GF Piping Systems



Your application, our system

Glycol Systems in Breweries

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 vaportight and 100% water-tight

Low weight

65% lighter than metal systems

Long lasting

25 year life span

Fits your cooling application

32–450 mm (1"–18") up to 150 psi from -58°F to 140°F Suitable for water, brine, glycol solutions, and ice slurry





Pre-insulated simplicity

High quality beer can't be produced without proper cooling!

Essential for:

- Hop storage
- Wort chiller
- Fermentation tanks
- Bright tanks
- Filling line
- Beer storage

Breweries use glycol and brine for their secondary refrigeration systems. GF Piping Systems is aware of the vital importance of these cooling lines in the process. We developed this corrosion free pre-insulated plastic piping system to meet the needs and expectations of the rapidly growing brewing industry.

Simple and cost effective installation followed by a energyefficient, maintenance-free system — that is what every brewery manager is looking for! That is COOL-FIT PE Plus.

COOL-FIT PE Plus

Pre-insulated HDPE 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.



COOL-FIT® – for glycol systems

Refrigeration systems set demanding requirements on 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 refrigerant fluid 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 secondary piping system is very important for optimizing plant costs and performance.

Often the same piping material as the primary system is used for the secondary system. In breweries, this means that often steel is used for the whole system. However, using the same material for high-pressure gases and 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 also available pre-insulated. COOL-FIT has been on the market since 2001 and has an impressive list of successful installations.

A long history

Breweries have a long and famous history in terms of refrigeration. Starting with the "invention" of refrigeration at the Vienna Brewery conference in 1870 with a paper from Carl Linde, up to today when the use of natural refrigerants (e.g., R717) is probably more prevalent in breweries than in most other industrial or commercial refrigeration plants.

The COOL-FIT system from GF Piping Systems is specifically designed to meet the requirements of Brewery Cooling/Glycol systems. For example, COOL-FIT is used in the cellar for the fermentation, bright, and beer storage tanks, where medium temperatures are in the range of 32° F to 21° F (0°C to -6° C), using glycol or salt solutions.

Reduce your costs

Initial investment costs are important, and COOL-FIT offers a cost-effective solution compared to the current 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. This negatively affects the insulating values of the insulation, reducing the efficiency of your system by increasing operating costs. Water absorption can also result in ice build-up, creating cracks; additionally this trapped water will cause corrosion on metal pipes. COOL-FIT PE Plus is water and vapor tight with a plastic HDPE carrier pipe, thus 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 efficiency of the system in terms of reduced pressure loss, a performance that will remain 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 worldwide infrastructure of local technical support staff, as well as a website with an online tool for all relevant engineering calculations, product range information, and joining/ installation instructions.

www.cool-fit.georgfischer.com





Refrigeration and cooling systems in breweries

Top **quality**

COOL-FIT PE Plus can improve the efficiency of your secondary system by up to 40%. 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 providing a thermal conductivity lambda value of 0.026 W/m.K.

	COOL-FIT		
	110 mm (4")	160 mm (6")	
U-Value [W/m.K]	0.325	0.362	

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

	COOL-FIT 110/180	Steel & Mineral Wool (32 mm or 1¼")
Energy Loss [W]	9417	14600

Savings over 10 years using COOL-FIT: 25,500 (0.10 per kW/ hr).

No condensation or ice build-up

All COOL-FIT PE Plus pipes have about a 35mm insulation thickness, which guarantees the end-user no condensation or ice build-up on the outside of the insulation even under the most severe environmental conditions.

Medium	Medium	Ambient	Humidity	COOL-FIT
	Tempera-			
	ture			
Propylene	-8°C (18°F)	+30°C	up to 85%	no
Glycol		(86°F)		condensa-
				tion

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

COOL-FIT PE Plus is supported by the external jacket pipe; there's no need for expensive and inefficient insulated pipe supports. No energy bridges are created when hanging COOL-FIT pipe. 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 (λ =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 m³/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
110 mm (4")	688	1366	3526
160 mm (6")	967	2187	6200

GF Piping Systems

Local support around the world

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



The information and technical data (altogether "Data") herein are not binding, unless explicitly confirmed in writing. The Data neither constitutes any expressed, implied or warranted characteristics, nor guaranteed properties or a guaranteed durability. All Data is subject to modification. The General Terms and Conditions of Sale of Georg Fischer Piping Systems apply.



1254 CoolFit Brewery Brochure V5 (07/24) ©2024 Georg Fischer LLC Printed in USA