

GF Piping Systems

+GF+

# Gas utilities

The reliable solution for your application



# The best choice for you

## Corrosion resistant and flexible system solutions

### + Georg Fischer

GF focuses on three core businesses: GF Piping Systems, GF Casting Solutions and GF Machining Solutions. The industrial corporation founded in 1802 headquarters in Switzerland and operates approximately 136 companies with more than 15800 employees across 34 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.

### + Our market segments

Being a strong partner, GF Piping Systems supports its customers in every phase of the project in the following market segments:

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

### + Global presence

Our global presence ensures customer proximity worldwide. Sales companies in 28 countries and representatives in another 80 countries provide customer service around the clock. With 48 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.

### + 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. Our automation offering perfectly fits into our complete system approach and is thus an integral part of our portfolio. Having the profitability of the project in focus, we optimize processes and applications that are integrated into the whole system. Thanks to our worldwide network customers benefit directly from over 50 years of experience in plastics. From start to finish, we support our customers as a competent, reliable and experienced partner.

## Introduction

# A lifetime of consistent performance

The big advantage of plastics like PE (polyethylene), compared to metals is that there is no electro-chemical corrosion. In addition to this, plastic is lighter than other materials. The «Total Plastic Solution» from GF Piping Systems ensures safety in all applications. Safe and reliable processes and workflows achieved through the use of plastic piping systems translate into consistently high efficiency for customers over the entire lifetime of their operations.

### + PE benefits at a glance

- Corrosion resistant
- No extra corrosion prevention required
- PE is flexible during storage and installation
- Withstands earth movements best
- Smooth surface resulting in higher flow rates, reduced energy costs
- Good price performance and total cost of ownership
- Plastics are generally much lighter in weight
- PE is the optimal material for trenchless installation techniques
- PE has an estimated lifetime of 100 years
- The material is durable, reliable and material homogeneous jointing technologies are available
- PE is “greener” than metal, due to its low carbon footprint
- Global standards: ISO, ASTM, EN and many more





Transport and distribution lines

# High performance jointing technology for a reliable network

Designed for a safe and sustainable gas distribution

## Transportation lines (> d315 mm)

When transporting gas to the domestic areas a safe and reliable connection is the key success factor, but at the same time can be a challenging task. GF Piping Systems understands your need for proper tooling, high performance jointing technologies and connection parts as well as expert support on site. It is our experience and know-how in building, operating and maintaining large dimensioned piping systems, that enable us to create the right solutions for your varied installations in gas transport applications.

## Distribution lines (d75–d315 mm)

For the reliable, economical and sustainable gas distribution it is essential that all piping components like pipes, fittings and valves are connected safely and reliably. GF Piping Systems offers a comprehensive range of jointing technologies to satisfy your needs. With our electrofusion system ELGEF Plus a material homogeneous connection of pipe and fitting will contribute to a reliable network. This system includes also all necessary tools and machines important for a proper installation. With the MULTI/JOINT 3000 Plus system all kind of pipe material can be connected in a quick, safe and simple way – one size fits and grips all.



Service lines and house connections

# Solutions for a safe and fast pipe connection

Always the right solution with the modular system of ELGEF Plus

## Service lines and house connections (d20–d63 mm)

In the last stage of the gas grid, service lines transport gas to the meter. Due to its flexibility and material homogeneous joining technologies, amongst many other positive characteristics, PE is today's main used material for new installations. Thanks to the modular ELGEF Plus electrofusion system an appropriate solution can be found for every application. Each individual ELGEF fitting and saddle is made to match and when put together they form reliable leak-proof connections. The outstanding customizing possibilities together with its flexibility are convincing and decisive customer benefits. Many different combinations can be devised using just a few products. Also PE valves will contribute to your reliable and safe network as part of the ELGEF Plus system.



Maintenance and repair

# Complete and flexible maintenance and repair solutions

During recent years the gas supply industry has invested greatly to ensure and enhance consistent quality in the operation and maintenance of the gas supply networks. GF Piping Systems continues to provide high quality systems and services for building and maintaining these networks thus contributing to the transportation of gas in the safest, most secure and reliable way.

## Connecting

With MULTI/JOINT 3000 Plus fittings you can connect any pipe you like, regardless of the pipe material. Very convenient, when you do not know what kind of pipe materials you will encounter. Moreover thanks to the quick, safe and simple installation of the fittings you will always make a reliable connection. Non restraint or restraint!



## Repairing

Also for maintenance or repair of an existing or corroded pipe GF Piping Systems offers the right solution. With our MULTI/JOINT 3000 plus products and special PE solutions you can virtually repair all pipes. Quick, safe and simple!



## Tapping

Do you want to branch off on an existing pipe or make a bypass? The end users connected to the network should not experience any inconvenience. For this purpose GF Piping Systems offers an extensive package of universal tapping products, such as drilling tools, saddles and accessories to be able to tap under pressure or pressureless.



# Reliable systems for your gas application



### ELGEF Plus system

- High quality electrofusion joining technology from d20 mm – d2000 mm for a reliable connection
- Modular system with perfectly matching components for optimized storage and flexibility on construction site
- Safe and easy installation due to the proven system and corresponding machines and tools



### MULTI/JOINT 3000 Plus system

- The quick, safe and simple repair solution
- Max. 8° misalignment per socket end (16° for a coupling)
- Suitable for all pipe materials and reusable
- Applications for under and above ground use
- Restraint up to and including DN600
- Non restraint up to DN2200



### Spigot fittings

- Complete joining technology from one hand, including butt fusion machines
- Exclusively usage of PE100+ listed raw material
- No pressure derating factor
- Comprehensive portfolio from d20 up to d1200 mm
- Extensive range for electro- and butt fusion



### Electrofusion machines

- One machine for all dimensions
- Quality assurance thanks to traceability, GPS data collection and QR code function
- Wireless welding thanks to PDA (Type MSA 4.1)
- Management system for fusion protocols and pictures
- Big graphical display and icons for intuitive operation



### PE Valves

- Optimal flow geometry
- Long spigots for an easy installation
- Welded connection to PE pipes
- Pressure Tapping Valves up to d400-63 mm
- Ball Valves up to d225 mm



### Butt fusion machines

- CNC technology up to d630 mm
- Traceability function
- High security during installation due to automatic guided welding process
- Global network of authorized GF service centers

Services

# We serve your business

GF Piping Systems is aware of the fact that our promised performance does not end with a products' purchase or installation.

For us, it is important to provide individual support and application-oriented services along the entire lifecycle of your installation.





### Non-destructive testing of butt fusion joints and material

We provide NDT services during construction, as well as during operation of PE piping systems. This technique is used to evaluate the properties of the joint and the welded components. We provide reports to you of each test including statements (pass / fail) regarding the long term behaviour of the joints.



### Extended network documentation

Knowing exactly which components are buried in the ground and having clustered additional information of the component history is saving money for operation, maintenance and repair. We provide the proper tools for collecting, storing and analyzing component related information of your piping system. On construction site data logging is supported by the GF Trace App running on a PDA.



### Customizing and rental pools

Special fittings or prefabrication on request is what makes a solution your solution. Our customizing teams work closely together with our production and engineering specialists around the globe to develop the best solutions for you. In many countries, GF Piping Systems operates rental pools providing you machines and tools for various jointing technologies like butt fusion, electrofusion and mechanical connections.



### Global trainings

GF Piping Systems specialists are always close by. Worldwide, a comprehensive range of training courses is conducted by our local expert teams. The trainings are focused on methods with high practical relevance. Geared specifically toward your individual priorities as well as to your level of knowledge, our courses offer a high degree of quality and exclusivity. On site, instructing pipe fitters in the specific aspects of the installation prior to the actual construction work saves valuable time.

# The reliable and safe solution to make a branch

**The responsible use of energy resources is increasingly important in today's world. Policymakers, industry and business are now more than ever confronted with the challenge of sustainable energy management. On a regional or local level, cities and grid companies must take the targets of the national energy policy into consideration when supplying the public with energy. A secure supply, environmental and climate compatibility as well as economic efficiency all have high priority.**

Periodic maintenance and renovation work as well as a continual expansion of the network infrastructure are prerequisite for a secure regional and interregional supply. Having supplied the city with gas for over 160 years, GASAG represents an important part of Berlin's history. Together with the grid operator, NBB Netzgesellschaft Berlin-Brandenburg (NBB), GASAG maintains a distribution network of over 13 000 km in Berlin and Brandenburg, safely and reliably supplying over 170 cities and communities with energy, making it one of the largest local network operators in Germany.

## **Great system diversity for large dimensions**

Where pipes in large dimensions are concerned, plastic piping systems are the trend. It was therefore not surprising that GASAG/NBB relied and still rely on polyethylene (PE) pipes and fittings for the renovation of a 1000 mm cast iron pipeline in Berlin's city center, which was performed in the relining method. The construction work on the reference site was completed by the installation and engineering firm Märkischen Rohrleitungs- und Anlagenbau GmbH + Co. KG. Products from GF Piping Systems were used because the two companies had already worked together on similar projects with highly successful results. In addition, the

GF system for mains from d315 to d2000 mm and outlets in d160, d225, d315 and d500 offered more flexibility in the application than other systems.

## **Lateral connection much easier**

Connecting branch lines to existing pipes in large dimensions presents a particular problem in renovation projects. With the new ELGEF Plus branch saddle topload, creating required branch lines, particularly to lines in operation, is now easier, safer and more economical – even in situations where space is limited. The key advantage of the ELGEF Plus branch saddle topload is that it is based on the time-tested concept of the popular ELGEF Plus modular system. Modular and multidimensional system components, functional design and a self-explanatory installation principle are features which convince suppliers, pipeline constructors and installers alike. The peeling tool included in the installation set ensures the oxide layer is removed evenly and reproducibly in the fusion area during prepping. No more impractical and unreliable scraping by hand. The customer benefits from the quality of the system, the expertise of the installation partners and the close constructive cooperation of all involved in the project.



# MULTI/JOINT 3000 Plus DN50–DN600 restraint

**The first installation of the new restraint MULTI/JOINT 3000 Plus DN400 left a happy customer and a safe feeling.**

### Container storage terminal

For many years Rotterdam has been the biggest and best equipped port in the world. From all over the world millions of containers arrive here every year to be distributed over the rest of Europe. Before these containers can be on their way, they have to be stored at so called container storage terminals. From here they are transported further by truck, train or river vessel.

### Undesirable situation

One of these terminals is on an industrial estate in Tilburg. The owner of the container terminal recently purchased the lot from the municipality of Tilburg. However, a cast iron gas pipe DN400 runs through the ground below the containers. Heavy, stacked containers of which the contents are not always fully clear and a large underground pipe line are not the most desirable combination. Safety was at risk and an adequate solution needed to be found.

### Planned diversion

The gas company, responsible for the pipe line came with a solution. They decided to branch off the existing pipe line to a new one around the lot and to shut off the pipe line below the lot. In order to realize this diversion and disconnection a new valve group was needed. For this purpose the existing cast iron gas pipe DN400 had to make a restraint connection with a valve d315 via a cast iron reduction piece.

### Unexpected problem

Shortly before the planned date the gas company did a final check on all required materials and it turned out the DN400 coupling on site was not restraint. An unexpected problem. And the installation date could not be moved.

### Not a day too soon

The gas company contacted Georg Fischer N.V. to bring the recently introduced restraint MULTI/JOINT 3000 Plus DN400 into action. Thanks to the NBR seals the MULTI/JOINT 3000 Plus DN400 fittings can also be used in gas pipes up to 5 bar pressure. By mutual agreement it was decided to use a flange adaptor, combined with an FF-reduction DN400 x DN300.

### Work safely

The contractor was very experienced when it comes to the various systems of GF Piping Systems and he also had the necessary welding machines and certified personnel. However, the contractor obviously had no experience with the newly introduced restraint MULTI/JOINT 3000 Plus DN400 yet. With hindsight they were particularly happy with not only the easy installation, but also with the lifting eye on the flange adaptor. Considering the weight of the flange adaptor, the lifting eye made lifting the flange adaptor off the pallet and lowering it into the trench a lot safer. Soon after introduction of the new dimensions DN350 and DN400 MULTI/JOINT 3000 Plus all those involved could look back on a successful installation of the first DN400 restraint fitting.

# Worldwide at home

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

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