

# Specialized insight

Performance assured, for your peace of mind



# Performance assured, for your peace of mind

We help you prevent damage before it occurs. GF Piping Systems provides different ways of assessing whether a piping system is going to be working properly in the future.

We offer two systems that deliver steadfast data about the status of your system, based on science, giving you peace of mind for your operation at all times. Ultrasonic NDT (Non-Destructive Testing) provides testing options at the point of installation, while Pipe Condition Assessment can be employed during operation to acquire real data about the state of piping systems.

More than 60 years of experience in the field of plastics as well as the technical equipment in our materials and accredited testing laboratory allow us to make a detailed assessment of the physical and chemical processes during the plastic aging process.

### Testing before installation

When installing a system, the most critical parts are going to be the weldings – often seen as the weakest point of a system and highly critical to a safe and reliable operation. With Ultrasonic NDT, you can proceed with assurance thanks to scientific proof that the welds are secure.

### Status update

If a system has been running for several years, the wear on its materials needs to be checked in order to ensure operation can continue. Pipe Condition Assessment helps you plan your maintenance and know if everything is going according to schedule. Thanks to innovative testing and analysis methods, we are able to perform a condition assessment to estimate the remaining lifetime.

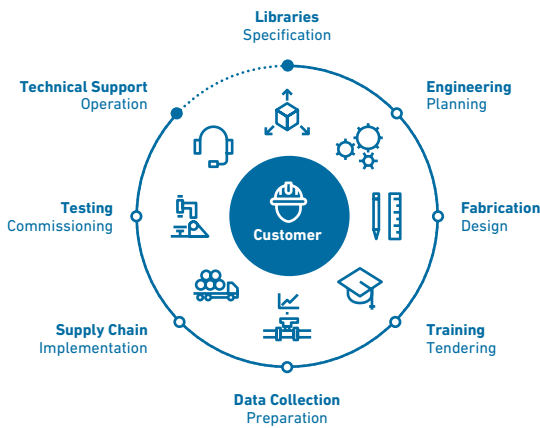




# Condition Analysis

Specialized insight

## Specialized Solutions



**With Specialized Solutions, the global leader GF Piping Systems provides project support every step of the way to achieve construction excellence.**

Condition Analysis is a critical step in the Specialized Solutions range by GF Piping Systems, applicable to commissioning and operation. GF Piping Systems provides peace of mind with scientific testing, avoiding possible damage to your system and helping plan maintenance.

GF Piping Systems supports the conception and design process of a project from the outset to ensure that a sustainable and efficient solution is achieved. Whether in the selection of the right plastic solution from our extensive portfolio, the management of complex sub-projects, or quality control based on recognized international standards - you can benefit from Specialized Solutions for all application areas and references from a wide range of industries across the entire product range.

## Benefits for your business

# 1

### When integrity of the piping is essential

We ensure constant operation for water, gas and chemical applications.

# 2

### Peace of mind

Samples are inspected in our state-of-the-art testing laboratory.

# 3

### Resolve threats to your assets

Receive the necessary information to make informed decisions during the design, operation and maintenance of your installation.

# 4

### A proven supplier and a name you can trust

We are a plastic piping application specialist with 60+ years of experience.

# Ultrasonic NDT: Fast, safe and proven

Until now, it was impossible to measure weld quality in plastic piping systems without destroying the welding. Owners face the decision to replace welds that may actually be fine or accept the risk of failure. NDT uses ultrasound scans to detect any potential defects and an advanced algorithm based on long-term data (25-year simulation) to evaluate the risk.

## Fit for service

Along the journey that goes from finalizing the installation to the commissioning of a project, uncertainty about the final performance of the installation generates severe stress for contractors, due to the vast economic and reputational impact the appearance of leakages in a brand new installation might have on their organization or company.

Previously, providing an assertive and reliable quality check for a plastic piping installation was no easy task. A typical pressure test does not provide any information on the long-term performance of the installation, while destructive testing, does not add any certainty about the quality of other welds that are not tested. In our approach to total quality management, we have developed the first Ultrasonic NDT solution for plastics, with a 'pass' or 'fail' statement, regardless of material (HDPE 100, RC, PP) and type of fusion (Butt Fusion, Electro Fusion, Infrared). A solution that enables you the certainty you deserve, when closing a trench or installing a pipe in your plant.



Scan butt fusion welds with our customized ultrasonic sensors

**1 in every 300 welds fail every year due to improper installation.\***

**€1M is spent on average, between direct and indirect costs, to repair a leakage in a gas pipeline.\***

**One failure compromises the whole application: on average 19 new incidents due to initial issue.\***

\* Evaluation of socio-economic costs related to noise from underground infrastructures in Quebec (Polytechnique Montreal & Cirano - Research Report, 2015)

# World's first unique algorithm for weld assessment

After five years of process development, and 25 years of materials research in our laboratory located in Switzerland, our engineers have been discovering and cataloging the infinitesimal changes linking indications in welds and long-term fate of the weld strength.

As a result, they were able to develop a world's first state-of-the-art assessment weld algorithm, that identifies those indicators in the welds, and links them within seconds with a long term fate of the weld strength.

## How does Ultrasonic NDT work?

Our field inspectors visit your construction site, looking for any indication in your welds, down to the millimeter, using various ultrasonic techniques (TOFD, PAUT) and patented advanced field equipment.

If existing, they measure, locate and save these indications in a field report. The report then feeds the assessment algorithm, resulting in a clear "Pass" or "Fail" statement.

When the welds are approved, you can close the trench, with complete peace of mind.

## Benefits

1

### 100% Objective

Thanks to our weld assessment algorithm.

2

### Increase quality

Pass or fail "Fit for Service" weld report with extended weld warranty if passed.

3

### Improve safety

Expert assurance from 60+ years of thermoplastics experience.

4

### Save money

Between 20-30 weld tests per day, increasing efficiency and reducing site costs.

5

### Extend operating life

Increase of life expectancy of ecoFIT / PROGEF piping system.



# Pipe Condition Assessment

Pipe Condition Assessment is important for the carefree operation of plastic piping and helps plan maintenance and repair work, avoid failures and minimize revenue losses. 60 years of experience and Swiss quality testing will provide you with the security that is required to proceed.

## Getting it right

When is the right time to replace a plastic pipeline? Any piping material will show signs of fatigue after decades of everyday use. If worn pipes are not replaced in time, serious damage can occur. In contrast, if pipes are replaced too early, this can be disadvantageous from an economic point of view. The experience at GF Piping Systems provides you with the right answer.

Whether it be water, gas or chemical pipelines, safety and a long service life are our priority. The Pipe Condition Assessment testing procedure at GF Piping Systems is thorough, providing reliable results with no room for uncertainty. Three sections of a pipe need to be submitted for examination, with weld or solvent joints included in the investigation.

## All bases covered

We offer a number of different testing packages, with the option to have further tests and dimensions available upon request. From the findings, we can deliver conclusions about the status of the piping system and give a recommendation for further operation of the system.



## Test duration

4 - 6 weeks

## Materials

Polyolefins (PE/PP/PB), PVC-U/C, ABS and PVDF

## Techniques

- Dimension check
- OIT (Oxidation Induction Time)
- DSC test (Differential Scanning Calorimetry)
- Vicat test
- MFR test (Melt Flow Rate)
- FTIR spectroscopy
- Internal pressure test
- Microscopic analysis
- Assessment of results
- Test report
- Three sections of piping required to be sent to GF Piping Systems experts for testing purposes

Pipe diameters and media transported can affect the applicable technique options.

## Benefits

1

### Easily plan maintenance & repair works

Unnecessary maintenance works are avoided and repairs can be planned easily with optimal timing for the best possible economic efficiency.

2

### Avoid any operation downtime

Damage or failure of a system is avoided and parts are replaced in time.

3

### Maximum use of piping system obtained

A thorough testing method allows accurate assessment of current status, including if and when replacement is needed.

## Next steps

This brochure has provided important information about the Specialized Solutions we offer. But nothing replaces a personal conversation with an expert from GF Piping Systems. It is all about your needs and how we can support you with your specific projects.

If you have not already done so, make an appointment today.

On the GF Piping Systems website you will find specialized contact persons in your area. There you will also find further information on the individual solutions, including technical data sheets and operating instructions as well as relevant certificates and approvals.

Get your appointment with an expert from GF Piping Systems to tailor a solution to your needs.

More information at:  
[gfps.com/condition-analysis](https://gfps.com/condition-analysis)

Get in touch with us:  
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