

iFIT



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Introduction

Georg Fischer is a leading producer of pipe and fittings made of various materials since 1802. In the field of thermoplastic materials, Georg Fischer is considered to be a pioneer, as well as one of the best known producers, utilising the most advanced technology in the world.

Our test laboratory is one of the most famous in the world in the field of plastic materials and is completely dedicated to research, development and testing of new products. The equipment and instruments used are the most modern and up to date on the market today, this makes it possible to carry out the most sophisticated tests.

This all comes together with the highest standard of technology, production, logistics and customer service, which contributes to guaranteeing the best products for this project.

This technical submission covers requirements for using the GF iFIT system intended for the safe conveyance in hot and cold water as well as HVAC applications (further possibilities on request).

Scope

The iFIT System shall be supplied by:

Georg Fischer JRG

Hauptstrasse 130, 4450 Sissach

www.gfps.com/ifit

+41 61 975 22 22

Available from appointed distributors, contact the above for your nearest distributor.

Requirements specific to the design of iFIT pipework systems are contained in this section. iFIT pipework fittings shall be used for the conveyance of heating systems and potable cold water, for use in all domestic cold water services, chilled water and hot water services; and should comply with the requirements specified in DIN 16968 / DIN 16969.

Care should be exercised whilst off-loading, storing and transporting about the site and whilst installing the pipework and fittings to ensure that no accidental damage occurs to the pipework or fittings.

System description

iFIT is an innovative installation system featured with the unique adapter module technology for plumbing and heating. Thanks to its proven modular system, iFIT enables identical installation options compared to conventional systems, but using 50% less system components. This results in low stocking costs, allows low inventories and maximum flexibility. The fast and simple connection technology and the possibility to apply polybutene- or multilayer composite pipes meet the highest economic standards. Furthermore, it enables a much more reliable processing security thanks to view windows and click joints.



All iFIT shall be metric sized, manufactured by Georg Fischer or equal, with dimensions and tolerances in accordance with related ISO Recommendations and Draft Resolutions. As material for the fittings PPSU is used for the full plastic parts. Metal fittings are made out of brass listed in the UBA positive list. The prime focus is on multilayer composite pipes (PE-RT/Al/PE-RT) in d16-d32 and polybuten pipes (PB) in d16-d25.

Material

Plastic Body – PPSU (Polyphenylsulfone)

- High resistance to chemicals
- Good impact strength

Threaded Fittings – Brass

- UBA-compliant brass

Multilayer Composite Pipe – PE-RT / AL / PE-RT (Polyethylene Raised-Temperature)

- Oxygen diffusion resistant and butt welded aluminum layer
- High temperature and pressure resistance for the use in heating and sanitary applications
- High flexibility and yet stable installation; simple and economical workmanship
- Resistant to numerous chemicals

Polybuten Pipe – PB

- High flexibility
- Easy to replace (pipe in pipe installation)

Packaging and transportation

The iFIT pipes should be delivered in coils or straight lengths, and the tubes shall be bundled by size in suitable bags or cardboard boxes, clearly marked with the purchase order number, material designation, size, total length or piece count and name of supplier.

Application Areas

- Building Technology
- Marine
- Hot & Cold Water installations
- Heating and cooling systems

Standards & Regulations

Pipes – are produced and tested according:

- DVGW W542 (Multilayer composite pipe)
- EN ISO 21003 (Multilayer composite pipe)
- EN ISO 15876 (Pulybuten pipes)

Fittings – are produced and tested according:

- DVGW W534
- EN ISO 21003-5

Country specific approvals

Building Technology:



Aenor



aTg (BCCA)



DVGW



kiwa



KOMO



SVGW



VKF



SP (SITAC)



WRAS



ÖVGW

Marine:



ABS



DNV-GL



LR



RINA



KOMO



RMROS

Key figures

Thermal conductivity ML pipe (at 20°C)	0.43 W/mK
Thermal conductivity PB pipe (at 20°C)	0.32 W/mK
Temperature range (water)	0 to +70°C continuous operation (short-term up to 95°C)
Operating pressure	max. 10 bar
Life span	50 years
Dimensions	d16-32mm
Flammability rating PPSU to UL-94	V-0
Charpy-Impact strength PPSU (23°C)	75 kJ/m ²
Charpy-Impact strength PPSU (-30°C)	25 kJ/m ²

BRACKET SUPPORT DISTANCES for Multilayer composite pipe

d in mm	RA in m
16	1,0
20	1,0
25	1,5
32	2,0

Expansion

Pipe Length

Temperature difference

L in m	10 K in mm	20 K in mm	30 K in mm	40 K in mm	50 K in mm	60 K in mm	70 K in mm	80 K in mm
1,0	0,26	0,52	0,78	1,04	1,30	1,56	1,82	2,08
2,0	0,52	1,04	1,56	2,08	2,60	3,12	3,64	4,16
3,0	0,78	1,56	2,34	3,12	3,90	4,68	5,46	6,24
4,0	1,04	2,08	3,12	4,16	5,20	6,24	7,28	8,32
5,0	1,30	2,60	3,90	5,20	6,50	7,80	9,10	10,40
6,0	1,56	3,12	4,68	6,24	7,80	9,36	10,92	12,48
7,0	1,82	3,64	5,46	7,28	9,10	10,92	12,74	14,56
8,0	2,08	4,16	6,24	8,32	10,40	12,48	14,56	16,64
9,0	2,34	4,68	7,02	9,36	11,70	14,04	16,38	18,72
10,0	2,60	5,20	7,80	10,40	13,00	15,60	18,20	20,80
15,0	3,90	7,80	11,70	15,60	19,50	23,40	27,30	31,20
20,0	5,20	10,40	15,60	20,80	26,00	31,20	36,40	41,60

Main Advantages

Georg Fischer products have many advantages for a project of this kind, due to the shortage of labour and the construction programme. Listed below are some of the reasons that make our products practical for this project:

- Low stock costs thanks to modular concept
- Fast, easy and safe push-fit technology
- No power supply required
- Low tool investments
- Detachable connection

System solution

You benefit from the advantages of a system solution made of plastic for your installation from the building entry to the last tap.

Safety

You reap the benefits of having a permanently leak-proof and durable drinking water system.

Maintenance

The longevity of your drinking water system secures low maintenance.

Hygiene

iFIT provides safe and hygienic water.

Lifetime

Using iFIT, you benefit from the long lifespan of the material. Operating at 10 bar and 70°C, this system is designed for 50 years lifespan – the equivalent of two generations.

Solvent-free

iFIT is solvent free, ideal for drinking water system. During normal operation, the smooth pipe surface prevents deposits.

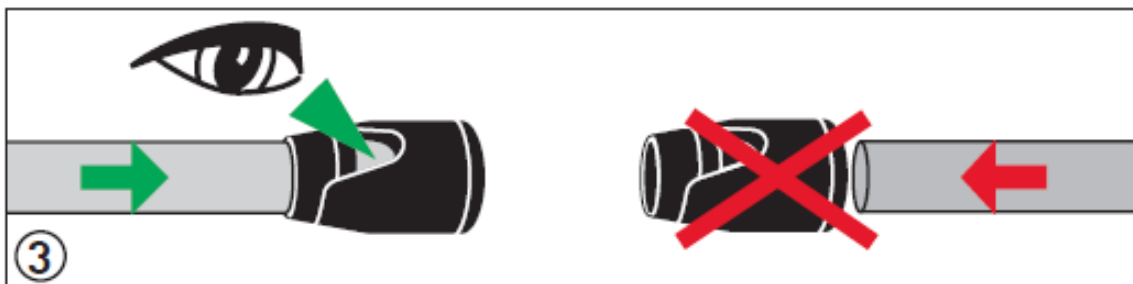
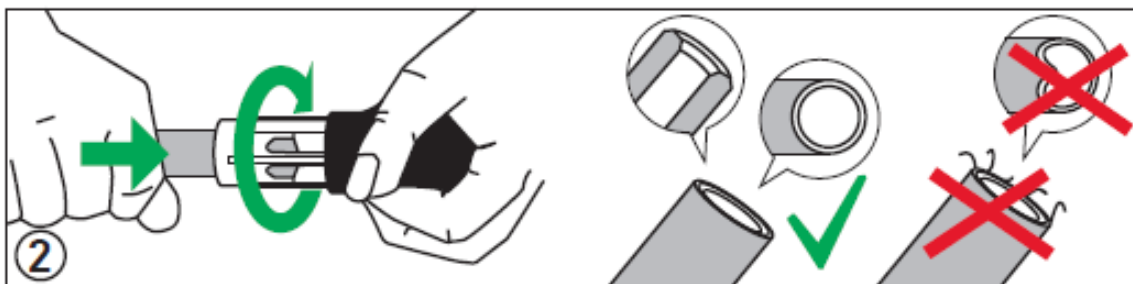
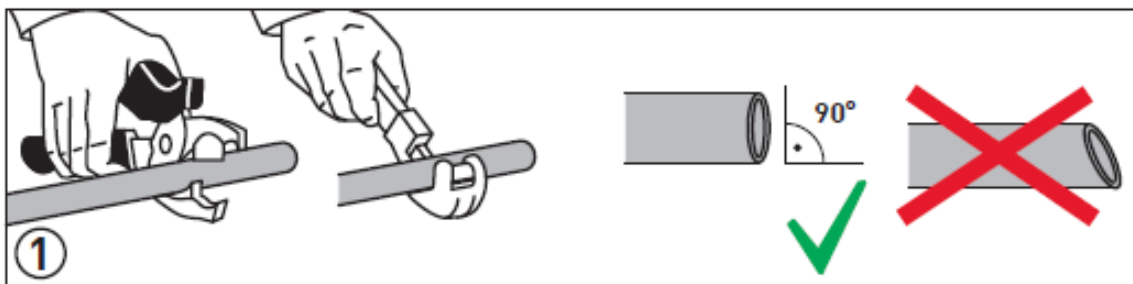
Low corrosion potential

Installing iFIT, you have the advantages of a low corrosion drinking water system. Even during prolonged stagnation times no rusty water.

Life Cycle Assessment

Installing iFIT, you use the advantages of materials which can be recycled and has a low carbon footprint. The Generic EPD is available under [gfps.com/iFIT](https://www.gfps.com/iFIT) (in the folder documents).

Installation Instructions



Specification & Quality Assurance

We know that our company's success can only be secured if we meet the expectations of our customers with corresponding and consistent performance.

Therefore, quality for us means more than the manufacture of functioning products. Quality means the reliable and constant correspondence of requirement and performance.

Our Quality Management System, which conforms to ISO 9001 and ISO 14001, ensures we focus on our customer's satisfaction and requirements by continuously setting new targets for improvement on delivery of product and service quality.

Site Logistics

Georg Fischer plastic pipe and fittings are lightweight (1 sixth the weight of steel), impact resistant and can be easily transported around the site.

Pipe and fittings are delivered to site bagged and labelled keeping the materials dry and clean ready for installation. Plastic materials have no resale value so deters pilferage.

The materials are easily identifiable being a different colour and clearly marked along the length of the pipe and moulded into the fitting denoting the material.

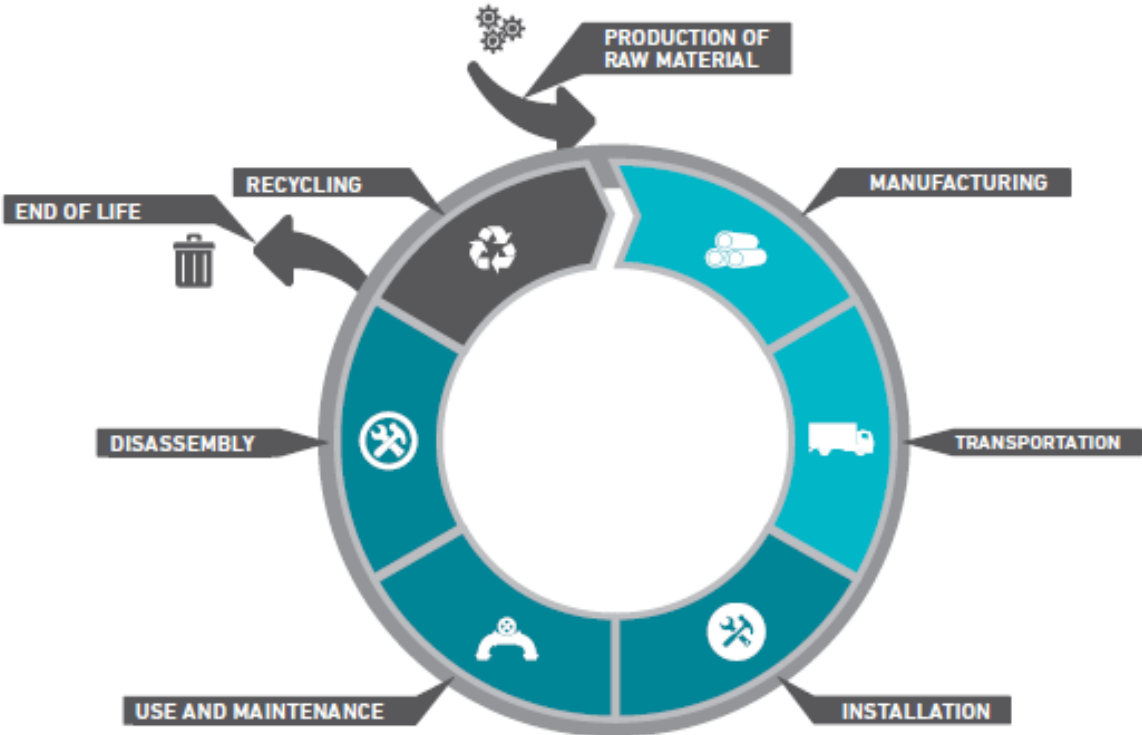
Health & Safety

The use of Georg Fischer products on this project would give the following health & safety advantages:

- No hot work permit required
- Lightweight requiring less manual handling
- No heavy or dirty pipe threading machinery
- Less labour required to install the product
- No electricity is needed for the connection

Sustainability

GF Piping Systems incorporates its environmental responsibility into its everyday business activities. Because we understand environmental awareness as one of the corporation's core values, all internal structures and processes are geared towards sustainability. We strive to conserve natural resources and work continually towards optimizing the environmental performance of our products and how they are used. Consequently, outstanding material properties and innovative technologies form the basis for our environmentally friendly and energy-saving solutions.



Life Cycle Assessments of GF specific industry systems

GF Piping Systems proactively performs life cycle assessments to determine the environmental impact of its products. In cooperation with an independent institute, life cycle assessments of selected GF Piping Systems specific industry systems were calculated including a PB system for the distribution of hot and cold water on a cruise ship. The life cycle assessments cover the environmental impact over the whole life cycle.

Training & Site Support

Georg Fischer considers the training and certification of installers as top priority and therefore insists that prior to any work undertaken the appropriate training shall be carried out by our qualified trainers.

The training covers the following:

- Product introduction, i.e. what it is and it's abilities
- Range introduction
- Storage
- Tooling and ancillary items required
- Installation and hand tool instruction
- Overcoming failures
- Practical installation hints, an over view of fixed point, expansion legs, etc.
- GF expectations

Weekly site visits can be undertaken to ensure the correct methods of installation, answer any technical queries and train additional installers.

Reports on the site visits can be produced to be in line with the client's procedures.

At the end of the project Georg Fischer will train the client's maintenance team.

Summary

Georg Fischer piping systems have major installation and performance benefits as shown above.

The client will benefit from having a product with a long life expectancy, reduced maintenance costs and being environmentally friendly.

GF Piping Systems has achieved success with the iFIT plastic piping system by bringing real innovation to the market in the area of plumbing and heating. This system offers a quick and safe connection of various piping materials.