



Accurate Measurement  
Precise Control  
Reliable Actuation

Automation  
Made Easy

# GF Piping Systems – The Best Choice

Corrosion and chemical resistant products, systems and complete solutions from GF Piping Systems

Georg Fischer focuses on three core businesses: GF Piping Systems, GF Automotive and GF AgieCharmilles. The industrial corporation founded in 1802 headquarters in Switzerland and operates approximately 130 companies with 13000 employees in 30 countries.

GF Piping Systems is a leading supplier of plastic and metal piping systems with global market presence. For the treatment and distribution of water and chemicals, as well as the safe transport of liquids and gases in industry, we have the corresponding joining technologies, fittings, valves, automation products and pipes in our portfolio.



GF Piping Systems headquarters in Schaffhausen, Switzerland.

## Our market segments

Being a strong implementation partner GF Piping Systems supports its customers in every phase of the project. No matter which processes and applications are planned in the following market segments:

- Building Technology
- Chemical Process Industry
- Energy
- Food & Beverage/Cooling
- Microelectronics
- Shipbuilding
- Water & Gas Utilities
- Water Treatment

## Global presence

Our global presence ensures customer proximity worldwide. Sales companies in over 25 countries and representatives in another 80 countries provide customer service around the clock. With 50 production sites in Europe, Asia and the USA we are close to our customers and comply with local standards. A modern logistics concept with local distribution centres ensures highest product availability and short delivery times. GF Piping Systems specialists are always close by.

## Complete solutions provider

Our extensive product range represents a unique form of product and competence bundling. With over 60000 products, allied with a broad range of services, we offer individual and comprehensive system solutions for a variety of industrial applications. Our automation offering perfectly fits into our complete system approach and is thus an integral part of our portfolio. Having the profitability of the projects in focus, we optimise processes and applications that are integrated into the whole system.

Continually setting standards in the market, we directly provide our customers with technological advantages. Due to our worldwide network customers benefit from our 50 years+ experience in plastics.

From start to finish, we support our customers as a competent, reliable and experienced partner, actively contributing the know-how of an industrial company that has been successful in the market for over 200 years.

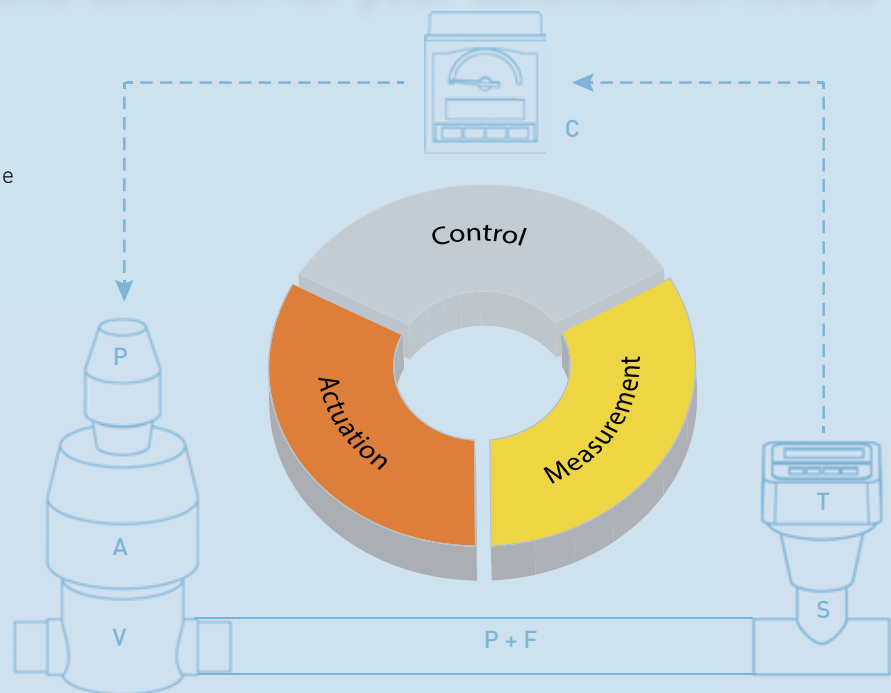
# Automation Made Easy

A comprehensive automation loop integrated in our plastic piping systems

Our automation loop consists of three elements: measurement, control and actuation. Measurement encompasses a wide range of measurement technologies and parameters. Most of these products are available in plastic and are offered with dedicated fittings, which integrate our sensors perfectly into your piping system. Control comprises various control functionalities (from simple relays to PID controllers) and all major communication technologies. Actuation includes pneumatic, electric and magnetic actuators, which can be seamlessly combined with all kinds of valves and accessories.

## The all-in-one solution for your automation needs

- **Easy-to-combine**  
Flexible combination and upgrade
- **Easy-to-install**  
Seamless integration
- **Easy-to-connect**  
State-of-the-art communication technology
- **Easy-to-set-up**  
Plug-and-play design
- **Easy-to-operate**  
Intuitive menu structure
- **Easy-to-maintain**  
Wide range of accessories



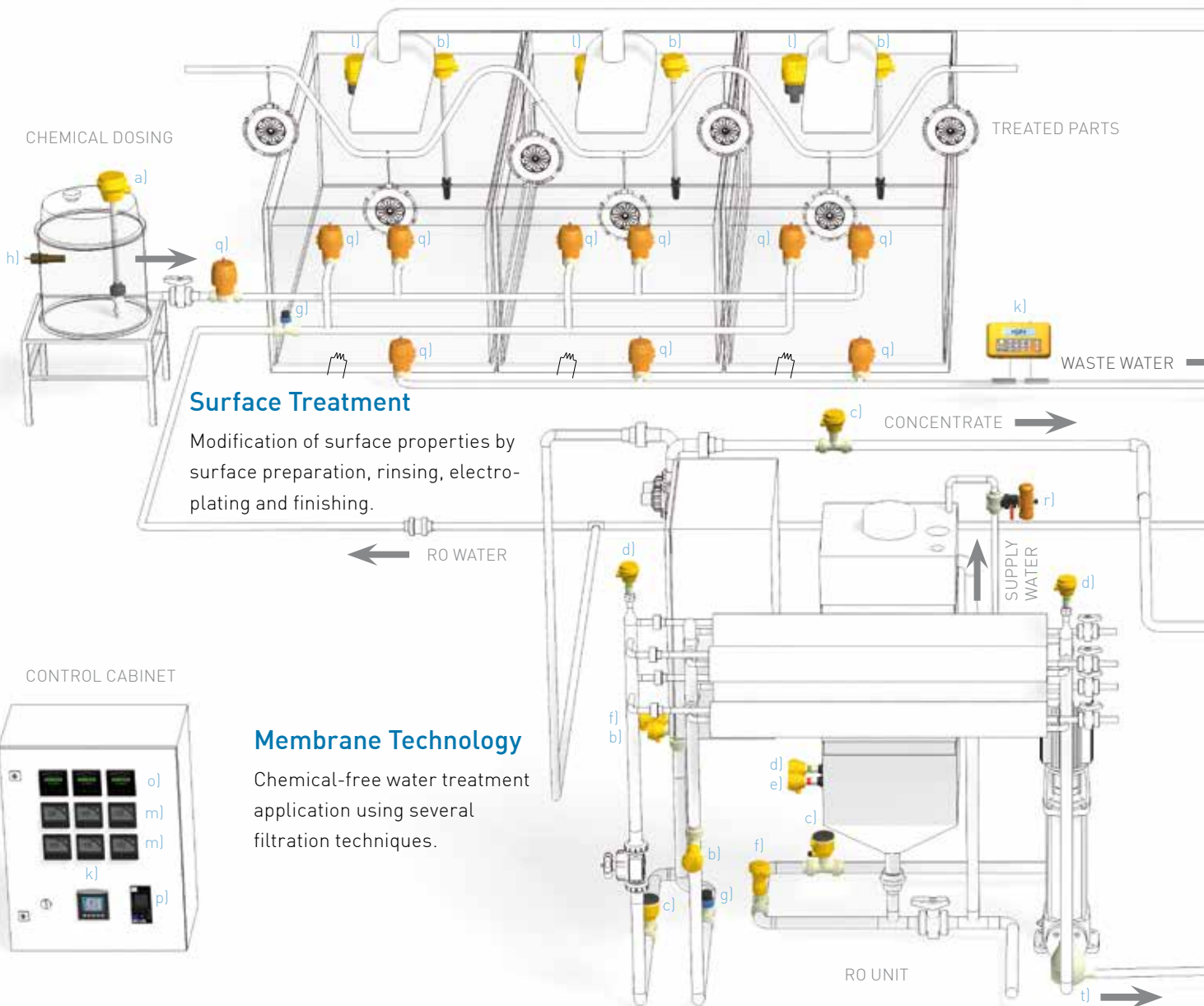
S = Sensor      P = Positioner      V = Valve  
 T = Transmitter      A = Actuator      P+F = Pipe & Fittings  
 C = Controller



# Industrial Automation Made Easy

We have a comprehensive automation offering for your industrial applications

<b>Main Benefits:</b>	Safety	=	Completely controlled and regulated processes
	Simplicity	=	Easy to install, handle and operate
	Efficiency	=	Economical and durable system solutions from a single source
	Economy	=	Optimized cost of ownership due to low-maintenance systems



© by **+GF+** GEORO FECHER PEPICO SYSTEMS

## Measurement

- |  |  |
|--|--|
| a) Level Sensor type 2250                | f) pH-sensor type 2724 inkl. type 2757         |
| b) Conductivity Sensor type 2850         | g) Paddlewheel Flow sensor type 2536           |
| c) Electromagnetic flow sensor type 2551 | h) Limit Switch                                |
| d) Pressure sensor type 2450             | i) ph/ORP Wet-Tap unit type 3719               |
| e) Temperature sensor type 2350          | j) Variable area flow meter type 350           |
|  | k) Portaflow Ultrasonic flowmeter type 330/220 |
|  | l) Ultrasonic Level sensor                     |

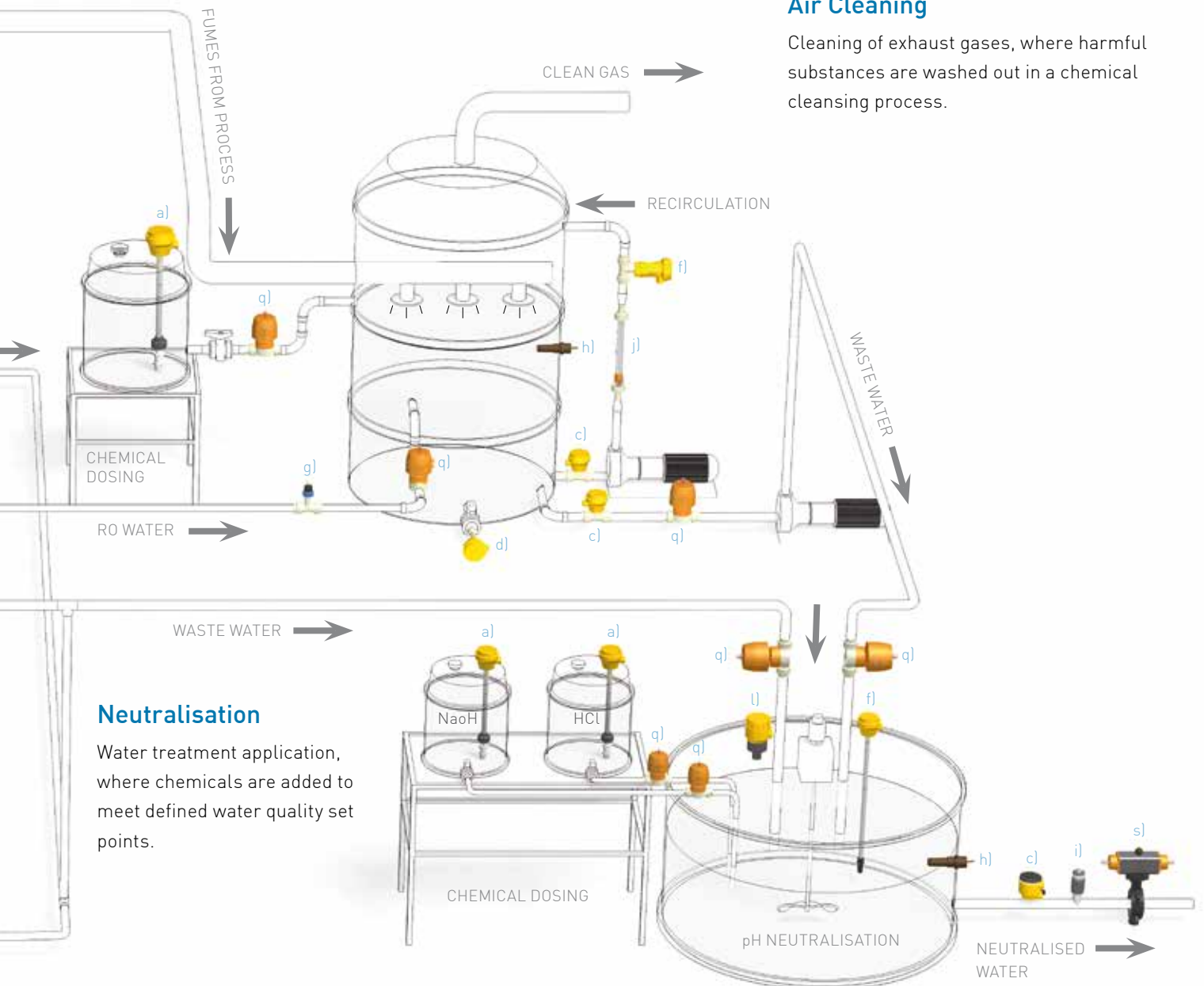
## Control

- |  |
|--|
| m) Multi-Parameter transmitter type 9900 |
| n) Customer PLC                          |
| o) Multiparameter controller type 8900   |

The rendering below shows an exemplary selection of industrial applications, where our automation offering can be used.

## Air Cleaning

Cleaning of exhaust gases, where harmful substances are washed out in a chemical cleansing process.



## Neutralisation

Water treatment application, where chemicals are added to meet defined water quality set points.

## Actuation

p) PID Controller

q) Diaphragm valve, pneumatic, type DIASTAR Ten  
r) Ball valve, pneumatic type 230

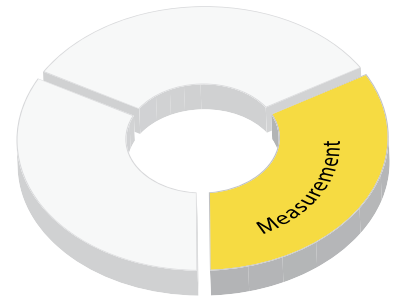
s) Butterfly valve, pneumatic type 240  
t) Pressure relief valve type V185



# Measurement

Accurate measurement is the basis for reliable process control

Our measurement offering will cover your needs: flow, pH, conductivity, level, temperature and various water quality parameters. Corresponding to our piping systems, most sensors are available in plastic and are therefore highly resistant to chemicals. Our plug-and-play measurement products are self-explanatory, easy to maintain and are offered with suitable installation fittings.



# Accurate Measurement

# Measurement Products

An overview of the key products

## Flow Sensors and Instruments



### Rotor-X Paddlewheel Flow Sensor - type 515

- non-powered
- 0.3-6 m/s (1 to 20 ft/s)
- DN15-DN900 (½ to 36 in.)
- PP 12.5 bar @ 20 °C (180 psi @ 68 °F)
- PVDF 14 bar @ 20 °C (203 psi @ 68 °F)
- 19.7 Hz per m/s nominal (6 Hz per ft/s nominal)



### Rotor-X Paddlewheel Flow type 2536

- powered
- 0.1-6 m/s (0.3 to 20 ft/s)
- DN15-DN900 (½ to 36 in.)
- PP 12.5 bar @ 20 °C (180 psi @ 68 °F)
- PVDF 14 bar @ 20 °C (203 psi @ 68 °F)
- 49 Hz per m/s nominal (15 Hz per ft/s nominal)



### Paddlewheel Flow Sensor type 2537

- 0.1-6 m/s (0.3 to 20 ft/s)
- DN15-DN200 (½ to 8 in.)
- PP 12.5 bar @ 20 °C (181 psi @ 68 °F)
- PVDF 14 bar @ 20 °C (203 psi @ 68 °F)
- 4-20 mA, digital (S<sup>3</sup>L), flow switch or pulse outputs (based on part number)



### Stainless Steel Paddlewheel Flow Sensor - type 2540

- 0.1-6 m/s (0.3 to 20 ft/s)
- DN40-DN900 (1½ to 36 in.)
- 316 Stainless Steel
- 17 bar @ 100 °C (250 psi @ 212 °F)
- 49 Hz per m/s nominal (15 Hz per ft/s nominal)
- Open Collector output



### Magmeter (blind or display) type 2551

- 0.05-10 m/s (0.15 to 33 ft/s)
- DN15-DN900 (½ to 36 in.)
- 10.3 bar @ 25 °C (150 psi @ 77 °F)
- 4-20 mA, or frequency/ digital (S<sup>3</sup>L) outputs
- Optional relay outputs



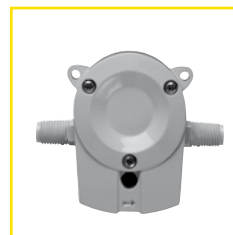
### Metal Magmeter type 2552

- 0.05-10 m/s (0.15 to 33 ft/s)
- DN50-DN2550 (2 to 102 in.)
- 316 Stainless Steel & PVDF
- 20.7 bar @ 25 °C (300 psi @ 77 °F)
- 4-20 mA, frequency/ digital (S<sup>3</sup>L)
- Hot-tap using ball or gate valves



### Turbine Flow Sensor type 2100

- 0.38-38 lpm (0.8 to 38 gpm)
- DN15 (½ in.)
- PVDF
- 16 bar @ 20 °C (232 psi @ 68 °F)
- Open Collector output
- Use with End Fitting: 3-2100-31 to 3-2100-38



### Micro-Flow Rotor Sensor type 2000

- 0.11-12.11 lpm (0.03-3.2 gpm)
- ¼ in. NPT or ISO 7/1-R1/4 threads
- Polyphenylene Sulphide and PEEK
- 5.5 bar @ 0 ° to 80 °C (80 psi @ 32 °F to 176 °F)
- Open Collector output
- Standard cable 7.6 m (25 ft)



### Mini-Flow Rotor Sensor type 2507

- 400-12 000 mL/m (0.1 to 3.2 U.S. gpm)
- G ¼ in. ports, ¼ in. NPT pipe adapters
- PVDF
- 5.5 bar @ 24 °C (80 psi @ 75 °F)
- Open Collector output
- Standard cable 7.6 m (25 ft)



### Metalex Paddlewheel Flow Sensor - type 525

- 0.5-6 m/s (1.6-20 ft/s)
- DN15-DN300 (½-12 in.)
- 316 Stainless Steel
- 103 bar (1500 psi @ safety factor 1.5) @ 149 °C (300 °F)
- 39 Hz per m/s nominal (12 Hz per ft/s nominal)





### SmartPro transmitter type 9900

- Multi-Parameter input selection
- Large auto-sensing backlit display
- „Dial-type“ digital bar graph
- Optional field upgradable relays
- Selectable error mode for current outputs, 3.6 mA or 22 mA
- Optional Relay, Direct Conductivity/ Resistivity and HART modules are available



### Flow Integral Mount type 9900

- Local display for sensor mounted instruments
- Provides 4-20 mA output
- "At a glance" visibility
- "Dial-type" digital bar graph
- NEMA 4X/IP65



### ProPoint Sensor-Powered Flow Monitor - type 5090

- Displays GPM
- No power required
- Single input
- Panel mount
- Analogue dial for indication
- Use with 515



### Battery Powered Flow Totaliser type 8150

- Displays GPS, GPM, GPH, GPD, LPS, LPM, LPH, LPD
- Battery powered
- Single input
- Panel or field mount
- 3 totalisers, auto calibration
- Use with 515, 8510



### Variable Area Flow Meters type 335/350, SK50-73

- Taper tubes in PVC transparent, PA, PSU, PVDF
- Union connection with PVC (std)
- DN10-DN65 [3/8"-3 1/2"]
- PN10
- Optional switch feedback
- Special scales on request



### Flow Wet-Tap Valve type 3519

- DN15-DN900 [½ to 36 in.]
- PVC
- 7 bar @ 20 °C [100 psi max @ 68 °F]
- Use with Wet-Tap Paddlewheel Flow Sensors Type 515 and 2536



### Portaflow portable Ultrasonic flowmeter - type 330/220

- 0.1 m/s - 20 m/s
- d13-d2000
- Battery powered, AC 110-240 V
- Output: 0/4 to 20 mA, RS 232, USB, pulse
- Data logger (Type 330)
- Transit time measurement



### Ultraflo Wall-mount Ultrasonic flowmeter - type 3000/4000

- 0.1 m/s - 20 m/s
- d13-d2000
- DC 24 V or AC 86-240 V
- Output 0/4 to 20mA, RS 232, USB, pulse
- Data logger (Type 4000)
- Transit time measurement



### Ultrasonic Flowmeter type U1000

- 0.1 m/s-10 m/s
- d50-d150
- DC 12-24 V
- Output: 4-20 mA, pulse or frequency
- Transit time measurement

..... Product launch in 2013.

# Easy to install





### SmartPro transmitter type 9900

- Multi-Parameter input selection
- Large auto-sensing backlit display
- „Dial-type“ digital bar graph
- Optional field upgradable relays
- Selectable error mode for current outputs, 3.6 mA or 22 mA
- Optional Relay, Direct Conductivity/ Resistivity and HART modules are available



### DryLoc pH and ORP Electrodes type 2724-2726

- 0-14 pH,  $\pm 2000$  mV ORP
- Ryton body, PE junction
- Use fittings for in-line applications or 3/4" NPT or ISO
- Suitable for submersible applications
- DryLoc preamplifier connection with gold plated pins



### Threaded DryLoc pH/ORP Electrode - type 2774-2777

- 0-14 pH,  $\pm 2000$  mV ORP
- Ryton body, PTFE junction
- Use sensor 3/4" threads for mounting
- DryLoc preamplifier connection with gold plated pins
- Suitable for submersible applications
- For use with 2750/2760 preamplifiers



### pH/ORP Wet-Tap Assembly - type 3719/ 2756, Wet-Tap Electrodes type 2757

- Use a wet-tap style sensor; for 0-14 pH,  $\pm 2000$  mV ORP
- CPVC, PVC
- 1/2" or larger
- 1/2 or 2" NPT; ISO 7/1-R1.5 or R2
- Electrode removal without process shutdown



### Differential DryLoc pH/ORP Electrodes - type 2764-2767

- 0-14 pH,  $\pm 2000$  mV ORP
- Ryton body, PTFE junction
- Use sensor 1 inch threads for mounting
- DryLoc preamplifier connection with gold plated pins
- For use with 2750/2760 preamplifiers



### DryLoc pH/ORP Sensor Electronics - type 2750

- 0-14 pH,  $\pm 2000$  mV ORP
- PBT, CPVC (PVC-C)
- DryLoc connection with gold plated pins
- 4-20 mA or digital [S<sup>3</sup>L]
- Use with 8900, 9900 or PLC
- In-line and submersible versions available



### DryLoc pH/ORP Preamplifiers and Connectors - type 2760

- 0-14 pH,  $\pm 2000$  mV ORP
- PBT or CPVC (PVC-C)
- DryLoc connection with gold plated pins
- Millivolt signal
- Use with 5700 or 8750
- In-line and submersible versions available

Dual-Channel ProcessPro's -3 are still available

## Conductivity/Resistivity Sensors and Instruments



### Dual-Channel Conductivity Controller - type 8860

- Displays  $\mu\text{S}$ ,  $\text{mS}$ ,  $\text{K}\Omega$ ,  $\text{M}\Omega$ ,  $\text{PPM}$
- AC or DC supply
- Up to 2 sensor inputs
- Up to 2 Open Collector outputs and 4 relay outputs
- Up to 3 active current outputs
- % reject, % recovery, and ratio functions



### SmartPro transmitter type 9900

- Multi-Parameter input selection
- Large auto-sensing backlit display
- „Dial-type“ digital bar graph
- Optional field upgradable relays
- Selectable error mode for current outputs, 3.6 mA or 22 mA
- Optional Relay, Direct Conductivity/ Resistivity and HART modules are available



### Conductivity Integral System with 9900 Transmitter

- Local display for sensor mounted instruments
- Provides 4-20 mA output
- "At a glance" visibility
- "Dial-type" digital bar graph
- NEMA 4X/IP65



### DryLoc Conductivity Sensor Electronics - type 2850

- 0.055-400 000  $\mu\text{S}$  (0.02-200 000 ppm) (18.2  $\text{M}\Omega$  - 1  $\text{K}\Omega$ )
- PBT or CPVC
- Integral systems connect to the 2839 series electrodes or 2819 series electrode via special order
- 4-20 mA or digital [S<sup>3</sup>L]



### Conductivity/Resistivity Electrodes - type 2818-2823

- 0.055-400 000  $\mu\text{S}$  (0.02-200 000 ppm) (18.2  $\text{M}\Omega$  - 1  $\text{K}\Omega$ )
- 316 SS or Titanium (Hastelloy-C also available upon request)
- Reversible threads or sanitary flange connections
- Connect to 2850 sensor electronics



### Conductivity Electrodes Sensor - type 2839-2842

- 0.055-200 000  $\mu\text{S}$  (0.02-100 000 ppm) (18.2  $\text{M}\Omega$  - 1  $\text{K}\Omega$ )
- 316 SS and PEEK
- Dual threaded NPT or ISO
- Connection to Conductivity/Resistivity instruments or 2850 sensor electronics
- NIST Certificate

Dual-Channel ProcessPro's -3 are still available

## Temperature, Pressure and Level Sensors and Instruments



### SmartPro transmitter type 9900

- Multi-Parameter input selection
- Large auto-sensing backlit display
- „Dial-type“ digital bar graph
- Optional field upgradable relays
- Selectable error mode for current outputs, 3.6 mA or 22 mA
- Optional Relay, Direct Conductivity/ Resistivity and HART modules are available



### Temperature Integral System with 9900 Transmitter

- Local display for sensor mounted instruments
- Provides 4-20 mA output
- "At a glance" visibility
- "Dial-type" digital bar graph
- NEMA 4X/IP65



### Temperature Sensor type 2350

- 10 °C to 100 °C (14 ° - 212 °F)
- PVDF
- 3/4 inch dual threaded for in-line or submersible installation
- 4-20 mA or digital [S<sup>3</sup>L]



### Level Sensor type 2250

- 0-10 psi = 0-7.03 m = 0-23.06 ft
- 0-50 psi = 0-35.15 m = 0-115.32 ft
- Wetted Material: PVDF, PVC, ceramic
- Submersible sensor
- 4-20 mA or digital [S<sup>3</sup>L]
- Uses hydrostatic pressure for level and depth control

# Easy to monitor

## Temperature, Pressure and Level Sensors and Instruments



### Pressure Integral System with 9900 Transmitter

- Utilises the 2450 sensor for pressure or hydrostatic level measurement
- Local display for sensor mounted instruments
- Provides 4-20 mA output
- "At a glance" visibility
- "Dial-type" digital bar graph
- NEMA 4X/IP65



### Pressure Sensor type 2450

- -0.1-0.7 bar (-1.5-10 psi) - U
- 0.41-3.4 bar (-6.0-50 psi) - L
- 0.96-17.2 bar (-14.6-250 psi) - H
- PVDF, ceramic
- 1/2" union, dual threaded
- 4-20 mA or digital (S<sup>3</sup>L)

## Water Analysis



### Chlorine Analyser System type 4630

- Continuous free chlorine measurement without chemical reagents
- Optional pH sensor for increased accuracy
- Pre-wired panel for easy installation
- Built in pressure regulator and variable area flow meter



### Turbidimeter type 4150

- Compliant with U.S. EPA 180.1 or ISO7027
- Two adjustable alarm relays
- Built-in pressure regulator
- Easy access for wiring and maintenance
- Optional auto cleaning for reduced maintenance



### Process Optical Dissolved Oxygen Sensor - type 2610

- Optical DO measurement with no flow requirements
- No membranes or filling solutions
- Flexible communications, 4-20 mA and Modbus (RS485)
- Measurement Range: 0-20 mg/L, 0-200% Saturation





### Switching Power Supplies type 7300

- Regulated 24 VDC output
- DIN or surface mount
- Universal AC input
- Available with five output capacities
- Fused input
- Finger safe terminals



### i-GO Signal Converter type 8058

- Connects third party 4-20 mA signals to the 8900 and 9900
- Available for single or dual 4-20 mA sensor inputs
- Requires special programming for use with the 8250, 8350, 8450
- Compatible with 8900, 9900



### pH/ORP System Tester type 2759

- Battery powered
- Simulates pH and ORP
- Compatible with 2750 and 2760 preamp
- Connects to any pH/ORP instrument



### Configuration/Diagnostic Tool type 0250 USB to Digital (S³L)

- User friendly interface
- Configure all modifiable parameters in the sensor
- Monitor/graph sensor data or log sensor data to a file
- Monitor mV readings in pH/ORP sensors to monitor drift



### Conductivity/Resistivity Tools type 2830/2850-101-X

- Available in 5 different Conductivity and Resistivity ranges
- Verifies electronic independent of electrode
- Compatible with all conductivity and resistivity instruments



### PC COMM Configuration Tool type 0251

- User friendly interface
- Configure settings such as instrument type, units and modify labels
- Back up and restore 9900 Transmitter configurations to a computer
- Use a single file to clone multiple 9900 Transmitters



### 8059 external relay module

- AC and DC powered versions
- External relays controlled by host instrument
- Digital pass-through (DC versions) to simplify wiring
- Relay can be tested locally, and also via the host instrument



### Buffer Solutions type pH/ORP

- NIST Traceable
- Easily identifiable colour coded buffer solutions
- Liquid or powder versions
- Temperature compensated values
- Kits for easy use



### Wall Mount Accessory Kit

- Compact enclosure that works with 9900 Transmitter and other ¼ DIN size instruments
- Equipped with a ¼ DIN cutout and two ½" holes at the base
- Mounting hardware and liquid tight connectors are included



### Formazin Stock Kit for Turbidimeter - type 4150

- Turbidity standard for most any value
- Three different graduated pipettes included
- Four glass cuvettes with light shield caps
- Easy to follow instructions



### Calibration Kits for Turbidimeter type 4150

- Stable pre-mixed standards that are certified accurate
- Sealed calibration cuvettes
- Shelf-life 12 months
- Easy to follow instructions
- Kits for easy use



# Easy to

## Accessories



### Limit contacts GK 10/GK11 for type 335/350 and short version

- Reed contact
- IP65
- 230 V



### 4-20mA Sensor GK 15 for VAFM type 335/350

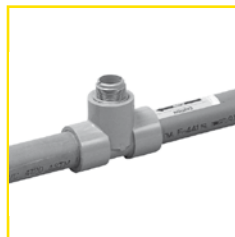
- 12-24 V DC
- IP 65
- 4-20 mA (3 wire)

## Installation Fitting Tees



### Plastic - Metric Tees

- ABS\* DN20-DN50
- PVC DN15-DN50
- PP DN15-DN50
- PVDF DN15-DN50
- PE DN15-DN50



### Plastic - Fibreglas Tees

- Fibreglass 1.5-2.0" /SCH 80



### Plastic - PVC Tees

- PVC 0.50-4.0" /SCH 80
- PVC-C 0.50-1.5" /SCH 80
- PVC BSP\* 0.50-2.0"
- Fibreglass 1.50-2.0" /SCH 80



### Metal - Tees

- Carbon Steel NPT 0.50-2.0" /SCH 40
- Copper Sweat-on 0.50-2.0" /SCH K
- Galvanized Iron NPT 1.00-2.0" /SCH 40



### Metal - Tees

- 316 SS NPT 0.50-2.00" /SCH 40
- Brass NPT 1.00-2.00" /SCH 40

\* BSP and ABS fittings are available through your local Georg Fischer sales company.

operate





## Weldolets/Brazolets



### Weldolet

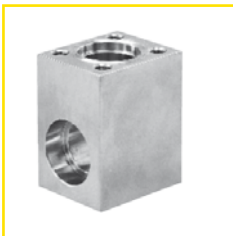
- PVC-U DN65-DN600
- PP DN65-DN600
- PE DN65-DN600
- PVDF DN65-DN600
- SS DN50-DN630



### Weldolets/Brazolets

- Carbon Steel 2.5-12.0" /SCH 40
- Brass 2.5-2.0" /SCH 40
- 316 SS 2.5-12.0" /SCH 40

## Metalex



### Metalex

- SS Socket 0.50-1.00"
- SS Weld-on 1.25-12"



### Metalex Weld-on Mini-Tap

- 1.25-12"

## Wafer Fittings



### Wafer

- PP DN65-DN300 (2.5-4.0")
- PVDF DN65-DN200 (3.0")



Easy to

## Saddles



### Saddle

- Iron Multi 1.25-1.50" /SCH 80



### Electrofusion Transition

- PE 2.0-12.0"



### Strap-On

- Iron 2.0-12.0" /SCH 80



### Clamp-On

- PVC 2.0-8.0" /SCH 80  
- PVC-U metric DN65-DN200



### Glue-On

- PP Glue-On 10.0" and 12.0" /SCH 80



### BSP Clamp-On

- PVC 3.0-6.0" /SCH 80



### Glue-on

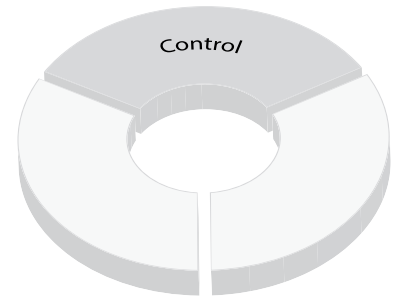
- PVC-U DN65-DN300  
- ABS DN65-DN200



# Control

Precise control throughout your automation loop

Clever design makes life easy. All our measurement parameters can be connected with one and the same transmitter, a true multi-parameter controller. Additional functionalities like batch control or communication technologies can be added anytime because of the modular design. Our control products are simple to operate, have intuitive menu structures and can be upgraded modularly.



# Precise Control

# Control Products

An overview of the key products

## Multi-Parameter Instruments



### SmartPro transmitter type 9900

- Multi-Parameter input selection
- Large auto-sensing backlit display
- "Dial-type" digital bar graph
- Optional field upgradable relays
- Selectable error mode for current outputs, 3.6 mA or 22 mA
- Optional Relay, Direct Conductivity/ Resistivity and HART modules are available



### Multi-parameter/ Multi-channel controller - type 8900

- AC or DC power option
- Up to 6 sensor inputs (2 frequency inputs max)
- Up to 4 4-20mA outputs
- Up to 8 relays
- Use with all digital (S<sup>3</sup>L) sensors

## Flow Instruments



### SmartPro Batch Controller type 9900-1BC

- "Dial-type" digital bar graph
- Remote control wiring with start, stop and resume terminals for remote batch control
- 3 programmable relays
- 10 batch memory
- Compatible with flow sensors
- Two-stage control to prevent overfilling
- Simple and advanced programming modes

## Accessories



### i-GO Signal Converter type 8058

- Connects third party 4-20 mA signals to the 8900 and 9900
- Available for single or dual 4-20 mA sensor inputs
- Requires special programming for use with the 8250, 8350, 8450
- Compatible with 8900, 9900

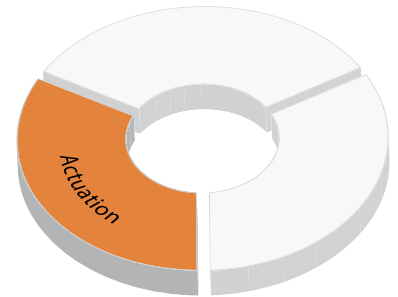
..... Product launch in 2013.



# Actuation

Reliable actuation with configuration flexibility

With our modular set-up, valves and actuators can be combined flexibly and additional functionalities, like positioners or monitoring devices, can be added optionally. Naturally, we offer the whole range in all-plastic designs, which are capable of withstanding harsh environments. A wide range of pressure regulating valves and accessories complete our actuation portfolio.



# Reliable Actuation



# Actuation Products

An overview of the key products

## Actuators Electric and Pneumatic



### Electric actuators type EA11

- 100-230 V AC, 24 V AC/DC
- 20 Nm peak (F05)
- 150 000 cycles, 40% ED
- Position Feedback optional
- Fail-safe modul optional
- Heating Element optional



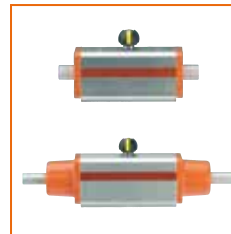
### Electric actuators type EA21, EA31, EA42

- 100-230 V AC, 24 V AC/DC
- EA21: 20 Nm peak (F05) 100% ED
- EA31: 120 Nm peak (F07) 50% ED
- EA42: 250 Nm peak (F07) 35% ED
- Accessory like EA11 plus additional
- with monitoring and positioner options



### Pneumatic actuator type PA11, PA21

- FC, FO, DA
- Rack and pinion principle
- Accessory interface acc. ISO5211
- Visual position indication
- Full plastic solution
- PA11: 10 Nm/ PA21: 20 Nm



### Pneumatic actuator type PA30 - PA90

- FC, FO, DA
- Scotch Yoke principle
- Accessory interface acc. ISO5211
- Visual position indication
- Adjustable end stops
- Various coatings on request

## Actuated Butterfly Valves



### Butterfly valve electric type 140/141/142

- Electric actuated butterfly valve
- Actuator Type: EA31/42 (24 V, 110-230 V)
- Plastic Butterfly Valve Wafer/ Lugstyle
- Butterfly Valve Typ 567/568
- PVC-U, PVC-C, ABS, PP-H, PVDF
- 567: DN50-DN600; 568: DN50-DN200



### Butterfly valve electric type 037-E/038-E/039-E

- Electric actuated butterfly valve
- Actuator Type: EA31/42 (24 V, 110-230 V)
- Metal Butterfly Valve Wafer/ Lugstyle
- Butterfly Valve Type 037/038/039
- 037: Aluminium, Wafer; 038/039: Ductile Iron with Powder/ Epoxy Coating/ Rilsan Coating
- 037: DN50-DN300; 038: DN50-DN600; 039: DN50-DN1200



## Actuated Butterfly Valves



### Butterfly valve pneumatic type 240/241/242

- Pneumatic actuated butterfly valve
- Actuator Type: PA30-PA90
- Plastic Butterfly Valve Wafer/ Lugstyle
- Butterfly Valve Typ 567/568
- PVC-U, PVC-C, ABS, PP-H, PVDF
- 567: DN50-DN600; 568: DN50-DN200



### Butterfly valve pneumatic type 037-P/038-P/039-P

- Pneumatic actuated butterfly valve
- Actuator Type: PA30-PA90
- Metal Butterfly Valve Wafer/ Lugstyle
- Butterfly Valve Type 037/038/039
- 037: Aluminium, Wafer; 038/039: Ductile Iron with Powder/ Epoxy Coating/ Rilsan Coating
- 037: DN50-DN300; 038: DN50-DN600; 039: DN50-DN1200

## Actuated Ball Valves



### Electric ball valve type 107

- Electric actuated 2-way ball valve
- Actuator Type: EA11 (24 V, 110-230 V)
- Actuating angle 90°
- Ball Valve 546
- ABS, PVC-C, PVC-U, PP-H, PVDF
- DN10-DN50



### Electric ball valve type 130-135

- Electric actuated 2-way ball valve
- Actuator Type: EA21/31 (24 V, 110-230 V)
- Actuating angle 90°
- Ball Valve 546
- ABS, PVC-C, PVC-U, PP-H, PVDF
- EA21 DN10-DN50; EA 31 DN65-DN100



### Electric ball valve type 185-188

- Electric actuated 3-way ball valve
- Actuator Type: EA21 (24 V, 110-230 V)
- Actuating angle 90°; max. 180°
- Ball Valve 543
- PVC-U; PVC-C; ABS; PP; PVDF
- DN10-DN50



### Pneumatic ball valve type 230-235

- Pneumatic actuated 2-way ball valve
- Actuator Type: PA11/PA21 (<DN65)
- Actuator Type: PA30-PA90 (>DN50)
- Ball Valve 546
- ABS, PVC-C, PVC-U, PP-H, PVDF
- DN10-DN100



### Pneumatic ball valve type 285-288

- Pneumatic actuated 3-way ball valve
- Actuator Type: PA11/PA21
- Actuating angle 90°
- Ball Valve 543
- PVC-U, PVC-C, ABS, PP, PVDF
- DN10-DN50

# Easy to modify

## Actuated Diaphragm Valves



### Diaphragm valve DIASTAR type Six

- ABS, PVC-U, PVC-C, PP-H
- EPDM
- DN15-DN50
- PN6
- pneumatic actuated FC



### Diaphragm valve DIASTAR type Ten

- ABS, PVC-U, PVC-C, PP-H, PP-N, PVDF, PVDF-HP
- EPDM, FPM, PTFE/EPDM, PTFE/FPM
- DN15-DN50
- PN10
- pneumatic actuated FC, FO, DA



### Diaphragm valve DIASTAR type TenPLUS

- ABS, PVC-U, PVC-C, PP-H, PVDF, PVDF-HP
- EPDM, FPM, PTFE/EPDM, PTFE/FPM
- DN15-DN50
- PN10 (both sides)
- pneumatic actuated FC, FO, DA



### Diaphragm valve DIASTAR type Sixteen

- PVDF, PVDF-HP
- EPDM, FPM, PTFE/EPDM, PTFE/FPM
- DN15-DN50
- PN16
- pneumatic actuated FC, FO, DA



### Diaphragm valve DIASTAR type 025

- ABS, PVC-U, PVC-C, PP-H, PVDF, PVDF-HP
- EPDM, FPM, PTFE/EPDM, PTFE/FPM
- DN65-DN150
- up to PN10
- pneumatic actuated FC, FO, DA

## Actuated Process Control Valves



### Solenoid valve type 157

- direct acting pivoted armature valve
- 2/2-Ways
- PVC-U
- EPDM, FPM
- 230 V AC, 24 V AC, 24 V DC
- DN4-DN8
- 0-4 bar depending on dimension



### Solenoid valve type 160/161

- direct acting pivoted armature valve
- 2/2- or 3/2-Ways
- PVC-U
- EPDM, FPM
- 230 V AC, 24 V AC, 24 V DC
- DN10-DN20
- 0-3 bar depending on dimension



### Solenoid valve type 165

- pilot assisted solenoid valve
- 2/2-Ways
- PVC-U, PVDF
- EPDM, FPM
- 230 V AC, 110 V AC, 24 V AC, 24 V DC
- DN15-DN50
- 0.5-6 bar



### Solenoid valve type 166

- direct acting pivoted armature valve
- 2/2- or 3/2-Ways
- PVC-U, PVDF
- EPDM, FPM
- 230 V AC, 110 V AC, 24 V AC, 24 V DC
- DN3-DN5
- 0-10 bar depending on dimension

## Pressure Regulating Valves



### Pressure reducing valve type V82/V182/V782

- PVC-U, PP, PVDF
- EPDM, EPDM-PTFE-coated
- V82: DN10-50: 0.5-10 bar, DN65-80: 0.5-6 bar, DN100 0.5-4 bar
- V182: DN10-40: 0.5-10 bar
- V782: DN10-40: 0.5-10 bar



### Pressure retaining valve type V86/V186/V786

- PVC-U, PP, PVDF
- EPDM, EPDM-PTFE-coated
- V86: DN65-80: 1-6 bar, DN100: 1-4 bar
- V186: DN10-50: 0.5-10 bar
- V786: DN10-25: 0.5-10 bar, DN32-40: 0.5-4 bar



### Pressure relief valve type V185/V85

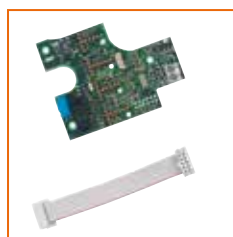
- PVC-U, PP, PVDF
- EPDM, EPDM-PTFE-coated
- V85: DN65-80: 1-6 bar, DN100: 1-4 bar
- V185: DN10-DN50: 0.5-10 bar

## Electric Accessories



### Limit switches (position feedback) for EA11-42

- Mechanical switches (AgNi or Au)
- NPN/PNP
- Middle position (3way ball valve)
- Additional 2 limit switches
- For EA11: AgNi switches only



### Monitoring Options for electric actuators for EA21-42

- Cycle counter
- Cycle time monitoring
- Cycle time extension
- Motor current monitoring
- 4-20 mA Feedback (together with Position detection)



### Heating element and Fail-safe return unit for EA11-42

- Heating element reduces condensation
- Caused by temperature variation
- Fail safe return unit for safe
- Adjustment in case of power failure
- 230 V AC; 24 V AC/DC



### Positioner and Position Detection for EA21-42

- Input: 0-10 V or 4-20 mA
- Output: 4-20 mA
- Self-learning function
- End-stop adjustment
- Plug and Play





### Solenoid pilot valve 3/2-ways type PV94

- 230 V, 50-60 Hz
- 115 V, 50-60 Hz
- 24 V, 50-60 Hz
- 24 V DC
- G 1/8; G1/4; G6 mm
- DN1.2



### Solenoid pilot valve 3/2-ways type PV95

- 230 V, 50-60 Hz
- 115 V, 50-60 Hz
- 24 V, 50-60 Hz
- 24 V DC
- G 1/8; G1/4;
- DN1.5-DN2



### Solenoid Pilot valve type 2000

- Modular version for 3/2-way and 5/2-way valves
- 24 V DC
- Connection module AS-Interface
- Connection module profibus interface



### Solenoid pilot valve type MNL 532

- Version for 3/2-way and 5/2-way Namur connection
- Material of body: Aluminium
- 24 V AC, 24 V DC, 48 V AC, 110 V AC, 230 V AC



### Electric position feedback type ER 52-1/ER53-1

- For pneumatic stroke actuators
- For Diastar Ten, TenPLUS, Sixteen, 025
- Mechanical switches (AgNi or Au)
- NPN/PNP, Namur
- With visual position indication



### Electric position feedback limit switch box

- For pneumatic rotary actuators
- For PA11-90:
- Mechanical switches (AgNi or Au)
- NPN/PNP, Namur
- With visual position indication



### Stroke limiter/ manual override

- For Diastar all type Ten, TenPLUS, Sixteen, 025



### Digital electro-pneumatic positioner - type DSR 500

- Mounted on pneumatic control valves
- Linear and rotary actuators
- Nominal stroke 3-28 mm
- Self-learning
- Control signal 4-20 mA
- 24 V DC

# Easy to regulate

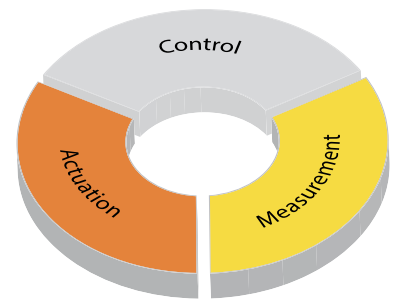




# Communication Products

Different communication protocols for different needs

Our automation loop can be managed with various communication technologies and can therefore be seamlessly integrated into existing plant management systems. We offer analogue and digital communication technologies which support on / off or continuous control loops. Benefits are less wiring, faster installations and more efficient diagnostic and parameterization capabilities.



# Communication Products

An overview of the key products

## Communication



### HART

- HART Protocol superimposes digital signals on top of the 4-20 mA analog signal
- Communication occurs between two HART-enabled devices
- HART protocol operates according to the master-slave method



### Profibus

- Modular version for 3/2-way and 5/2-way valves
- 24 V DC
- Connection module AS-Interface
- Connection module profibus interface



### AS-interface for pneumatic rotary actuators

- Pilot valve 5/2-Ways
- Electric feedback integrated
- Full plastic housing
- Optical status indicator
- AS Interface Version 3.0



### AS-interface for electric actuators

- Integrated control an electric
- Feedback
- For 24 V DC actuators
- For EA11-EA42
- Manual override standard



### AS-interface for manual valves with feedback

- With integrated feedback
- Ideal for ball valves
- Ideal for butterfly valves
- Ideal for diaphragm valves



### AS-interface for pneumatic stroke actuators

- Pilot valve 3/2-Ways
- Compact design
- Full plastic housing
- Optical status indicator
- AS Interface Version 3.0



### AS-interface for sensor with switch output

- With switching output
- For level switch
- For flow switch
- For pressure switch
- For temperature switch



# Valves

## The right valve for your application

We offer one of the most comprehensive valve product ranges, which enables you to find the right match for your application. Our valves are available in a wide selection of dimensions, materials, chemical resistances, standards, actuation, operation principles, and pipe connections and are designed for long service life. The combination of the right valve selection and our high product quality leads to a favorable total cost of ownership.



## Manual Ball Valves



### Ball valve type 546

- ABS, PVC-C, PVC-U, PP-H, PVDF
- EPDM, FPM, Ball Seat: PTFE, PVDF
- DN10-DN100
- up to PN16 = PVC-U, PVC-C, PVDF; up to PN10 = PP-H, ABS
- Lockable Lever, Multifunctional Module
- Lever



### 3-Way ball valve type 543

- ABS, PVC-C, PVC-U, PP-H, PVDF
- EPDM, FPM, Ball Seat: PTFE, PVDF
- DN10-DN50
- up to PN10
- Lockable Lever, Multifunctional Module
- Lever



### Metering ball valve type 523

- PVC-U, PP-H, PVDF
- EPDM, FPM, Ball Seat: PTFE
- DN10-DN15
- up to PN16
- Lever



### Ball valve type 375

- PVC-U
- EPDM, FPM, Ball Seat: PTFE
- DN10-DN100
- up to PN16 to DN50, up to PN10 to DN100
- Lever
- not actuated



### Coloro type 353-355

- PVC-U
- EPDM, Ball Seat: HD-PE
- DN10-DN50
- up to PN16
- Lever
- not actuated

## Manual Diaphragm Valves



### Diaphragm valve type 514

- PVC-U; PVC-C; ABS; PP-H; PVDF; PVDF-HP
- EPDM; PTFE/EPDM; FPM; PTFE/FPM
- DN15-DN50
- up to PN16
- Lockable Handwheel
- Electrical Feedback Module



### Diaphragm valve type 515

- PVC-U; PVC-C; ABS; PP-H; PP-N; PVDF; PVDF-HP
- EPDM; PTFE/EPDM; FPM; PTFE/FPM
- DN15-DN50
- up to PN16
- Lockable Handwheel
- Electrical Feedback Module



### Diaphragm valve type 517 (317)

- PVC-U; PVC-C; PP-H; PVDF; PVDF-HP
- EPDM; PTFE/EPDM; FPM; PTFE/FPM
- DN15-DN50 (Type 317: DN65-DN150)
- up to PN16
- Lockable Handwheel
- Electrical Feedback Module



### Diaphragm valve type 519

- PP-H; PP-N; PVDF-HP
- EPDM; PTFE/EPDM; PTFE/FPM
- DN20-DN20 : d110-d63
- up to PN16
- Lockable Handwheel
- Electrical Feedback Module



## Manual Butterfly Valves



### Butterfly valve manual type 567/568

- ABS, PVC-U, PVC-C, PP-H, PVDF
- Sealings: EPDM, FPM, PTFE/FPM
- DN50-DN300 (-DN600)
- 568: DN50-DN200
- PN10
- Lever, Gear, 230 V o. 24 V, FC/FO/DA
- Electrical Feedback Module



### Metal butterfly valve type 037/038/039

- 037: Aluminium, Wafer;
- 038: GGG,LUG; 039: GGG Wafer
- Sealings: EPDM, FPM
- 037: DN50-DN300; 038: DN50-DN300; 039: DN50-DN1200
- PN10/PN16
- Lever, Gear, 230 V o. 24 V, FC/FO/DA

## Accessories



### Multifunctional modules

- Multi functional module
- Accessory for ball valves 546 / 543
- Limit switch Ag Ni, Au, Namur, NPN, PNP
- Interface for el./pneum. Actuators



### Electrical feedback module

- Electrical feedback module
- Accessory for diaphragm valves 514-519
- Limit switch Ag Ni or Au
- Self adjusting mechanism



### Integrated position indicator

- Integrated position indicator
- Accessory for butterfly valves 567
- Limit switch Ag Ni, AU, Namur, NPN, PNP

## Special Valves



### Check valve type 561/562

- ABS, PVC-C, PVC-U, PP-H, PVDF
- EPDM, FPM
- DN10-DN100
- up to PN16
- Type 562 with spring



### Ventilating valve/ Ventilating and bleed valve type 591/595

- ABS, PVC-C, PVC-U, PP-H, PVDF
- EPDM, FPM
- DN10-DN100
- up to PN16
- Type 595 with spring





## Special Valves



### Angle seat check valve type 303/304

- PVC-U, ABS
- EPDM, FPM
- DN10-DN80
- PN10



### Wafer check valve type 369

- PVC-U, PP-H, PVDF
- EPDM, FPM
- DN32-DN300
- PN6



### Line strainer type 305/306

- PVC-U, PVC-C, ABS, PP-H, PVC-U transparent
- EPDM, FPM
- DN15-DN50, PVC-U up to DN80
- PN10



### Angle seat valve type 300/301

- PVC-U
- PE, PTFE
- DN10-DN80
- PN10



### Water jet suction pump (eductor) type P20

- PVC-U, PP-H, PVDF
- EPDM, FPM
- DN10-DN80
- PN10



### Throttle valve type V251

- PVC-U, PP-H, PVDF
- EPDM, FPM
- DN10-DN50
- PN10



### Gauge guard type Z700/701

- PVC-U, PP-H, PVDF
- EPDM, EPDM-PTFE-coated
- DN20 or DN 25
- PN10
- With or without manometer



### Float valve type V140

- PVC, PP
- EPDM, FPM
- DN10-DN80
- PN6
- Vertical mounting position



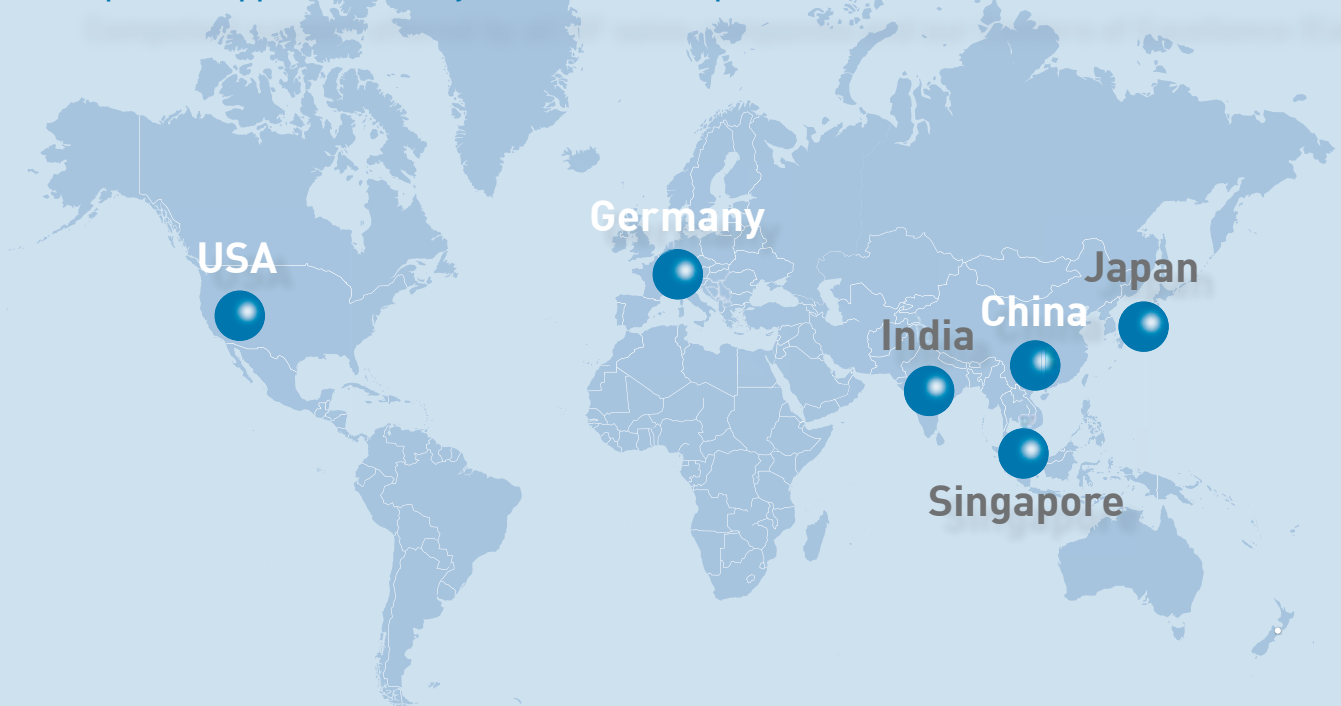
## Easy access support

Quick, reliable and competent service is as important as a comprehensive product offering

We ensure that our staff in all countries has state-of-the-art knowledge of products, applications and technology. As a result, our local GF automation specialists can support you professionally in choosing the right products and defining a system which truly satisfies your needs, in addition to commissioning and after-sales service. Furthermore, GF is setting up a global network of centers of excellence (CoE) for automation where dedicated teams for sales, service and automation training are available to you.

# Centres of Excellence

Competent support offered by all GF sales companies and our Centers of Excellence (CoE)



- CoE established in 2012.
- CoE will be established in 2013.

For more information on our automation system please contact our local sales companies and our sales representatives.

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From planning support to implementation – our specialists are always close by

As a leading provider of piping systems in plastic and metal, we offer our customers not only reliable products, but also a large package of services. Our support ranges from a comprehensive technical manual or the extensive CAD library to an international team of experts, who work closely together with local sales companies. And when it comes to implementing a project, our customers additionally benefit from a wide range of training courses, either on site or in our modern Training Centres worldwide.



## Technical Support

Technical support and material selection are key factors for a successful installation. A team of specialists individually support our customers around the world.



## Chemical Resistance

Our specialist teams have decades of experience in the area of chemical resistance. They can offer individual support and consult in selecting the right material.



## Training Courses

GF Piping Systems offers a wide range of training courses that allow participants to gain confidence in working with our products and proven jointing technologies.



## On-site Training

Our experts are available to support our customers locally and conduct training in diverse fusion and jointing techniques on location.



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The database comprises over 30 000 drawings and technical data regarding pipes, fittings, measurement and control technology as well as manual and actuated valves.



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## Customising

The focus of these teams is to manufacture custom parts for special systems. In addition, a variety of special solutions can be produced in small series.

For more information go to [www.gfps.com](http://www.gfps.com)

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