GF Piping Systems

Embrace the cold

COOL-FIT 4.0

Drawbacks and inefficiencies of traditional cooling systems

Lack of specialized installers, frequent maintenance, and energy loss are some of the many challenges affecting efficient cooling processes. Addressing these issues is crucial for ensuring reliable installations and uninterrupted operations.

Cooling systems for industrial cooling, process cooling, and air conditioning consume large amounts of energy to maintain a constant system temperature. Selecting the appropriate piping system to support the cooling circuit is of utmost importance for planners, installers, and operators who aim for an efficient and reliable cooling process. What should you consider in particular?

The two most important factors are the material and the insulation. With conventional metal installations, the risk of condensation and subsequent corrosion is exceptionally high. This risk also occurs in systems that have been post-insulated: The insulation material can be damaged during installation, and small gaps between the piping system and the insulation layer can occur, allowing ice formation due to condensation and subsequent corrosion. Furthermore, the added weight of the metal and the subsequent insulation process necessitate extra equipment and steps, placing further strain on the already limited number of on-site installers.

Non-corrosive materials and vapor sealed insulation are of utmost importance for reliable and efficient piping systems in cooling applications.

Soft insulation materials are easily damaged by mechanical, or environmental impacts as e.g. UV light, chemicals, etc.

Condensation caused by damaged insulations lead to significant corrosion and high maintenance cost during the life time of a system.

The lack of certified manpower on-site leads to failure during operation due to quality issues during installation.

The high weight of steel pipe require robust building constructions and heavy duty equipment for the installation.

Cooling systems are installed towards end of a building construction. Earlier delays often lead to time pressure.

COOL-FIT 4.0

Extreme reliability

The condensation and corrosion-free piping system for operations with no interruptions, zero maintenance, and highest efficiency.

System integrity
The complete product portfolio consists of pre-insulated pipes, fittings, valves, flexible hoses, and all tools necessary for a safe and reliable installation.

Efficient
High grade pre-insulation enhances energy efficiency (by 30% in average) with huge impact on costs and the planet's energy consumption.

Reliable and safe
The plastic based system ensures maintenance-free operation for safe 24/7 production processes over a 25-year minimum lifespan.

Corrosion-free
100% corrosion-free and longer lasting than metal alternatives. No incrustation for reliable long-term efficient operation.

Fast and easy
Simple jointing with electrofusion safes time and helps to maintain the quality of joints even without certified personnel.

Lightweight
In average 60% less weight than steel pipes, allowing single-person installs and more light weight building constructions.

Designed for industrial applications
Dimensions from 20 to 450 mm for indoor and outdoor installations.

Complete system integrity

With COOL-FIT, GF Piping Systems offers a unique, top-notch piping system solution, including pre-insulated pipes, fittings, valves, flexible hoses, and tools. The interfaces between all components ensure compatibility by design. This reduces onsite modifications to an absolute minimum.

Pre-insulated pipes

The lightweight pre-insulated pipes are easy to joint and to handle on site. The 3-in-1 concept allows the installation of media pipe, insulation and jacket in one step.

Foam removal and peeling tools

GF Piping Systems takes the hassle out of foam removal and peeling. Easy to use foam removal tools ensure consistent peeling quality when preparing pipe surfaces. The tools are designed in such a way that pipes of different diameters can be prepared for installation in no time at all.

Pre-insulated valves

GF Piping Systems' pre-insulated valves are an integral part of the COOL-FIT system and ensure an efficient cooling process. Pre-insulated valves ensure that the entire piping system is thoroughly insulated and perfectly sealed.

Pre-insulated fittings

When creating branch lines, pre-insulated fittings make installation much easier. The fittings cover multiple dimensions as well as elbows, tees, reductions and transitions.

Bridging big to small dimensions

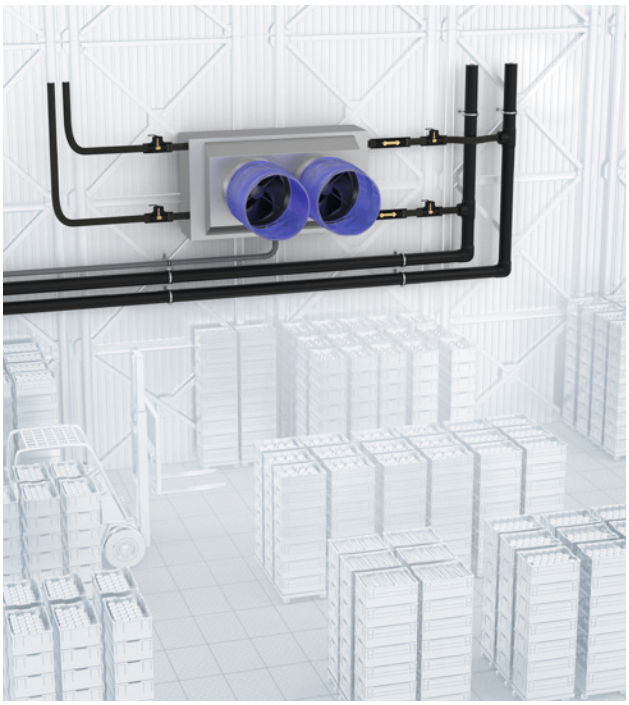
The COOL-FIT 4.0 Push System is an addition to the existing system COOL-FIT 4.0, by extending the product range with smaller piping dimensions to reach tanks and other consumers.

COOL-FIT Weld-in port

The COOL-FIT Weld-in port simplifies the installation of additional sensors and branches at any location on the pipe.

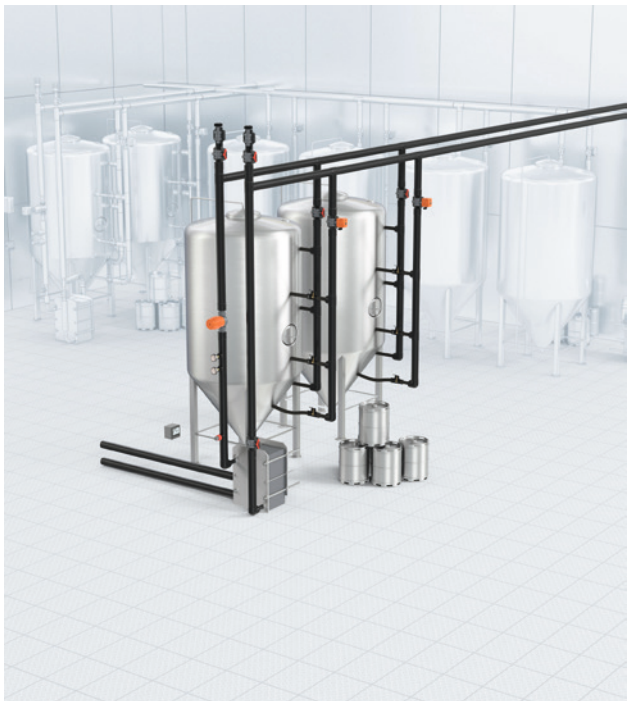
Commercial and industrial refrigeration

COOL-FIT 4.0 optimizes any commercial or industrial refrigeration set-up in food and beverage applications and any outdoor installations.



Food and beverage storage

Reliable 24/7 control of temperature and humidity are essential to ensure the supply chain of foods and beverages.



Beverage process cooling

The perfect solution for non-stop process cooling in humid environments.

Process Cooling

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

Industrial A/C - Outdoor application

Up to 25 years of maintenance-free lifespan for rooftop installations, where the piping of chillers and condenser units are exposed to various weather conditions.

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.

Zonzo Estate - The Yarra Valley, Yarra Glen, Australia

In late 2019, Zonzo Estate began converting an empty warehouse into a brand-new winery with the aim of producing the best drop possible. The cooling circuit uses a mixture of glycol and water circulating at a temperature of –5°C and 4 bar of pressure and is supported by 200 kW of chiller capacity. Thanks to the preinsulated piping, it looks beautiful and has incredible energy efficiency, with minimal transfer and energy loss.

Erusbacher & Paul, Villmergen, Switzerland

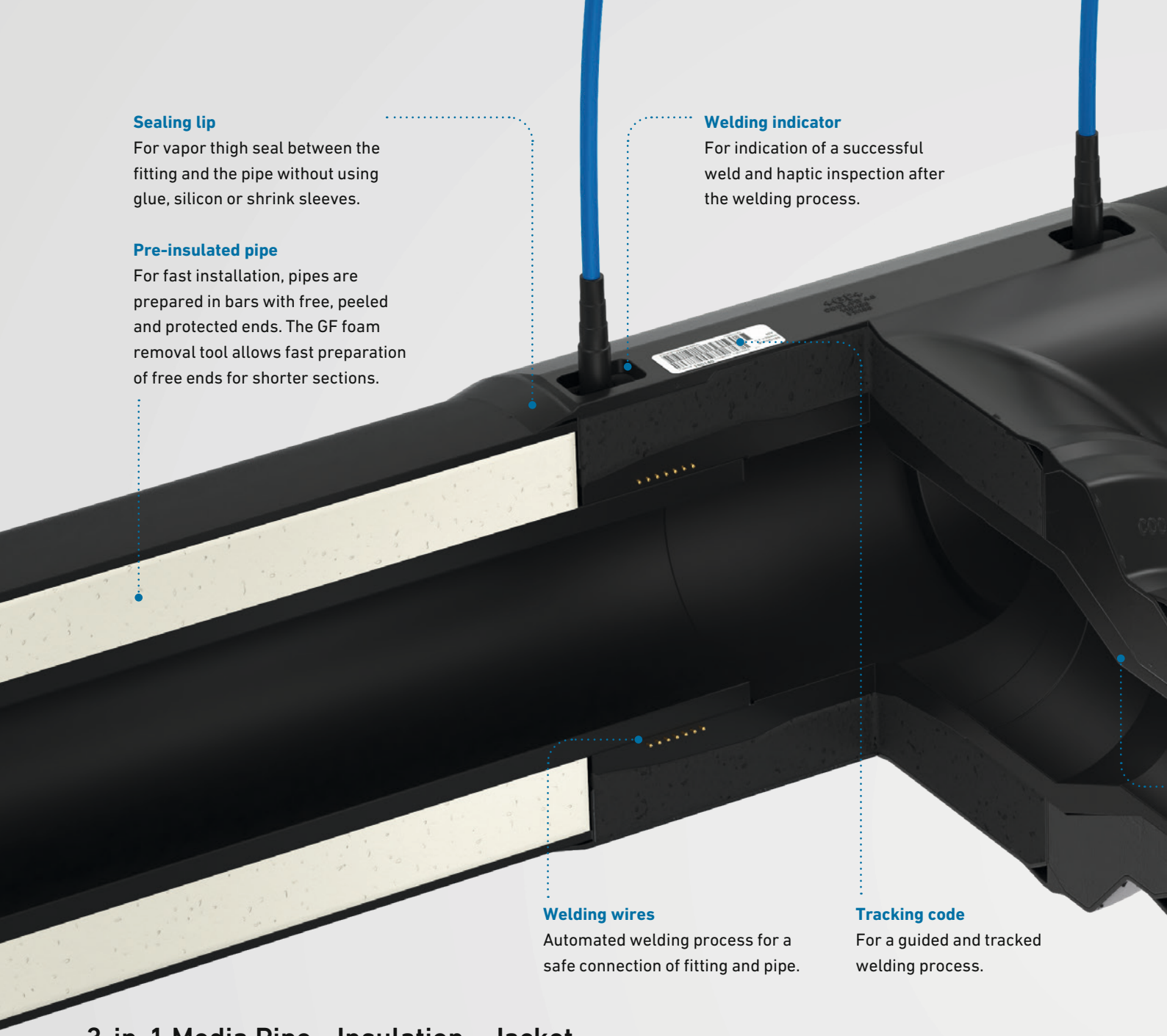
Erusbacher & Paul brewery produces 16 different types of beer, totaling 6,000 hectoliters each year. The company sought an efficient, hygienic, and visually appealing pipe cooling system for its new building. They ultimately chose the pre-insulated COOL-FIT system for its fast and simple installation, robustness, and ease of cleaning. During operation, they also found that condensation did not form at any point, providing an additional advantage.

Hungerbühler Fruit Farming, Neukirch, Switzerland

Hungerbühler Fruit Farming partnered with Isolcell, a leading provider of controlled atmosphere technologies, to expand their produce storage by 150 tons. To meet rigorous performance standards and align with their sustainability goals, they chose COOL-FIT. This solution offers ultra-low heat transfer and maintenance, yielding annual savings of up to 1 000 euros while operating 15 newly installed temperature-controlled storage cells.

Champinter Soc. Cooperativa, Villamalea, Spain

Champinter, a mushroom production and processing cooperative, was looking to expand its facilities and needed a new piping system to meet the strict temperature and humidity requirements for their crops. COOL-FIT meets all the technical requirements for stable growing conditions and has reduced costs for the customer thanks to its quick and simple installation, durability, and reliability; radically reducing maintenance costs.



3-in-1 Media Pipe - Insulation - Jacket

Confident and efficient installation

Experience confident installations with COOL-FIT, where safety, simplicity, and speed are paramount. Our innovative COOL-FIT Weld-in port streamlines project planning and installation, ensuring ease at every step.

Joining our COOL-FIT System is effortless with electrofusion technology, where fittings are swiftly heated by electric current, melting and fusing the surrounding material for a secure connection. Compared to traditional methods, this process is in average 50% faster, minimizing the risk of leaks. With all welding data conveniently stored, project documentation is a breeze. The COOL-FIT Push System provides mechanical push fittings and bendable pipe to connect the cooling loop to fan coils or tanks without efforts. Enjoy ultimate flexibility in your projects with the COOL-FIT Weld-in port, simplifying the addition of sensors or branches across various pipe sizes. Experience hassle-free installations and enhanced functionality with COOL-FIT's customer-centric solutions.

Fixation
Easy fixation by use of standard clamps for plastic pipe. No cold clamps required.

Pre-insulated fitting
For fast and easy installation thanks to pre-insulation.
No manual post-insulation required.

Learn how to make the perfect weld in the COOL-FIT video tutorial.

gfps.com/cool-fit

Minimal environmental impact

COOL-FIT leads the way with its efficient thermal insulation and low CO2 emission during its entire life cycle.

Global cooling demand is expected to triplicate by 2050 at the current ratio*, which leaves our industries with the challenge of rising energy demand. As a company that is active worldwide, it is GF Piping Systems' mission to show our commitment to sustainability by supporting our customers' success with innovative, energy-saving solutions making the collective global footprint more sustainable.

COOL-FIT environmental benefits

- COOL-FIT produces a lower environmental impact on all impact categories (compared to conventional installations).
- Saves at least 30% of thermal energy compared to traditional cooling systems, drastically reducing operating costs and CO_2 emissions.
- Non-corrosive, with at least 25-year lifetime leading to additionally saved resources related to maintenance, repairs and replacements.
- Helps achieve relevant green building declarations like DGNB, BREEAM, and LEED.
- Free of HBCD, halogens and halogenated blowing agents. It contains no chlorinated paraffins and neither lead nor tin.
- Contains no other substance of very high concern according to the REACH criteria of the European Chemicals Agency or any candidate substance.
- Strict quality management (ISO 9001) and health and safety management (OHSAS 18001) during production. GF Piping Systems is certified according to ISO 14001 for its environmental management system.

*https://unfccc.int/event/unep-launch-of-global-cooling-pledge-and-global-cooling-watch-report-keeping-it-chill-how-to-meet

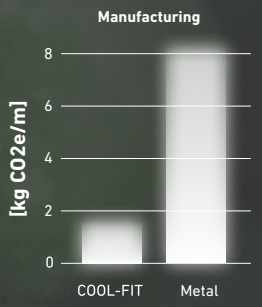
Check sustainable certificates

COOL-FIT for the environment

When comparing the lifecycle of post-insulated metal pipes, which are the most commonly used solution in cooling loops worldwide, COOL-FIT consistently emerges as a robust alternative for significantly reducing greenhouse gas emissions (GHG) in your project.

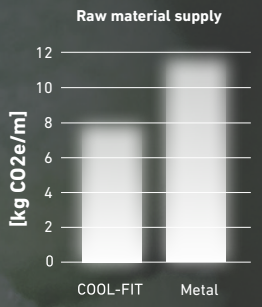
80%

less GHG emissions due to significantly less energy-intense production process.



30%

less GHG emissions than metal due to less energy intense raw material extraction process.



25 years

of service life without any replacements.

Find out more

System specifications

Specified for your application

With COOL-FIT, GF Piping Systems offers a unique, top-notch piping system solution, including pre-insulated pipes, fittings, valves, flexible hoses, and tools. The system is available in a standard version or with a higher fire classification (COOL-FIT 4.0F), to withstand even harsher conditions.

System properties

		COOL-FIT 4.0	COOL-FIT 4.0F
Materials *	Medium pipe	PE100	PE100
	Insulation	GF HE foam, halogen-free, closed-cell	GF HE foam, halogen-free, closed-cell
	Outer jacket	Pipe: HDPE, Fitting: GF-HE	Flame retardant - GF-FR
Dimensions		d32 mm (DN25) – d450 mm (DN450)	d160mm (DN150) - d225mm (DN200)
Connection technology		Electrofusion	Electrofusion
Nominal pressure	16 bar, SDR 11	d32 DN25 – d450 DN450	–
	10 bar, SDR 17	d160 DN150 – d450 DN450	d160 DN150 + d225 DN200
Insulation	Thermal conductivity λ at 20°C	≤ 0.022 W/mK (d32 – d110), ≤ 0.026 W/mK (d160 – d450)	≤ 0.026 W/mK
	Density	≥ 70 kg/m3	≥ 70 kg/m3
	Foam cell size	max. Ø 0.5 mm	max. Ø 0.5 mm
	Nominal thickness	20 mm	40 mm
Temperature	Medium	– 50 °C to +60 °C	0 °C to +60 °C
Weight (without medium)	Pipe d32 mm	1.39 kg/m	
	Pipe d225 mm	16.42 kg/m	19.84 kg/m
Environment	Resistance	Moisture- and vapor-tight	Moisture- and vapor-tight
	Ozone Depletion Potential (ODP)	Zero	Zero
Standards	Pipes & Fittings	Plastic piping systems for industrial applications – Metric series	Plastic piping systems for industrial applications – Metric series
	Threads	Fittings	Fittings
	Valves	Industrial valves	Industrial valves
Fire classification	EN 13501-1	E	B-s2, d0

*** All three materials are firmly bonded together.**

COOL-FIT 4.0 Push System

Multilayer composite pipe PE-RT/AL/PE-RT	
Pipe: EPDM foam Fitting: XPE foam	
Pipe: stainless steel polyester fabric Fitting: TPE shell	
d25 (DN20) - d32 (DN25)	
Push-in connector	
16 bar	
0.038 W/mK	
50 – 60 kg/m3	
-	
20 mm	
-20 °C to +60 °C	
1.037 kg/m	
-	
-	
Zero	
EN ISO 21003	
ISO 7 ISO 228	
-	
D s2 d0	

One partner from planning to commissioning

With Specialized Solutions, GF Piping Systems supports the design and installation of state of the art plastic piping systems, so that owners and planners can concentrate on their daily business without interruption. GF Piping Systems is present every step of the way, from providing planning support on new projects to testing the condition of old systems.

More information at
gfps.com/specialized-solutions

Custom Product Design and Prefabrication

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

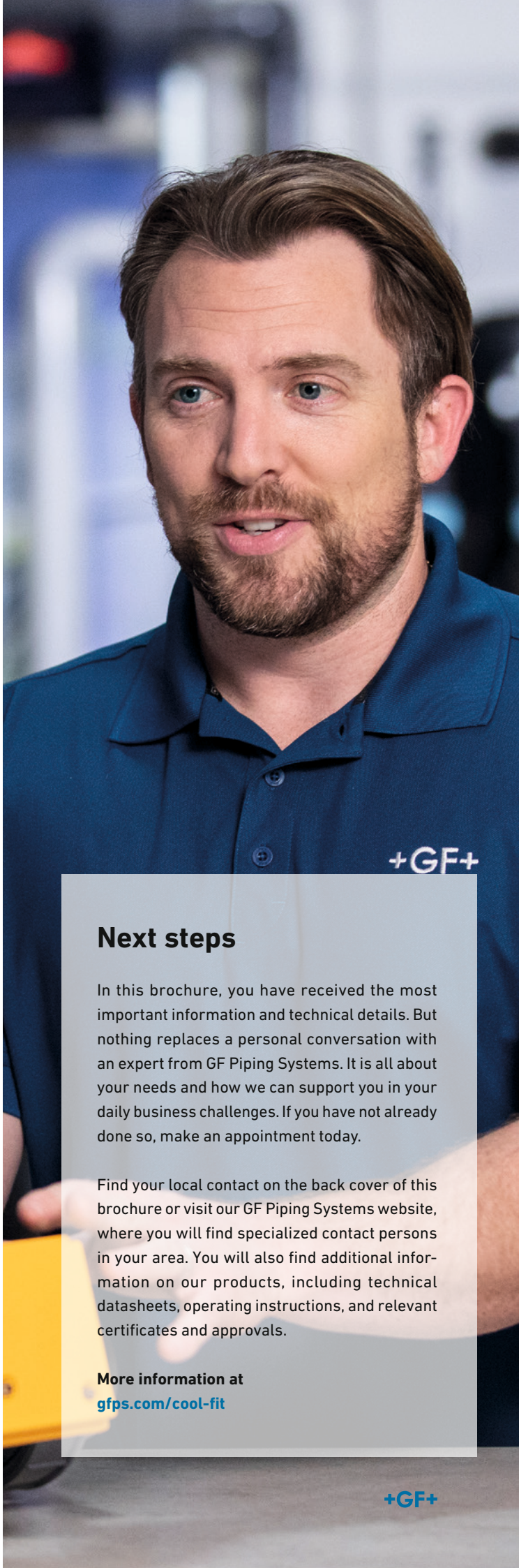
Engineering

Increase the efficiency of your project with tailor-made analysis packages from GF Piping Systems. 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.

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/ contraction, energy saving, surface temperatures, pipe dimensioning, pressure losses, CO2 footprint, and many more.

Use the online calculator
gfps.com/cooling-tools



Next steps

In this brochure, you have received the most important information and technical details. But nothing replaces a personal conversation with an expert from GF Piping Systems. It is all about your needs and how we can support 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/cool-fit

GF Piping Systems

Local support around the world

Visit our webpage to get in touch with your local specialist:
www.gfps.com/our-locations

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