GF Piping Systems

+GF+

Embrace the cold

COOL-FIT 2.0

Drawbacks and inefficiencies of traditional cooling systems

Lack of specialized installers, frequent maintenance caused by corrosion, 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 air conditioning, industrial cooling and process cooling consume large amounts of energy to maintain a constant system temperature. Selecting the appropriate piping system to support the cooling circuit is of high importance for planners, installers, and operators who aim for an efficient and reliable cooling process.

What should be considered 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 condensation and subsequent corrosion. Furthermore, the added weight of metal and the subsequent insulation process necessitate extra equipment and steps, placing further efforts on the already limited capacity of 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 insulation leads to significant corrosion and high maintenance cost during the life time of a system.

The lack of certified manpower on-site leads to longer installation times and delays in planned operation start.

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. The long and complex installation times lead to time pressure.

COOL-FIT 2.0

Extreme reliability

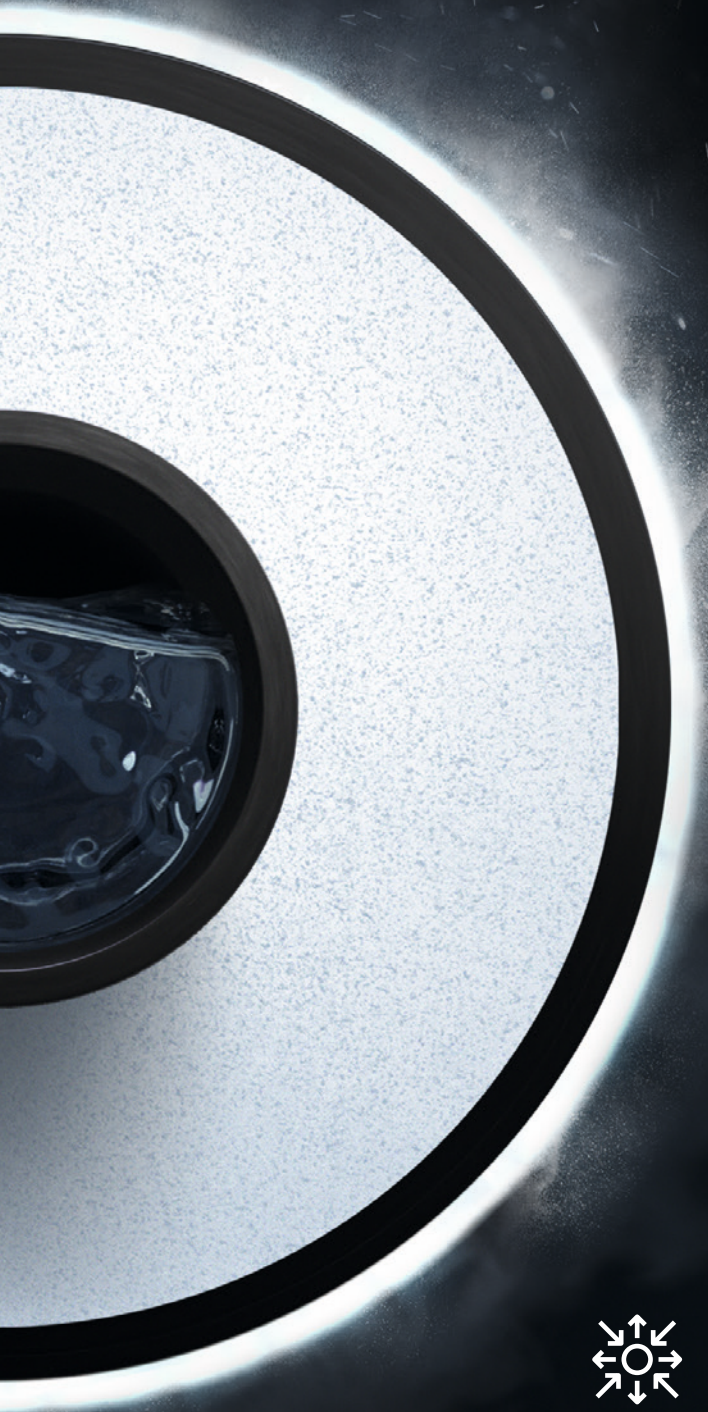
The condensation and corrosion-free piping system for operations with no interruptions, zero maintenance, and highest efficiency.

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.

Efficiency
High grade pre-insulation enhances thermal energy efficiency (by 30% in average) with huge impact on costs and the planet's thermal 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 air conditioning and industrial applications
Dimensions from 16 to 140 mm for indoor applications. In combination with COOL-FIT 4.0 as well for outdoor use up to dimension 450 mm.

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 system is available in a standard version or with a higher fire classification (COOL-FIT 2.0F), to withstand even harsher conditions.

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.

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 pipes

Easy to joint and install, lightweight pre-insulated pipes help to minimize energy loss and reduce long-term running costs. Insulated with high-energy efficient foam, they are ideal for both new construction and retrofitting.

Pre-insulated fittings

When creating branch lines, pre-insulated fittings make installation much easier and the fittings cover multiple dimension possibilities as well.

Bridging big to small dimensions

The COOL-FIT 2.0 Push System is an addition to the existing system COOL-FIT 2.0, by extending the product range with smaller piping dimensions to reach e.g the fan coil.

COOL-FIT Weld-in port

The COOL-FIT Weld-in port simplifies the installation of additional sensors and branches across multiple pipe sizes at any position of a pipe.

Cooling applications

COOL-FIT 2.0 optimizes any air conditioning, process cooling and industrial air conditioning installations.

Air Conditioning in Buildings

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

Industrial Air Conditioning

An ambient work environment for the employees and stable temperatures for machinery help to sustain uninterrupted and efficient production processes.

Air Conditioning in Cruise Ships

Corrosion-free air conditioning circuits play a vital role in onboard accommodation as it helps to have a healthy and pleasant atmosphere concerning temperature and humidity.

Process Cooling

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

Reliable cooling systems for sustainable processes - approved by customers

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 1500 kilometers of COOL-FIT pipe globally.

"Porta Samedan" shopping mall, Switzerland

The vacation region Engadin is home to the new "Porta Samedan" shopping mall with the Minergie-P standard label. In realizing the project, nothing was more important than sustainability. The owners champion the use of renewable energy sources and sustainable building materials such as the COOL-FIT pre-insulated plastic piping system. And also the sustainable operation of the local shops is guaranteed.

Label printing plant: “D.E.S.”, Landau, Germany

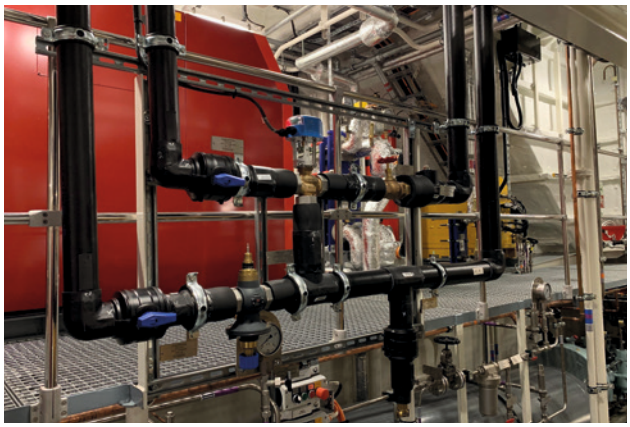
The special printing plant D.E.S. – The label specialist in the German town of Landau (Palatinate region) produces high-quality labels for wine bottles, spirits, and cosmetics - a total of 110 million units per year. The offset and digital printing machines in the 2000-square-meter production hall require a room climate that is as stable as possible, regardless of the time of year. Tolerance range: +/- 2.5 degrees Celsius. This is the only way to guarantee top quality printing. COOL-FIT 2.0 provides this reliability as part of the cooling solution while helping the company to reduce energy costs.

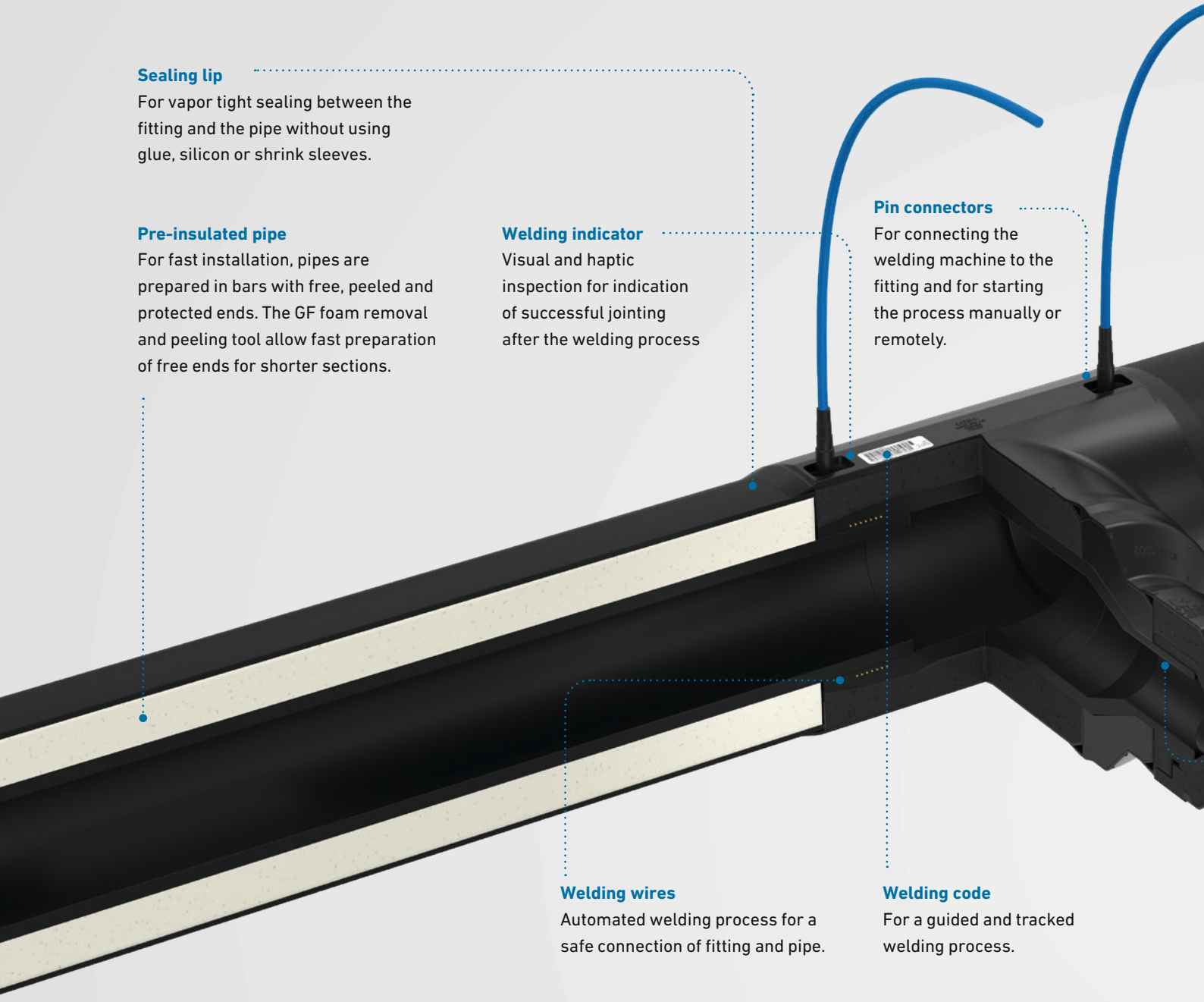
Zonzo Estate - The Yarra Valley, Yarra Glen, Australia

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 a pressure of 4 bar, and is supported by 200 kW of chiller capacity. Thanks to the preinsulated piping, it looks great and has incredible thermal energy efficiency, with minimal energy loss.

Fassmer Shipyard, Germany

Using COOL-FIT, GF Piping Systems’ pre-insulated plastic piping system, Fr. Fassmer GmbH & Co. KG, a leading German shipyard for specialized high-performance vessels, addressed a condensation issue in the HVAC piping system. The solution, used in one of their latest projects, also brought several other benefits and effciencies to the customer’s operations.





3-in-1 Media Pipe - Insulation - Jacket

Confident and efficient installation

Experience confident installations with COOL-FIT, where safety, simplicity, and speed are paramount.

Jointing 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

Sustainability

Minimal environmental impact

COOL-FIT leads the way when it comes to energy-efficient cooling and helps to work in a more environmentally friendly and energy-efficient manner.

The number of air conditioners in Europe will double by 2030 and significantly increase in other regions of the world, 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.

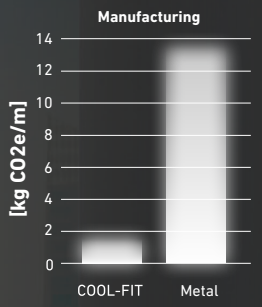
Check sustainable certificates

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 significant reduction of greenhouse gas emissions (GHG) in your project.

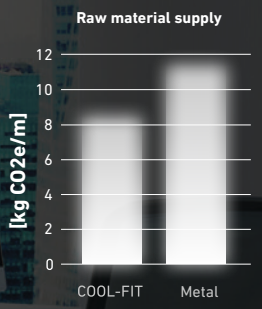
89%

less GHG emissions during manufacturing of raw materials due to lighter weight.



27%

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

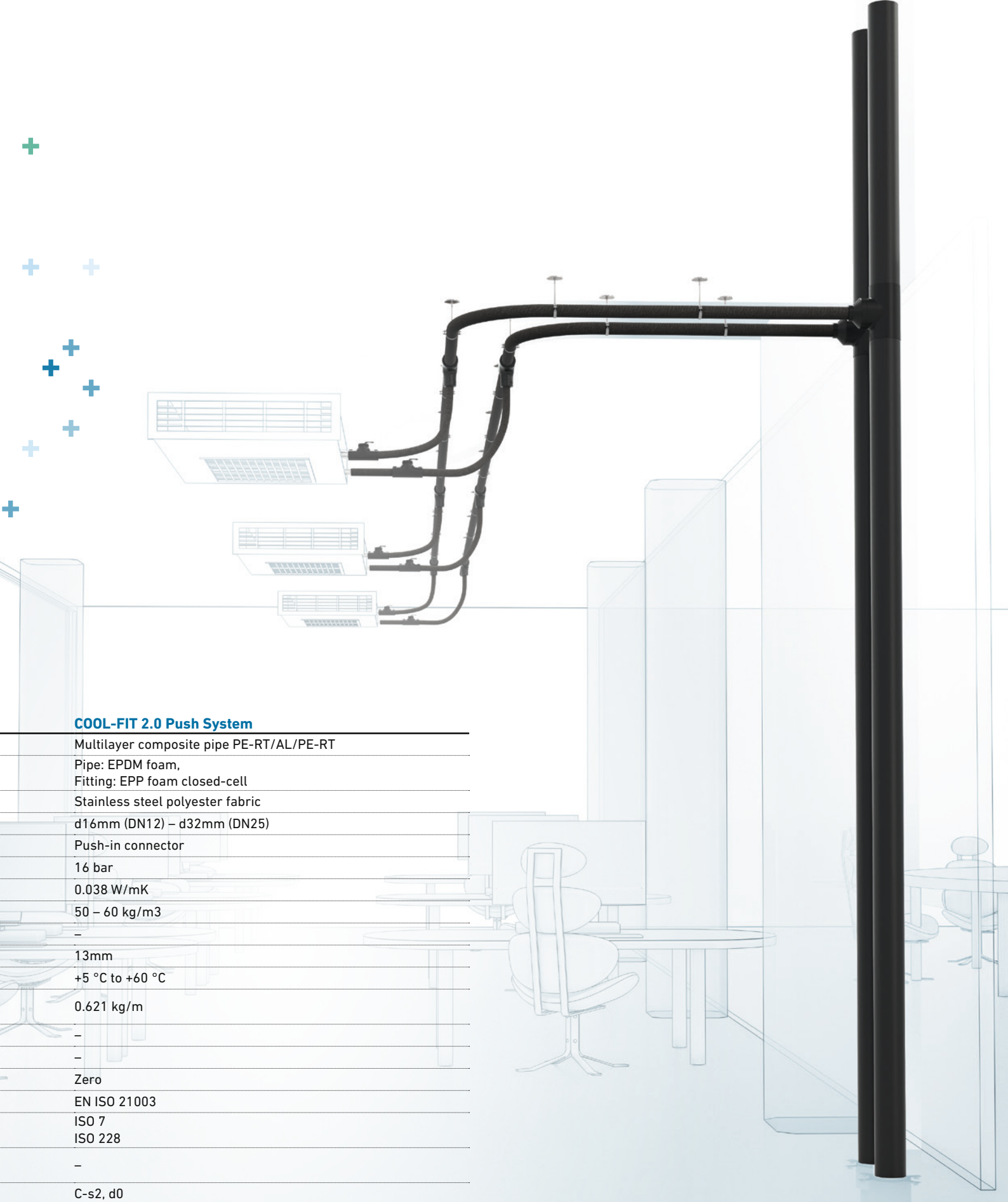
One entire system

A mainstay of the GF Piping Systems product range, COOL-FIT 2.0 is a plastic chilled-water piping system that is guaranteed not to corrode or be affected by the formation of condensation under specified condition. The rapid installation time and high energy efficiency make this system a prime option for building owners, general contractors and planners as part of commercial/residential construction, data center design and process cooling applications.

System properties

		COOL-FIT 2.0	COOL-FIT 2.0F
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) – d140 mm (DN125)	d32 mm (DN25) – d140 mm (DN125)
Connection technology		Electrofusion	Electrofusion
Nominal pressure		16 bar, SDR 11	16 bar, SDR 11
Insulation	Thermal conductivity λ at 20°C	≤ 0.022 W/mK	≤ 0.022 W/mK
	Density	≥ 70 kg/m3	≥ 70 kg/m3
	Foam cell size	max. Ø 0.5 mm	max. Ø 0.5 mm
	Nominal thickness	22 mm	22 mm
Temperature	Medium	0 °C to +60 °C	0 °C to +60 °C
Weight (without medium)	Pipe d32 mm	1.12 kg/m	1.06 kg/m
	Pipe d110 mm	5.5 kg/m	5.39 kg/m
Environment	Resistance	Moisture- and vapor-tight	Moisture- and vapor-tight
	Ozone Depletion Potential (ODP)	Zero	Zero
Standards	Pipes & Fittings	EN ISO 15494	EN ISO 15494
	Threads	ISO 7 ISO 228	ISO 7 ISO 228
	Valves	EN ISO 16135 EN ISO 16136	EN ISO 16135 EN ISO 16136
Fire classificaiton	EN 13501-1	E	B-s2, d0

*** All three materials are firmly bonded together (for COOL-FIT 2.0 and COOL-FIT 2.0F).**



COOL-FIT 2.0 Push System
Multilayer composite pipe PE-RT/AL/PE-RT
Pipe: EPDM foam, Fitting: EPP foam closed-cell
Stainless steel polyester fabric
d16mm (DN12) – d32mm (DN25)
Push-in connector
16 bar
0.038 W/mK
50 – 60 kg/m3
–
13mm
+5 °C to +60 °C
0.621 kg/m
–
–
Zero
EN ISO 21003
ISO 7 ISO 228
–
C-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.

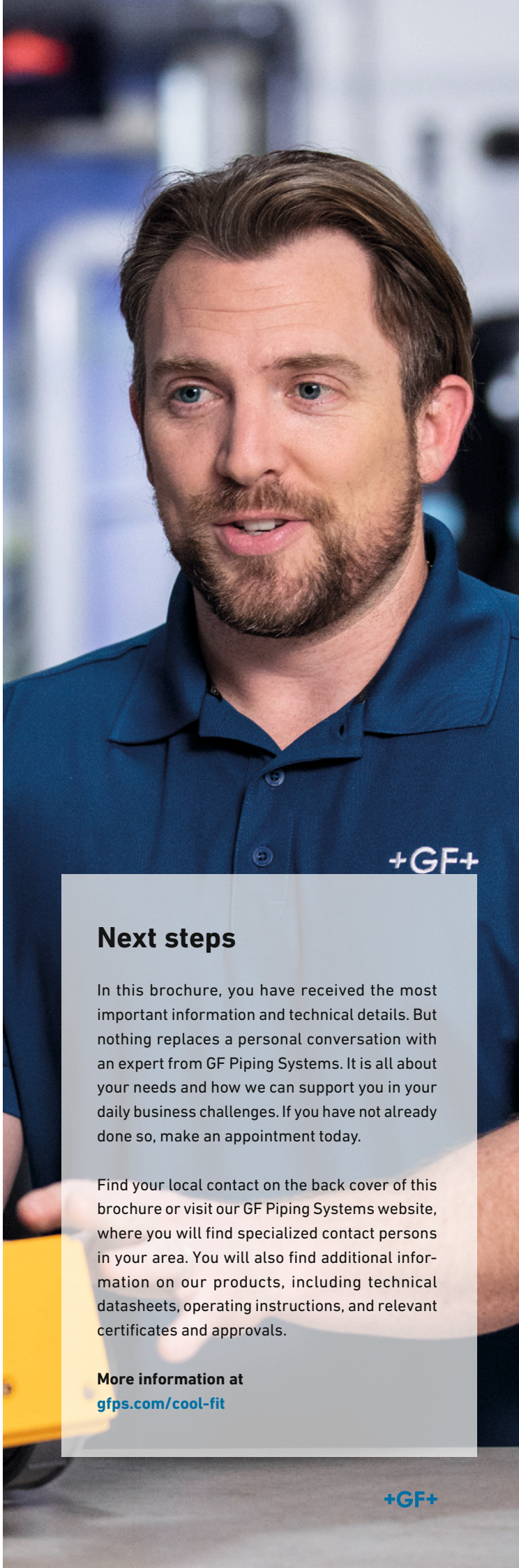
Engineering

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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