



# DET NORSKE VERITAS

## TYPE APPROVAL CERTIFICATE

**CERTIFICATE NO. K-2640**  
This Certificate consists of 3 pages

*This is to certify that the*  
**Plastic Pipes, Thermoplastic**

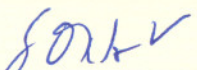
*with type designation(s)*  
**iFIT Multilayer Pipes and iFIT Push Fittings**

*Manufactured by*  
**Georg Fischer Rohrleitungssysteme AG**  
**(at Gerodur MPM, Neustadt, Germany)**  
**Schaffhausen, Switzerland**

*is found to comply with*  
Det Norske Veritas' Rules for Classification of Ships  
Det Norske Veritas' Type Approval Program for Thermoplastic Piping, preliminary

*Application*  
Non-essential systems for water up to 10 bar. Service temp. 0°C to 80°C. For inst. acc. to DNV Rules and Manufacturer's Spec. The piping system is not tested w.r.t. Fire Endurance and Flame Spread characteristics.


*Place and date*  
Høvik, 2005-04-18  
for DET NORSKE VERITAS AS

  
John Olav Nøkleby  
*Head of Section*



*Local Office*  
DNV Essen

*This Certificate is valid until*  
2009-06-30

  
Gisle Hersvik  
*Surveyor*

**Notice: This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.**

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



Cert. No.: K-2640

File No.: 332.31

## Product description

iFIT Multilayer Pipes and iFIT Push Fittings

Multi-layered composite pipes; PE-RT/Al/PE-RT:  
Polyethylene inner and outer liner, Continuously Overlapped Aluminium Core Pipe. The different layers are adhesively bonded to each other.

*Legends:*

PE-RT: Polyethylene - Temperature Resistant

Al: Aluminium

Fittings/Couplings:

iFIT Multilayer Pipes to be joined with iFIT Push Fittings; OD 16 - 32 [mm]

Dimensions:

Diameters, wall thicknesses and maximum service temperature/pressure:

OD [mm]	Wallthickness [mm]	NP [bar]	Maximum working pressure [bar]	
			70°C	95°C
16,0	2,0	10	10,0	5.0
20,0	2,0	10	10,0	5.0
25,0	2,5	10	10,0	5.0
32,0	3.0	10	10,0	5.0

## Application/Limitation

For installation according to DNV Rules and Manufacturer's Specification.

The approval covers application such as non-essential system, hot and cold water systems chilled and brine water systems, cooling systems (air condition), osmosis systems, etc.

Maximum service pressure 10 bar. Service temperature range 0°C to 80°C (max. operating temperature 95°C / 5 bar).

The piping system is not tested with respect to Fire Endurance and Flame Spread characteristics.



Cert. No.: K-2640

File No.: 332.31

### Type Approval documentation

1. Letter from DNV ESN of 2005-02-15, incl. test results (on d25 and d32).
2. Emails from +GF+ of 2004-11-18 and 2004-05-26 (incl. Product Range iFIT).
3. Letter from DNV Essen of 2004-05-25, incl. application for Type Approval, test reports, survey reports, etc.
4. Various correspondences in the period April 2004 – April 2005.

### Tests carried out

Type Testing carried out according to **Type Approval documentation**.

### Marking of product

Product shall be marked with *manufacturer's name; Georg Fischer Rohrleitungssysteme AG, Schaffhausen, Switzerland* and *type designation*.

### Certificate Retention/Renewal Survey

*Surveys to be carried out at:*

**Georg Fischer Rohrleitungssysteme AG, Schaffhausen, Switzerland**

**Gerodur MPM, Neustadt, Germany**

**Haka Gerodur AG, Gossau, Switzerland**

**Sternplastic, VS-Schwenningen, Germany**

**(Pipes)**

**(Pipes)**

**(Fittings)**

The scope of the Retention/Renewal Survey is to verify that the conditions stipulated for the Type Approval is complied with and that no alterations are made to the product design or choice of materials.

Survey to be performed after two (2) years (Certificate Retention Survey) and at renewal after four (4) years (Certificate Renewal Survey).

The main elements of the survey are:

- Ensure that **Type Approval documentation** is available.
- Review design, materials, production process, and performance with respect to possible changes, in order to ensure compliance with **Type Approval documentation** and/or referenced material specifications.
- Ensure traceability between manufacturer's product marking and the DNV Type Approval Certificate.

END OF CERTIFICATE

*H6vo*