Automation made easy for you

Accurate measurement
Precise control
Reliable actuation
General Information

The best choice

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

Georg Fischer

Georg Fischer focuses on three core businesses: GF Piping Systems, GF Automotive and GF Machining Solutions. The industrial corporation founded in 1802 headquarters in Switzerland and operates approximately 130 companies with more than 14,000 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 jointing technologies, fittings, valves, automation products and pipes in our portfolio.

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 centers 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 60,000 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 optimize 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 directly 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.

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
- Marine
- Water & Gas Utilities
- Water Treatment

GF Piping Systems headquarters in Schaffhausen, Switzerland.
Automation

Automation made easy

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

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**Measurement**
Accurate measurement

**Control**
Precise control

**Actuation**
Reliable actuation

**Valves**
Modular valves

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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.

Surface treatment
Modification of surface properties by surface preparation, rinsing, electroplating and finishing.

Membrane technology
Chemical-free water treatment application using several filtration techniques.

Measurement
a) Level Sensor type 2250  
b) Conductivity Sensor using 2850 Sensor Electronics  
c) Electromagnetic flow sensor type 2551  
d) Pressure Sensor type 2450  
e) Temperature Sensor type 2350  
f) pH-Sensor type 2724  
g) Paddlewheel Flow sensor type 2536  
h) Limit Switch  
i) pH / ORP Wet-Tap unit type 3719  
j) Variable area flow meter type 335  
k) Portaflow Ultrasonic flowmeter type 330 / 220  
l) Ultrasonic Level sensor
Main benefits

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

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.

Control
m) Multi-Parameter Transmitter type 9900
n) Customer PLC
o) Multi-Parameter/ Multi-Channel Controller type 8900
p) PID Controller
q) Profibus concentrator

Actuation / Valves
r) Diaphragm Valve, pneumatic, type DIASTAR Ten
s) Ball Valve, pneumatic type 230
t) Butterfly Valve, pneumatic type 240
u) Pressure retaining valve type 586

The rendering above shows an exemplary selection of industrial applications, where our automation offering can be used.
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.
An overview of the key products

**Rotor-X Paddlewheel Flow Sensor**
- Type 515
- Non-powered
- 0.3 - 6 m/s (1 to 20 ft/s)
- DN15 - DN900 (1/2 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)

**Paddlewheel Flow Sensor**
- Type 2537
- 0.1 - 6 m/s (0.3 to 20 ft/s)
- DN15 - DN200 (1/2 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 (S³L), flow switch or pulse outputs (based on part number)

**Magmeter (blind or display)**
- Type 2551
- 0.05 - 10 m/s (0.15 to 33 ft/s)
- DN15 - DN900 (1/2 to 36 in.)
- 10.3 bar @ 25 °C (150 psi @ 77 °F)
- 4-20 mA, or frequency/digital (S³L) outputs
- Optional relay outputs

**Turbine Flow Sensor**
- Type 2100
- 0.38 to 38 lpm (0.10 to 10 gpm)
- DN15 (1/2 in.)
- PVDF
- 16 bar @ 20 °C (232 psi @ 68 °F)
- Open Collector output
- Use with End Fitting: 3-2100-31 to 3-2100-38

**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)

**Stainless Steel Paddlewheel Flow Sensor - Type 2540**
- 0.1 - 6 m/s (0.3 to 20 ft/s)
- DN40 - DN900 (11/2 to 36 in.)
- 17 bar @ 100 °C (250 psi @ 212 °F)
- 49 Hz per m/s nominal (15 Hz per ft/s nominal)
- Open Collector output

**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 (S³L)
- Hot-tap using ball or gate valves

**Micro-Flow Rotor Sensor**
- Type 2000
- 0.011 - 12.1 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)

**Metalex Paddlewheel Flow Sensor**
- Type 525
- 0.5 - 6 m/s (1.6-20 ft/s)
- DN15 - DN300 (1/2-12 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)
Easy to install

Flow 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, 4 to 20 mA Output, and HART modules are available

**ProPoint Sensor-Powered Flow Monitor**
*Type 5090*
- Displays GPM
- No power required
- Single input
- Panel mount
- Analogue dial for indication
- Use with 515 flow sensor

**Variable Area Flow Meters**
*Type 335 / 350, SK50-73*
- Taper tubes in PVC transparent, PA, PSU, PVDF
- Union connection with PVC (std)
- DN10 - DN65 (¼" - 3 ½")
- PN10
- Optional switch feedback
- Special scales on request

**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

**Ultrasonic Flowmeter**
*Type U1000*
- 0.1 m/s - 10 m/s
- d25-d115
- DC 12 - 24 V
- Output: 4-20 mA, pulse or frequency
- Transit time measurement

**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

**Battery Powered Flow Totaliser**
*Type 8150*
- Displays GPS, GPM, GPH, GDP, LPS, LPM, LPH, LPD
- Battery powered
- Single input
- Panel or field mount
- 3 totalisers, auto calibration
- Use with 515 or 525 flow sensors

**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

**Ultraflow 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
<table>
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<tr>
<td>Output Module are available</td>
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| **Threaded DryLoc pH/ORP Electrode** |
| type 2774-2777 |
| • 0 - 14 pH, ±2,000 mV ORP |
| • Ryton body, PTFE junction |
| • Use sensor ¼”threads for mounting |
| • DryLoc preamplifier connection with gold plated pins |
| • Suitable for submersible applications |
| • For use with 2750/2760 preamplifiers |

| **Differential DryLoc pH / ORP Electrodes** |
| type 2764-2767 |
| • 0 - 14 pH, ±2,000 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 and ORP Electrodes for Harsh Applications** |
| type 2734 – 2736 |
| • Enhanced reference and bridge gels to resist chemical poisoning |
| • Ryton (PPS) body and PTFE junction for broad range of chemical compatibility |
| • PTFE reference junction resists fouling and chemical attack |
| • Mounts in Signet standard fittings from DN15 to DN100 (½ to 4 in.) |

| **Dry Loc pH/ORP SensorElectronics** |
| type 2750 |
| • 0 - 14 pH, ±2,000 mV ORP |
| • PBT, CPVC (PVC-C) |
| • DryLoc connection with gold plated pins |
| • 4 - 20 mA or digital (S or L) |
| • Use with 8900, 9900 or PLC |
| • In-line and submersible versions available |

| **pH/ORP Wet-Tap Assembly** |
| type 3719 / 2756, Wet-Tap Electrodes type 2757 |
| • Use a wet-tap style sensor; for 0 - 14 pH, ±2,000 mV ORP |
| • CPVC, PVC |
| • 1½ or larger |
| • 1½ or 2 NPT, ISO 7 / 1-R1.5 or R2 |
| • Electrode removal without process shutdown |

| **DryLoc pH and ORP Electrodes** |
| type 2724-2726 |
| • 0 - 14 pH, ±2,000 mV ORP |
| • Ryton body, PE junction |
| • Use fittings for in-line applications or ½” NPT or ISO |
| • Suitable for submersible applications |
| • DryLoc preamplifier connection with gold plated pins |
Conductivity/resistivity sensors and instruments

Dual-Channel Conductivity Controller - type 8860
- Displays μS, mS, KΩ, MΩ, 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

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

Conductivity/Resistivity Electrodes type 2818 - 2823
- 0.055 - 400 000 μS (0.02-200 000 ppm)
  (18.2 MΩ - 1 KΩ)
- 316 SS or Titanium (Hastelloy-C also available upon request)
- Reversible threads or sanitary flange connections
- Connect to 2850 sensor electronics

PVDF Conductivity Electrodes type 2839 - 1V(D) - 2842 - 1V(D)
- 0.055 - 200 000 μS (0.02-100 000 ppm)
  (18.2 MΩ - 1 KΩ)
- 316 SS and PVDF
- Dual threaded NPT or ISO
- Connection to 9900 - 1, 8900 instruments or 2850 sensor electronics
- NIST Certificate

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, 4 to 20 mA Output, and HART modules are available

PVDF Conductivity Electrodes type 2839 - 1V(D) - 2842 - 1V(D)
- 0.055 - 200 000 μS (0.02-100 000 ppm)
  (18.2 MΩ - 1 KΩ)
- 316 SS and PVDF
- Dual threaded NPT or ISO
- Connection to 9900 - 1, 8900 instruments or 2850 sensor electronics
- NIST Certificate

Temperature 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 Sensor type 2350
- In-line mounting: 10 °C to 100 °C
  (14 ° to 212 °F)
- Submersible mounting: 10 °C to 85 °C
  (14 ° to 185 °F)
- PVDF
- ¼ inch dual threaded for in-line or submersible installation
- 4-20 mA or digital (S/L)

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

Dual-Channel ProcessPro’s - 3 are still available
Temperature, pressure and level sensors and instruments

Pressure Integral System with 9900 Transmitter
- Utilizes 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 - 0.7 bar (0 - 10 psig) - U
- 0 - 3.4 bar (0 - 50 psig) - L
- 0 - 17 bar (0 - 250 psig) - H
- Vacuum range available
- Wetted material: PVDF, ceramic and FPM
- ½" union, dual threaded
- 4 - 20 mA or digital (S/L)

Ultrasonic Integral Level Transmitter type 2260
- Non-contact principle
- Narrow 5 and 6° beam
- Range: 4, 6, 15 meters (13, 20, 50 ft)
- 4 - 20 mA, HART, relay output
- PP and PVDF bodies
- ATEX versions
- Quick-set and advanced menu
- Large multi-parameter display
- Allows for open channel measurement

Ultrasonic Level Sensor type 2270
- Non-contact principle
- Narrow 5 and 6° beam
- Range: 4, 6, meters (13, 20, ft)
- 4 - 20 mA, HART
- PP and PVDF bodies
- Easy to use EView programming software
- Allows for open channel measurement

Point level Switches
- Body materials for water, water based liquids and concentrated chemicals
- Versions for industrial- and municipal water treatment
- Digital transistor- and relay outputs
- ATEX versions
- WHG versions
- Versions without moving parts

Hydrostatic 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 and FPM
- Submersible sensor
- 4 - 20 mA or digital (S/L)
- Uses hydrostatic pressure for level and depth control

Water analysis

Chlorine Analyzer 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 to 20 mA or Modbus 3-2610-31 (S/L), 4 to 20 mA or Modbus 3-2610-41
- Measurement Range: 0 - 20 mg/L, 0 - 200% Saturation

Chlorine Dioxide System type 4632
- Complete turnkey system – no additional parts required to install
- Now available with a flow switch interrupt (Chlorine and Chlorine dioxide)
- Complies with EPA standard 334.0
- Chemical free measuring system
- 0 - 2 ppm
- Optional pH measurement
Switching Power Supplies type 7310
• Universal AC input/Full Range
• Protections: Short circuit/Overload/Over-voltage
• Cooling by free air convection
• Install on DIN rail TS-35/7.5 or 15
• Built in DC OK active signal
• LED indicator for power on

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
• Only compatible with 8900

pH/ORP System Tester type 2759
• Battery powered
• Simulates pH and ORP
• Compatible with 2750 and 2760 preamp
• Connects to any pH/ORP instrument

Conductivity/Resistivity Tools type 2850 - 101 - X
• Available in 5 different values
• Verifies electronic independent of electrode
• Compatible with all conductivity and resistivity instruments
• Temperature compensated to 25 °C

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 8350, 8450
• Compatible with 8900, 9900

HART – USB Modem
• HART to USB converter
• Portable or DIN rail version
• ATEX

Configuration/Diagnostic Tool type 0250 USB to Digital (5’L)
• 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

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

Easy to operate

Accessories
Buffer Solutions
**type pH/ORP**
- NIST Traceable
- Easily identifiable colour coded buffer solutions
- Liquid or powder versions
- Temperature compensated values
- Kits for easy use

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

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

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

$4 - 20$ mA Sensor GK 15 for VAFM
**type 335/350**
- 12 - 24 V DC
- IP 65
- 4 - 20 mA (3 wire)

Limit contacts GK 10 / GK11 for type 335 / 350 and short version
- Reed contact
- IP65
- 230 V
Easy to connect

Installation fitting tees

Plastic - Metric Tees
- ABS* DN20 - DN50
- PVC DN15 - DN50
- PP DN15 - DN50
- PVDF DN15 - DN50
- PE DN15 - DN50

Plastic - PVC Tees
- PVC 0.50 - 4.0" / SCH 80
- PVC-C 0.50 - 2.0" / SCH 80
- PVC BSP* 0.50 - 2.0"
- Fiberglass 1.50 - 2.0" / SCH 80

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.

Weldolets / brazolets

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

Weldolet / Brazolets
- Carbon Steel 0.50 - 2.00" / SCH 40
- Brass 0.50 - 2.00" / SCH 40
- 316 SS 0.50 - 2.00" / 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”)

Saddles

Saddle
- Iron Multi  1.25 - 1.50” / SCH 80

Electrofusion Transition
- PE  2.0 - 12.0”

Clamp-On
- PVC  2.0 - 8.0” / SCH 80
- PVC-U metric DN65 - DN200
- BSP 3” - 6”

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

Strap-On
- Iron  2.0 - 12.0” / SCH 80

Electrofusion
- PE  DN65 - DN400

PVC-U Glue-On
- PVC  10” - 12” / 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.
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, 4 to 20 mA Output, 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 (S3L) 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
- 1G 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
- Compatible with 8900, 9900
- Requires programming at the factory with the 8350, 8450
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.
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

**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

**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 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 / 143 / 144
  - Electric actuated Butterfly Valve
  - Actuator type: EA31/42* (24 V, 110 - 230 V)
  - Plastic Butterfly Valve Wafer/ Lugstyle
  - Butterfly Valve type 567/578
  - 567: DN50 - DN600; 578: DN50 - DN300

**Butterfly Valve electric**
* type 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 038 / 039
  - 038/039: Ductile Iron with Powder/ Epoxy Coating/ Rilsan Coating
  - 038: DN50 - DN600;
  - 039: DN50 - DN1200

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* will be replaced by Q4 2015 with new actuators type EA120 / 250

Launch in Q4 2015
Actuated Butterfly Valves

Butterfly Valve pneumatic type 249 / 243 / 244
- Pneumatic actuated Butterfly Valve
- Actuator Type: PA30-PA90
- Plastic Butterfly Valve Wafer / Lugstyle
- Ball Valve Typ 567 / 578
- PVC-U, PVC-C, ABS, PP-H, PVDF
- DN10 - DN50 / DN60 / DN70 / DN80

Butterfly Valve pneumatic type 038-P / 039-P
- Pneumatic actuated Butterfly Valve
- Actuator Type: PA30-PA90
- Metal Butterfly Valve Wafer / Lugstyle
- Butterfly Valve Type 038 / 039
- 038 / 039: Ductile Iron with Powder/Epoxy Coating / Rilsan Coating
- 038: DN50-DN600; 039: DN50-DN1200

Actuated Ball Valves

Electric Ball Valve type 104
- Electric actuated 2-way Ball Valve
- Actuator Type: EA04 (24V, 85-230V)
- Actuating angle 0°-90°
- Ball Valve 546
- PVC-U, PVC-C, ABS, PP-H
- DN10 - DN50 / 3/8” - 2”
- Limited accessory range
- Low cycle applications

Electric Ball Valve type 107
- Electric actuated 2-way Ball Valve
- Actuator Type: EA11 (24V, 110-230V)
- Actuating angle 90°
- Ball Valve 546
- ABS, PVC-U, PP-H, PVDF
- DN10-DN50

Electric Ball Valve type 130-135
- Electric actuated 2-way Ball Valve
- Actuator Type: EA21 / EA31 (24V, 110-230V)
- Actuating angle 90°
- Ball Valve 546
- ABS, PVC-C, PVC-U, PP-H, PVDF
- EA21 DN10-DN50; EA31 DN10-DN100*

Electric Ball Valve type 185-188
- Electric actuated 3-way Ball Valve
- Actuator Type: EA21* (24V, 110-230V)
- Actuating angle 90°; max. 180°
- Ball Valve 543
- ABS, PVC-C, PVC-U, PP-H, PVDF
- DN10-DN50

Pneumatic Ball Valve type 285-288
- Pneumatic actuated 3-way Ball Valve
- Actuator Type: PA11 / PA21
- Actuating angle 90°
- Ball Valve 543
- ABS, PVC-C, PVC-U, PP, PVDF
- DN10-DN50

Pneumatic Ball Valve type 230-235
- Pneumatic actuated 2-way Ball Valve
- Actuator Type: PA11 / PA21 (< DN 65)
- Actuator Type: PA30-PA90 (> DN 50)
- Ball Valve 546
- ABS, PVC-C, PVC-U, PP-H, PVDF
- DN10-DN100

* will be replaced by Q4 2015 with new actuators type EA 25 / 45 / 120

Easy to modify
Actuation

Actuated Diaphragm Valves

Diaphragm Valve type 604 / 605
- PVC-U, PVC-C, PP-H, PVDF
- EPDM, FPM, PTFE / EPDM, PTFE / FPM
- DN15
- PN6
- pneumatic actuated FC, FO, DA

Diaphragm Valve DIASTAR Six
- ABS, PVC-U, PVC-C, PP-H
- EPDM, FPM
- DN15 - DN50
- pneumatic actuated FC

Diaphragm Valve DIASTAR Ten
- EPDM, FPM, PTFE / EPDM, PTFE / FPM
- DN15 - DN50
- PN10
- pneumatic actuated FC, FO, DA
- Accessories available

Diaphragm Valve DIASTAR 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
- Accessories available

Diaphragm Valve DIASTAR Sixteen
- PVDF, PVDF-HP
- EPDM, FPM, PTFE / EPDM, PTFE / FPM
- DN15 - DN50
- PN16
- pneumatic actuated FC, FO, DA
- Accessories available

Diaphragm Valve DIASTAR 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
- Accessories available

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 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 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 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

*Available from Q3 2015 on*
Easy to regulate

Pressure regulating valves

Pressure Reducing Valve type 582
- PVC-U, CPVC, PP-H, PVDF
- Spigot or union connection
- O-ring Material: EPDM, FPM
- DN10–DN50
- 0.5 - 9 bar or 0.3 - 3 bar
- Manometer with or without gauge guard optional

Pressure Retaining Valve type 586
- PVC-U, CPVC, PP-H, PVDF
- Spigot or union connection
- O-ring Material: EPDM, FPM
- DN10–DN50
- 0.5 - 9 bar or 0.3 - 3 bar
- Manometer with or without gauge guard optional

Pressure Retaining Valve type V86
- PVC-U, PP, PVDF
- EPDM, EPDM-PTFE-coated
- V86: DN65 - 80: 1 - 6 bar
  DN100: 1 - 4 bar

Pressure Reducing Valve type V82
- PVC-U, PP, PVDF
- EPDM, EPDM-PTFE-coated
- V82: DN65 - 80: 0.5 - 6 bar
  DN100: 0.5 - 4 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

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

Monitoring and Positioner Options for EA21 – 42
- Monitoring board with:
  - Cycle counter
  - Cycle Time extension and/or monitoring
  - Current Monitoring
- Positioner with:
  - Input: 0 - 10V or 4 - 20mA
  - Feedback: 4 - 20mA

Accessories for (new) EA25 - EA250
- Fail-safe return unit to be installed in housing
- Positioner
- Monitoring Board
- Profibus

Launch in Q4 2015
**Pneumatic accessories**

**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 ⅛, G ¼, G 6mm
- DN 1.2

**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 ⅛, G ¼
- DN 1.5 - DN 2

**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
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

Communication products
An overview of the key products

Profibus Concentrator type 3-0486
• Connect GF Actuated Valves and Sensors to Profibus automation networks
• Supports six S3L sensors or relay modules plus a proportional controlled actuated valve
• Four of the (S3L) inputs support flow frequency devices for cost effective flow monitoring
• Two of the (S3L) inputs support 4 to 20 mA current loop inputs for connections to third party sensors
• 4 to 20 mA current loop input and output for connection to GF proportional controlled actuated valves

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 5/3-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 EA1-1-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

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

Launch in Q4 2015
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.
Valves

**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
- Linear version

**Linear Ball Valve type 546**
- PVC-U, PVC-C, ABS, PP-H, PVDF
- DN15 - DN50
- Lockable lever
- Multifunctional module

**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

**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 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**
- ABS, PVC-C, PVC-U, PP-H, PVDF
- Sealings: EPDM, FPM, PTFE / FPM
- DN50-DN200
- PN10
- Lever, Gear, 230 V or 24 V, FC / FO / DA
- Electrical Feedback Module

**Butterfly Valve manual type 578**
- ABS, PVC-C, PVC-U, PP-H, PVDF
- Sealings: EPDM, FPM, PTFE / FPM
- DN50-DN300
- PN10
- Lever, Gear, 230 V or 24 V, FC / FO / DA
- Electrical Feedback Module

**Metal Butterfly Valve type 038 / 039**
- 038: GGG, LUG; 039: GGG Wafer
- Sealings: EPDM, FPM
- 038: DN50-DN300; 039: DN50-DN1200
- PN10 / PN16
- Lever, Gear, 230 V or 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

**Integrated position indicator**
- Integrated position indicator
- Accessory for Butterfly Valves 567 / 578
- Limit switch Ag Ni, Au, Namur, NPN, PNP

**Electrical feedback module**
- Electrical feedback module
- Accessory for (manual) Diaphragm Valves 514 - 519
- Limit switch Ag Ni or Au
- Self adjusting mechanism

**Labelling Ball Valve**
- Labelling system for Ball Valve 546 / 543

**Process Control 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
- Float PP-H / PVDF
Process Control Valves

Angle Seat Check Valve
<type> 303 / 304
- PVC-U, ABS
- EPDM, FPM
- DN10 - DN80
- PN10

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
- screen: stainless-steel and PVC-U

Water Jet Suction Pump (eductor)
<type> P20
- PVC-U, PP-H, PVDF
- EPDM, FPM
- DN10 - DN80
- PN10

Gauge Guard
<type> Z500/501
- True plastic design (no metal screws!)
- PVC-U, PP-H, PVDF
- EPDM, EPDM-PTFE-coated
- DN20 or DN 25
- PN10
- With or without pressure gauge

Wafer Check Valve
<type> 369
- PVC-U, PP-H, PVDF
- EPDM, FPM
- DN32-DN300, 1 1/4 - 12"
- PN10

Angle Seat Valve
<type> 300 / 301
- PVC-U
- PE, PTFE
- DN10 - DN80
- PN10

Throttle Valve
<type> V251
- PVC-U, PP-H, PVDF
- EPDM, FPM
- DN10-DN50
- PN10

Float Valve
<type> V140
- PVC, PP
- EPDM, FPM
- DN10-DN80
- PN6
- Vertical mounting position
Centers of excellence

Competent support for you

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

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.

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

USA
Germany
Singapore
India
Support

† 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.

† Value added services

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 Centers worldwide.

Online and mobile calculation tools
Our numerous, multilingual online tools and mobile applications are very useful for on-site configuring and calculating.

Technical manual
We have documented the extensive know-how of GF Piping Systems in planning and installing piping systems in our technical manual for customers.

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

www.gfps.com
**Worldwide at home**

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

www.gfps.com