GF Piping Systems

HYFLOW

Polypropylene piping system for industrial applications with high chemical and mechanical demands

Assured production

Produced in Malaysia for the conduction of effluents and chemicals

As a leading provider of solutions for the conveyance of fluids that enable safe and reliable transport and with a global presence, we offer our customers not only reliable, innovative and quality products, but also solutions tailored to their needs. In the quest to offer an increasingly complete portfolio to our customers, GF Piping Systems launches HYFLOW, a polypropylene piping system manufactured with quality raw materials that meets a wide variety of industrial applications. Thanks to its excellent chemical and mechanical resistance and weldability, the HYFLOW system ensures safety, reliability, tightness and performance for at least 25 years*.

**) Based on medium water, operating temperature of 20°C, valid life time of 25 years and the design factor C = 2*

HYFLOW perfect for many applications

The HYFLOW system is resistant to pressure, corrosion, abrasion, and high temperature. It can be applied in various conditions of transport of industrial effluents, non-aggressive chemicals used in water treatment plants (WTP's) and sewage (STP's) both municipal and industrial and chemicals applied in industrial processes.

The perfect partnership

Your partner for modern plastic piping systems

GF Piping Systems is the leading flow solutions provider across the world. We enable the safe and sustainable transport of fluids. Our business is driven by maintaining industry-leading sustainability levels, innovating through digitally enabled solutions, and investing in a culture built on caring, learning, and performance.

The plastic piping systems from GF Piping Systems are non-corrosive and do not need replacing throughout the system's entire service life. Therefore, they contribute to the increased reliability of the system while lowering maintenance costs and staff requirements. They are excellently suited for applications involving potable and sewage water, coolants, acids, leaches, and other chemicals, as well as abrasive compounds.

GF Piping Systems, founded more than 200 years ago in Switzerland, supports its customers both in the initial switch from metal to plastic and in retrofits – across all project phases. They benefit from more than 60 years of experience in plastic systems and application knowledge from 100 countries.

With Specialized Solutions, GF Piping Systems supports the design and installation of state-of-the-art plastic piping systems, so that owners and planners can concentrate on their daily business without interruption. GF Piping Systems is present every step of the way, from the design phase all the way through to installation and maintenance.

GF Piping Systems has been present in the Southeast Asian market since 1994, when the first office in the region was registered in Singapore. Today, with seven offices in five countries, production facilities in Malaysia and Indonesia and numerous regional partners across Southeast Asia, GF Piping Systems is committed to the region and ensures competent customer support and technical on-site training.

Custom-fit for your applications

Leading applications enabled by safe and reliable systems adapted to fit the needs of demanding industries.

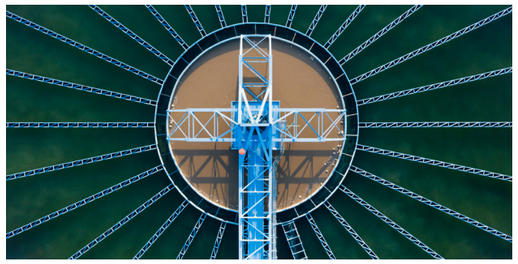
GF Piping Systems develops customized fit for purpose solutions, aligned to the specific requirements of our customers in various sectors of industry, enabling profitable operation. Most notably our systems are ideally suited for the waste water derived from production process, high temperature and chemical waste water treatment, and chemical waste process industry, in fields of microelectronics and energy as well as in food & beverage production. With our system knowledge and product expertise, we support our customers during the planning process, the sustainable realization of the projects and provide valuable added services. Expertise in developing and producing piping systems, combined with profound industry and market knowledge, based on longstanding experience, makes GF Piping Systems a qualified and professional partner for our customers.

Applications in industrial effluent conveying

For the safe flow of industrial waste water to industrial waste water treatment plants, the HYFLOW system combines the use of high performance with excellent material properties. This leads to a gain in safety conditions and sustainability for your project.

Demanding applications in water and waste water treatment

With the HYFLOW system, application processes in hot waste water and waste water treatment can be designed reliable and of highest efficiency. Thereby, challenges such as ensuring high water quality and achieving the expected wastewater treatment are ensured.

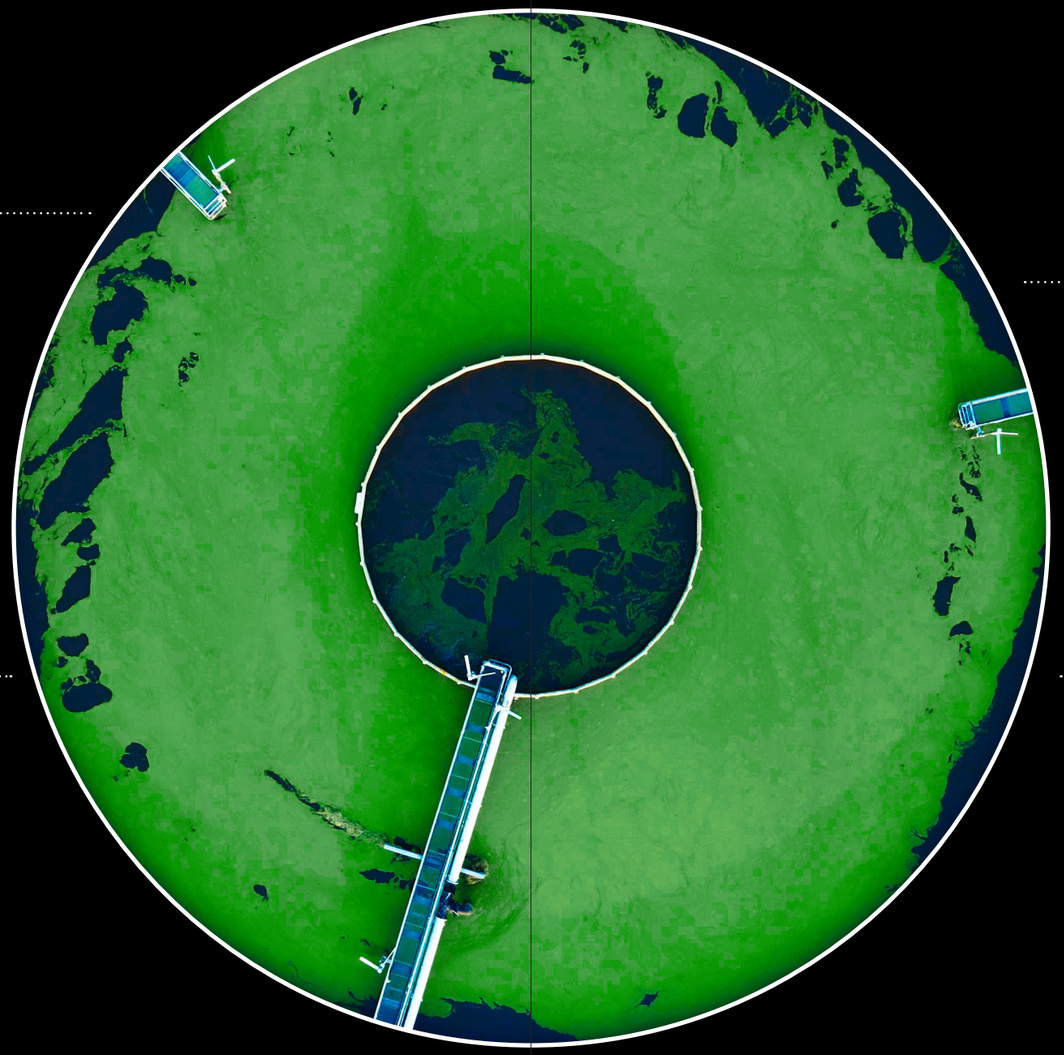


Applications of highest security in chemical industry

In the chemical industry, the use of HYFLOW in chemical waste processes strengthens the industries approach of manufacturing and conveying hot chemical waste media in the safest and at the same time most economical way.

Reliable thermoplastic system

GF Piping Systems is committed to offer the best products and solutions for our customers, so we invest in technology and quality raw materials for the development of our products.



Corrosion free polypropylene system with a minimum service life of 25 years

The resin used in the high quality manufacturing and identification processes of GF polypropylene system reduce corrosion risk to zero, no incrustation and tuberculation ensures the same flow rate throughout a useful lifespan of over 25 years*.

Good chemical resistance

The superior resistance of polypropylene system to various chemicals at temperature up to 80°C, makes it ideal for effluent and chemical conveyance piping systems which excellently suited for applications involving sewage water, acids, leaches, and other chemicals, as well as abrasive compounds. Our Chemical Resistance tool and our expert teams offer support and advice in selecting the right material for your needs.

*) *Based on medium water, operating temperature of 20°C, valid life time of 25 years and the design factor C = 2*

Quality manufacturing process and control

GF Piping Systems produces piping systems in accordance to international standard ISO/EN 15494 and has stringent quality assurance protocols in the manufacturing process. GF Piping Systems has all relevant tests and manufacturing process audits conducted frequently to ensure consistency of manufacturing quality.

High rigidity and good impact resistance

Polypropylene is ideal for sewage and industrial pipes,which require high rigidity and long-term durability to prevent leakage, melting or soften and cracking issues due to chemical effects.

Reliable jointing technology

GF Piping Systems has always been placing a high priority on developing innovative jointing techniques to fulfill specific requirements and materials in use. Simplicity in application, chemical resistance, thermal stability and long-term weld strength are the key drivers in our jointing technologies. With a global jointing training program, international machine rental and a worldwide network of service centres, our customers benefit from expert know-how and practical experience.

A complete system

Assured performance

The HYFLOW system ensures quality, fit for purpose performance in most common applications.

With the focus always on developing solutions with reliability and safety, GF Piping Systems has rigorous development and manufacturing processes defined and specified worldwide so that all relevant standards are regularly audited and assessed to achieve continuous improvement. Product certifications and approvals processes are part of the activities and sustainable quality management system that makes us a reliable partner. Therefore, the HYFLOW line composed of pipes manufactured in Malaysia and fittings and valves injected in our plants in Switzerland all conform to EN ISO 15494, our customers can be sure that their needs will be met with quality standard.

PRODUCTS	SDR	PN	d	20	25	32	40	50	63	75	90	110	125	140	160
			DN		20	25	32	40	50	65	80	100	100	125	150
*) Pipes	11	10		■	■	■	■	■	■	■	■	■	■	■	■
**) Socket fusion fittings	11	10		■	■	■	■	■	■	■	■	■			
**) Butt fusion fittings	11	10		■	■	■	■	■	■	■	■	■	■	■	■
**) Ball valves	11	10		■	■	■	■	■	■	■	■	■			
**) Diaphragm valves	11	10		■	■	■	■	■	■	■	■	■			
**) Butterfly valves		10							■	■	■	■	■	■	■
**) Check valves	11/17.6	10		■	■	■	■	■	■	■	■	■			
**) Pressure regulating valves	11	10		■	■	■	■	■	■	■	■	■			
**) Ventilating and bleed valve		10		■	■	■	■	■	■	■	■	■			
**) Automation				■	■	■	■	■	■	■	■	■	■	■	■
**) Flanges PP-V / PP-steel				■	■	■	■	■	■	■	■	■	■	■	■
**) Flange seals EPDM / FKM				■	■	■	■	■	■	■	■	■	■	■	■
**) Pipe clips PP / PE				■	■	■	■	■	■	■	■	■	■	■	■

*) Manufacture in GF Malaysia

**) PROGEF Standard - metric

Welding machines	d	20	25	32	40	50	63	75	90	110	125	140	160
Socket fusion machines		■	■	■	■	■	■	■	■	■			
Butt fusion machines		■	■	■	■	■	■	■	■	■	■	■	■

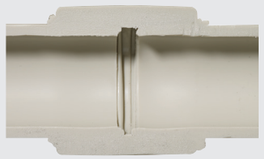
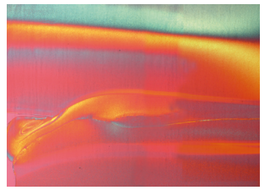
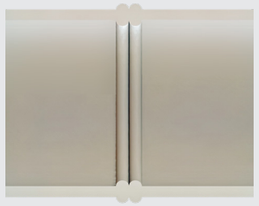
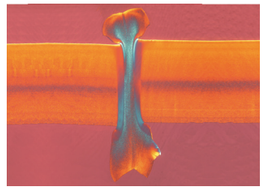
System specifications

Type	Details
Material	d20-d160 Polypropylene - PP-R
Colour	RAL 7032
Density	~0.90 g / cm3 (ISO 1183/ASTM D 792)
Thermal expansion coefficient	0.15mm / mK (DIN 53752)
Thermal conductivity	0.23W / mK (EN 12664)
Surface resistivity	> 1016 Ω (IEC 60093)
Dimensions	d20-d160 in accordance to EN ISO 15494
Surface condition	In accordance to EN ISO 15494
Temperature	Maximum 80°C Minimum 0°C
Pressure	PN10 - SDR 11
Applications	Effluent system for industrial plants (chemical, F&B, pharmaceutical)
	Water and wastewater treatment plants
	Light aggressive chemical processes, WTP and WWTP
Joining technologies	Socket welding from OD 20mm up to 110mm
	Buttfusion welding from 63 to 160mm
Marking	Brand name
	Material
	External diameter
	Pressure class (PN)
	Production batch
	Standards

Proven technologies for your installation

A large diversity of innovative and intelligent welding solutions enriched with global training and service offerings.

As a pioneer in the field, GF Piping Systems has always been placing a high priority on developing innovative jointing techniques to fulfill specific requirements and materials in use. Simplicity in application, chemical resistance, thermal stability and long-term weld strength are the key drivers in our jointing technologies. With a global jointing training program, international machine rental and a worldwide network of service centres, including one in Malaysia, our customers benefit from expert know-how and practical experience.

Welding technology	Welding machines	Joint cross-section	Macro-image
Socket fusion – ideal for small diameters The fast and reliable solution to produce heavy-duty connections, in the workshop or the field.			
Butt fusion – the economical and efficient connection Economical and flexible fusion especially for larger diameters. From manual machines to full CNC control with traceability.			

For more information about training courses from GF Piping Systems please contact our local sales companies.

Specifications

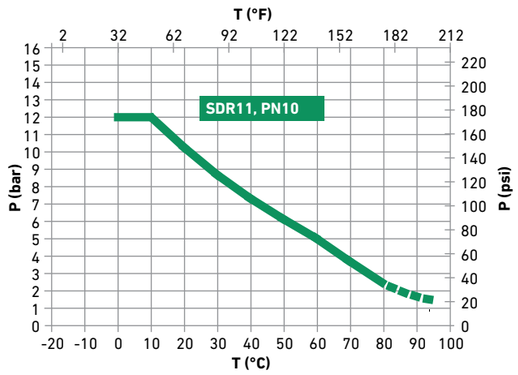
Exceeding quality standards

Technical specifications with focus on pressure-/temperature attributes.

The HYFLOW polypropylene system show excellent physical properties and mechanical characteristics and presents itself as a highly versatile and universal solution. Having a high operational temperature range and ensuring outstanding chemical resistance, high abrasion resistance and very good impact resistance, meeting all requirements in effluent conveyance, chemical handling in WTP, WWTP and industrial processes.

Furthermore, properties such as low weight, low density, minimum internal stresses and an excellent smooth internal surface with high finish quality, make HYFLOW systems a high standard quality standard solution.

For example, according to the temperature x pressure diagram, at 20°C a pressure of 10 bar is admitted for the SDR 11 line.



P - Permissible pressure in bar, psi

T - Temperature in °C (Celsius), °F (Fahrenheit)

Based on medium water, operating temperature of 20°C, valid life time up to 25 years and the design factor C = 2.

* More information regarding technical specifications can be found online in our planning fundamentals: www.gfps.com

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Chemical resistance

For your operational safety

Polypropylene (PP) - a high quality material with outstanding characteristics for a safe and efficient operation.

Chemical resistance
(Applications can be very dependent on the concentration)

Fluid	Chemicals	HYFLOW 20°C	HYFLOW 60°C
Oxidizing Acids	$H_2SO_4 \leq 25\%$	+	+
Sodium Carbonate, aqueous solutions	Na_2CO_3	+	+
Bases	Inorganic (NaOH, KOH, etc.) Organic (NH_3, etc.)	+	+
Salts	NaCl, $FeCl_2$, $FeCl_3$, $CaCl_2$, etc.	+	+

+ resistant
- not resistant
o conditionally resistant, please consult us

Please note: The above list is only intended as a guideline and does not replace an indepth review of material suitability for the particular application. The information is based on our experience and is state of the art. These data are general indicators only. In practice, however, other factors such as concentration, pressure and jointing technology must also be taken into consideration. The technical data are not binding and are not expressly warranted characteristics of the goods.

Caution: On consulting the Chemical Resistance Tool, pay attention to the colors and their indications. **When presented with a green background, its use is fully recommended, with no influence on the material's properties. For other colors, GF should be consulted before use.**

Please contact us and refer to our chart available on our website for help in selecting the correct materials.

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The perfect system for your needs

End to end solution

HYFLOW system meets the most requirements in all phases of your project. The variety of our product portfolio along with our technical support services, customization and training makes us offer the best solutions for the development of high quality projects. With a comprehensive piping system solution consisting of pipes, fittings, valves, welding machines as well as automation technologies in high-quality thermoplastics, GF Piping Systems offers a system in the right measure and desired quality for the transport systems of different fluids and for many industrial applications.

Prefabrication/Customization

The focus of our prefabrication/customization teams is the development of customized parts and designs for special systems. Standardized processes guarantee the highest level of quality and fast installation.

Technical Support

Technical support such as material selection is a key factor for a successful installation. A team of experts is available to provide support nationwide.

Technical documentation

Our extensive know-how of more than 60 years is fully documented in detail in our technical manuals, planning fundamentals and application guides.

Online and mobile calculation tools

Our numerous online and mobile calculation tools are available to support you in material selection (e.g. pressure x temperature diagram and chemical resistance chart).

Centralized R&D

The development of GF piping products are under the governance of a centralized department namely R&D and Technology Hub Asia, to ensure all GF products adhere to GF quality standards and also compliance to globally recognized standards.

Chemical Resistance

In the area of chemical resistance, our ChemRes tool and our expert teams offer support and advice in selecting the right material for your needs.

CAD Library

The extensive CAD library is the most frequently used planning tool. The freely available database comprises over 30 000 drawings as well as technical data for our customers. Many formats are available.

Training courses and on-site training

Offering a wide range of training courses we provide participants an excellent opportunity to gain confidence in working with our products and proven jointing technologies.

Long service life

With a range of premium and quality polypropylene products and systems, we supply the HYFLOW system with life expectancy at least for 25 years* if applied in accordance with GF Piping Systems Standards and recommendations.

Detailed information regarding the warranty can be found under:
www.gfps.com - Planning fundamentals

*) *Based on medium water, operating temperature of 20°C, valid life time of 25 years and the design factor C = 2*

Together as one

We make Process Automation easy

GF Piping Systems is your experienced partner with a full portfolio of measurement, control, and actuation components, which are easy to install and use and have a local support through all project phases. We offer the full package with our products and solutions, providing top-quality installation, a highly skilled team of experts standing by our customers' side every step of the way worldwide, and digitalised services ensuring a project is at the forefront of the market.

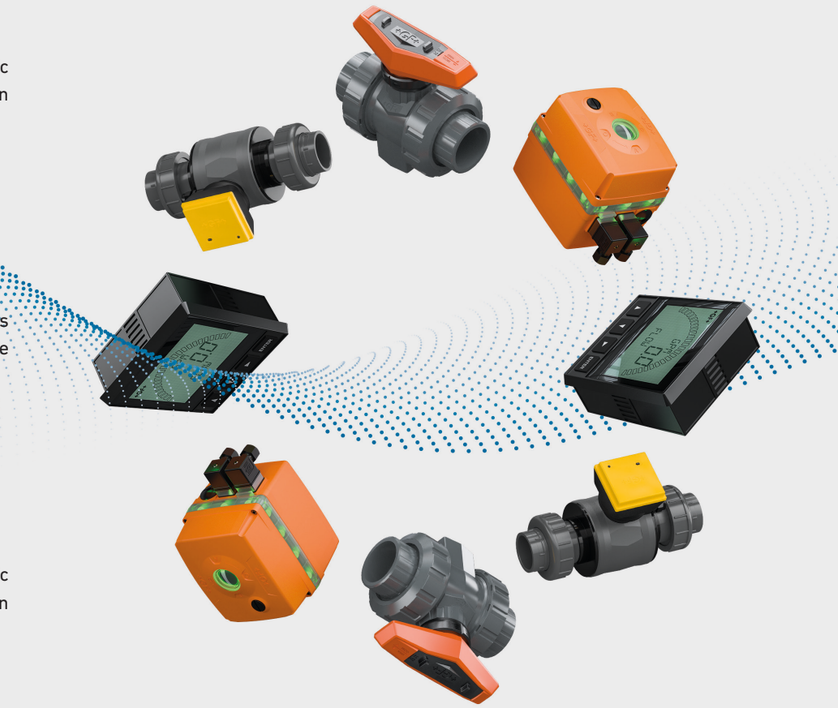
One user experience across the whole control loop

Design (Planning phase)
Easy planning thanks to application-specific solutions making an effortless combination around the complete control loop.

Select (Ordering phase)
Easy to select and order via configurators and matching components throughout the whole portfolio.

Install (Building phase)
Easy planning thanks to application-specific solutions making an effortless combination around the complete control loop.

Own (Operation phase)
Easy monitoring once installed, including spare part availability. Long lifetime and low maintenance make for low downtimes.



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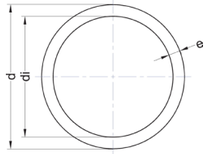

HYFLOW Standard pipe SDR11/PN10/S5

Model:

- Material: Polypropylene – PP
- Dimension certified to ISO 15494
- Colour: light grey RAL 7032
- Stripes colour: Green
- Pipe length: 5000mm, with plain ends

Attention:

- Pressure rates refer to operating temperatures at 20°C. Higher temperatures and aggressive flow media reduce pressure load. Pressure load capacity has to be determined in consideration with safety demands of the respective applications and calculated in accordance

d (mm)	Code	Weight (kg/m)	di (mm)	e (mm)
20	**300 205 500**	0.105	16.2	1.9
25	**300 205 501**	0.161	20.4	2.3
32	**300 205 502**	0.255	26.2	2.9
40	**300 205 503**	0.405	32.6	3.7
50	**300 205 504**	0.629	40.8	4.6
63	**300 205 505**	0.994	51.4	5.8
75	**300 205 506**	1.388	61.4	6.8
90	**300 205 507**	2.083	73.6	8.2
110	**300 205 508**	2.982	90.0	10.0
125	**300 205 509**	3.869	102.2	11.4
140	**300 205 510**	4.822	114.6	12.7
160	**300 205 511**	6.329	130.8	14.6

Local support around the world

Visit our webpage to get in touch with your local specialist:
www.gfps.com/our-locations

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