

GF Piping Systems

+GF+

Your application, our system

Secondary Cooling Systems in Dairies



COOL-FIT[®] PE Plus Piping System: 3 in 1

- + Low-temperature HDPE carrier piping system
- + Pre-installed PUR insulation
- + Pre-installed outer HDPE jacket

Less installation time and cost

Pre-insulated pipes and fittings, delivered ready to install

No condensation, mold free, & energy efficient

High density PUR closed cell insulation

Corrosion free – maintenance free

Carrier pipe in HDPE, low temperature and high impact resistant

UV and weather resistant

Outer jacket in high density black polyethylene is vapor-tight and 100% water-tight

Reduced weight

65% lighter than metal systems

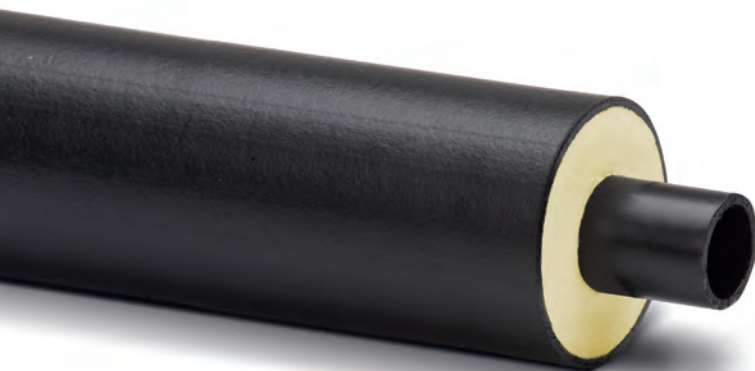
Long lasting

25 year plus life span

Fits your cooling application

32–450 mm (1"–18") 150 psi from -58°F to 140°F

Suitable for water, brine, glycol solutions, and ice slurry



Pre-insulated simplicity

Dairy production demands reliable cooling systems to achieve the required quality levels and to maximize production schedules. When dairies use secondary cooling with glycol or brine solution, GF Piping Systems has the ideal solution. We recognize the importance of having a piping system with the following benefits:

- Maintenance-free
- Corrosion-free
- Condensation-free
- Energy efficient
- Light weight
- Easy installation

Simple and cost-effective installation followed by an energy efficient, maintenance-free system — that is what every dairy production manager is looking for! That is COOL-FIT PE Plus.

COOL-FIT PE Plus

Pre-insulated PE pipes and fittings using high-density PUR insulation with a HDPE black UV-resistant and vapor-tight jacket.

Transition fittings

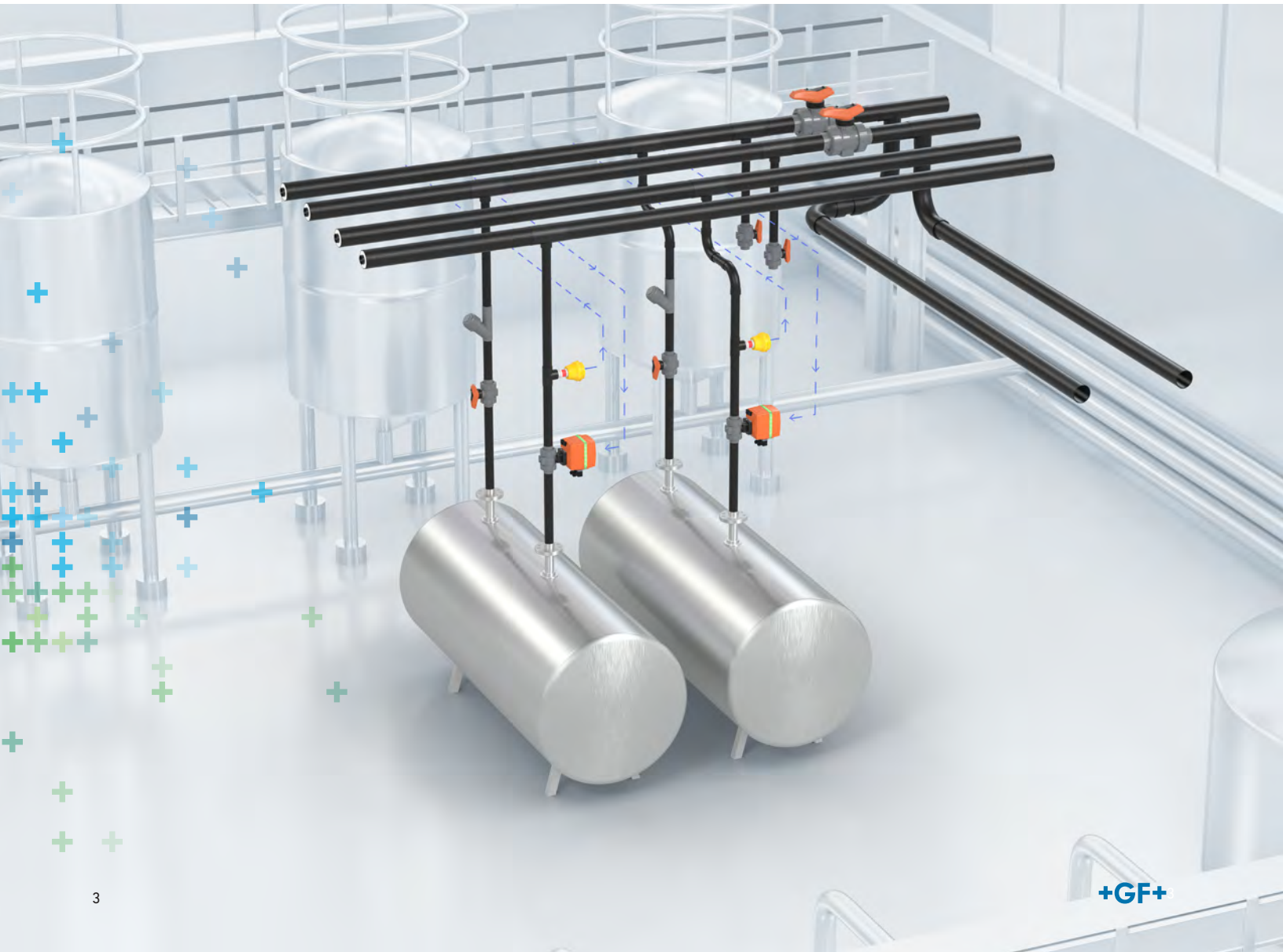
Complete range of flanged, threaded or welded connections that make this system easily compatible with existing metal lines.

Extended valve range

Either manual or actuated, a wide range of plastic valves allow the perfect control of the cooling flow.

Joining technique

Simple, reliable, and quick are the main characteristics of the electrofusion technique in use for more than 30 years.



COOL-FIT® – for glycol systems

Refrigeration systems demand stringent requirements from the piping system. Not only is the primary piping system critical to the efficient and reliable operation of the refrigeration plant, but also the secondary coolant system plays a critical role in optimizing running costs, energy efficiency and keeping maintenance to a minimum.

Choosing the correct material or system for both the primary and the secondary piping system are both very important for optimizing plant costs and performance.

Often the same piping material is used for the secondary system as for the primary system. In dairies, this means that steel is often used for the whole system. However, using the same material for approved gases on a 45-60 psi fluid system is not necessarily cost-effective in terms of initial costs and also total costs of ownership.

Specifically designed to meet the requirements

COOL-FIT PE is a dedicated secondary piping system specifically designed to meet the requirements of the end-user and contractor. The system uses the halogen-free, low-temperature resistant COOL-FIT PE from GF Piping Systems as the carrier pipe system, which is available uninsulated as well as pre-insulated. COOL-FIT has been on the market since 2001 and has an impressive list of successful installations.

COOL-FIT from GF Piping Systems is designed to meet the requirements of dairy cooling/glycol systems. For example, COOL-FIT is used to maintain desired temperatures in milk cooling after extraction and pasteurization, storage tanks, cheese maturation, and intermediate and final product storage, to name just a few examples.

Reduce your costs

Initial investment costs are important, and COOL-FIT offers a cost-effective solution compared to the traditional solutions on the market. Total costs relating to the functioning of the plant are also important, specifically operating costs and maintenance.

Efficiency

Over the years, traditionally-insulated systems often absorb water from the atmosphere, which negatively affects the insulating values of the insulation, thereby reducing the efficiency of your system and increasing operating costs. Water absorption can also cause ice build-up, causing cracking. The water trapped in an enclosed area also causes corrosion on metal pipes. COOL-FIT PE Plus is water- and vapor-tight with a plastic HDPE carrier pipe, guaranteeing constant efficient performance.

The smoothness of plastic pipes also prohibits build-up of

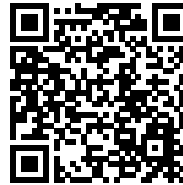
deposits from the fluid, preventing the reduction of flow in the pipe. This improves the system efficiency in terms of reduced pressure loss, a performance that remains constant over the years.

Maintenance-free

The system is completely manufactured from high-grade pressure-rated PE, totally corrosion free, both externally and internally, reducing maintenance to a minimum. GF Piping Systems COOL-FIT PE and COOL-FIT PE Plus are designed for a minimum lifespan of 25 years.

Full technical pre- and post-sales support

Designing or re-engineering a system in COOL-FIT is easy compared to a steel system insulated with mineral wool or PUR foamed on-site. GF Piping Systems provides a world-wide infrastructure of local technical support staff, as well as a website with an online tool for all relevant engineering calculations, and also product range information, joining and installation instructions.



<https://www.gfps.com/en-us/products-solutions/systems/cool-fit-pe-plus.html>



COOL-FIT® – for dairies

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

COOL-FIT is a reliable and efficient pre-insulated piping system that is fast and simple to install and will provide constant performance for the complete lifespan of your plant. COOL-FIT is corrosion-free, energy-efficient, and will prevent contamination as there is no dripping or corrosion from the system.

The complete pre-insulated plastic piping system offers components which are pre-insulated under factory-controlled conditions with top-quality insulation and a robust, weight-bearing, impact- and UV-resistant outer jacket that is completely vapor-tight, with a design lifespan of more than 50 years.

The media pipe is corrosion- and scale-free. This fully plastic system is pre-insulated with closed-cell insulation attached to both media and jacket pipes, remaining water- and vapor-tight during the lifespan of your plant. The system can be power washed — there is no water uptake that could lead to degradation of the insulation.



<https://www.gfps.com/en-us/markets-we-serve/food-beverage/dairy-foods.html>



COOL-FIT® PE Plus for Glycol, Chilled Water and Brine

- Avoid shutdowns for repairs: **corrosion-free**
- Avoid insulation damage: **insulation bonded between pipe and jacket and protected from the elements**
- Reduce structural load: **light weight**
- Reduce installation time: **3-in-1 system is fast to install**
- Pressure-wash for sanitation: **100% water- and vapor-tight**



Cooling systems in dairies

Top quality

COOL-FIT PE Plus can improve the efficiency of your secondary system by up to 65%. With a thermal conductivity, lambda value of 0.026W/m.K, thanks to top-quality high-density PUR insulation combined with PE's low thermal conductivity (0.38W/m.K, steel 90 W/m.K), COOL-FIT offers exceptionally low energy loss characteristics for your piping system.

	COOL-FIT	
	110 mm (4")	160 mm (6")
U-Value [W/m.K]	0.28	0.37

Energy loss 1000 m of 110 mm (4") pipe, using Propylene Glycol at 21°F (-6°C), ambient 73°F (+23°C).

	COOL-FIT	Steel & Mineral Wool (32 mm or 1 1/4")
	110/180	
Energy Loss [W]	8000	14600

Savings over 10 years using COOL-FIT: \$22,000 (\$0.10 per kW/hr).

No condensation or ice build-up

The insulation thickness and quality of COOL-FIT PE Plus assures no condensation or ice build-ups, even in extreme conditions.

Medium	Medium Temperature	Ambient	Humidity	COOL-FIT
Propylene Glycol	-8°C (18°F)	+30°C (86°F)	up to 85%	no condensation

Wind velocity 0.5m/sec, COOL-FIT black.

When supporting COOL-FIT PE Plus, the clamping system is placed on the hard external jacket, avoiding the need for insulated clamps and eliminating any potential for cold bridges.

This lightweight system doesn't require heavy-duty pipe stands and clamps, bringing significant savings to the installation. The temperature-independent rigid foam also increases the allowable pipe support distances, such as 9.35 ft for d225 (8") pipe.



No corrosion

COOL-FIT's complete plastic construction is designed and manufactured by GF Piping Systems. The system includes pipes, fittings, transition fittings to metals, manual valves and measurement and control devices. Zero corrosion both externally and internally guarantees an excellent lifespan.

Smooth pipes reduce pressure losses

The smoothness of PE pipes ($\lambda=0,0.02$) not only prevents encrustation on the internal surface of the pipe, but also reduces pressure losses to a minimum. (Steel surface roughness 0.1–0.15)

Pressure Drop	COOL-FIT
1000 m (3281'), -6°C (21°F) Propylene Glycol at 20 m ³ /hr (88 gpm) in 110 mm (4") pipe	0.8 bar (12 psi)

Simple reliable installation

Welding equipment is required for safe and reliable installation of COOL-FIT. The system uses the tried and tested electrofusion joining technique; training can take place on-site free of charge.

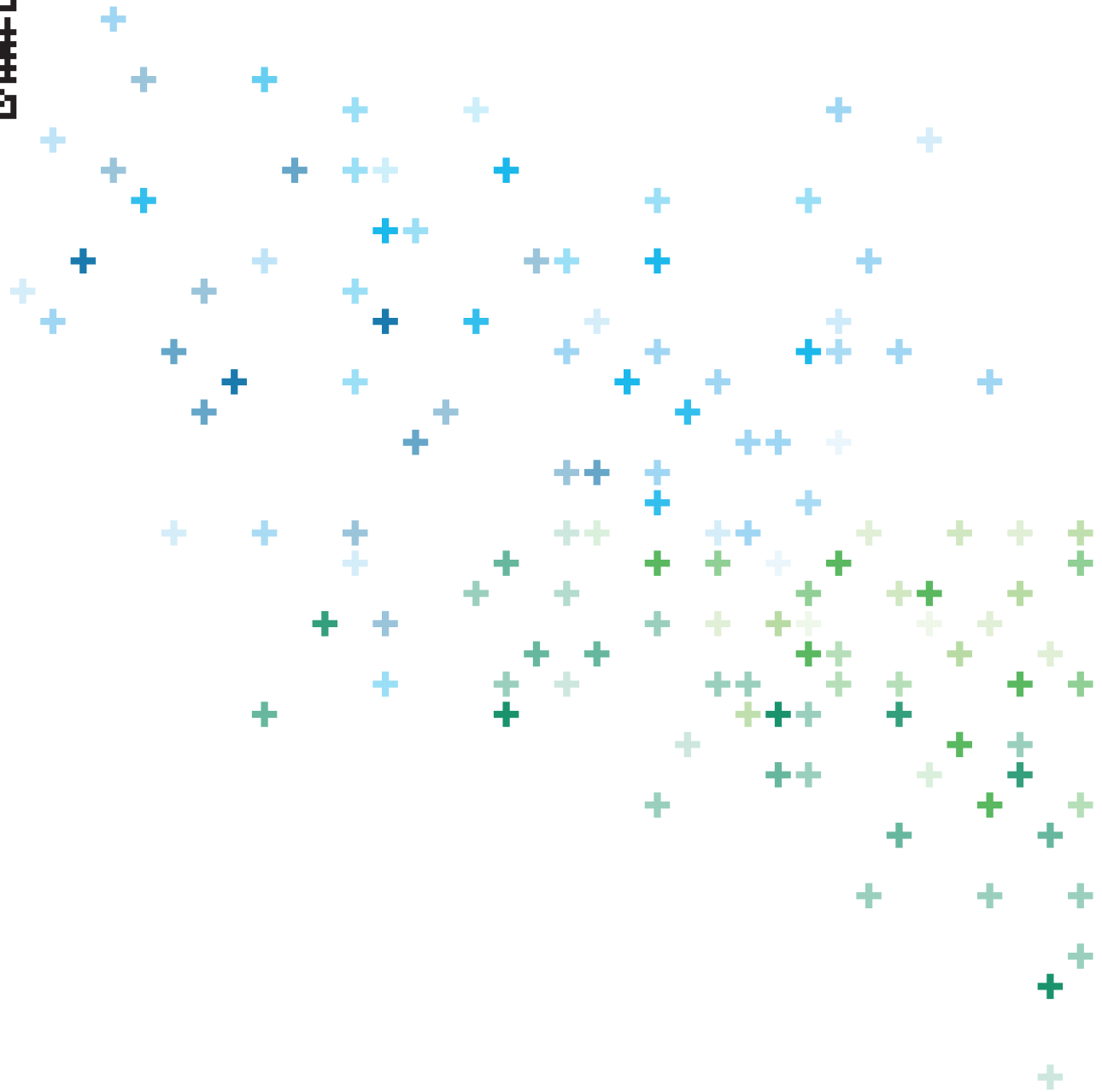
Low weight

Low-density plastic enables speedy, easy handling on-site with a simple, cost-effective hanging structure. The low weight and UV/weather resistant outer jacket makes COOL-FIT PE Plus ideal for roof-top installations.

lbs per 100 m (328 ft) of piping	COOL-FIT PE	COOL-FIT PE Plus	Carbon steel (Sch40)
110 mm	500	1097	3542
160 mm	1044	2808	6232

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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