

Chemical Distribution and Chemical Plant

From Applications
to Products

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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 trustworthy

Your benefits at a glance

Global training

- Different materials and products
- Installation techniques
- Connection and jointing techniques

Global planning

- Professionally trained staff
- Planning documentation (online, CD-ROM and Media Cockpit)
- Product library (online and CD-ROM)
- Online catalogues

Global standards

- DIN
- ISO
- BS
- ASTM
- JIS

Global distribution network and availability



Added Value

GF Piping Systems at your service

We support you throughout

	End Customer	Engineering Company	Distributor	OEM/Installer
	Project Decision	Material Definition Specifications Planning	Warehousing	Installation
piping system solutions consulting				
technical and cost optimization				
mechanical and chemical advice				
material recommendation				
CAD library				
planning fundamentals training				
documentation (printed and electronic)				
submit an offer				
jointing technologies and installation training				
efficient distribution system				
local certificates and approvals				
international standards				
global subsidiaries				

Brandname	Material
SYGEF® Standard	→ PVDF
SYGEF® Plus	→ PVDF High Purity
SYGEF® PFA	→ PFA
PROGEF® Standard	→ PP
PROGEF® Plus	→ PP Cleaned
PROGEF® Natural	→ PP-R Natural
COOL-FIT™	→ ABS Pre-insulated
CONTAIN-IT PLUS	→ Double Containment Piping
FUSEAL	→ PP Flame-retardant or PVDF
ELGEF	→ PE Electro Fusion Fittings

How to use the brochure



1
Start with
your Process



2
Select your
Application



3
Find your
System Solution



4
See Technical
Information

Product	Material	Size	Weight	Volume	Capacity	Flow Rate	Operating Temp.
1	1.4571	1.4571	1.4571	1.4571	1.4571	1.4571	1.4571
2	1.4571	1.4571	1.4571	1.4571	1.4571	1.4571	1.4571
3	1.4571	1.4571	1.4571	1.4571	1.4571	1.4571	1.4571

5
Add Products



We supply what you
are looking for

Chemical Plant

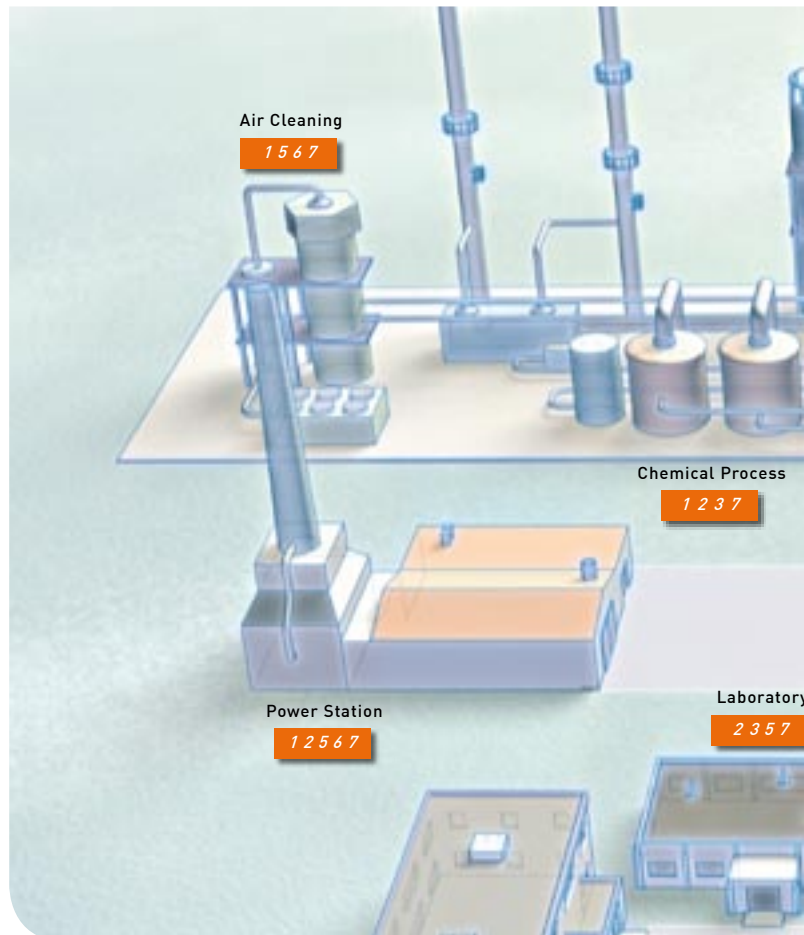
GF Piping Systems operate behind the scenes in many of the processes and applications. We do our utmost to bring quality to production, products and people's lives.

Your applications - our piping systems

Thermoplastic piping systems have been relied upon for decades to convey media, whether it's water or hazardous liquids for industrial applications (please see layout on the right side).

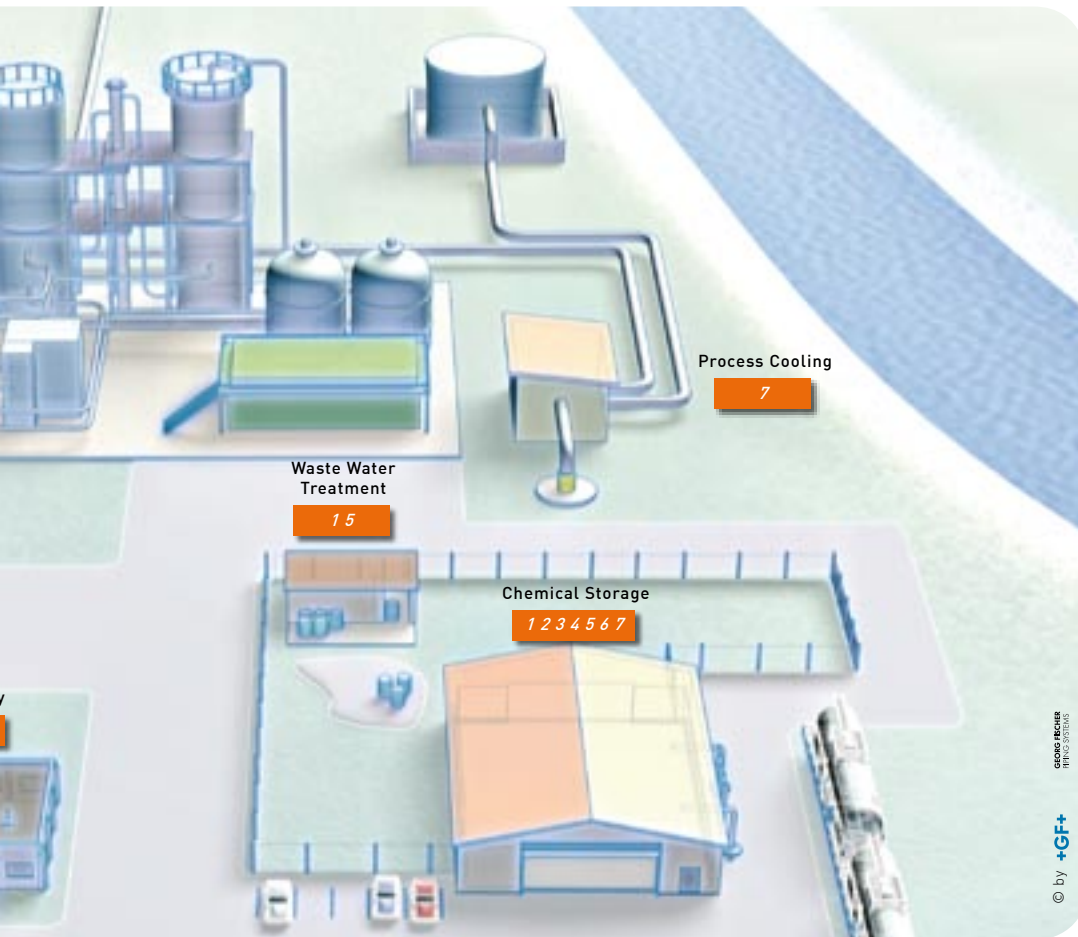
Plastics can do more

- nearly no corrosion
- safe and economical system solutions
- low maintenance
- long life time
- simple, fast but high quality installations
- world-wide presence of GF Piping Systems



Chemical Plant

Imagine all the products in your daily life, where chemicals are used and needed. Production of chemicals is essential for our comfort, health, food and many others.



- 1 Filling of Tanks
- 2 Dilution
- 3 Mixing
- 4 Draw off Station
- 5 Neutralisation
- 6 Air cleaning
- 7 Process Water & Process Cooling
Vacuum & Compressed Air





We provide
your solution

Chemical Distribution

GF Piping Systems are predestined for all applications involved in chemical distribution primarily for acids, alkalis and chemical mixing.

Choosing the appropriate piping system including automation offers many advantages such as increased productivity, decreased production and maintenance costs and improved product quality to name but a few.

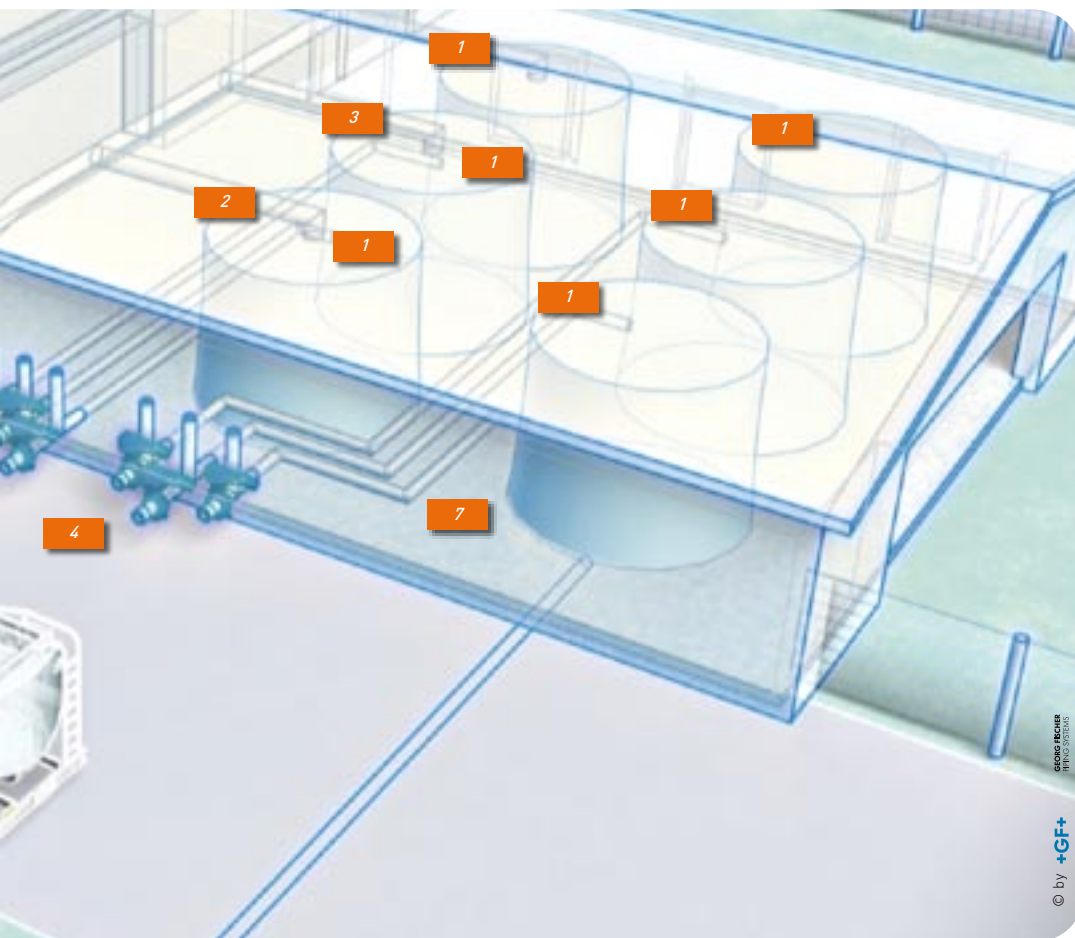
Typical chemicals are hydrochloric acid, formic acid, sulphuric acid, hydrofluoric acid, nitric acid, phosphoric acid, acetic acid, ferric chloride, caustic soda and caustic potash in different concentrations and purities. Select the correct piping systems for your chemicals with the help of our professional staff.

Safe conveyance and exact dosing are mandatory in all areas of the plant. GF Piping Systems completely satisfy all the exacting requirements placed on piping systems with regard to chemical resistance, ambient temperature, low operating pressure and accurate, reliable dosing and measuring.



Chemical Distribution

Transporting chemicals in the highest quality, different concentrations and exact dosages is a must for all customers in the chemical process industry, surface treatment and many others.



- 1 Filling of Tanks
- 2 Dilution
- 3 Mixing
- 4 Draw off Station
- 5 Neutralisation
- 6 Air cleaning
- 7 Process Water & Process Cooling Vacuum & Compressed Air





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PNEUM SYSTEMS

Quantity	Product	Page
1	Flange PP-V DN50	19
1	Butterfly valve, manual Type 567	23
1	Filler and breather Type V 91/V 95	11
1	Diaphragm gauge guard Type Z 700	23
1	Paddlewheel sensor/Flow Sensor Type 2536	19
1	Ball valve, manual Type 546	23
2	Ball valve, electric Type 130	15
1	Wafer check valve Type 369	11
1	Batch controller Type 5600	19

Quantity	Product	Page
1	Solenoid valve Type 165	19
1	Level transmitter Type 8250	11
1	Variable areaflow metres Type SK series	11
1	Water jet suction pump Type P 20	11
1	Level sensor Type 2450 (+ submersion skid)	13
1	Diaphragm valve Type 314	13

Filling of Tanks

In every production where liquids are needed for the process, tanks need to be filled. With the total GF Piping Systems fast, easy and reliable filling is guaranteed.

Application Description

A simple system installation from GF Piping Systems using the principle of parallel pipes with compressed air, allows you to convey all your liquid media resulting in no or using a smaller pump. Recent regulations now advise that chemical tanks may not be drilled anymore. Tanks with height above 7m generate pump head problems. With Signet level sensor and submersion skid measuring of even harsh chemicals becomes safe. Using the GF Piping Systems solutions offers longer life time expectancy for your whole installation.



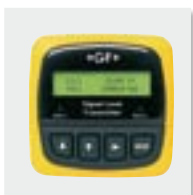
Water Jet Suction Pump Type P 20

It can be used where pressurised fluids are available as a propellant. They are used for mixing chemicals and dilution of chemicals in line. The basic principle of the jet suction pump is that the propellant liquid passes through a nozzle and draws in the mixing media and is mixed together in line.



Air Relief Valve Type V 91a/V 95

The V 91/V 95 filler and breather valves are primarily used where containers and pipes have to be aerated and/or vented. Method of operation is simple but effective, as the level of the liquid falls the valve opens. In case the liquid rises the float is raised and pressed against a seal, closing the valve.



Level Transmitter Type 8250

The transmitters are compatible with the GF Signet 2250 level and 2450 pressure sensors. The instrument is available in field and panel mount configurations, single or dual channel input and equipped with mA output. Other features include fully scaleable, user defined units and automatic level to volume conversion.



Variable Area Flow Meter Type SK Series

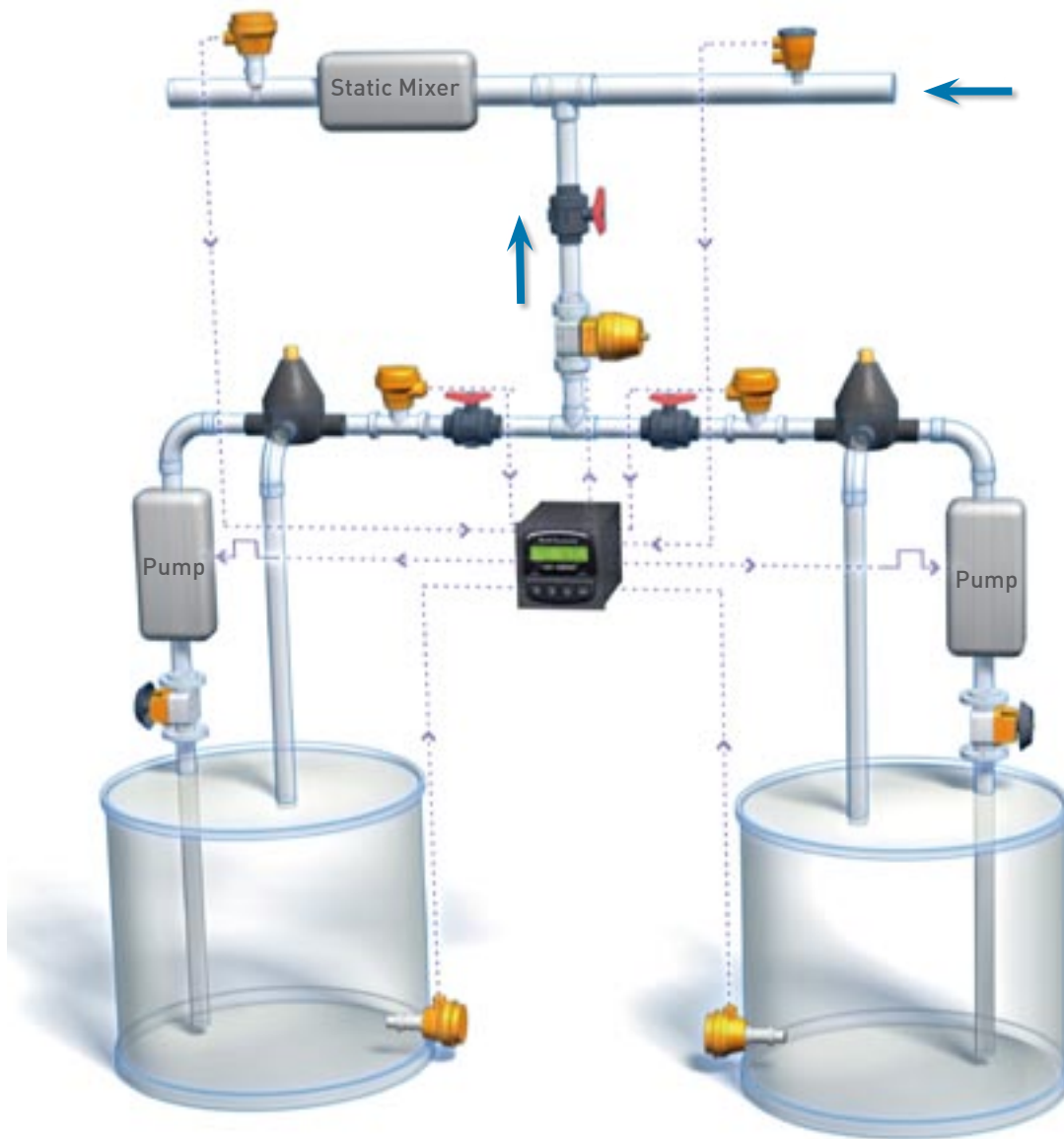
The plastic variable area flow meters in the SK series from GF Piping Systems are radially installed, dismountable meters for measuring the rate of flow in industrial pipework applications. The flow meters can be used for a wide range of applications and a great variety of media.



Wafer Check Valve Type 369 and Ball Check Valve Type 360

The wafer check valves prevent the medium from flowing back and are available in PVC-U, PP and PVDF with reset springs in V4A and Hastelloy for chemical processes. These wafer check valves are suitable for vertical and horizontal mounting. They are robust and maintenance free and admitted for a nominal pressure of 6 bar. Available are as well our ball check valves for smaller sizes.

Filling of Tanks



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GEORG FIECHER
PNEVO SYSTEMS

Quantity	Product	Page
2	Level sensor Type 2450	13
2	Diaphragm valve, manual Type 314	13
2	Pressure relief valve Type V 185/V85	13
3	Ball valve, manual Type 546	23
1	Diaphragm valve, pneumatic Type DIASTAR 028 FC	17

Quantity	Product	Page
1	Temperature sensor Type 2350	13
3	Electro magnetic flow sensor Type 2551 (magmeter)	13
1	Multi channel transmitter Type 8900 (parameter controller)	21

Dilution

Dilution of chemicals, even harsh ones, requires highly specialised and safe solutions. GF Piping Systems offers what you are looking for.



Dilution

Dilution

Application Dilution

This dilution skid designed with SYGEF® Standard Piping Systems and BCF welding technology can be used for harsh chemicals. The aggressive liquids are dosed in small quantities directly into the main pipe where a static mixer takes care of the dilution. GF Signet temperature sensors offer a higher safety system for the resulting exothermic reaction.



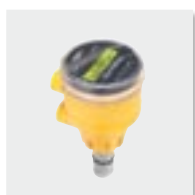
Temperature Sensor Type 2350

The GF Signet temperature sensor has a one piece injection moulded PVDF body to provide excellent chemical resistance. It also outlasts metal sensors in aggressive media and eliminates the need for costly thermowells.



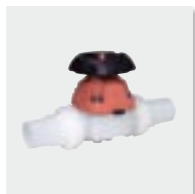
Pressure Relief Valve Type V 85/V 185

The pressure relief valve serves to keep the working pressure constant, to balance out pressure pulsation and to reduce peaks in chemical process systems. Special features include good control characteristics, control unit is hermetically separated from flow medium, by standard EPDM or EPDM-PTFE coated diaphragm.



Electro Magnetic Flow Sensor Type 2551 (Magmeter)

It is an insertion style magnetic flow sensor that features no moving parts. The patented sensor design is available in corrosion resistant materials to provide long term reliability with minimum maintenance costs and outstanding features: bi-directional flow, empty pipe detection, various outputs, no pressure drop, high repeatability with accurate measurement even in dirty liquids and LCD option.



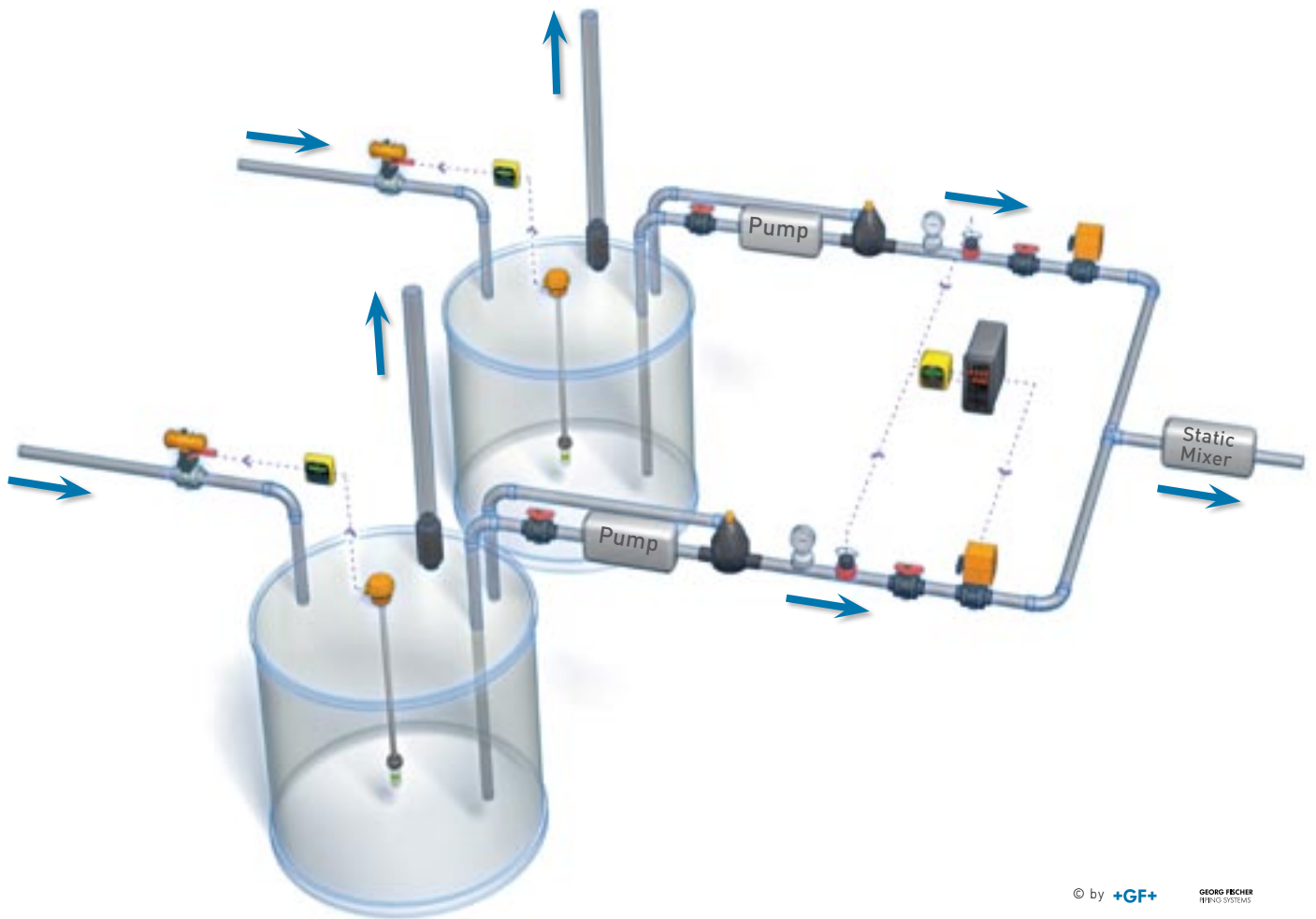
Diaphragm Valve Type 314

Proven and reliable GF Piping Systems know how offers the highest corrosion resistant diaphragm valves with its outstanding features: one piece body, compact design, modular system, visual indicator, self draining which is installation dependent.



Level Sensor Type 2450

The GF Signet Level sensor for level and depth control has a one piece injection moulded PVDF body and ceramic diaphragm for superior compatibility in corrosive liquids with full submersibility.



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PUMP SYSTEMS

Quantity	Product	Page
2	Ball valve, pneumatic Type 230 + pilot valve Type PV 94	17
2	Filler and breather Type V 91/V 95	11
2	Level sensor Type 2250 (+ submersion skid)	13
4	Ball valve, manual Type 546	23
2	Pressure relief/Reducing valve Type V 185/V85	13

Quantity	Product	Page
2	Diaphragm gauge guard Type Z 700	23
2	Paddlewheel flow sensor Type 515	19
1	Industrial ratio controller PE 65/PID	15
2	Ball valve, electric 130 + ratio controller PE 25 with linear ball	15
2	Level transmitter Type 8250	11
1	Flow monitor Type 8550	57

Mixing: Ratio Control

The mixing of chemicals can be done in various ways. With this ratio control in-line mixing you are choosing a safe and highly cost effective solution.

Application Mixing

The in-line mixing process to be carried out is fully automated via the ratio controller. This method allows precise dosing and is extremely cost efficient. Indicating both flow rates it adjusts the ratio accordingly and automatically controlling the process. Especially interesting for installations requiring gravity flow.



Electrical Actuated Ball Valve Type 130

The types 130 - 135 consist of the type 546's valve base body with the electric actuator EA series. With its modular system manual valves can be actuated more efficiently and economically.



Industrial Ratio Controller Type PE 65

The PE 65 operates for precise cost effective control. This is a modular controller which ensures fast replacement of internal modules without any tools. Simple operation via four robust keys are used for all settings and adjustments. Benefits of the PE 65 include bright LED displays, precise control behaviour and switching or alarm outputs.

Electrical Actuators



Type EA 11

Is a basic version for open/close operation for smaller torques. It is expandable to include fail safe return, heating element and two additional limit switches for feed-back.



Type EA 21

Is an improved version of the EA 11. This model indicates operation continuous, 100% duty cycle and has a full range of accessories. This includes cycle time extension, cycle time monitoring, cycle counter, motor current monitoring, position signalization and a positioner. An ASi module can also be fitted for networking.



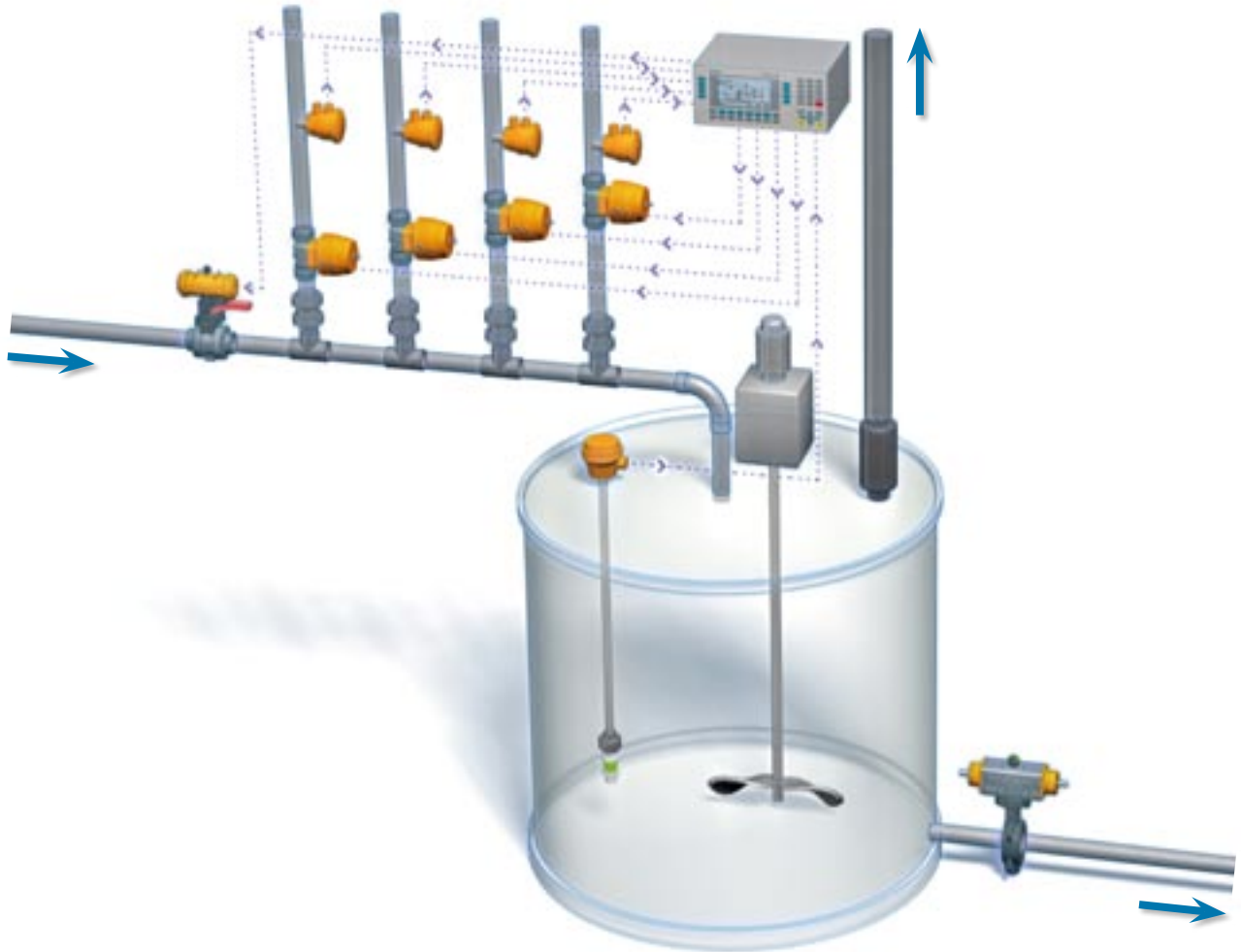
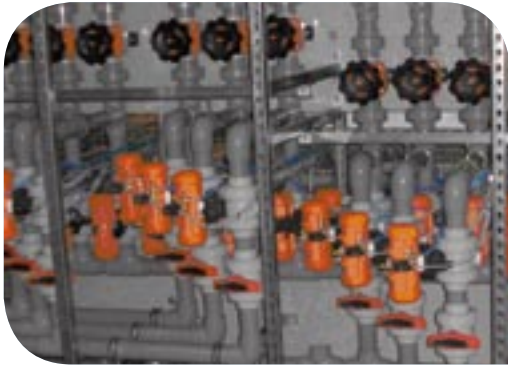
Type EA 31/EA 42

Are mainly used for high torques with full range of accessories. Both actuators are ideal for all kinds of control tasks. Benefits of the EA series: flexible configuration due to modular design, reduced installation costs, intelligent self learning accessories, numerous monitoring and control options, fail safe return options, long cycle life, worldwide certification.



Mixing

Mixing



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PNEUMATIC SYSTEMS

Quantity	Product	Page
1	Ball valve, pneumatic Type 230 + pilot valve	17
4	Electro magnetic flow sensor Type 2551 (Magmeter)	13
4	Diaphragm valve, pneumatic Type DIASTAR 028 FC + pilot valve	17
1	Multi channel transmitter Type 8900 (parameter controller)	21
1	Filler and breather Type V 91/V 95	11
1	Level sensor Type 2250 (+ submersion skid)	13
1	Butterfly valve, pneumatic Type 240	23
1	Level transmitter Type 8250	11
5	Pilot solenoid valves Type 165	19
4	Ball check valves Type 360	11

Mixing: Batching

If the process requires a variety of chemicals, this batching solution provides highest safety standards, especially if it is combined with the double containment system.

GF Piping Systems is providing a total system that is cost effective and satisfies relevant health, safety and waste water regulations. There are individual lines for receiving the chemicals which are supplied to the plant in a bulk. Each chemical line, designed for the individual chemical, feeds into the main batch pipework. Using GF Piping Systems control equipment guarantee a precise and accurate batching process.



CONTAIN-IT

Wherever environmentally hazardous media need to be conveyed, the accident risk can be practically avoided with the use of double containment system and leaks detection.



Liner pipes

Liner pipes for production of dual-laminate piping for higher temperature and pressure is widely used in many chemical processes. Our inner liner pipes offer outstanding chemical resistance.

Pneumatic actuated diaphragm valve type DIASTAR family

The DIASTAR family consist of the type 314's valve base body with the pneumatic actuator. With its modular system manual valves can be actuated more efficiently and economically.



DIASTAR Type 028 FC

Is ideal for all standard applications up to 10 bar that require integrated accessories such as an interface for accessories that allow the linking of the actuator effortlessly to the control system. This valve offers outstanding price-performance ratio.



DIASTAR Type 025

Is the strongest one in this series, because of its high closing forces. Wherever high line pressure exists, up to 10 bar on both sides, this valve offer excellent features with an integrated interface and available in the modes of operation: FC, FO and DA.



Pneumatic Ball Valve Actuator Type 230

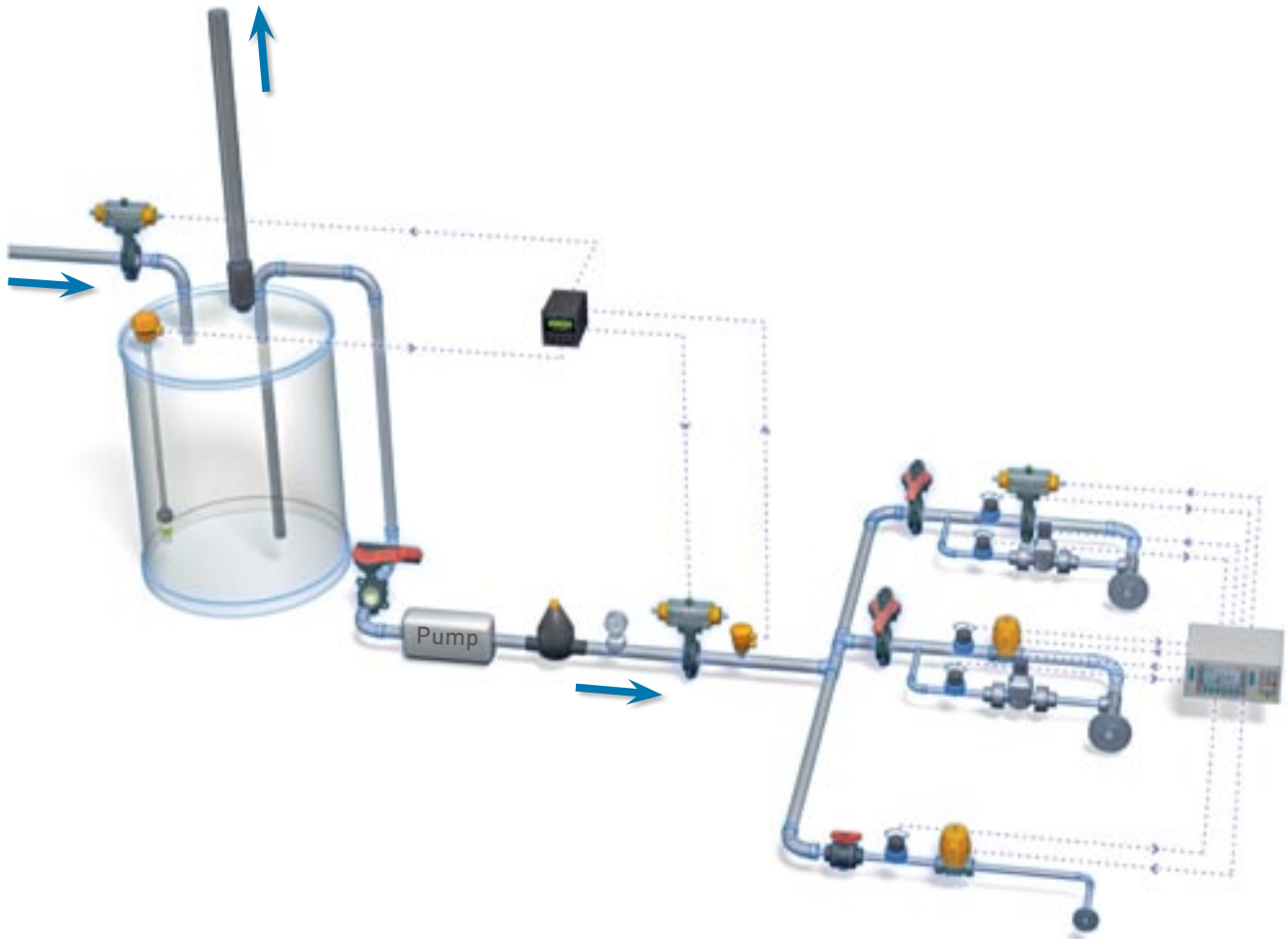
The PA11 and PA21 pneumatic actuators can be mounted on ball valves type 546. By using the correct coupling piece and selecting a suitable adapter plate, the actuators are connected to the multi-functional module with the provided clamps. The purpose of these actuators is to actuate ball valves with a control pressure of 2.8 to 5 bar and up to a driving torque of 20Nm.

They are available with single or double acting with springs for FC (fail closed) or FO (fail open). These valves can be controlled to open or close positions via a built-in solenoid valve.



Mixing

Mixing



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Quantity	Product	Page
3	Butterfly valve, pneumatic Type 240 + pilot valve Type PV 94	23
1	Level sensor Type 2250 (+ submersion skid)	13
1	Filler and breather Type V 91 / V 95	11
3	Butterfly valve, manual Type 567	23
1	Ball valve, manual Type 546	23
1	Pressure relief valve Type V 185 / V 85	13
1	Diaphragm gauge guard Type Z 700	23
1	Electro magnetic flow sensor Type 2551 (Magmeter)	13

Quantity	Product	Page
2	Solenoid valve Type 165	19
1	Batch controller Type 5600	19
1	Diaphragm valve, pneumatic Type DIASTAR 025 FC	17
1	Diaphragm valve, pneumatic Type DIASTAR 028 FC	17
1	Multi channel transmitter Type 8900 (parameter controller)	21
5	Flow sensors Type 2536	56

Draw-off Station

In every chemical plant and chemical distribution facility this area places outstanding demands to its piping systems because of hundreds of different and often very harsh chemicals.

In this area PVC-U or PVDF are used, due to their excellent and wide chemical resistance. It is possible to bottle exactly predefined volumes with batch controllers combined with flow sensors. The chemical batch can be conveyed into cans, iso bulk containers (IBCs) or trucks.

Using the GF Piping Systems solution which includes the GF Signet electro magnetic flow sensor Type 2551, the electromagnetic solution to fluid measurement with the best price-performance ratio in the industry can eliminate the need for batch weighing.



Flange

The corrosion free reinforced PP flange shows the following properties: high chemical resistance, maximum break resistance, UV stabilised, self-centering of the flanges on the flange adapters and a symmetric design allows double-sided installation.



Solenoid Valve Type 165

The Type 165 solenoid valve is a 2/2 way with 3 way pilot control valve. It is controlled exclusively via the pressure of the medium by means of the pilot valve. Its features include a 100% duty rating, integrated manual override, chemical resistant materials of construction and a variety of operating voltages.



Reducers

A wide range of special products such as reducers in diverse diameters are completing the GF Piping Systems product range in order to be your system solution provider.



Paddlewheel Flow Sensor Type 515

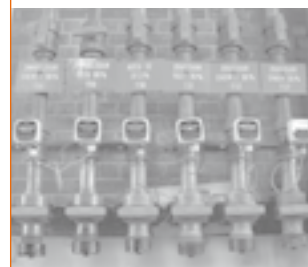
This model is offered in a variety of materials for a wide range of pipe sizes (DN15 up to DN900) and insertion configurations. It is easy to install, highly repeatable output, self-powered and due to its high chemical resistance and robust design generates minimal maintenance.



Batch Controller 5600

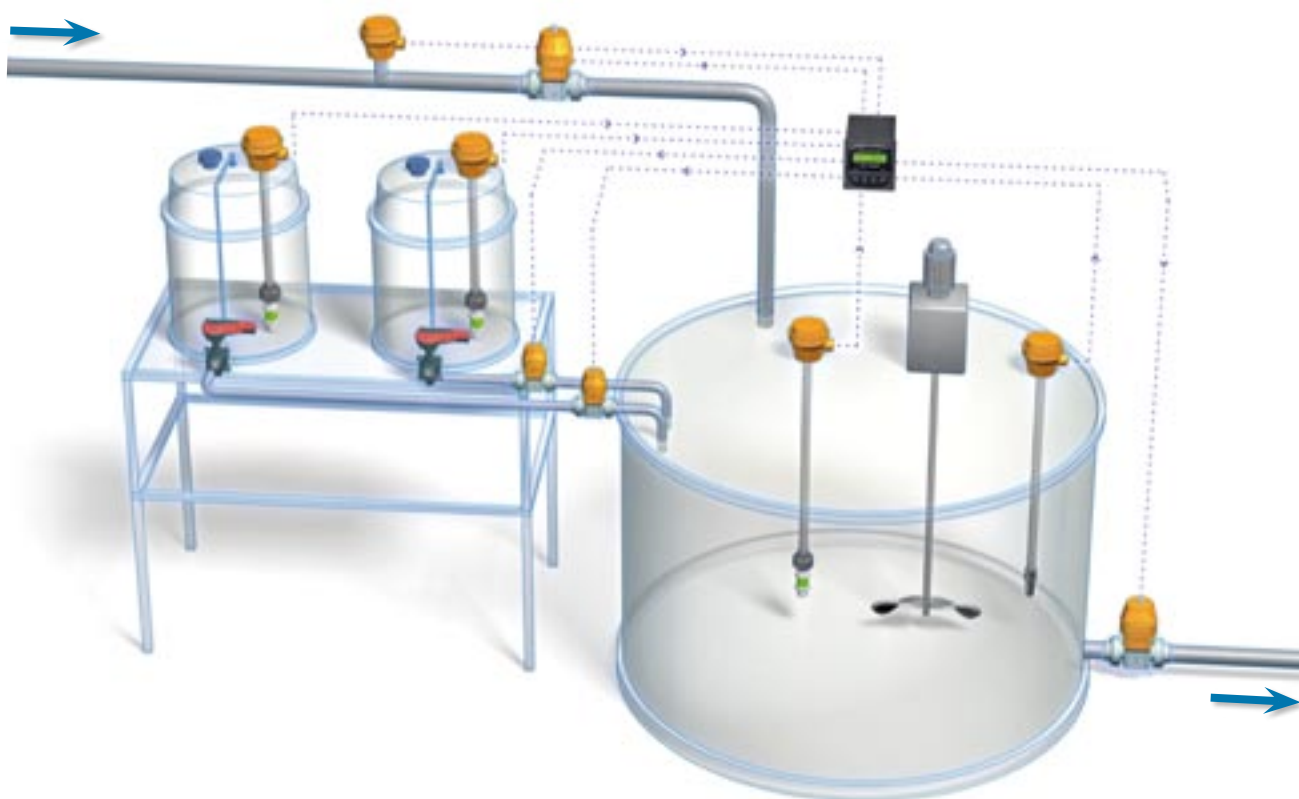
The GF Signet batch controller provides control capability and process fine-tuning in a familiar package. The programming interface uses a four-button keypad and an intuitive procedure for adjusting a batching system to the best performance possible. Advanced features include a user-set security code, an automatic calibration option and overrun compensation.

Station



Draw-off
Station

Draw-off



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PUMPEN SYSTEMS

Quantity	Product	Page
4	Diaphragm valve, pneumatic Type DIASTAR ECO/FC	21
1	Multi channel transmitter Type 8900 (parameter controller)	21
3	Level transmitter Type 8250	11
2	Butterfly valve, manual Type 567	23
1	pH sensor Type 2754	21
1	Flow sensor Type/Paddle wheel sensor Type 515	19
1	Electro magnetic flow Type 2551 sensor (Magmeter)	13
1	Level sensor Type 2250 (+ submersion skid)	13

Neutralisation

Water treatment is becoming a common practice in every industry to reduce effluent water costs by processing waste water and reusing it later in the process.

Every industry has to deal with waste that is classified as either suspended solids, metals, acids and alkalis, organics and nitrogen compounds.

Each classification of waste water requires the treatment process to be monitored with instrumentation from the moment the water enters the treatment facility until it is properly treated and discharged.

For more information see our water treatment brochure GMST_5908.



pH Sensor Type 2714

Feature-packed GF Signet 2714 - 2717 twist lock pH and ORP electrodes provide unsurpassed simplicity, reliability and accuracy. With a rugged construction, large reference volume and intelligent positioning of internal elements combine to extend the service life of the dependable electrodes.



PRO-FIT

This exclusive design saves you time, space and money. This system sets new standards with spigot/socket fittings made of PVC-U and generates added value for plant and equipment builders. The fittings enable direct jointing of fitting to fitting.



DIASTAR Eco

This actuator has been optimized especially for elastomer diaphragms and 6 bar working pressure. The perfect solution if you are looking for an economical valve with compact dimensions and long life cycle.



GF Signet Multichannel Transmitter Type 8900

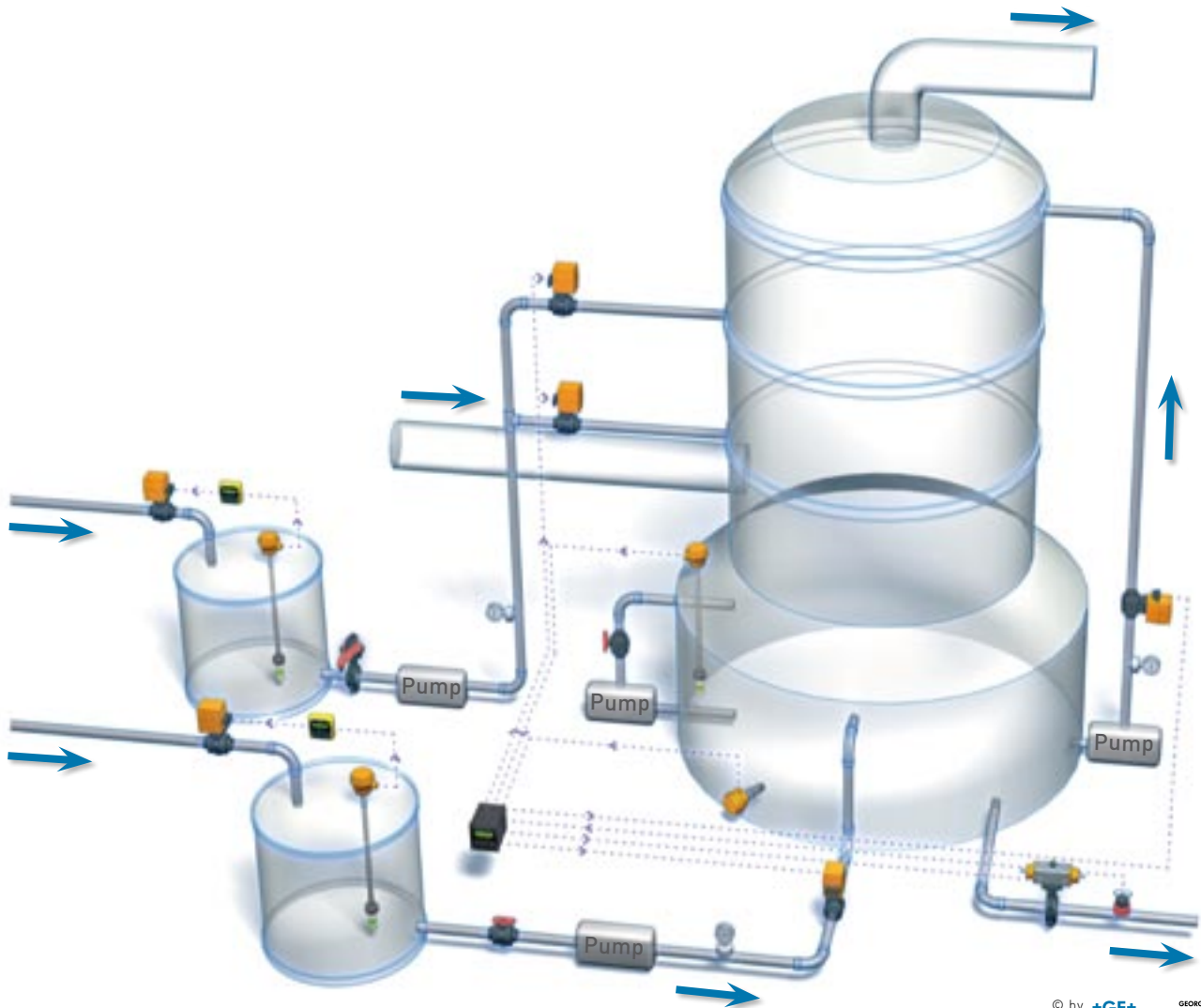
The GF Signet 8900 multiparameter controller takes the concept of modularity to the extreme. Using simple to install modular boards into the base unit, a number of inputs, outputs and relays can be achieved. There are notable features that the 8900 offers, e.g. digital input, long cable runs, advanced relay logic, derived mathematical calculations, multi-language display and multi relay outputs.



Flow Monitor Type 5500

The GF Signet 5500 Flow Monitor is an instrument which comes fully equipped with all of the basic tools needed for monitoring and controlling a flow system. The analog dial enables the user to easily read instantaneous flow rate, while the backlit LCD is useful for calibration, set-up and displaying totalized flow volume. Connect any of Signet's wide array of flow sensors, then consider which output features are best for your application.





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Quantity	Product	Page
6	Ball valve, electric Type 130	15
3	Level sensor Type 2450 (+ submersion skid)	13
1	Butterfly valve, manual Type 567	23
3	Diaphragm gauge guard Type Z 700	23
	Exhaust pipe	23
1	pH sensor Type 2714	21

Quantity	Product	Page
2	Ball valve, manual 546	23
1	Multi channel transmitter 8900 (parameter controller)	21
1	Butterfly valve, pneumatic 568	23
3	Level transmitter 8250	11
3	Paddlewheel sensor/Flow sensor Type 515	19

Air Cleaning

Many chemical sites have a need to clean air which is contaminated with chemicals. Piping from GF Piping Systems is running your process nearly maintenance free.

Fume Scrubbers use liquids to dissolve, trap or chemically react with other liquids or gases to remove air polluting contaminants. Properly designed fume scrubbers are very effective in removing particles, dust, aerosols, and oxides that are smaller than 10 microns. To effectively remove particles, proper contact time between the gas or liquid is very important.



Diaphragm Gauge Guard Type Z 700/Z 701

The diaphragm protected gauge guard is used when measuring the pressure of liquid media. The manometer is separated from the medium by a PTFE-coated diaphragm for highest chemical resistance. The large area of the diaphragm and the low compressibility of the buffer fluid ensure an accurate display.



Ball Valve Type 546

GF Piping Systems quality by design and its innovative features make this ball valve unique. Features: modular system, compact design, floating ball permits tight seal, highly dynamic backing seals result in maintenance free operation, defined breaking point.



Butterfly Valve Type 567/568

Unique double eccentric plastic butterfly valve with many options due to the multifunctional principle. Many excellent features characterize this product: double eccentric principle, reduced torque, less wear, lockable, 5° ratchet setting, in all GF Piping Systems plastic types available, double internal shaft sealing on both sides for a non welded shaft, integrated electric position indicator and many others.



Butterfly Valve Pneumatic Type 240

The pneumatic butterfly valve consists of standard types 567 and 568 's valve bodies with pneumatic actuator PA 30 - PA 55 (see Type 240, above).



Exhaust Piping

Non pressure rating piping system for exhaust applications. Four different systems offer light and easy to install corrosion free systems.

Air Cleaning



Air Cleaning



COOL-FIT™

COOL-FIT™ is a complete system solution for cooling systems. The system is based on pre-insulated ABS pipes and fittings with outer jackets in either black or white PE. This system is delivered ready to install using high density PUR 45 kg/m³ as the insulation material, the PUR is CFC free and recyclable. Working temperatures range from -50°C to +40°C for preinsulated systems with a maximum working pressure of 10 bar (based on water at 23°C).



ELGEF® Plus and PE

The fastest and most reliable jointing of PE is using ELGEF® Plus electrofusion couplers which join all PE pressure pipes and spigot fittings. Modularity is the strength of ELGEF® Plus. Each individual fitting and saddle is made to match and when put together, form reliable and leak-proof connections. Installation engineers create tailor-made solutions on-site according to your individual requirements.



SYGEF® PFA

The SYGEF® PFA line completes the total plastic solution for the distribution of high purity chemicals, high purity water and slurries up to 200°C. The new PFA tubing shows significantly improved characteristics in surface roughness and permeation behavior. A highly innovative flaring technology ensures absolute leak tightness due to its triple sealing system even at elevated temperatures. Long lasting and extreme reliable manually and automatically activated valves are completing the system.

More Applications



Industrial Process Water

Industries require high water quality to feed boilers, processes, cooling systems, etc. Avoiding contamination, scale formation and corrosion in these systems is essential.

Our high quality valves, our inert plastic materials, our reliable instrumentation and our high level of expertise allow GF Piping Systems to provide our customers with reliable quality systems.

(Water Treatment Document Number GMST5908)



Process Cooling

Water for the cooling process, whether temperature controlled or not, is one of the principal demands in the chemical process industry. It is used extensively in heat exchangers and reclaim equipment or high-tech manufacturing processes. The PE, PROGEF® Standard, PVC-U and COOL-FIT™ product lines are corrosion-free, in addition to the internal pipe surface being free of encrustation.



Vacuum

Complete systems for use in applications down to absolute vacuum, including valves in rigid plastics with low pressure loss, e.g. PE, PROGEF® Standard and PVC systems which offer high corrosion resistance and virtually no maintenance.



Compressed Air

Complete systems in PE offer improved efficiency with smooth bore pipes, combined with reliable and simple installation technology.

More Applications



More
Applications

What is corrosion?

Corrosion is a natural process. It is a reaction of materials with substances from the environment. This reaction is comparable with a gradual destruction that often takes place over years or even decades. It is not limited to "rusting" as of iron or changes to the surface of other metals; it applies to all materials.

Metal corrosion causes loss of mechanical strength and pollutes media.



Metal corrosion

In chemistry corrosion is defined as the chemical or electrochemical reaction of a material with substances from the environment. This primarily refers to the redox reaction of metals in connection with water, saline solutions and acids as well as the redox reaction between different metals. In this process a measurable change takes place in the material, resulting in an adverse effect.

How rapidly the corrosion progresses depends on the properties of the respective metals, as well as on the type of medium which is in contact with the metal.

Moisture plays a major role in corrosion. The simplest form of corrosion is the reaction of a metal surface with aggressive media from the environment. For example, sulfur dioxide reacts with air humidity, creating a sulfurous acid and as a result of oxidation with atmospheric oxygen becomes sulfuric acid. Contaminants in the air, such as chlorine or acid vapors, which react directly with many metals, are often found in industrial plants. In contrast to these common redox reactions, there are also more complex redox processes – for example, when metals are damaged by the formation of electrochemical elements or electrolysis.



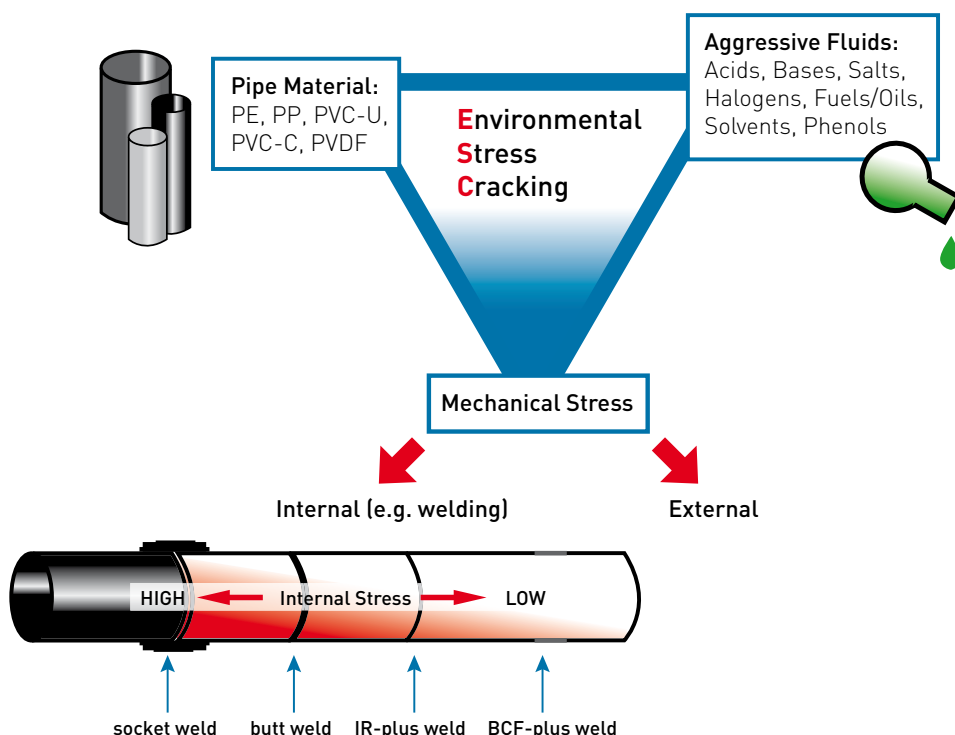
Plastic corrosion

Plastics are not entirely impervious to corrosion either – considering the fact that the daily operating conditions of piping systems are so diverse and on occasion highly complex.

Corrosion is not only the result of the interaction between the material and the medium which comes into contact with it. The operating conditions, the planning and the installation process are other decisive factors, added to which are environmental effects as well as mechanical and microbiological influence. Coupled with the time factor – in other words, contact duration and frequency – the actual specifications for the plastic products are determined. If we delve deeper into the matter, we are able to identify the following types of attack on the material.



- **A genuine chemical attack** occurs when the formulation ingredients react chemically with the medium. The consequence is a material transformation or a reduction, which increases in turn the susceptibility to erosion.
- **Diffusion/swelling** is defined by similarities in the intermolecular interaction, in the material structure as well as in the respective operating conditions. How easily the medium can penetrate between the molecules is significant.
- **Stress cracking** describes the distress on a plastic component—under the combined effect of a specific corroding material and a critical state of stress. Internal and external tensile stress add up. If the tension exceeds the acceptable limits, there will be damage.



The corrosion of plastics can be largely prevented by selecting the appropriate materials and jointing technology. That is why it is essential to consult a specialist. GF Piping Systems has many years of experience and superior know-how where plastics are concerned. Which materials are used for which applications? Which jointing technology is suitable for the particular material?

In order to answer these questions, it is important to realize that plastic is a material full of surprises. Nearly everything is possible with plastic; the possibilities are immense, but there are some restrictions. And these must be taken into consideration. The more complex the application, the greater the challenges. Such challenges can be overcome with the respective know-how. What fits together? What is mutually exclusive? What are the requirements?





Material Selection

Your benefits at a glance

- Corrosion or scaling are no longer a problem.
- Cost savings due to easy and fast installation, early production start, low maintenance costs.
- Highest production safety warranted by the best piping system combined with total transparency in welding process and certified welders.
- Besides our standard products we provide a wide range of specialities.

Please do not hesitate to contact us.

PVC-U

cementable, universal use,
very good chemical resistance,
easy and fast to connect,
basic tools required

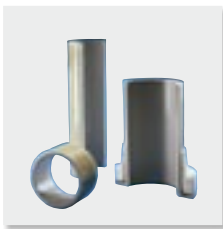
product range: 6 - 400 mm
1/8 - 18 inch



PVC-C

cementable, higher temperature resistance than PVC-U

product range: 16 - 225 mm
3/8 - 8 inch



Liner pipes

Dual laminate piping for higher temperature and pressure is widely used in many chemical processes. Our inner liner pipes offer outstanding chemical resistance.



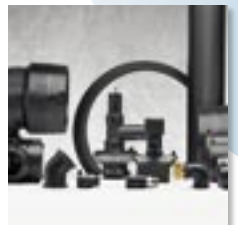
Customizing

Long-term experience and technical know-how in diverse processing techniques make it possible for us to manufacture any design of custom-made product or a complete module.

PE

weldable (electro-, butt-, socket and IR Plus® fusion), long life-time, UV-resistant, flexible and strong at low temperatures, impact resistant

product range: 16 - 630 mm





Exhaust

Excellent chemical resistance, four corrosion free systems available in PPs, PVC, PVC-C and PVDF product range depending on single exhaust systems

product range: 32 - 500 mm



CONTAIN-IT Plus

double containment system with highest safety, leakage control and easy assembly in accordance with DVS standards

product range: 20/50 up to 225/315
1/2 - 8 inch



SYGEF® Standard and SYGEF® Plus

weldable (butt-, socket and IR Plus® fusion, BCF® Plus), outstanding chemical resistance and pressure/temperature range

product range: 16 - 315 mm
3/8 - 12 inch



PROGEF® Standard and PROGEF® Natural

weldable (butt-, socket and IR Plus® fusion, BCF® Plus), high impact strength, high rigidity, very good chemical resistance

product range: 16 - 400 mm PROGEF® Standard
1/2 - 4 inch PROGEF® Standard
20 - 110 mm PROGEF® Natural



FUSEAL

weldable (electro-fusion) and MJ (mechanical jointing), PP and PVDF chemical resistant properties and temperature capabilities, flame retardant and available in double containment

product range: 1 1/2 - 12 inch

Our Solutions



Technical Features

Chemical Compatibility at 20°C		Amorphous Thermoplastics		Partially Crystalline Thermoplastics			Steel	
	Group of Chemicals	PVC-U	PVC-C	PE 100	PP	PVDF	Steel 1.4401 316	Steel 1.4301 304
Acids	oxidizing	+	+	-	-	+	0	0
	inorganic	+	+	+	+	+	0	-
	organic	+	0	+	+	+	0	-
Bases	inorganic	+	0	+	+	-	+	+
Salts		+	+	+	+	+	0	0
Halogens	without F	0	0	-	-	+	0	-
Fuels/Oils	aliphatic hydrocarbons	+	+	0	0	+	+	+
	aromatic hydrocarbons	-	-	-	-	+	+	+
Solvents	chlorinated hydrocarbons	-	-	-	-	0	0	0
	ketones	-	-	+	+	0	+	+
	alcoholes	-	-	+	+	+	+	+
	ester	-	-	0	0	0	+	+
	aldehydes	-	-	+	+	-	+	+
Phenols		-	-	+	+	+	+	0

+ good
0 fair, please consult us
- poor

The above list of basic suitability is only intended as a guideline and does NOT replace a detailed material recommendation for your application.
This information is based on our experience and state-of-the-art technology. These data are general indicators for orientation, whereas for practical use other factors such as concentration, pressure or jointing technology influence the results. The technical data are not binding and not expressly warranted characteristics of the goods. They are subject to change.


OUR SERVICE — YOUR BENEFIT :
Please contact us for a material recommendation.
Our competent staff is pleased to be of assistance.

Metal corrosion and incrustation:
















Physical Properties

Properties		PVC-U	PVC-C	PE 100	PP	PVDF	Unit	Norm
Temperature	°C	0/+60	0/+80	-50/+60	0/+80	-20/+140	°C	-
	°F	+32/+140	+32/+176	-58/+140	+32/+140	-4/+258.8	°F	
Density		1.38	1.5	0.95	0.90-0.91	1.78	g/cm ³	EN ISO 1183-1
Tensile stress at yield		>52	>53	25	31/*25	51	N/mm ²	EN ISO 527-1
Flexural modulus		>2400	-	-	1250/*900	>1800	N/mm ²	EN ISO 527-1
Tensile modulus	23°C/73.4°F	-	>2550	900	1300	-	N/mm ²	EN ISO 527-1
Charpy notched impact strenght	23°C/73.4°F	>6	>6	83	85/*30.9	>9	kJ/m ²	DIN EN ISO 179/1eA
	0°C/32°F	3	-	-	4.8/*3.4	>8	kJ/m ²	DIN EN ISO 179/1eA
	-40°C/-40°F	-	-	13	-	-	kJ/m ²	DIN EN ISO 179/1eA
Ball indentation	132 N	-	-	37	58/*49	-	MPa	DIN EN ISO 2039-1
hardness	358 N/30 s	>105	>110	-	-	>115	MPa	DIN EN ISO 2039-1
Taber abrasion		250 - 300	250 - 300	60	150 - 200	2.8 - 5.7	mm ³ / 10 ³ cycles	DIN 53754
Heat distortion temperature	HDT A 1.80 MPa	66	>102	-	-	>113	°C	ISO 75-2
	HDT B 0,45 MPa	-	-	-	95/*75	-	°C	ISO 75-2
Vicat-softening point		>76	>103	-	-	-	°C	ISO 306
Thermal expansion coefficient		0.07 - 0.08	0.06 - 0.07	0.15 - 0.2	0.16 - 0.18	0.12 - 0.18	mm/mK	DIN 53752
Heat conductivity	23°C/73.4°F	0.15	0.15	0.38	0.23	0.19	W/mK	DIN 52612-1
Water absorption	23°C/73.4°F	>0.1	0.1	0.01 - 0.04	0.1	-	%	DIN 53495
	23°C/24 h 73.4°F	-	-	-	-	>0.04	%	ISO 62/1
Limiting oxygen index (LOI)		42	60	17.4	19	44	%	ISO 4589

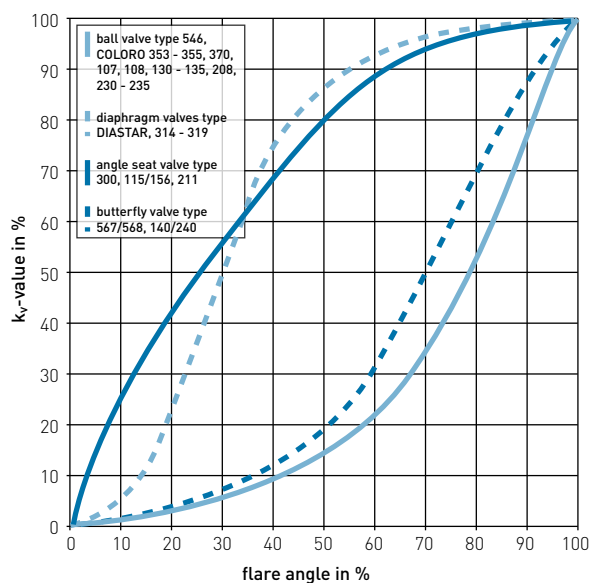
								
		Ball valve	Diaphragm valve	Butterfly valve	Angle seat valve	Ball check valve	Angle seat check valve	Wafer check valve
Medium transported	free of foreign particles	+	+	+	+	+	+	+
	containing particles, crystallising	o/-	+	+/o	o/-	o/-	o	+/o
	viscous	+	+	+/o	+/o	+	+/o	+/o
	gaseous	+	+	+	o	+	o	+
Operating features	adjustable	+	+	+/o	+	x	x	x
	position indicator	*	*	*	x	x	x	x
	permits use of line pigging	+	-	-	-	-	-	-
	leakproof under vacuum	+	+/o	+/o	o	+/o	o	+/o
	pressure surge causes	(+)	+	(+)	+	o	o	o

+ recommended o conditionally suitable
 - not recommended * existing
 x not possible/not existing (+) recommended only with lever

Valves			
	Manual	Electric Actuated	Pneumatic Actuated
2-way ball valve	 Type 546	 Type 107 - 135	 Type 230 - 235
3-way ball valve	 Type 343	 Type 175 - 178	 Type 275 - 277
Diaphragm valve	 Type 314 - 319		 DIASTAR Type 028/025/ Eco
Butterfly valves	 Type 567	 Type 140 - 142	 Type 240
	 Type 568	 Type 141 - 142	 Type 241 - 242

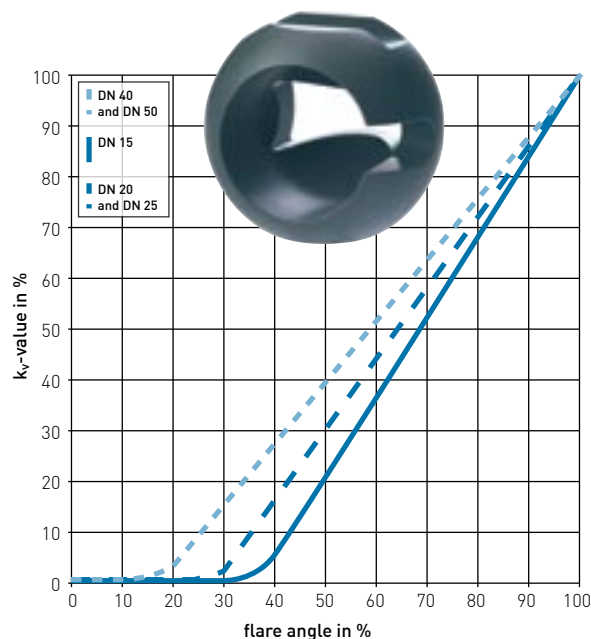
Flow characteristics

of Valves



Flow characteristics

Ball valve 546 linear (Type 110)





Automation with AS-Interface

AS-Interface

AS-Interface (Actuator Sensor Interface) is an industrial standard, specially developed for fieldbus connection of actuators and sensors. It maps the lowest automation level.

The AS-Interface complements advanced fieldbus systems ideally and is used in place of conventional parallel wiring. It is suitable for simple on/off applications. The cable structure is not limited. This interface is a single master system, which polls the configured slaves in cycles, thereby exchanging input and output data.

Gateways are used to connect the AS-Interface network to the next higher automation level (e.g. Profibus DP or Foundation Fieldbus) as a slave. Flexibility in the choice of fieldbus system is thus given, enabling cooperation in international projects. More information: www.as-interface.net



Advantages of AS-Interface

- gateways to all fieldbus systems are available
- interoperability with valves of other manufacture
- low connection costs per node
- simple installation technique
- easy setup, configuration and maintenance
- highly effective error protection
- very reliable operation in an industrial environment
- electronic slave addressing
- expandable as required

General system data

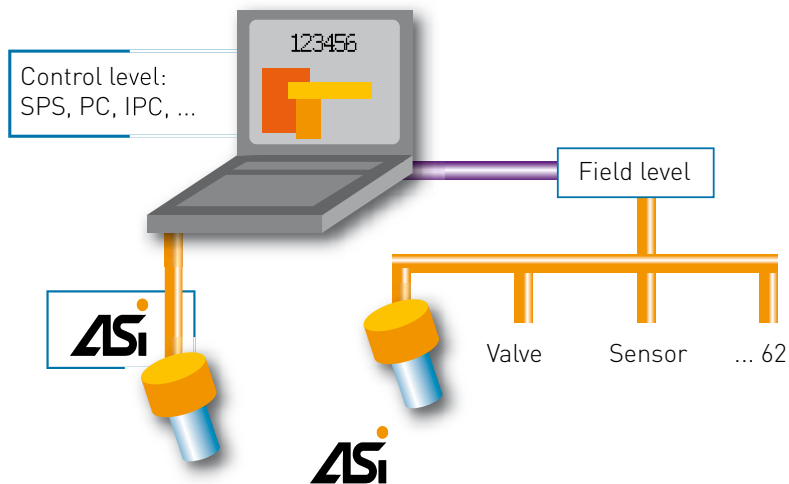
- single master
- master-slave principle
- each slave has a static address
- 4-bit transfer per slave and cycle
- up to 62 slaves possible
- standard voltage 24 V DC
- up to 8 A per bus line (depending on the power supply)
- power and data via a two-wire cable
- cable length 100 m, with repeater up to 300 m
- medium unshielded cable 2 x 1.5 mm²
- IP 67 for use with cabinets and industrial environments
- piercing technology

Cost-effectiveness of AS-Interface

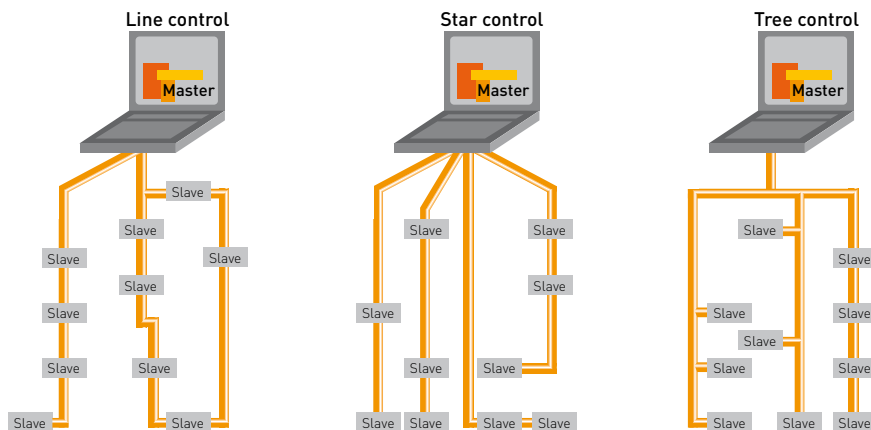
The benefits of an AS-Interface system depend on the actual application. A general rule of thumb: The use of AS-Interface is profitable from approximately 12 sensors or actuators. The most convincing features of the AS-Interface system:

- quick installation
- high potential for cost savings
- saves a lot of space in cabinets
- low wiring costs
- fast setup
- fewer wiring errors.

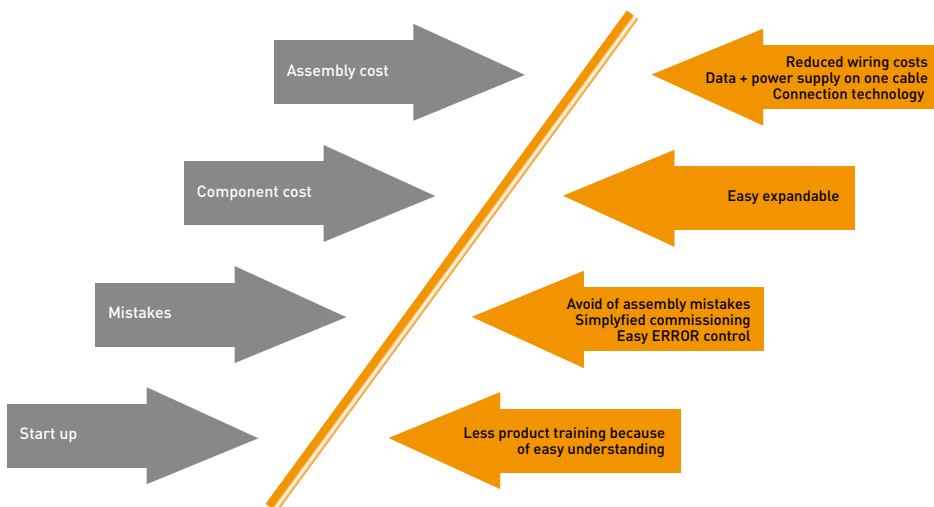
AS-Interface in automation



Unlimited possibilities in network structure



Efficiency at a glance



Technical Information



Technical Information



Measurement and Control

Your benefits at a glance

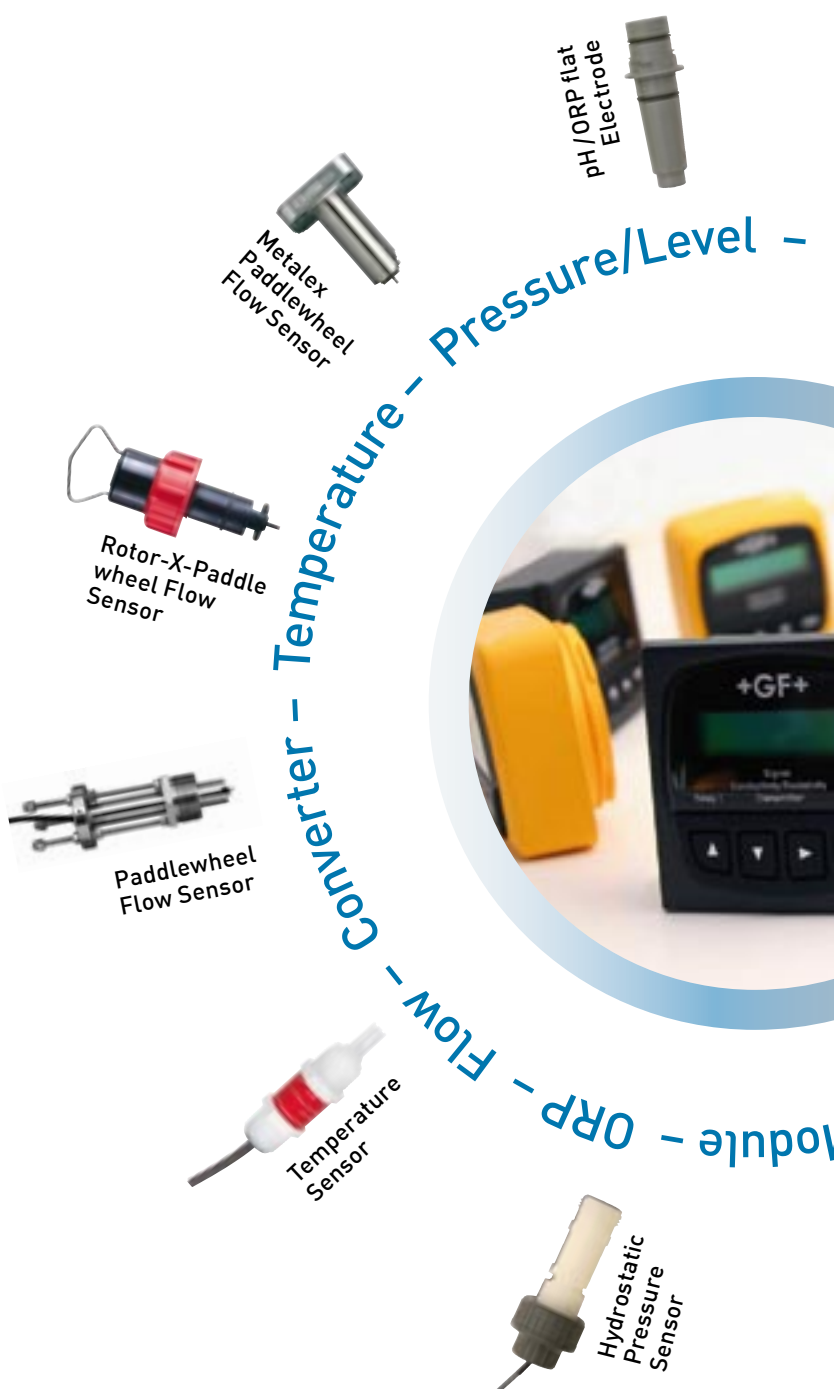
GF Signet provide fluid handling solutions for every application to our industrial clients.

For almost 40 years, GF Signet has manufactured high-quality liquid flow and analytical measurement equipment.

The GF Signet product line includes sensors and instruments to cover a variety of process controls:

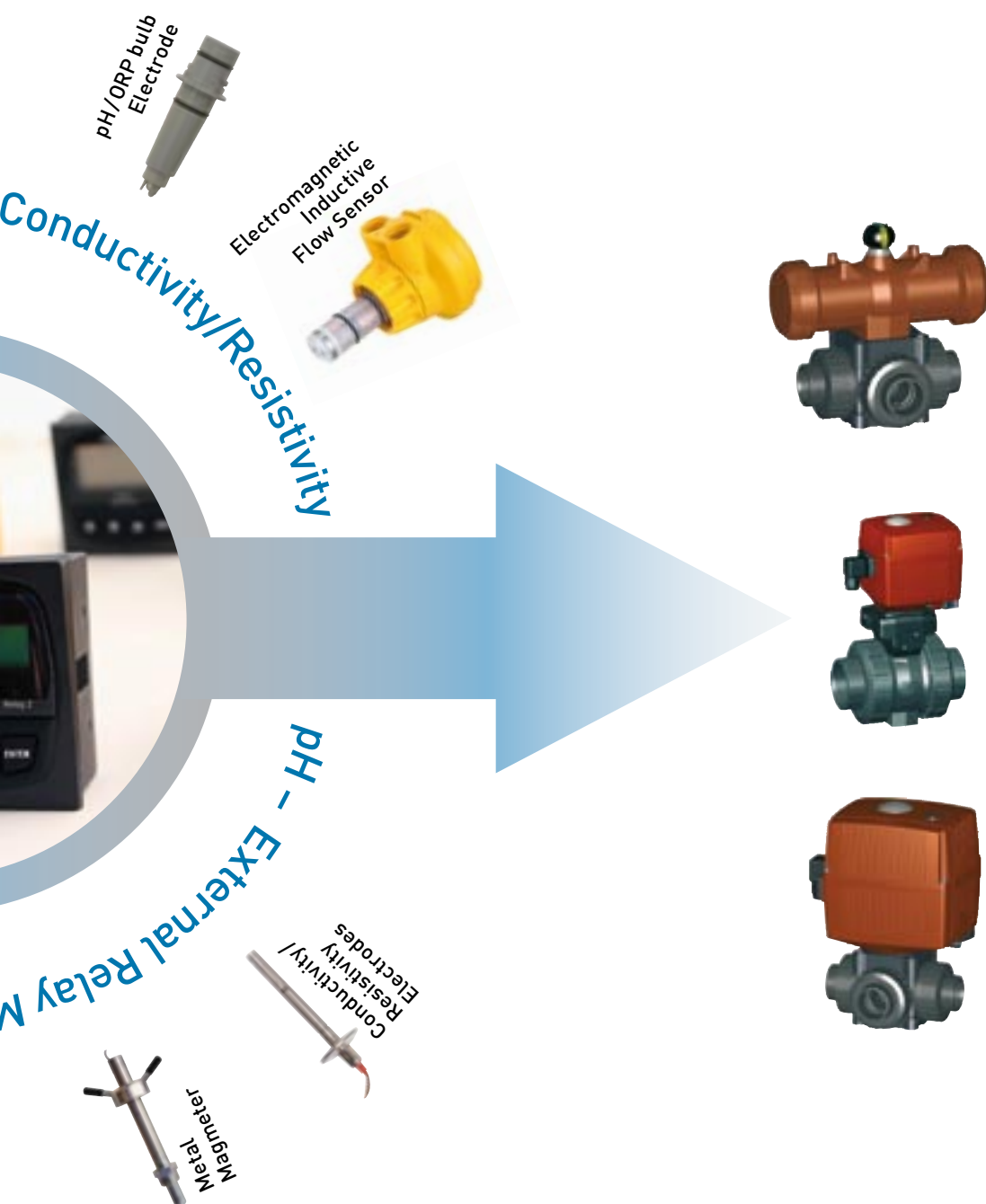
- Flow – paddlewheel, vortex, magmeter,
- pH/ORP
- Conductivity/Resistivity
- Temperature
- Pressure
- Level
- Multi-Parameter

The GF Signet product line also features trademarked and patented technologies that lead the fluid measurement industry.



GF Signet 8900 Multi-Parameter Compatibility Overview

Below is an overview of the GF Signet sensors. Further detailed information on GF Signet can be obtained from page 54 ff and your local sales office, or via www.gfsignet.com



Technical Information



Technical Information

Solvent Cementing

simple and reliable jointing – no machine is needed only gap filling cement and a few simple tools



Solvent Cemented

– the fast connection



Electro Fusion

semi-automatic welding with lowest expenditure of human labour



Electro Fusion

– the easy connection



Socket Fusion

fast and easy welding



Socket Fusion

– the strong connection



Butt Fusion

economical welding up to big diameters



Butt Fusion

– the connection for larger dimensions



IR Plus®

short welding time combined with high traceability of each weld and minimal welding seams



IR Plus® Fusion

– the clean connection



BCF® Plus

best welding quality with highest welding factor and no welding seams



BCF® Plus Fusion

– the smooth connection



Mechanical Joints

fast exchangeability, detachable, customising, transitions and washing are just a few of the benefits

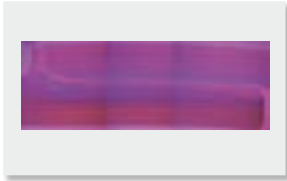


Mechanical Joints

– the fast connection



For the most suitable piping system the best jointing technology is needed to install reliable and high quality piping systems. GF Piping Systems has developed it for you.



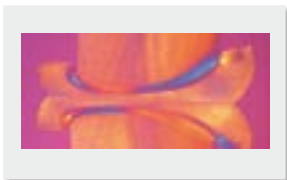
Chemical and pressure resistance of solvent cemented joints is identical to that of the pipe.



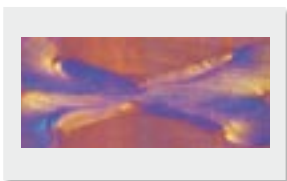
Ideal for in-place fusion, standard connection for the outer double containment pipe; the heating coil is embedded entirely in plastic – there is no contact with the medium.



Socket fusion enables creating heavy-duty connections, no reduction of the clear pipe opening by beads (important for small diameters).



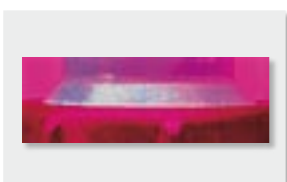
Butt fusion is a universal connection for all sizes; large bead may however affect deposits.



Fusion components are heated without contact in this method. There is no contamination and much smaller weld beads as compared to conventional butt fusion.



No beads or crevices are formed with BCF (bead and crevice-free fusion), no deposits, no pressure loss and almost no stress in the fusion zone.



Seals for mechanical connections are available for any application. Ideal connection for tanks, pumps and metal piping.

Technical Information



Technical
Information

Pipes

Outside-Diameter d			6	8	10	12	16	20	25	32	40	50	63	75
PE 100	SDR 41/ 33	PN 4 / 5	-	-	-	-	-	-	-	-	-	x	x	x
	SDR 17,6	PN 9,6	-	-	-	-	-	-	x	x	x	x	x	x
	SDR 11	PN 16	-	-	-	-	x	x	x	x	x	x	x	x
	SDR 7,4	PN 25	-	-	x	x	x	x	x	-	-	-	-	-
PP-s	Air conditioning		-	-	-	-	-	-	-	x	x	x	x	x
PROGEF® Standard	SDR 41 / 33 / 26 + Air conditioning	PN 2,5 / 3,2 / 4	-	-	-	-	-	-	-	-	-	x	x	x
	SDR 17,6	PN 6	-	-	-	-	-	-	x	x	x	x	x	x
	SDR 11	PN 10	-	-	-	-	x	x	x	x	x	x	x	x
	SDR 7,4	PN 16	-	-	-	-	x	x	x	-	-	-	-	-
	SDR 6	PN 20	-	-	x	x	-	-	-	-	-	-	-	-
PROGEF® Natural	SDR 17,6 / 11	PN 6/10	-	-	-	-	-	x	x	x	x	x	x	x
PROGEF® Plus	SDR 11	PN 10	-	-	-	-	-	x	x	x	x	x	x	x
PVC-U grey	Air conditioning		-	-	-	-	-	-	-	-	-	-	-	-
	SDR 51	PN 4	-	-	-	-	-	-	-	-	-	-	-	x
	SDR 34,3	PN 6	-	-	-	-	-	-	-	-	-	x	x	x
	SDR 21	PN 10	-	-	-	-	-	-	x	x	x	x	x	x
	SDR 13,5	PN 16	-	-	-	x	x	x	x	x	x	x	x	x
	SDR 9	PN 25	x	x	x	x	x	x	x	x	x	x	x	x
PVC-U troisdorffred	SDR 51	PN 4	-	-	-	-	-	-	-	-	-	-	-	-
	SDR 34,3	PN 6	-	-	-	-	-	-	-	-	-	-	-	-
	SDR 21	PN 10	-	-	-	-	-	-	-	x	x	x	x	x
	SDR 13,5	PN 16	-	-	-	x	-	x	x	x	x	x	x	x
	SDR 9	PN 25	-	-	x	-	x	x	-	x	x	x	x	-
PVC-U transparent	SDR 51 / 34,3 + special	PN 4/6	-	-	-	-	-	-	-	-	-	x	x	x
	SDR 21	PN 10	-	-	-	-	-	-	x	x	x	x	x	x
	SDR 13,5	PN 16	-	-	-	x	x	x	x	x	x	x	x	-
	SDR 9	PN 25	x	x	x	x	-	-	-	-	-	-	-	-
PVC-C	SDR 21	PN 10	-	-	-	-	-	-	-	-	-	-	-	x
	SDR 13,6	PN 16	-	-	-	-	-	-	-	x	x	x	x	x
	SDR 9	PN 25	-	-	-	-	x	x	x	x	x	x	x	-
PVC-L-HP food approved	SDR 13,5	PN 16	-	-	-	-	-	-	-	x	x	x	x	x
	SDR 9	PN 25	-	-	-	-	x	x	x	-	-	-	-	-
SY-GEF® Standard	SDR 13,5	PN 16	-	-	-	-	-	x	x	x	x	x	x	x
	SDR 21	PN 10	-	-	-	-	-	-	-	-	-	-	-	-
SY-GEF® Plus	SDR 13,5	PN 16	-	-	-	-	-	x	x	x	x	x	x	x
	SDR 21	PN 10	-	-	-	-	-	-	-	-	-	-	-	-
SY-GEF® Exhaust	-ΔPmax 1500 Pa		-	-	-	-	-	-	-	-	-	-	-	x

90	110	125	140	160	180	200	210	225	250	260	280	315	355	400	450	500	560	600
X	X	X	X	X	X	X	-	X	X	-	-	X	X	X	X	X	-	-
X	X	X	X	X	X	X	-	X	X	-	X	X	X	X	-	-	-	-
X	X	X	X	X	X	X	-	X	X	-	X	X	X	X	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
X	X	X	X	X	X	X	-	X	X	-	X	X	X	X	X	X	-	-
X	X	X	X	X	X	X	-	X	X	-	X	X	X	X	X	X	-	-
X	X	X	X	X	X	X	-	X	X	-	X	X	X	X	-	-	-	-
X	X	X	X	X	X	X	-	X	X	-	X	X	X	X	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
X	X	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-
X	X	X	X	X	X	X	-	X	X	-	X	X	X	X	-	-	-	-
-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	X
X	X	X	X	X	X	X	-	X	X	-	X	X	-	-	-	-	-	-
X	X	X	X	X	X	X	-	X	X	-	-	X	X	X	-	-	-	-
X	X	X	X	X	X	X	-	X	X	-	X	X	-	-	-	-	-	-
X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	X	-	-	-	-	-	-	-	X	-	-	-	-	-	-
-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
X	X	-	X	X	-	-	-	X	-	-	-	-	-	-	-	-	-	-
X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
X	X	X	X	X	-	X	-	X	X	-	X	X	-	X	-	X	-	-
X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
X	X	-	X	X	-	-	-	X	-	-	-	X	-	-	-	-	-	-
X	X	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-
X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-
X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-
X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-
X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-
X	X	-	-	X	-	X	-	-	X	-	-	X	-	X	-	-	-	-











Product Range



Product Range

Fittings

Socket Systems

Material		Dimension	Pressure range PN											
					Bend 90°	Elbow 90°	Angle 45°	T 90°	Socket	Double Nipple	Reducer	Endcap	Transmission Fitting	Union
	PVC-U	d6 - 400			x	x	x	x	x	x	x	x	x	x
	PVC-C	d20 - 225			x	x	x	x	x		x	x	x	x
	PROGEF® Standard	d20 - 630		PN6										
				PN10		x	x	x	x	x	x	x	x	x
	PE	d20 - 630		PN6										
				PN10		x	x	x	x		x	x	x	
	SYGEF® Standard	d20 - 315		PN16		x	x	x	x		x	x	x	x
				PN10										
	SYGEF® Plus	d20 - 315		PN16										
				PN10										
	ABS	d20 - 315		PN16										
				PN10	x	x	x	x	x	x	x	x	x	
	COOL-FIT™	d25 - 225			x		x	x		x	x			

Butt Fusion Systems

Material		Dimension	Pressure range PN											
					Bend 90°	Elbow 90°	Angle 45°	T 90°		T 90° red	Reducer	Endcap	Transition Fitting	Union
	PROGEF® Standard	d20 - 400	SDR11		x	x	x	x		x	x	x	x	x
			SDR17		x	x	x	x		x	x	x		x
	PROGEF® Natural	d20 - 110	SDR11			x	x	x			x		x	x
			SDR17		x		x	x			x			
	PROGEF® Plus	d20 - 315	S5/SDR11		x	x	x	x		x	x	x		x
	PE	d20 - 400	S5/SDR11		x	x	x	x		x	x	x	x	x
			S8.3/SDR17.6		x		x	x		x	x	x		x
	SYGEF® Standard	d20 - 225		PN16	x	x	x	x		x	x		x	x
				PN10	x		x	x		x	x			
	SYGEF® Plus	d20 - 315		PN16	x	x	x	x		x	x	x	x	x
				PN10	x			x		x	x			

Tank Adapter	Adaptor Unions-R	Union End
	x	x
	x	x
x	x	x
x	x	x
	x	x
		x
	x	x
















Flange Adapter	Sanitary Adaptor
x	
x	
x	x
x	
x	
x	
x	
x	
x	x
x	



Product Range




Product Range

Valves-Manual





											      							
Document No. GMST																		
Type		322/324	323	343 Plus	343 vertical	546	314	315	317	319	367	037-M	037-G	038-M	567	567	568	568
Material	PVC-U	x	x [▲]	x [○]	x [○]	x [○]	x [○]	x [■]	x [○]		x [○]				x [○]	x [○]	x [○]	x [○]
	PVC-C			x [○]		x [○]	x	x [○]	x [○]						x [○]	x [○]	x [○]	x [○]
	ABS			x [■]		x [■]	x [■]	x [■]	x [○]						x [○]	x [○]	x [○]	x [○]
	PROGEF® Standard		x	x [○]		x [○]	x	x	x [○]	x	x [○]				x [○]	x [○]	x [○]	x [○]
	PROGEF® Natural							x		x								
	SYGEF® Standard			x [○]		x [○]	x	x	x [○]						x [○]	x [○]	x [○]	x [○]
	SYGEF® Plus						x	x	x [○]	x								
	Metall											x [○]	x [○]	x [○]				
	Sillicon free	x	x	x		x	x	x	x	x PP-H	x				x	x	x	x
	Oil free					x	x	x	x	x					x	x	x	x
Sealing material	EPDM	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	NBR						x	x	x	◆		◆	◆	◆				
	FPM	x	x	x	x	x	x	x	x	◆	x	x	x	x	x	x	x	x
	FFPM					x (PVDF)												
	FPM/PTFE coated														◆	◆	◆	◆
	PTFE/EPDM	x	x	x	x	x	x	x	x	x								
	CSM						x	x	x	◆		◆	◆	◆				
	Other						◆	◆	◆	◆		◆	◆	◆	◆	◆	◆	◆
Dimension DN		6-8	10-15	10-50	10-50	10-100	15-50	15-50	15-150	15-15/100-50	250-300	50-300	50-300	50-300	50-300	50-300	50-300*	50-300
Pressure range PN		10	10	10	10	PVC-U/ PVC-C/ PVDF 16 PP 10 ABS 10	10	10	10	10	6-4	10	10	10	10	10	10	10

x	metric standard	▲	JIS
		■	BS
○	ASTM/ANSI	◆	on request

Automation-Actuated Valves

		 Electric ball valve							 Electric 3-way ball valve				 Pneumatic ball valve				
Document No. GMST		8259	8259	8259	8259	8259	8259	8259	5804	5804	5804	5804	5749	5749	5749	5749	5749
Type		107	130	131	132	133	134	135	175	176	177	178	230	231	232	233	234
Material	PVC-U	x [○] ▲■	x			○	■	▲	x [○] ▲■			x	x			○	■
	PVC-C	x [○] ▲	x			○	■	▲	x [○]				x			○	■
	ABS	x [■]	x				■		x				x				■
	PROGEF® Standard	x [○] ▲		x				▲		x [○]				x			
	PROGEF® Natural																
	SYGEF® Standard	x [▲]			x			▲			x [○]				x		
	SYGEF® Plus																
	Oil free																
Sealing material	EPDM	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓		✓	✓
	PTFE																
	PP-H																
	FPM	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	FPM/PTFE coated																
	CSM																
	Other																
Dimension DN		10-50	10-100	10-100	10-50	10-100	10-100	10-100	10-50	10-50	10-50	10-50	10-100	10-100	10-50	10-100	10-100
Pressure range PN		10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10

✓	available	▲	JIS
x	metric standard	■	BS
○	ASTM/ANSI	◆	on request

	 Pneumatic 3-way ball valve			   Diastar diaphragm valve		
5749	5804	5804	5804	5398/5917	5398 5917	5398 5917
235	275	276	277	025 and 028	025	Eco
▲	x○▲■			x○▲■	x○▲	x○▲■
▲	x○			x○▲■	xx▲	x○
	x			x○▲■	x○▲	x■
▲		x○		x○▲■	x○▲	x○▲■
				x		
▲			x○		x○▲■	x○▲
					x○▲■	x○▲
				x	x	x
✓	✓	✓		x x x x x ◆	x	x
				x x x x x x	x	
				◆ ◆ ◆	◆	
✓	✓	✓	✓	◆ ◆ ◆ ◆ ◆	◆	◆
				◆ ◆ ◆	◆	◆
				◆ ◆ ◆	◆	◆
10-100	10-50	10-50	10-50	DN15- DN50	65-150	15-50
10	10	10	10	10	6-10	6

Product Range














Product Range

Automation-Actuated Valves

													  				
		Electric butterfly valve			Pneumatic butterfly valve			Electric butterfly valve	Electric butterfly valve	Pneumatic butterfly valve	Pneumatic butterfly valve	Pneumatic angle seat valve	Solenoid valve				
Document No. GMST		5109	5109	5109	5109	5109	5109	8241 5885	6001 8258	8241 5885	8258 6001						
Type		035	037	038	036	037	038	140	141 ISO 142 ANSI	240	241 ISO 242 ANSI	211	157	160	161	165	166
Material	PVC-U	x ^{○▲}			x ^{○▲}			x ^{○▲■}	x [○]	x ^{○▲■}	x [○]	x	x	x	x	x	
	PVC-C							x ^{○▲■}	x [○]	x ^{○▲■}	x [○]						
	ABS							x ^{○▲■}	x [○]	x ^{○▲■}	x [○]						
	PROGEF® Standard	x ^{○▲}			x ^{○▲}			x ^{○▲■}	x [○]	x ^{○▲■}	x [○]						x
	PROGEF® Natural																
	SYGEF® Standard							x ^{○▲■}	x [○]	x ^{○▲■}	x [○]					x	x
	SYGEF® Plus																
	Metall		x ^{○▲■}	x [○]		x ^{○▲■}	x [○]										
Sealing material	EPDM	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	PTFE																
	NBR		◆	◆		x	x										
	FPM	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	FPM/PTFE coated							◆	◆	◆	◆						
	PTFE/EPDM																
	CSM		◆	◆		◆	◆										
	Other		◆	◆		◆	◆	◆	◆	◆	◆	10-50	x				
Dimension DN		250	50-300	50-300	250-300	50-300	50-300	50-300	50-200	50-300	50-200		4-8	10-20	10-20	15-50	3-6
Pressure range PN		6	10	10	4-6	10	10	10	10	10	10	2-10	0-4	0-3	0-1	0.5-6	0-10

x	metric standard	▲	JIS
		■	BS
○	ASTM/ANSI	◆	on request


      									 	
Pressure reducing valve							Pressure relief valve	Water jet suction pump	Variable area flow meter	
5558	5093	5095	5558	5558	5558	5558	5558	5558	8222	8222
V 82	V 182	V 782	V 786	V 86	V 186	V 85	V 185	P 20	SK 10 - SK 41	SK 50 - SK 73
x	x	x	x	x	x	x	x	x	PVCU transparent	PVCU transparent
									Polyamid	Polyamid
									Ploysulfon	Ploysulfon
x	x	x	x	x			x	x		
x	x	x	x	x	x	x	x	x		
x		x	x		x		x		x	x
x	x	x	x	x	x	x	x	x	x	x
	x							x	◆	◆
x		x	x	x	x	x	x			
10-100	10-40	10-40	10-40	65-100	10-50	65-100	10-50	10-80	25-65	10-25
DN10-50: 10 DN65-80: 6 DN100: 4	10	10	DN10-25: 10 DN32-40: 4	DN65-80: 6 DN100: 4	10	DN65-80: 6 DN100: 4	10	10	10	10

Product Range













Product Range

Pneumatic Actuators

													
		Accessory pneumatic rotary actuators											
Document No. GMST		5950	5950	5950				5650	5920	5398/5917		5398/5917	5398/5917
Type		PA11	PA21	PA30...90	Limit Switches Box AgNi/Au NPN/PNP	Namur connecting plate	Namur mounting bracket	Positioner	Positioner	DIASTAR Type 025 Type028		Type 025	Type Eco
Type of actuator	pneumatic rotary	x	x	x									
	accessory for pneumatic				x	x	x	x	x				
Mode od Operation	FC	x	x	x						x	x	x	x
	F0	x	x	x						x		x	
	DA	x	x	x						x		x	

x	metric standard	▲	JIS
		■	BS
○	ASTM/ANSI	◆	on request

										
	Accessory for pneumatic stroke actuators						Accessory pneumatic actuators			
	5938	5938	5938	5938	5938	5938	5913	5913	5657	
ASI Module	Limit Switches ER 52 Ag/Ni/Au NPN/PNP	Limit Switches ER 55 with Reed Contacts	Namur connecting plate	Stroke limiter and Manual override	Positioner Type DSR 100	ASI Module Typ Topmatic	Pilot solenoid valves (3/2 way) PV 94/95	Pilot solenoid valves (3/2 way or 5/2 way)	Pilot solenoid valves cluster (3/2 way and 5/2 way) PV 2000	
x	x	x	x	x	x	x	x	x	x	

Product Range



Product Range

Electrical Actuators & Accessories

													
		Electrical Actuators				Accessories							
Document No. GMST		5907	5907	5907	5907	5907	5907	5907	5907	5907	5907	5907	5907
Type		EA11	EA21	EA31	EA42	Heating element	Fail-Safe Unit	Heating Element & Fail Safe Unit	Limit Switches AgNi	Limit Switches Au	Limit Switches NPN	Limit Switches PNP	Middle Position
Type of actuator	Electric Rotary	x	x	x	x								
	Accessory for electric					x	x	x	x	x	x	x	x
Voltage	24V =	x	x	x	x					x			
	24V, 50/60Hz	x	x	x	x					x	x	x	
	100-230V, 50-60Hz	x	x	x	x				x				
Power Consumption		22VA at 24V AC/DC	22VA at 24V AC/DC	32VA at 24V AC/DC	40VA at 24V AC/DC				250V AC, 6A	30V DC, 100 mA	10-30V DC, 100 mA	10-30V DC, 100 mA	
		40VA at 100-230V AC	40VA at 100-230V AC	40VA at 100-230V AC	60VA at 100-230V AC								
Torque	Nominal	10 Nm	10 Nm	60 Nm	100 Nm								
	PEAK	20 Nm	20 Nm	120 Nm	250 Nm								
Available Accessories	Heating Element	x	x	x	x	x		x					
	Fail-Safe Unit	x	x	x	x		x	x					
	Limit Switches Ag Ni	x	x	x	x				x				
	Limit Switches Au		x	x	x					x			
	Limit Switches NPN		x	x	x						x		
	Limit Switches PNP		x	x	x							x	
	Intermediate position		x	x	x								x
	Monitorings		x	x	x								
	4...20mA Feedback		x	x	x								
	Positioner		x	x	x								
	Test Adapter	x	x	x	x								

x	metric standard	▲	JIS
		■	BS
○	ASTM/ANSI	◆	on request

GF Signet Flow Sensors

Rotor-X Paddlewheel Flow Sensor



Type 515

- 0.3 to 6 m/s
- DN15 to DN900
- Self powered
- Standard mount/wet tap/integral
- FM approved
- PP or PVDF
- Hastelloy-C, Titanium, Tantalum, Ceramic options

Rotor-X Paddlewheel Flow Sensor



Type 2536

- 0.1 to 6 m/s
- DN15 to DN900
- Powered
- Standard mount/wet tap/integral
- FM approved
- PP or PVDF
- Hastelloy-C, Titanium, Tantalum, Ceramic options

Metalex Paddlewheel Flow Sensor



Type 525

- 0.5 to 6 m/s
- DN15 to DN300
- Up to 103 bar
- Up to 149°C
- Stainless steel body
- FM approved

Brass Paddlewheel Flow Sensor



Type 2517

- 0.5 to 6 m/s
- Up to DN900
- Hot-tap version for installation without system shutdown
- FM Approved

Flow Wet-Tap Valve



Type 3519

- Used with 515 or 2536
- Sensor removal without process shut down
- Eliminates process downtime
- Corrosion resistant materials of PVC and SST

Turbine Flow Sensor



Type 2100

- 0.38 to 38 litre/min
- Any mount angle
- Non-magnetic turbine
- Hose or DN15 pipe
- PVDF and ceramic parts

Mini Flow Rotor Sensor



Type 2507

- 400 to 1200 ml/min
- 1/4" NPT threads
- PVDF/PTFE/FPM

Magmeter (blind)



Type 2551

- 0.05 to 10 m/s
- DN15 to DN300
- No moving parts
- 4 - 20 mA, digital (S³L), and relays
- Works in dirty fluids
- PP or PVDF
- Stainless steel, Hastelloy-C and Titanium options

Paddlewheel Flow Sensor



Type 2537

- 0.1 to 6 m/s
- DN15 to DN200
- 4 - 20mA, digital (S³L), flow switch and relays
- Pulse outputs,
- PP or PVDF
- Hastelloy-C, Titanium, Tantalum, Ceramic options

Metal Magmeter Flow sensor



Type 2552

- 0.05 to 10 m/s
- DN50 to DN2550
- No moving parts
- 4 - 20mA, digital (S³L), frequency
- Hot-tap version
- Empty pipe detection
- Stainless steel

Stainless Steel High Performance Paddlewheel Flow Sensor



Type 2540

- 0.1 to 6 m/s
- Up to DN900
- Replaceable electronics
- Hot-tap version for installation without system shutdown

Vortex Flow Sensors



Type 7000/7001

- 0.3 - 4 m/s
- DN15 - DN50
- No moving parts
- Piezo detection
- 0 - 65° C
- PVC/FPM

MicroFlow Rotor Sensor



Type 2000

- 0.11 to 12.11 litre/min
- 1/4" NPT or ISO threads for pipe or tubing
- 1/4" NPT or ISO thread
- Measures clear and opaque liquids

Magmeter (with Display)



Type 2551

- 0.05 to 10 m/s
- DN15 to DN300
- No moving parts
- 4 - 20 mA, digital (S³L), frequency
- Works in dirty fluids
- PP or PVDF
- Stainless steel, Hastelloy-C and Titanium option

Product Range



Product Range

GF Signet Flow Instruments

ProPoint Totalizing Flow Monitor



Type 5075

- Permanent and resettable totalizers
- Analogue and digital display
- Use with all flow sensors with frequency outputs
- UL and CE

ProPoint Sensor-Powered Flow Monitor



Type 5090

- Self-powered solution
- Up to 60 m from sensor
- Calibration on front panel
- Only for type 515
- UL and CE
- FM Class I, II, III, div I

ProPoint Batch Controller



Type 5600

- Estimates batch time
- Remote start/stop
- Analogue/digital display
- Overrun compensation
- 4 - 20 mA output
- Use with all flow sensors with frequency outputs

Multi-Parameter Controller



Type 8900

- 12 - 24 VDC or 85 - 264 VAC
- Up to 6 sensor inputs
- Up to 4 analogue outputs
- Up to 8 relays
- Use with all digital (S³L) sensors and frequency inputs

GF Signet pH/ORP Sensors

Twist-Lock pH/ORP Electrodes



Type 2714 - 2717

- Integrated temperature sensor
- Flat/bulb/wet-tap options
- For use with 2720 preamplifier
- General purpose use
- HF and DI options available

DryLoc pH and ORP Electrodes



Type 2754

- Integrated temp sensor
- DryLoc connector with gold plated contacts
- Flat/bulb/wet tap options
- For use with 2750/2760 pre-amp
- General purpose use

pH/ORP Wet-Tap Assembly



Type 3719

- Electrode removal without process shutdown
- For use with 2716, 2717, 2720, 2750, 2756, 2757 & 2760

DryLoc pH/ORP Sensor Electronics and Preamplifier



Type 2750/2760

- In-line integral mount & submersible version
- Automatic temp compensation
- Automatic buffer recognition
- 4 - 20 mA outputs available
- Digital (S³L) millivolt

ProPoint Flow Monitor



Type 5500

- Permanent and resettable totalizers
- Analogue/digital display
- 4 - 20 mA output
- Two relays
- Use with all flow sensors with frequency outputs

ProcessPro Flow Transmitter



Type 8550

- 4 to 20 mA output(s)
- Relay options
- Resettable totalizers
- Dual input/output available
- Use with all flow sensors with frequency outputs
- Panel or field mount options

Battery Powered Flow Totalizer



Type 8150

- Three totalisers
- Field or panel mount
- Digital display
- Auto calibration
- Only for type 515
- Sold as system with sensor or separately

Flow Instruments, Flow integral System



Type 8550

- ProcessPro® instrument with 515 or 2536 sensor
- 12 to 24 VDC powered
- Provides 4 - 20 mA output
- Relay options available

Threaded DryLoc pH/ORP Electrode



Type 2774 - 2777

- DryLoc connector with gold plated contacts
- Any angle mount
- Mount into 3/4" thread
- Quick temperature response
- Rugged for aggressive applications

Differential DryLoc pH/ORP Electrodes



Type 2764 - 2767

- Compatible with other supplier's instruments
- Designed for stability in aggressive process liquids
- Mount in 1" threads
- Quick temperature response
- Differential reference technology rebuildable

GF Signet pH/ORP Instruments

ProPoint pH/ORP Monitor



Type 5700

- Displays pH/temp/mV or ORP/mV
- Dual proportional control
- Two relays
- Scaleable 4 - 20mA output
- 2714-2717, 2754-2757, 2764-2767, 2774-2777, 2724

ProcessPro pH/ORP Transmitter



Type 8750



- Displays pH/temp/mV or ORP mV
- Hold and simulate function
- Optional dual output
- Relay and open collector options
- Panel or integral versions
- 4 - 20mA output
- Easy Cal function
- 2714-2717, 2754-2757, 2764-2767, 2774-2777, 2724

Product Range






Product Range



GF Signet Conductivity/Resistivity Sensors

Conductivity/Resistivity Electrodes	Conductivity Electrodes
 <ul style="list-style-type: none"> - In-line or submersible mounting - 0.055 to 400,000 μS - SS or titanium as standard - Hastelloy-C available - Sanitary tri-clamp versions available - NIST traceable certificates for USP requirements <p>Type 2819 - 2823</p>	 <ul style="list-style-type: none"> - Dual thread NPT or ISO - 0.055 to 200,000 μS - 316 SS electrode, PEEK - Four cell constants - In-line or submersible - Short insertion depth for small fittings <p>Type 2839 - 2842</p>

GF Signet Conductivity/Resistivity Instruments

ProPoint Conductivity Monitor	ProPoint Salinity Monitor
 <ul style="list-style-type: none"> - Displays μS, KΩ, MΩ, PPM - Temp compensation - 4 - 20 mA output - Two relays - 2819 - 2823, 2839 - 2842 - Use with all Signet conductivity sensors <p>Type 5800CR</p>	 <ul style="list-style-type: none"> - Analogue and digital display - 4 - 20 mA output - Two relays - For use with 2822, 2823 & 2842 <p>Type 5900</p>
Multi-Parameter Controller	Conductivity Integral System
 <ul style="list-style-type: none"> - 12 - 24 VDC or 85 - 264 VAC - Up to 6 sensor inputs - Up to 4 analogue outputs - Up to 8 relays - Use with all Signet digital (S³L) sensors and frequency inputs <p>Type 8900</p>	 <ul style="list-style-type: none"> - ProcessPro[®] instrument with 2839 - 2842 sensors - Provides 4 - 20 mA output or digital (S³L) - Relay options available - 2 or 4 wire power options <p>Type 8850</p>

GF Signet Temperature, Pressure and Level Sens

Level Sensor	Temperature Sensor
 <ul style="list-style-type: none"> - Level/depth control - 4 - 20 mA or digital output - Submersible installation - Choice of two pressure ranges - PVDF/PVC/ceramic - 10 m cable - Uses hydrostatic pressure to measure level <p>Type 2250</p>	 <ul style="list-style-type: none"> - 4 - 20 mA, digital (S³L) - 3/4" NPT connection - One piece PVDF body - In-line or submersible - 4.6 m cable - -10° C to 100° C (14° to 212° F) <p>Type 2350</p>

DryLoc Conductivity Sensor Electronics



- Digital (S³L) or 4 - 20 mA output
- Integral systems connect to 2839 - 2842 series electrodes
- 0.055 to 200,000 µS
- Single and dual channel remote mount versions available

Type 2850

ProcessPro Conductivity Transmitters



- Displays µS, KΩ, MΩ, PPM
- Dual output for both temp and signal
- Relay & open collector
- 2819 - 2823, 2839 - 2842
- Panel or integral mount versions available

Type 8850

ProcessPro Two-Channel Conductivity Controller



- Displays µS, mS, PPM or PPB, KΩ, MΩ, % rejection, difference, ratio, °C or °F
- Two input, three 4-20 mA output, four relays
- For use with all Signet conductivity/resistivity sensors

Type 8860

Pressure Sensor



- 4 - 20 mA or digital output
- Pressure or level measurement
- PVDF/ceramic
- 3 pressure ranges
 - 0 - 0.7 bar (0 to 10 psi)
 - 0 - 3.5 bar (0 to 50 psi)
 - 0 - 17 bar (0 to 250 psi)
- Use 2250 for submersible applications

Type 2450

Product Range



Product Range

ors

GF Signet Temperature, Pressure and Level Instr

Process Pro Level Transmitter



- Level units ft, in, m, cm
- Volume units gal, in3, lbs., l, m3, Kg, %
- Specific gravity entry
- Display both level and volume
- 2450 sensor to 2250

Type 8250

Process Pro Temperature Transmitter



- Scalable 4 - 20 mA output
- Displays temperature & mA output
- Relay or open collectors
- 2350 sensor

Type 8350

Temperature Integral System



- ProcessPro® instrument with 2350 sensor
- Provides 4 - 20 mA output
- Relay options available
- 2 or 4 wire power opt.

Type 8350

Pressure Integral System



- ProcessPro® instrument with 2450 sensor
- Provides 4 - 20 mA output
- Relay options available
- NEMA 4X/IP65
- 2 or 4 wire power option
- Use for tank mount level measurements

Type 8250

Other GF Signet Products

Intrinsic Safety Barriers (FM)



- One step, snap-on 35 mm DIN rail mounting and grounding
- Replaceable 160 mA fuse
- Compatible with 515, 525 and 2517
- FM, UL, CSA

Type 6400

Switching Power Supplies



- Regulated 24VDC output
- Fused input
- Finger safe terminals
- All monitors and 2550, 2560, 7001 - 7003

Type 7300

pH/ORP System Tester



- Battery powered
- Simulates pH and ORP
- Compatible with 2720, 2750 and 2760 preamp.
- Connects to any Signet pH/ORP instrument except 2724


Type 2759

Con./Res. Certification Tools



- Simulates 5 diff. values
- Verifies electronic independent of electrode
- Compatible with all Signet conductivity/resistivity instruments

Type 2830/2850-101



Process Pro Pressure Transmitter

- Scalable 4 - 20 mA output
- Display in psi, bar or KPa
- Relay or open collector
- 2450 sensor
- 2 sensor inputs


Type 8450



Multi-Parameter Controller

- 12-24VDC or 85-264VAC
- 4 analogue outputs
- Up to 8 relays
- Use with all Signet digital (S³L) sensors
- Up to 6 inputs (S³L)

Type 8900



i-Go Signal Converter

- Connects 4 - 20 mA o/p sensors with Signet transmitters
- Up to two 4 - 20 mA sensor inputs
- 8250, 8350, 8450, 8900

Type 8058



External Relay Modules

- AC and DC powered versions
- External relays controlled by host
- 8250, 8900







Type 8059

Product Range



Product Range

Joining Technologies

	Welding technique	d Types	16	20	25	32	40	50	63	75	90	110	125	140	160	180
	Socket fusion PE, PP, PB, PVDF	MSE 63														
		MSE 110														
		SG 110														
		SG 160														
	Butt fusion conventional/hydraulic PROGEF®, SYGEF® PP/PE/PVDF	manual workshop	SSE 120/200/300													
			SG 160													
			SG 315													
			TM 160													
			TM 250													
			TM 315													
		site	GF 400													
			GF 500													
			GF 630													
			GF 800													
			GF 1000													
			GF 1200													
			WM 315													
			WM 500													
			WM 630													
			WM 1200													
	BCF SYGEF PROGEF® Natural	BCF® Plus														
		IR-63 Plus®														
		IR-110 Plus® I														
		IR-225 Plus®														
	IR SYGEF PROGEF® Natural PE100	IR-315 Plus®														
		IR-63 Plus®														
		IR-110 Plus® I														
		IR-225 Plus®														
	Electro fusion tools PE100/80	HWSG PB														
		MSA														
	Ce-menting PVC-U PVC-C ABS	Tangit														
		Dytex														



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GFDO_6028_4c [04.09]

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CH-8201 Schaffhausen/Switzerland, 2007
Printed in Switzerland

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