



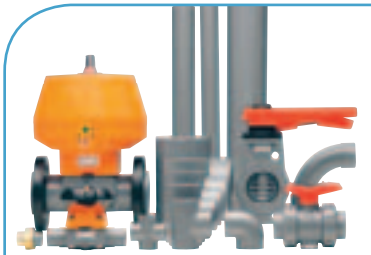
## Refrigeration Systems in Supermarkets

Your Application  
→ our System



## 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 (10bar)
- | 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 hygienic 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 isocyanate (no freons)
- Expansion Coefficient 0,04 mm/m.K
- Core density > 45 kg/m<sup>3</sup>
- Average Cell Sizes 0,5 mm

# COOL-FIT™ – for secondary and indirect Refrigeration Systems

The design of refrigeration systems in supermarkets is going through a state of flux probably never seen since the conception of man-made refrigeration some 130 years ago. The main driver of which are concerns regarding the environment and compliance to regulations being enforced locally and globally to reduce refrigerant charges.

The economic implications of any re-design are of course of major interest to the market. What will be the optimum design of a supermarket refrigeration system in the future? Both conforming to present and future environmental laws and being cost effective.

The supermarket business the world over is busying itself with this question and numerous "new" designs and layouts are being evaluated. Everyone is working to the same fundamental goal: namely an environmentally friendly (ie zero ODP and GWP), no extra investment cost, lower running and maintenance costs supermarket.

## Secondary refrigeration

To achieve these goals it would appear certain that secondary piping will be playing a major role in the supermarket design of the future. Whether in CO<sub>2</sub> cascade systems with MT indirect glycol refrigeration or complete indirect systems with salt solutions for both LT and MT, secondary systems will play an important part

in the future efficient maintenance free running of the complete refrigeration plant.

From USA to Scandinavia through Southern Europe to Australia numerous companies have now proven that when correctly designed and using dedicated components secondary systems can provide lower running costs, increase quality of food (weight loss reduced) and improve reliability by reducing maintenance.

The only open question would appear to be investment costs, here the costs of the components can increase investment costs.

The primary reason for this is the present relatively low demand for secondary components. As demand from end-users increases the investment costs will rapidly decrease and experience in areas of the world where secondary systems are commonly used has shown that investment can be reduced to present levels compared to a traditional direct HCFC systems.

"Investigation of Secondary Loop Supermarket Refrigeration Systems" prepared for the "Californian Energy Commission ; May 2004" is an independent study of the economic implications of a secondary refrigeration system in a supermarket. Available to the general public, please ask for a copy.

## Indirect refrigeration

The forgotten son : the secondary piping system. The material and system of choice is critical for the cost/performance ratio of any piping system, whether refrigerant system or secondary refrigerant system. The material to be used for refrigerant gas must not, should not actually, be the same as for a 38% glycol solution at 3bar. GF Piping Systems has developed a dedicated piping system designed to suit the specific needs of indirect refrigeration, namely COOL-FIT™.

## Combine reliability with speed

By combining the tried and tested ABS system with valves and measurement and control devices with the pre-insulated COOL-FIT™ ABS the contractor can reduce his time on-site to an absolute minimum and help reduce material costs where standard ABS fittings will show material cost savings compared to copper in these sizes.

## Full technical pre and post sales support

As well as world-wide local technical support staff GF Piping Systems has a homepage with an internet on-line calculation tool for all relevant engineering calculations, as well as product range information and jointing instructions.

[www.cool-fit.georgfischer.com](http://www.cool-fit.georgfischer.com)

# Refrigeration Systems in Supermarkets



## Top Quality

You get what you pay for! No need to sub-contract insulation work, guaranteed efficiency thanks to factory manufactured pre-insulated pipe and fittings.

No condensation or ice-build up even under the most extreme conditions.

## MT- & LT-Systems

	Medium	Medium Temperature	Ambient	Humidity	COOL-FIT™
<b>MT-System</b>	Propylene Glycol	-6 °C	+23 °C	70 %	no condensation
<b>LT-System</b>	Temper 40	-33 °C	+23 °C	70 %	no condensation

## Excellent Efficiency

COOL-FIT™ can improve the efficiency of your secondary system by up to 40 %. With a thermal conductivity, lambda value of 0.026W/m.K thanks to top quality high density PUR insulation.

	COOL-FIT™	
	90 DN 80	160 DN 150
U-Value [W/m.K]	0,272	0,362

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

	COOL-FIT™ 110/180
Energy Loss [W]	9265

COOL-FIT™ is about 35% more efficient than most other off the shelf insulations used traditionally.



### Complete Plastic Piping System

No corrosion. Reduce maintenance to a minimum. Both externally and internally ABS plastic does not corrode thus offering reliability and an excellent life-span. ABS is designed for a life-span of 25 years.

The ABS system includes pipes, fittings, transition fittings to copper, manual valves and measurement and control devices. All completely plastic, designed and manufactured by GF Plastic Piping Systems.

### White COOL-FIT™

A white PE outer jacket for COOL-FIT™ as an option to black, avoids unnecessary painting on-site with a top quality finish that lasts.

### No Welding Equipment

Speedy, reliable installation.

No welding or specialist jointing equipment is required for a safe and reliable installation. The system uses the tried and tested TANGIT solvent cement jointing technique, in use since 40 years.

### Low Weight

Ideal for hanging below ceilings. Low density plastics allow easy handling on-site with a simple cost effective pipe support system.

Weight [kg per 100m]	ABS	Copper
50 DN 40	52	291

# www.cool-fit.georgfischer.com



Please find more information concerning other applications and segments of GF Piping Systems:  
[www.piping.georgfischer.com](http://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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