Refrigeration Systems in Breweries

Your Application
→ our System

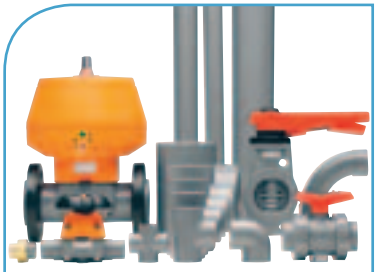
+GF+

GEORG FISCHER
PIPING SYSTEMS

COOL-FIT™ 3 in 1

→ Top Quality

→ Minimum On-Site Time



Complete System

| ABS d 16 to d 315
| COOL-FIT™ ABS d 25/90 to d 225/315
| Pipe, fittings, valves, measurement and control

Parameters

| PN 10 (10 bar)
| ABS -40 °C to +60 °C
| COOL-FIT™ -50 °C to +40 °C

Suitable Mediums

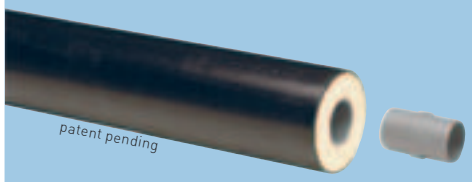
| Water
| Iced Water
| Ice Slurries
| Salt Solutions
| Organic Salt Solutions
| Glycol Solutions
| Alcohol Solutions

(not for use with refrigerants eg: R22, Ammonia, CO2, R407 etc)

Plastic Piping System

COOL-FIT™ is a complete pre-insulated plastic pipe 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 hygenic environments such as food production halls.



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

The system is vapour tight and 100 % watertight.

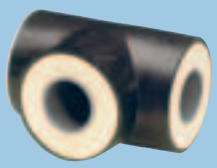
Thanks to the new, revolutionary COOL-FIT™ nipples for jointing inside pipe diameters the PUR insulation does not need to be removed before performing a joint. The joints use the tried and tested solvent cement jointing technique with TANGIT ABS.
Minimum on site time, considerable cost-savings and top 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

- 10 bar rated, cement jointed ABS plastic pipe
- 5 meter lengths
- ABS Pipe to ISO 15493



Hard Polyurethane Foam (PUR)

- Thermal Conductivity 0,026 W/m.K (at 50 °C)
- Foamed using polyol and isocynate (no freons)
- Expansion Coefficient 0,04 mm/m.K
- Core density › 45 kg/m^3
- Average Cell Sizes 0,5 mm

COOL-FIT™ – for secondary and indirect Refrigeration Systems

Refrigeration systems set demanding requirements on the piping system. Not only the primary piping system is critical to the efficient reliable running of the refrigeration plant but also the secondary refrigerant fluid system plays a critical role in optimising 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 to optimize plant costs and performance.

Often the same piping material is used for the secondary system as for the primary. In breweries this means that often steel is used for the «sole» system. However using the same material for high pressure gases and a 3–4 bar fluid system is not necessarily cost effective both in terms of initial costs and also total costs of ownership.

Specifically designed to meet the requirements

COOL-FIT™ 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 ABS system from GF Piping Systems as the carrier pipe system. Now available pre-insulated. COOL-FIT™ has been on the market since 2001 and already 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 (eg: 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 instance to cool the storage areas for the ingredients and also the beer storage tanks, medium temperatures in the range of -4°C to -6°C, using glycol or sole solutions.

Reduce your costs

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

Efficiency

Over the years traditionally insulated systems often absorb water from the atmosphere, this effects the insulating values of the insulation very badly and the efficiency of your system is reduced increasing running costs. Water absorption can also cause ice build up causing cracking and the water entrapped in an enclosed area also causes corrosion on metal pipes. COOL-FIT™ is water and vapour 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 ABS is 0.007 compared to Steel 0.02 (eg. 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 ABS and COOL-FIT™ ABS are designed for a life-span of 25 years.

Full technical pre and post sales support

Re-engineering an existing plant or designing a new system in COOL-FIT™ originally planned in Steel for instance with mineral wool or PUR foamed on-site as the insulation is not difficult. As well as a world-wide infra-structure of local technical support staff GF Piping Systems has a homepage with an on-line calculation tool for all relevant engineering calculations as well product range information, jointing and installation instructions.

www.cool-fit.georgfischer.com

Refrigeration and Cooling Systems in Breweries

Top Quality

COOL-FIT™ 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™	
	110 DN 100	160 DN 140
U-Value [W/m.K]	0,325	0,362

Energy loss 1000 m of DN 100 pipe, using Ethylen Glycol at -6 °C, ambient +23 °C.

	COOL-FIT™ 110/180	Steel & Mineral Wool (32 mm)
Energy Loss [W]	9417	12330

Savings over 10 years using COOL-FIT™ € 51000 (€ 0,2 per kW/hr).

No Condensation or Ice Build-Up

All COOL-FIT™ pipes have about a 35 mm insulation thickness, this 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™
Ethylene Glycol	-8 °C	+30 °C	up to 85%	no condensation

Wind velocity 0,5 m/sec, COOL-FIT™ black.

COOL-FIT™ is supported on the external jacket pipe, no need for expensive and inefficient insulated pipe supports. Thus also no energy bridges are created when hanging COOL-FIT™ pipe. The temperature independent rigid form also increases the allowable pipe support distances, 3,3 m for DN 200.

No Corrosion

Complete plastic construction 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 life-span.

Smooth Pipes reduce Pressure Losses

The roughness of ABS pipes (λ=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™
1000 m, -6 °C Ethylene Glycol at 20 m^3/hr in DN 100 pipe	0,8 bar

Simple Reliable Installation

No welding or specialist jointing equipment is required for a safe and reliable installation of COOL-FIT™. The system uses the tried and tested solvent cementing jointing technique with TANGIT ABS, training can take place on-site free of charge.

Low Weight

Low density plastics 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™ particularly ideal for roof-top installations.

kg per 100 m of piping	ABS	COOL-FIT™	Steel
DN 100	250	520	740
DN 150	550	1030	1090

www.cool-fit.georgfischer.com

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

www.piping.georgfischer.com → Solutions

The technical data is not binding and not an expressly warranted characteristic of the goods. It is subject to change. Please consult our General Conditions of Supply.

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