

GF Piping Systems

Your global system provider

We are dedicated to designing, manufacturing and marketing piping systems for the safe and secure conveyance of liquids and gases.

We put customers first

- Customer needs guide our product development
- We offer customer support and training worldwide
- We measure your satisfaction

We act fast

- Local presence worldwide
- Superior logistics
- Speed in all details

We do what we say

- Tested quality
- Always reliable

Your competent partner to build, monitor and operate your network

- Always the right solution for building services
- Premium quality and performance
- Increased security throughout the system

- Technological expertise
- «One-stop shopping» around the world
- System solutions
- Know-how and experience
- Local support



AQUASYSTEM

AQUASYSTEM has been designed and produced as a piping system for hot and cold water supply and heating. The integrated system of components is easy to use and install, meets the rigorous demands of the water services and offers excellent value for money.

The highest standards of technology, production and logistics all come together in guaranteeing the best product for the end user:

- Quality
- Experience
- Reliability

Aquasystem is an ideal cost effective solution to piping systems in schools, hospitals, hotels, accommodation and office blocks and in modular construction.

A wide range of pipe and fittings are available up to d125. Please ask about our AQUABIG range up to d250.

Size range	d20-d125
Pressure (PP-RCT fibre pipe)	PN20 @ 20°C
Temperature range	0°C - 95°C
Thermal expansion coefficient (PP-RCT fibre pipe)	0.04mm/m°C
Thermal conductivity (PP-RCT fibre pipe)	0.24 @ 20°C
Approvals	WRAS, KIWA, CSTB, LR, RINA
Joining technique	Socket Fusion, Electrofusion



AQUASYSTEM



Characteristics

PP-R: the characteristics of the material

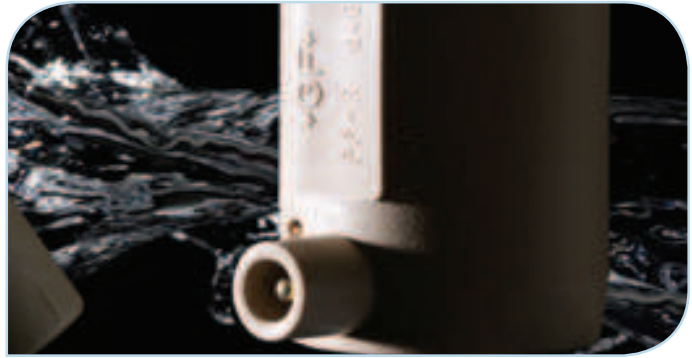
AQUASYSTEM is made of Polypropylene Random Copolymer (PP-R). The chemical inertness of the material ensures that the fittings and pipe are odourless and tasteless as well as physiologically and microbiologically safe. The quality of our material gives high resistance to temperature and pressure and can guarantee a long life.

- High heat stability
- High strength
- Hygienically safe

Properties	Valves	Unit	DIN	ISO
Flow index			DIN 53735	ISO 1133
MFI 190/5	0.4	g/10 min	Code T	Procedure 18
MFI 230/2.16	0.25	g/10 min	Code M	Procedure 12
MFI 230/5	1.25	g/10 min	Code V	Procedure 20
Density a 23°C	0.90-0.91	g/cm ³	DIN 53479	ISO/R 1183
Resistance (Charpy)				
23°C	n.r.	kJ/ m ²	DIN 53479	ISO 179/2D
-30°C	40	kJ/ m ²	normal scale	ISO 179/2D
Notch resistance (notch-engraved sample test)				
23°C	25	kJ/ m ²	DIN 53453	ISO 179/2C
-30°C	2.5	kJ/ m ²	normal scale	ISO 179/2C
Resistance (Izod)				
23°C	n.r.	kJ/ m ²	-	ISO 180/1C
-30°C	28	kJ/ m ²	-	ISO 180/1C
Scratching resistance (engraved sample test) (Izod)				
23°C	23	kJ/ m ²	-	ISO 180/1A
-30°C	2.5	kJ/ m ²	-	ISO 180/1A
23°C	27	kJ/ m ²	-	ASTM D 256
-30°C	4	kJ/ m ²	-	ASTM D 256
Traction test				
Yield test	27	N/mm ²	DIN 53455	ISO 527
Yield Elasticity	11	%	Forwarding speed	Forwarding speed
Breakage Elongation	> 800	%		-
Traction Module E	900	N/mm ²	DIN 53457	ISO 527
Elasticity yield to tangential tension	450	N/mm ²	DIN 53445	ISO/R 537/method A.
Bending stress 3.5%	24	N/mm ²	DIN 53452	ISO 178 standard
Brinell hardness test	49	N/mm ²	DIN 53456	test 5.1
VICAT A/°C Melting point	135-145	°C	(H358/30)	ISO 2039 (H358/30)
Dimensional heat stability °C	75	°C	DIN 53460	ISO 306
			DIN 53461	ISO 75/B
Surface Resistance	>10 ¹³	Ω	DIN 53482	
Mass resistivity	>10 ¹⁶	Ω cm	DIN 53482	
Dielectric loss angle (tg.) (10 ⁶ Hz)	2 x 10 ⁻⁴	-	DIN 53483	
Relative dielectric constant (10 ⁻⁶ Hz)	2.3	-	DIN 53483	
Dielectric rigidity	75	kV/mm	ASTM D149	
Thermal conductivity at 20°C (PP-R)	0.22	W/mK	52612	VDE 0304 (1-4)
Thermal conductivity at 20°C (PP-RCT fibre pipe)	0.24	W/mK		
Thermal expansion coefficient (PP-R)	0.15	mm/m°C		
Thermal expansion coefficient (PP-RCT)	0.04	mm/m°C		
Specific heat 20°C	2.0	KJ/KgK		

The above characteristics are the results of the tests on extruded samples after 96 hours storage at normal room conditions 23/50 (2) DIN 50014 and represent indicative values.

Characteristics



Outstanding features of AQUASYSTEM

Some of the best advantages offered by AQUASYSTEM compared with traditional systems are listed below:

Reduced installation time

Compared with traditional systems, AQUASYSTEM can reduce installation times by at least 30%.

Chemical resistance

AQUASYSTEM will not corrode and is resistant to most chemicals used in water supply and distribution systems. For advice on a particular application then please contact us.

Low thermal conductivity

The thermal conductivity of AQUASYSTEM is very low therefore heat losses are reduced in the hot water supply and heating systems. This does not remove the statutory requirements for insulation on pipework, but can improve the effect of insulation for both heat loss and prevention of condensation.

Long Life

AQUASYSTEM is designed to operate for over 50 years at the temperature and pressure conditions listed in the table, "Permissible working pressure"

Hygienically safe

AQUASYSTEM is certified as non-toxic and is suitable for contact with drinking water.



Abrasion resistance

The high abrasion resistance of AQUASYSTEM guarantees a long installed life.

Noise reduction

AQUASYSTEM has a high sound reduction index for absorbing sound waves and limiting noise transmission through pipes.

High elasticity

Resistance against impact and bending stresses..

Smooth surface

The internal surface of the pipework remains smooth thereby reducing pressure losses and there is no encrustation of the pipework.



Outstanding features of AQUASYSTEM fibre pipe

AQUASYSTEM Fibre pipe is made from the latest generation of PP-R (PP-RCT) combined with a multi-layer structure.

PP-RCT is polypropylene Random copolymer with an enhanced Crystalline structure and improved Temperature resistance.

- Improved pressure resistance
- Improved resistance to crack propagation
- Enhanced long term strength
- Increased impact resistance



The multilayer structure gives the following benefits:

- Higher stiffness
- Lower thermal expansion coefficient
- Dimensional stability

AQUASYSTEM fibre pipe is fully compatible with traditional PP-R.

Key features of AQUASYSTEM Fibre Pipe

Maximum working pressure	
20 bar at 20°C Cold Water	
10 bar at 60°C Hot Water (EN ISO 15874 Class 1)	
10 bar at 70°C Hot Water (EN ISO 15874 Class 2)	
Based on a 50 year life expectancy	
Operating temperature range	0-95°C
(see permissible working pressure table)	
Thermal expansion coefficient	0.04 mm/m°C
Thermal conductivity	0.24 W/m°C
Colour	Grey with 4 wide beige stripes

SDR Values

d20 - d25	SDR7.4/S3.2
d32 - d125	SDR9/S4



Precautions

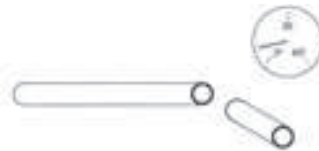
UV Radiation

PP-R, although UV stabilised, should not be directly exposed to the sun.



Low temperatures

With temperatures close to zero, PP-R can become brittle, therefore impact to the pipework should be avoided. Care should also be taken to ensure that the medium in the pipework does not freeze, consequently damaging the piping system.



Threaded connections to metal

It is not recommended to join AQUASYSTEM threaded fittings to conical or other unsuitable metal fittings. Where it is necessary to join to metal threads, it is recommended to use PTFE tape.



Transport and storage

Please observe the tips below for material transport and storage.



~ 1m





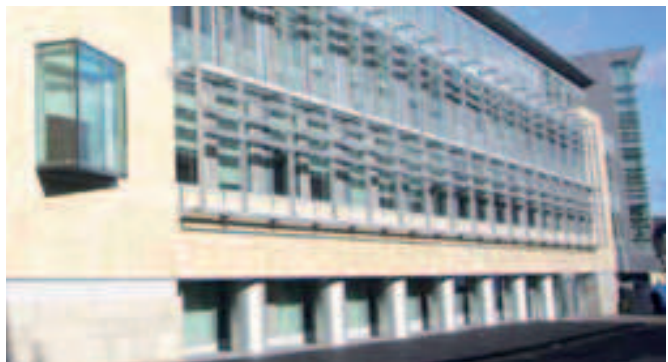
Applications

AQUASYSTEM is recommended for the following applications:

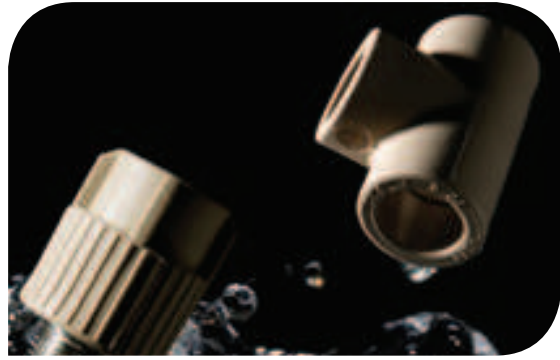
- Hot and cold water
- Heating
- Chilled water
- Compressed air (please seek advice if synthetic oils are used)

AQUASYSTEM is suitable for a wide range of installations:

- Schools
- Hospitals
- Hotels
- Accommodation blocks
- Office blocks
- Modular Construction

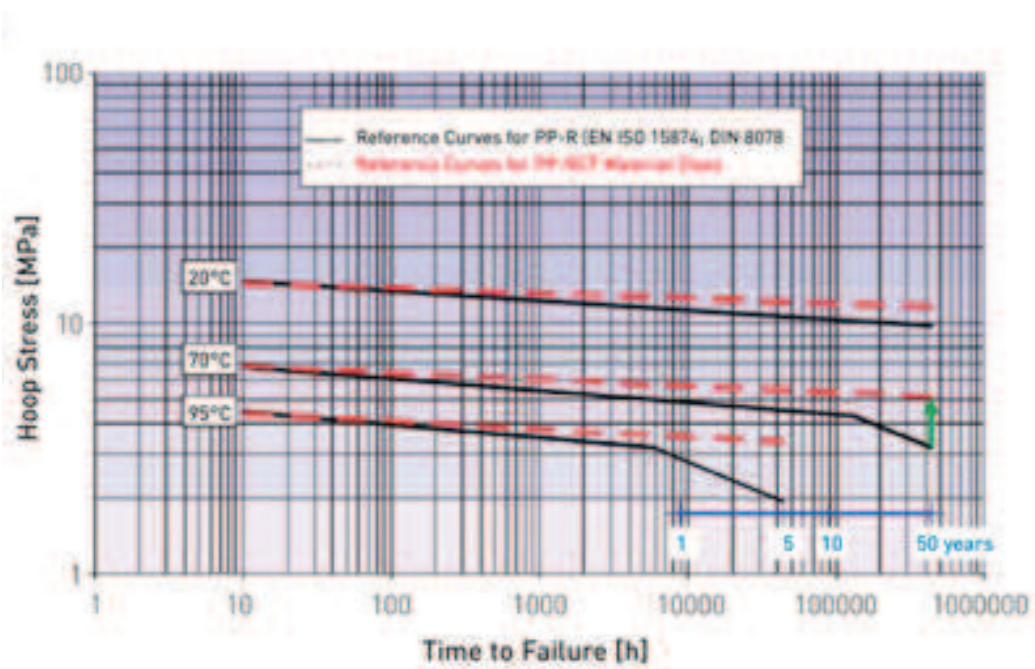


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Regression curves

Regression curves show the admissible pressure during the lifetime depending on the service temperature



PP-RCT material has better long term strength at high temperatures compared with standard PP-R material.

GF Piping Systems > worldwide at home

Our sales companies and representatives ensure local customer support in over 100 countries.

www.georgfischer.co.uk



The technical data is not binding. They neither constitute expressly warranted characteristics nor guaranteed properties nor a guaranteed durability. They are subject to modification. Our General Terms of Sale apply.

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