



Refrigeration Systems in Breweries

Your Application
→ our System



COOL-FIT® 3 in 1

→ Top Quality

→ Minimum On-Site Time



Complete System

- | COOL-FIT® ABS: 16 mm to 315 mm (3/8" to 12")
- | COOL-FIT® ABS Plus: 25 mm to 225 mm (1" to 9")
- | Pipe, fittings, valves, measurement and control

Parameters

- | 150 psi
- | COOL-FIT® ABS: -40°C to +60°C (-40°F to 140°F)
- | COOL-FIT® ABS Plus: -50°C to +40°C (-58°F to 104°F)

Suitable Mediums

- | Water
- | Iced Water
- | Ice Slurries
- | Salt Solutions
- | Organic Salt Solutions
- | Glycol Solutions
- | Alcohol Solutions
(not for use with refrigerants, e.g., R22, ammonia, CO₂, R407 etc.)

Plastic Piping System

COOL-FIT® ABS Plus is a complete pre-insulated plastic piping system for secondary cooling and refrigeration piping systems. The system is based on the tried and tested ABS plastic system from GF Piping Systems, in use since 1986, now with the option for pre-insulated pipe and fittings with outer jackets in either black or white.

The white version is ideal for hygienic environments such as food processing plants.



COOL-FIT® ABS Plus in black is suitable for outdoor applications, because the black PE is UV resistant.

The system is vapor-tight and 100% water-tight.

Thanks to the new, revolutionary COOL-FIT® nipples for joining inside pipe diameters, the PUR insulation does not need to be removed before performing a joint. The joints use the tried and tested

solvent cement joining technique with TANGIT ABS.

The result: minimum on-site time, considerable cost savings and top quality.

Jacket Pipe

HD-PE to DIN 8075 in black or white. White PE is only moderately UV resistant and is recommended for indoor applications.

Carrier Pipe ABS

- 150 psi rated, cement jointed ABS plastic pipe
- 5 meter lengths
- ABS Pipe to ISO 15493

Hard Polyurethane Foam (PUR)

- Thermal conductivity 0.026W/m.K (at 50°C)
- Foamed using polyol and isocyanate (no freons)
- Expansion coefficient 0.04 mm/m.K
- Core density > 2.8ft/ft³
- Average cell sizes 0.5mm

COOL-FIT® – for secondary and indirect Refrigeration Systems

Refrigeration systems set demanding requirements on the piping system. Not only is the primary piping system critical to the efficient, 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 an absolute minimum. Choosing the correct material or system for the primary and also 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 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® ABS 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® ABS system 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/Refrigeration plants. For example, COOL-FIT® is used in the systems that cool the ingredient storage areas and also the beer storage tanks, where medium temperatures are in the range of 25°F to 21°F (-4°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, which negatively affects the insulating values of the insulation, reducing the efficiency of your system by increasing operating costs. Water absorption can also cause ice build-up, causing cracking; and

the water trapped in an enclosed area also causes corrosion on metal pipes. COOL-FIT® ABS Plus is water and vapor tight with a plastic ABS 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. The pipe roughness factor for COOL-FIT® ABS is 0.007 compared to steel's 0.02 (e.g., 6 times smoother). This improves the efficiency of the system in terms of reduced pressure loss, a performance that remains constant over the years.

Maintenance

The system is completely manufactured from high-grade pressure-rated ABS, totally corrosion free, both externally and internally, thus reducing maintenance to an absolute minimum. GF Piping Systems COOL-FIT® ABS and COOL-FIT® ABS Plus are designed for a 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.

www.cool-fit.georgfischer.com

Refrigeration and Cooling Systems in Breweries



Top Quality

COOL-FIT® ABS Plus can improve the efficiency of your secondary system by up to 40%. With a thermal conductivity, lambda value of 0.026 W/m.K, thanks to top-quality high-density PUR insulation combined with ABS's low thermal conductivity (0.2 W/m.K, steel 90 W/m.K), COOL-FIT® offers exceptionally low energy loss characteristics for your piping system.

	COOL-FIT®	
	110mm (4")	160mm (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®	Steel & Mineral Wool
	110/180	{32mm or 1¼"}
Energy Loss [W]	9417	12330

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

No Condensation or Ice Build-Up

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

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

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

COOL-FIT® ABS 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 10.8 ft for d225 (9") 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 ABS pipes ($\lambda=0,007$) 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®
1000m, -6°C Propylene Glycol at 20m ³ /hr in 110 mm [4"] pipe	12 psi [0.8bar]

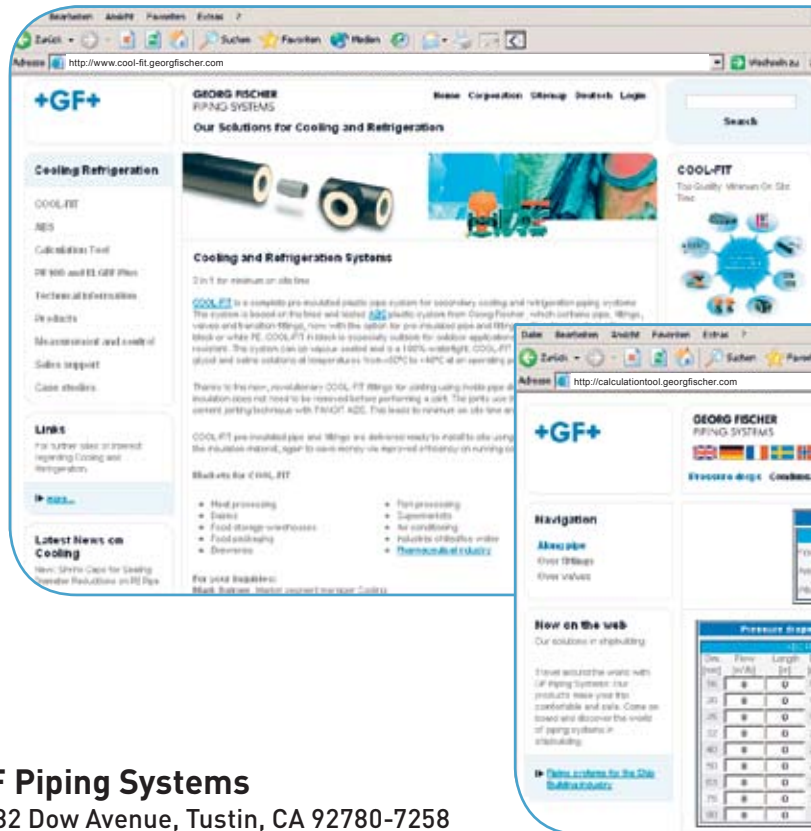
Simple Reliable Installation

No welding or special joining equipment is required for safe and reliable installation of COOL-FIT®. The system uses the tried and tested solvent cementing joining technique with TANGIT ABS; 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® ABS Plus ideal for roof-top installations.

lbs per 100m [328 ft] of piping	COOL-FIT® ABS	COOL-FIT® ABS Plus	Steel
110mm [4"]	168	349	496
160mm [6"]	369	691	731



Please find more information concerning other applications and segments of GF Piping Systems:

www.piping.georgfischer.com → Solutions

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