16 different types of beer and about 6,000 hectoliters of beer each year. The company was looking for an efficient, hygienic, and visually appealing pipe cooling system for its new building. The pre-insulated COOL-FIT system from GF Piping Systems won the company over, thanks to its fast and simple installation, robustness, and ease of cleaning. An additional advantage, discovered during operation, was that condensation did not form at any point. The brewery is currently cooled using around 30% less energy.



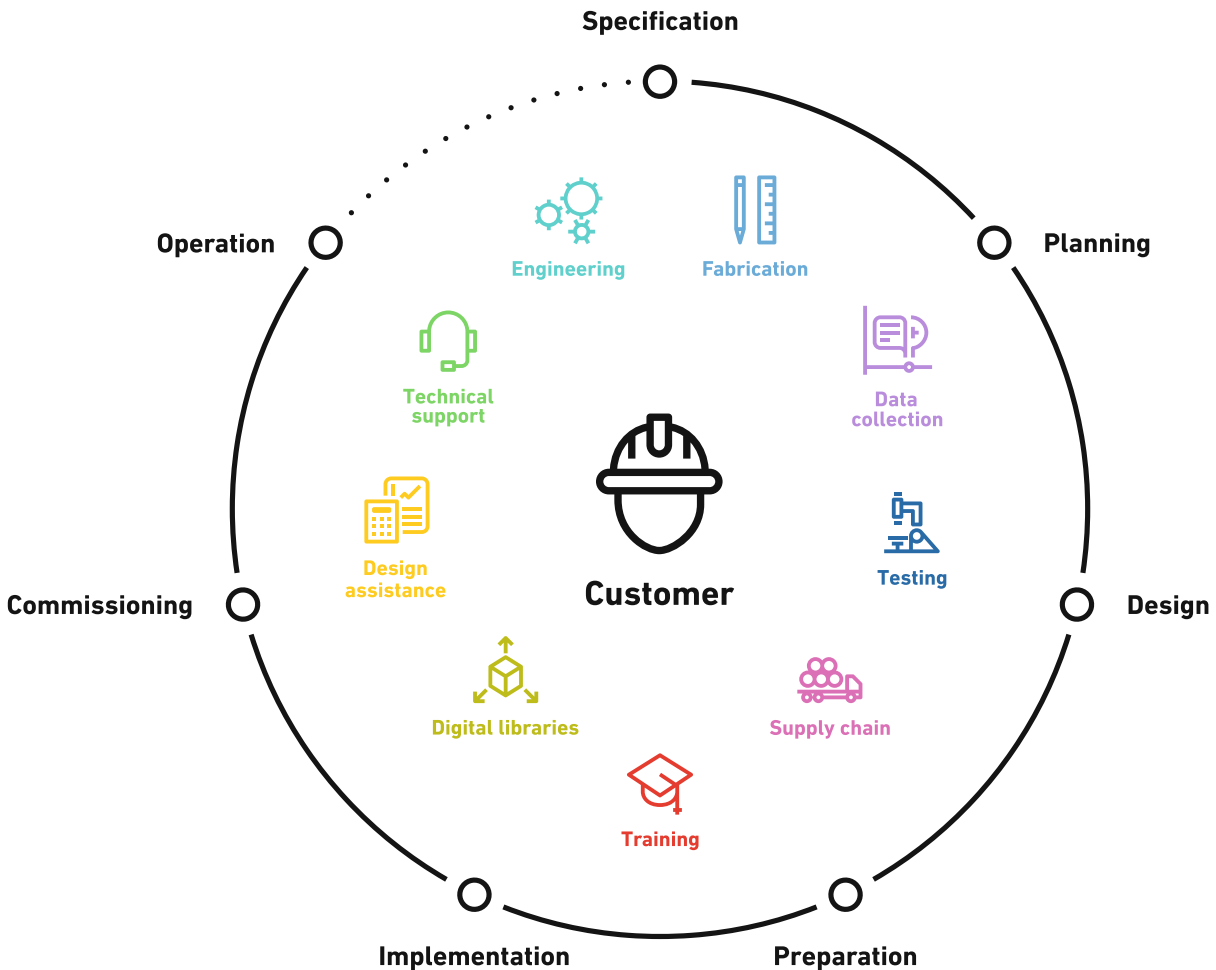
### Porta Samedan Shopping Center, Samedan, Switzerland

The Porta Samedan shopping center in the Swiss Alps was built with a focus on sustainability, which is why the country's largest retailer chose COOL-FIT for its air conditioning system. The center includes a variety of shops, including the Migros supermarket, which need to be cooled and heated to accommodate the growing number of visitors. The pre-insulated piping system COOL-FIT also appealed to the installers, with quick implementation thanks to its light weight and easy to use electrofusion jointing technology, ensuring a fast and smooth construction period. With one third lower emissions caused by the maintenance-free COOL-FIT system, the retailer is sure to pursue a more sustainable future, while providing an uninterrupted offering to its visitors.



# One partner from planning to commissioning

With Specialized Solutions, the global leader GF Piping Systems provides project support every step of the way to achieve construction excellence. Allowing owners and planners to concentrate on their daily business without interruption.





### Cooling Tool-box

The cooling calculation tool from GF Piping Systems supports the dimensioning and design of the secondary circuit. The cooling calculation tool includes calculation functions for expansion and contraction, energy-saving, surface temperatures, pipe dimensioning, pressure losses, CO2 footprint, and many more.

### Custom product design

With your individual needs and application in focus, our customizing teams forge the solution that best fits you, developing custom-made parts to complete systems or special solutions produced in small series, individual consulting, and off-site prefabrication. We offer a wide range of comprehensive solutions through our global network of flexible locations. Tailored innovation, inspired by you.

### Digital libraries

The libraries cover three key areas for designing, creating, and maintaining a project: Building Information Modeling, the Plant Design Software, and the CAD Library helping you reduce costs and construction times while ensuring design accuracy and integrity. Reduce time and effort while ensuring design accuracy and integrity.

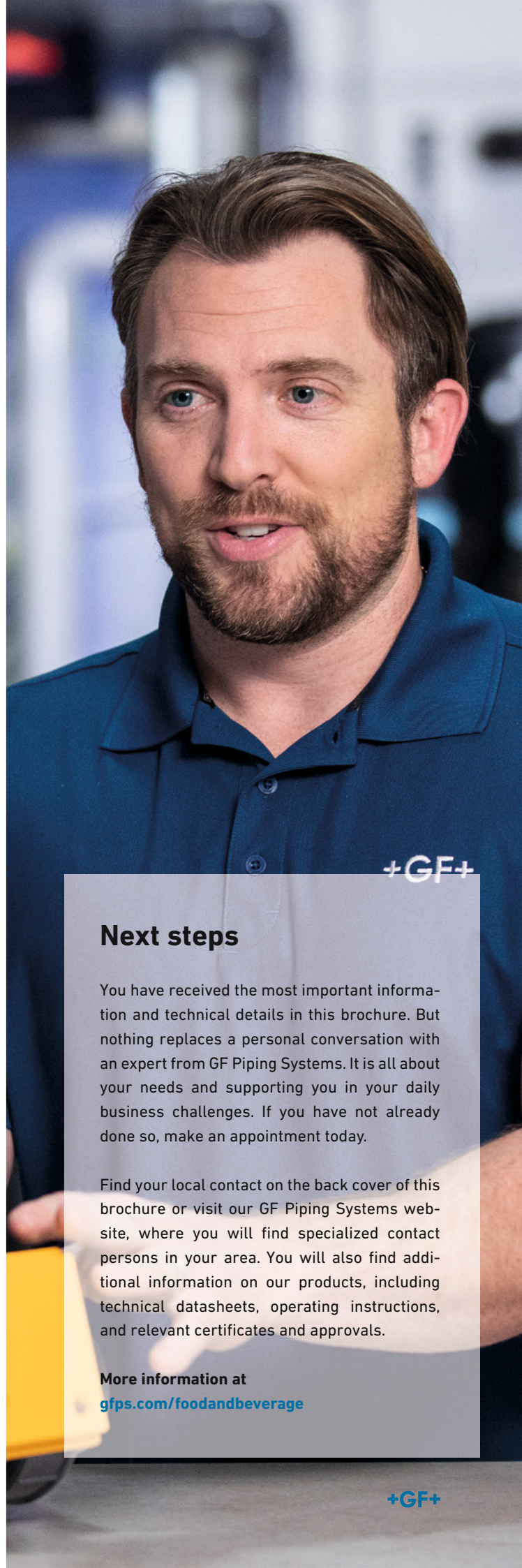
### Engineering

Increase the efficiency of your project with tailor-made analysis packages from GF Piping Systems that help minimize project risks by diminishing incorrect calculations or wrong material selection. Rely on GF's experience in fast project implementation and choose our durable, safe, and reliable piping systems delivery. Established knowledge, guiding you through.

### Training

Installers can master installation techniques related to our portfolio in a safe environment using our instructional courses or our pioneering virtual reality training modules. With each module, your team of installers can become better prepared for the experience of being on-site, welding, and installing our world-leading piping systems.

**More information at**  
[gfps.com/specialized-solutions](https://gfps.com/specialized-solutions)



## Next steps

You have received the most important information and technical details in this brochure. But nothing replaces a personal conversation with an expert from GF Piping Systems. It is all about your needs and supporting you in your daily business challenges. If you have not already done so, make an appointment today.

Find your local contact on the back cover of this brochure or visit our GF Piping Systems website, where you will find specialized contact persons in your area. You will also find additional information on our products, including technical datasheets, operating instructions, and relevant certificates and approvals.

**More information at**  
[gfps.com/foodandbeverage](https://gfps.com/foodandbeverage)

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