Revolutionising the way energy is transported

Advanced flexible pipeline systems for oil, gas and water

VERSION: February 2025

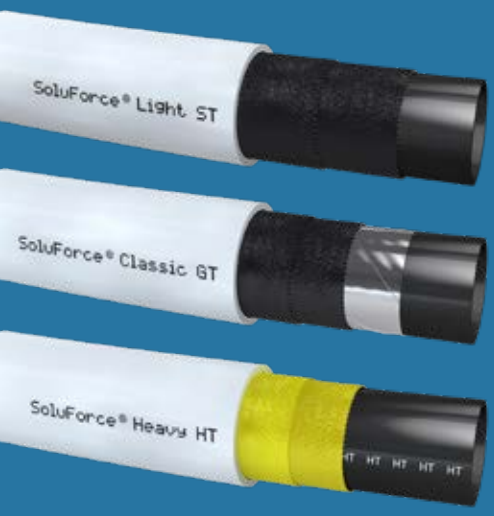
SoluForce®

Flexible solutions for tough economic conditions

'We want to help you cut your costs and make your operation safe, durable and more efficient. And we do.'

The SoluForce Flexible Composite Pipe (FCP) system is available in three types:

- SoluForce Light: 36-45 Bar 522-653 psi
- SoluForce Classic: 90-113 Bar 1305-1639 psi
- SoluForce Heavy: 388-466 Bar 5627-6759 psi



Within these types we offer the following versions:

- **ST** (Standard): Standard high performance FCP
- **GT** (Gas Tight): True permeation tight FCP
- **HT** (High Temperature): True permeation tight FCP, available with SoluForce Heavy with design temperatures of 105°C / 220°F

Our clients move hydrocarbons and water from point A to point B in the harshest environments on Earth. They use our system onshore and offshore for oil and gas pipelines, flow lines, water injection lines and effluent pipelines.

SoluForce® is the originator and technological leader in the research, development, manufacture, supply and installation of Flexible Composite Pipes (FCP, also known as Reinforced Thermoplastic Pipes or RTP).

The SoluForce pipeline is completely flexible, meaning it can go round corners, up hills, down slopes, across gullies, under water and more, with ease.

Being non-metallic, it is fully corrosion resistant and quick and simple to install. Our solutions further include a corrosion-resistant fitting system that makes it easy to connect our pipe systems to existing pipeline infrastructure. We can provide certified installation engineers, plus training and support through the SoluForce Academy. Installation equipment can be supplied to certified users.

The SoluForce system

	TYPE:	Ø Inch	PRESSURE*: BAR / psi	DESIGN TEMPERATURE: °C / °F	RECOMMENDED USE: Water	Hydrocarbon	Offshore
SoluForce Light							
ST	L450 ST	4	45 / 653	85 / 185	O	O	
	L540 ST	6	36 / 522	85 / 185	O	O	
GT	L450 GT	4	45 / 653	85 / 185	O	O	
	L540 GT	6	36 / 522	85 / 185	O	O	
SoluForce Classic							
ST	M480 ST	4	113 / 1639	85 / 185	O	O	O
	M570 ST	6	90 / 1305	85 / 185	O	O	O
GT	M480 GT	4	113 / 1639	85 / 185		O	O
	M570 GT	6	90 / 1305	85 / 185		O	O
SoluForce Heavy							
ST	H415 ST	4	466 / 6759	85 / 185	O	O	O
	H515 ST	6	388 / 5627	85 / 185	O	O	O
GT	H415 GT	4	466 / 6759	85 / 185		O	O
	H515 GT	6	388 / 5627	85 / 185		O	O
HT	H415 HT	4	466 / 6759	105 / 225	O	O	O
	H515 HT	6	388 / 5627	105 / 225	O	O	O

ST **Standard:** Standard high performance FCP
GT **Gas Tight:** The industry's only true permeation tight FCP
HT **High Temperature:** Available with SoluForce Heavy with design temperatures of 105°C / 220°F

* Pressures are specified according to API15S with the LCL_{RCRT} for the synthetic reinforced SoluForce Light and Classic and $P_{burst,min}$ for the steel wire reinforced SoluForce Heavy. Please contact us or see our technical data sheet for more information about the specifications.

SoluForce Gas Tight (GT): The industry's only true permeation tight FCP solution.
SoluForce High Temperature (HT): Pushing the boundaries even further at temperatures of up to 105°C / 220°F.

SoluForce FCP systems include a full fitting solution that has been specifically designed to work with SoluForce pipes.

SoluForce Flexible Composite Pipe (FCP) solutions are comprehensive yet economic. For example, you can opt for pipes-and-fittings only, or extend this with a range of services and support. These include installation equipment for rent or purchase, and training of international and local workforces in the use of the SoluForce system. All so you can speed up installation and reduce your labour needs – safely. SoluForce can assist with project management and finding the right people for your project. Or a combination of the above.

SoluForce FCP systems come in ***Light*** (low to medium-pressure), ***Classic*** (medium to high-pressure) and ***Heavy*** (extreme high-pressure) types. They are all fully resistant to all chemicals involved with hydrocarbons and water injection, and suitable for extreme sour and saline applications. SoluForce FCP are ideally suited for gas, hydro-carbon, water, and multiphase uses. Our pipes have a smooth bore, which ensures a much lower flow-resistance and improved flow capacity.

In addition to our conventional high performance FCP, we offer ***Gas Tight (GT)*** versions for all SoluForce types and a ***High Temperature (HT)*** version of SoluForce Heavy. They all have exactly the same specifications as Classic or Heavy types, but with some unique added benefits.

SoluForce Gas Tight (GT)

This is the true permeation tight flexible pipe solution for the oil and gas industry. These special extensions to the portfolio have been developed for a wide range of gas applications, from wet gas directly from a well, to the transportation of gas from marginal fields.

With a unique bonded aluminium layer, light components and gasses cannot permeate out of the SoluForce GT pipe. Unlike other flexible pipe designs, no venting of permeated gases is needed, resulting in a reduction of installation and maintenance costs.

SoluForce High Temperature (HT)

Our HT solution pushes the boundaries even further at design temperatures of 105°C/221°F. A unique, high temperature, FCP qualified for high pressure gas, hydro-carbon, water, and multiphase applications, our SoluForce Heavy HT has a design temperature of 105°C/220°F – a level of performance unmatched by any other flexible composite pipe available today.

Reliable **water** solutions are central to profitable operation

High-quality SoluForce flexible composite pipeline systems are typically used in these oil and gas-related applications:

- **High-pressure water injection**
- **Water transport solutions**
- **Effluent water disposal**
- **Water distribution lines**
- **Temporary surface lines**

Economic pipeline systems for water injection and disposal

Water injection has long played a key role in increasing the productivity, life-expectancy and profitability of onshore and offshore wells. When profits are under pressure, maintenance, repairs and downtime can turn a profitable field into a financial burden. SoluForce has the technology and know-how you need to avoid this. SoluForce pipeline systems for water are durable, sustainable, fast to install, maintenance-free and have a design life of up to 50 years.

SoluForce offers a range of solutions for the high-pressure transportation of water. Featuring polyethylene liners and metal-free fittings, our pipeline systems are durable – they cannot corrode – high quality, fast and easy to install over ground or in trenches, making them efficient, cost-effective and built for the long term.

All SoluForce flexible composite pipeline systems can use metal-free fittings, couplings and connectors. Therefore, our pipeline systems are resistant to all chemicals involved in injection applications, including:

- H_2S
- CO_2
- Strong inorganic acids like HCl and H_2SO_4
- Strong alkaline materials, including NaOH, KOH and NH_2 solutions
- Anti-corrosion additives
- Mineral salts

SoluForce Heavy pipes can withstand very high pressures and are ideal where the need to operate at high pressures is a priority.

A low OPEX pipeline made for jungle conditions

When a major American gas operator needed to lay water injection flow lines in the jungles of central Sumatra, Indonesia, there was only one solution. Extremely difficult, tough, environmentally sensitive ground conditions and near 100% humidity pose no problems for SoluForce's non-corrosive, flexible composite pipeline systems.

The 24 km of SoluForce Heavy pipeline (needed to handle pressures of 2200 psi), was laid by local people trained by SoluForce. The pipes' low weight made them significantly easier to handle and transport in remote jungle conditions, and the very small footprint kept the ROW to a minimum, so that only a few trees had to be cut. And with no need for corrosion inhibitors or cathodic protection, the result is a low OPEX water injection system in a highly demanding environment.

SoluForce pipeline systems:

The durable choice for high-pressure water transportation

Because the transported water never comes into contact with metal parts, SoluForce provides the ideal answer for high-pressure water transportation. With metal-free fittings and polyethylene liners they cannot corrode and are built for the long-term. A true 'install and forget' water transportation solution.

SoluForce Light: L450/L540 (ST/GT)

SoluForce Light provides an excellent, flexible and low cost solution for low to medium-pressure water transportation. Because the entire system is non-metallic, it will not corrode or scale. SoluForce Light is reinforced with synthetic fibre tape and has an LCL_{RCRT} pressure of 45 bar/653 psi for the 4-inch L450 and 36 bar/522 psi for the 6-inch L540 pipe. SoluForce Light shares exactly the same resistance to chemicals as all other SoluForce solutions.

SoluForce Classic: M480/M570 (ST/GT)

SoluForce Classic is the ultimate flexible solution for medium to high pressure water transportation. The system is fully non-metallic, so the water cannot come into contact with any metal. Reinforced with synthetic fibre tape, it has a LCL_{RCRT} pressure of 113 bar/1639 psi for the 4-inch M480 and 90 bar/1305 psi for the 6-inch M570 pipe. Being fully metal free, it is ideal for even the toughest applications. With SoluForce Classic, it is possible to uprate the maximum pressure in line with the maximum ambient and/or fluid temperature under which the pipeline will operate.

SoluForce Heavy: H415/H515 (ST/GT/HT)

SoluForce Heavy is designed to handle extremely high pressures that are common with water transportation or injection. Reinforced with high-strength steel wire, SoluForce Heavy has a $P_{burst,min}$ pressure of 466 bar/6759 psi for the 4-inch H415 pipe and 388 bar/5627 psi for the 6-inch H515 pipe. The HT version has a design temperature of 105°C/220°F.

As the SoluForce Heavy FCP is reinforced with steel wire, it has certain limitations regarding fluid composition. See the technical data sheet or contact us for more information.

All SoluForce products are resistant to all chemicals involved in water transportation, including:

- H_2S
- CO_2
- Strong inorganic acids like HCl and H_2SO_4
- Strong alkaline materials, including
- NaOH, KOH and NH_3 solutions
- Anti-corrosion additives
- Mineral salts

Economics, safety and speed are more important than ever in **hydrocarbon** production

High-quality SoluForce flexible composite pipeline systems are typically used in these onshore hydrocarbon applications:

- **Oil and gas flow lines**
- **Oil and gas gathering lines**
- **Gas pipelines**
- **Gas condensate**
- **Multi-phase pipelines**
- **High-pressure water injection pipelines**

Economic pipeline systems for onshore oil and gas

Fluctuating prices, unconventional sources and growing environmental pressures mean safety, economics and speed are an even higher priority for the oil and gas industry. SoluForce pipeline systems meet these requirements. Our transportation solutions are durable, do not require corrosion inhibitors and are easier to dewax than metal pipelines.

They don't crack, break or leak. They have a service life of up to 50 years.

They are up to 10 times lighter than their steel equivalents (and therefore much easier to handle), quicker to install, maintenance free, reusable - and they can be recycled. Resulting in significantly lower OPEX and TCO compared to alternatives.

Whether you need to deploy a network in physically challenging terrain or move highly corrosive fluids at high pressure, or both, SoluForce pipeline systems have your needs covered. Our hydrocarbon pipes and pipes for high-pressure water injection lines feature polyethylene liners and non-metallic fittings. These ensure the durability of the complete system.

Pushing the boundaries even further, our SoluForce Heavy HT pipe (High Temperature) has a design temperature of 105°C/220ºF – a level of performance unmatched by any other flexible composite pipe available today. SoluForce GT pipes (Gas Tight) have been specially developed for high-pressure gas applications and completely eliminate permeation of components like H_2S, methane and BTX.

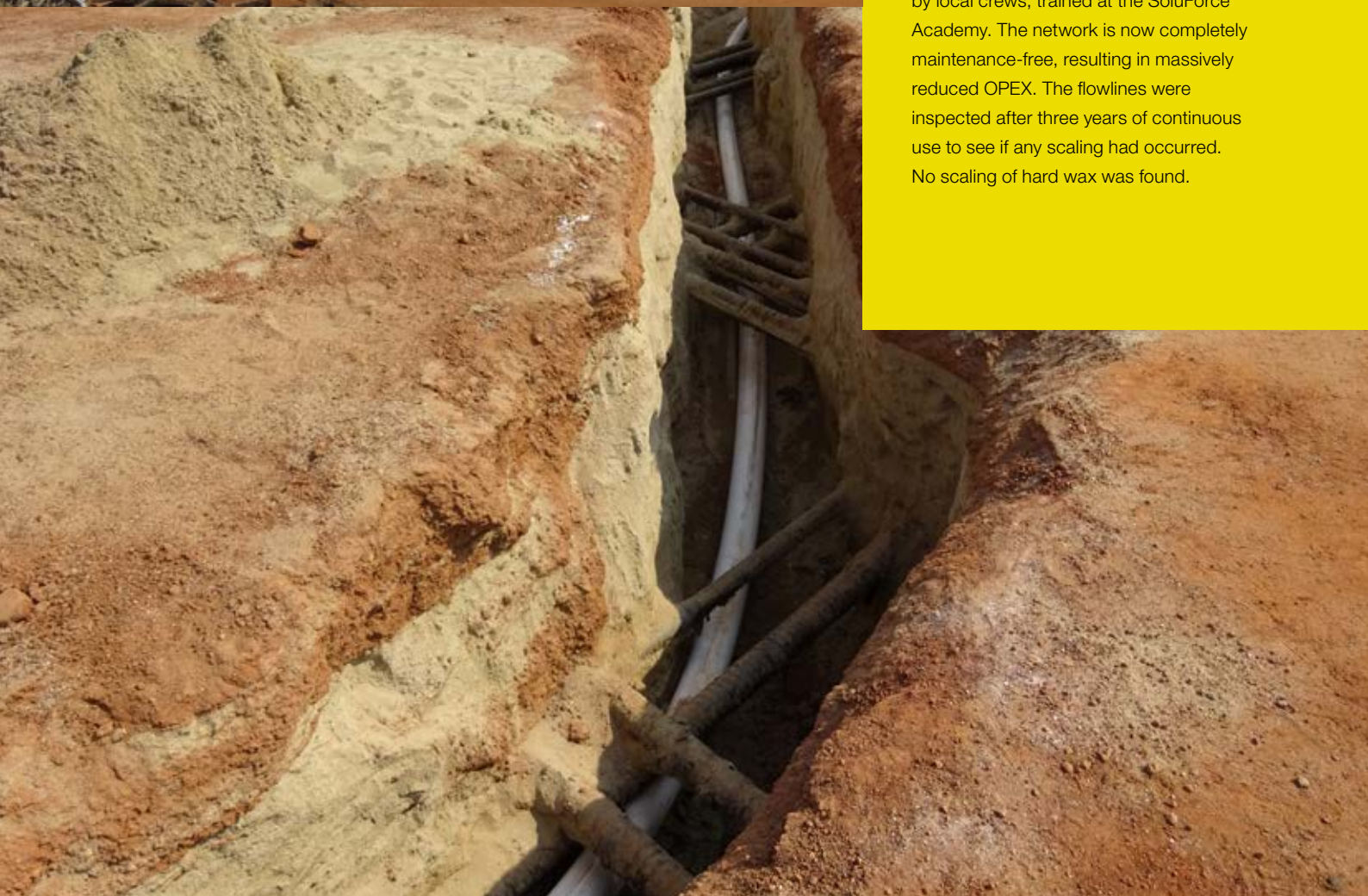
All SoluForce flexible composite pipeline systems use metal-free fittings, couplings and connectors. Our pipeline systems are therefore resistant to all chemicals involved in oil and gas production and extreme sour environments, including:

- H_2S
- CO_2
- Strong inorganic acids like HCl and H_2SO_4
- Strong alkaline materials, including NaOH, KOH and NH_3 solutions
- Anti-corrosion additives
- Mineral salts

A pipeline network that requires no maintenance

A Thai oil company was experiencing extreme corrosion issues in an oilfield. The multiphase well fluids were so corrosive that carbon steel pipes had a service life ranging from six weeks to a maximum of one year before they needed to be replaced. High wax and high chloride content (totalling in excess of 80%) made the flowlines very difficult to operate without problems. When the company needed a non-corroding and maintenance-free pipeline system, there was really only one viable solution. The advanced flexible composite pipeline system from SoluForce met all the requirements.

The flowline was laid at an average rate of 2 km a day. Installation was performed by local crews, trained at the SoluForce Academy. The network is now completely maintenance-free, resulting in massively reduced OPEX. The flowlines were inspected after three years of continuous use to see if any scaling had occurred. No scaling of hard wax was found.



SoluForce pipeline systems:

The reliable choice for onshore oil and gas

SoluForce Flexible Composite Pipes are ideal for transporting hydrocarbons and moving injection fluids across every terrain. They are fast, easy and cost-effective to install, and they feature a complete, non-corrosive coupling system. The product range is tailored to suit a variety of needs in onshore oil and gas production, and transportation.

SoluForce Light: L450/L540 (ST/GT)

SoluForce Light provides an excellent, flexible and low cost solution for low to medium-pressure hydrocarbon transportation. Because the system is fully non-metallic and has an incredibly smooth inside surface, the pipeline system will not corrode or suffer from scaling. SoluForce Light is reinforced with synthetic fibre tape and has a LCL_{RCRT} pressure of 45 bar/653 psi for the 4-inch L450 and 36 bar/522 psi for the 6-inch L540 pipe.

SoluForce Classic: M480/M570 (ST/GT)

The SoluForce Classic and Classic GT (Gas Tight) pipes are both designed with the needs of hydrocarbon transportation in mind. The SoluForce Classic is reinforced with synthetic fibre tape and has a LCL_{RCRT} pressure of 113 bar/1639 psi for the 4-inch M480 and 90 bar/1305 psi for the 6-inch M570 pipe. Being fully non-metallic, it is ideal for even the toughest applications, such as sour oil service without restrictions on H_2S and CO_2 content. The SoluForce Classic GT contains an aluminium barrier layer to completely stop the permeation of hazardous and toxic components like BTX and H_2S.

SoluForce Heavy: H415/H515 (ST/GT/HT)

SoluForce Heavy, Heavy GT (Gas Tight) and Heavy HT (High Temperature) are reinforced with high strength steel wire. They can withstand extremely high pressures and have a $P_{burst,min}$ pressure of 466 bar/6759 psi for the 4-inch H415 pipe and 388 bar/5627 psi for the 6-inch H515 pipe. The HT versions have a design temperature of 105°C/220°F.

All SoluForce products are resistant to all chemicals involved in water transportation, including:

- H_2S
- CO_2
- Strong inorganic acids like HCl and H_2SO_4
- Strong alkaline materials, including NaOH, KOH and NH_3 solutions
- Anti-corrosion additives
- Mineral salts

Making marginal fields economically viable is a huge, easy-win opportunity in **offshore**

High-quality SoluForce flexible composite pipeline systems are typically used in these offshore oil and gas applications:

- **High-pressure water injection lines**
- **Oil and gas transportation flow lines**
- **Gas and oil gathering lines**
- **Well intervention**
- **Landing/ export lines**

Economic pipeline systems for offshore oil and gas

As the easier to exploit oil and gas fields become scarce, the industry focus is increasingly turning to deepwater drilling. But there is another opportunity: making shallow-water fields that are now barely viable cost-effective. And just as in deepwater drilling, innovation is the key. SoluForce pipeline solutions are at the forefront in helping the industry exploit marginal fields profitably.

When it comes to making marginal offshore oil and gas fields economically viable, SoluForce pipeline solutions offer a number of advantages over steel and other flexible options. Light, strong, durable and reliable – and with shorter lead times – our pipeline systems are perfect for connecting marginal wells to nearby platforms, thus eliminating the need for new drilling platforms. They are quicker, easier and cheaper to deploy, requiring no welding, no hot permits and no need for specialist pipe-laying barges.

SoluForce pipeline systems are completely corrosion resistant – even in extreme sour service. SoluForce pipes can be used unfilled and unpressurised at a maximum depth of 80 metres/260 feet. Fluid filled, they can be used in much deeper water. SoluForce pipelines have been used as a temporary test line at a water depth of 1000 metres/3280 feet.

All SoluForce Flexible Composite Pipeline systems use metal-free fittings, couplings and connectors. Our pipeline systems are therefore resistant to all chemicals involved with oil and gas applications, including:

- H_2S
- CO_2
- Strong inorganic acids like HCl and H_2SO_4
- Strong alkaline materials, including NaOH, KOH and NH_2 solutions
- Anti-corrosion additives
- Mineral salts

An inter-field connection with low CAPEX and no OPEX

A French oil company was looking for a straightforward, reliable, cost-effective and easy-to-deploy solution to connect two of its fields off the coast of west Africa. The perfect project for a SoluForce solution.

SoluForce pipeline systems are ideal for anyone who wants to minimise CAPEX and eliminate OPEX in offshore production. The 8.8 km SoluForce Classic pipeline system was laid in less than two days, at an average speed of 5.5 km a day, and needed only one deployment carousel. It was assembled onshore, locally, and stabilised on the seabed, 40 metres down, using locally made concrete blocks. The capital costs were low, and being made of corrosion-free reinforced thermoplastics, the flexible composite pipeline system eliminates operational costs.

SoluForce pipeline systems:

The economic choice for offshore oil and gas

With its ease of installation, SoluForce is the perfect economical solution for offshore applications. Because offshore oil and gas is an especially demanding industry, we work directly with oil operators, subsea contractors, engineering companies and industry suppliers to provide the added value required to run complex projects successfully.

Our solutions for offshore are based on our SoluForce Classic and SoluForce Heavy pipeline systems, and we would be happy to advise you on the various options and possibilities.

SoluForce Classic: M480/M570 (ST/GT)

The SoluForce Classic and Classic GT (Gas Tight) pipes provide the most economic offshore FCP solution available today. The SoluForce Classic is reinforced with synthetic fibre tape and has a LCL_{RCRT} pressure of 113 bar/1639 psi for the 4-inch M480 and 90 bar/1305 psi for the 6-inch M570 pipe. Being fully non-metallic, it is ideal for even the toughest applications, such as sour service. The SoluForce Classic GT contains an aluminium barrier layer to completely stop the permeation of hazardous and toxic fluid components like BTX and H_2S. Both pipes provide an excellent, flexible solution for medium-pressure fluid transportation offshore.

SoluForce Heavy: H415/H515 (ST/GT/HT)

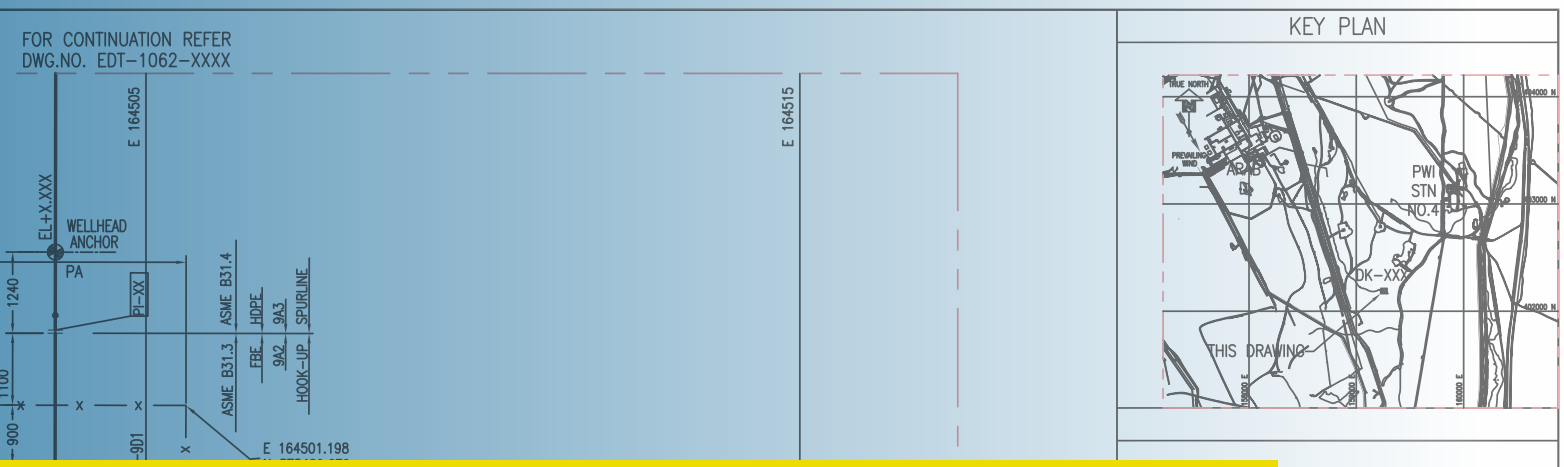
SoluForce Heavy, Heavy GT (Gas Tight), Heavy HT (High Temperature) are all reinforced with high strength steel wire. This makes them ideally suited for extreme high pressures, high axial loads and dynamic operations which are typically found in offshore applications. They have a $P_{burst,min}$ pressure of 466 bar/6759 psi for the 4-inch H415 pipe and 388 bar/ 5627 psi for the 6-inch H515 pipe. On top of this, the HT versions have a design temperature of 105°C/220°F.

All SoluForce products are resistant to all chemicals involved in water transportation, including:

- H_2S
- CO_2
- Strong inorganic acids like HCl and H_2SO_4
- Strong alkaline materials, including
- NaOH, KOH and NH_3 solutions
- Anti-corrosion additives
- Mineral salts

SoluForce **Academy**: Knowledge sharing platform with local content training

The SoluForce Academy offers specific training modules for all our flexible composite pipe and fitting systems, from the high tech CNC controlled electro fusion system to the high-pressure double swage fitting. This training removes your dependency on other parties for project planning and equipment, and allows you to make quick repairs as necessary.



Training and support to make installation easy

Depending on your situation, we can send a SoluForce technician to support installation work, or we can train local contractors to install the system. Just tell us what you need.

The SoluForce Academy offers training for your international staff, plus local-content training, to ensure your SoluForce system is installed safely, quickly and in a way that will ensure its long-term durability. This means that your own local crew will be able to install and use the SoluForce pipe-line systems, so you won't be dependent on other parties.

Knowledge sharing platform

The SoluForce Academy is a global community of certified SoluForce installers, operators engineers, inspectors and end-users. As a knowledge sharing platform it aims to contribute to the safe and consistent installation and operation of SoluForce systems. Moreover, it allows our customers to access a large knowledge base about SoluForce FCP pipe usage, installation, maintenance and inspection. In doing so, it facilitates knowledge generation, sharing and discovery.

With multiple SoluForce Service Centres around the world, the SoluForce Academy can provide customers with information, support and training on location at short notice.

Training modules

To train contractors, operators, end-users and engineers, the SoluForce Academy organises courses and workshops. Through the use of different training modules, the Academy caters to the needs of specific user groups. With a combination of theory and practice and consisting of different topics, from HSE to the installation of the fitting system, each user group knows exactly what to do in a variety of situations. Moreover, by providing mandatory refresher courses, certified SoluForce professionals are always up-to-date in their skills and knowledge. This guarantees the quality, reliability and safety of SoluForce solutions.

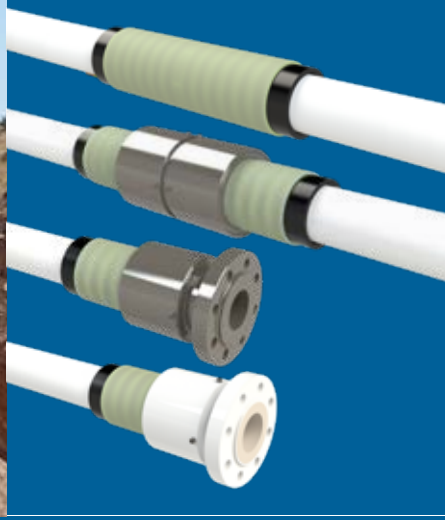
The right connection every time

SoluForce FCP systems include a full fitting solution that is specially designed for the various versions of the system. For the Light, Classic and Heavy pipe systems, a non-metallic electrofusion connection system is available. For the Heavy pipe system, we offer a single swaged and a high performance double swage connection system.

Our services also include providing dedicated SoluForce installation equipment. The equipment, which can be rented as well as purchased, is state of the art, easy to handle and robust. The equipment, in combination with the SoluForce Academy guarantees that all couplings and fittings are installed in a way that is controlled, consistent and correct.

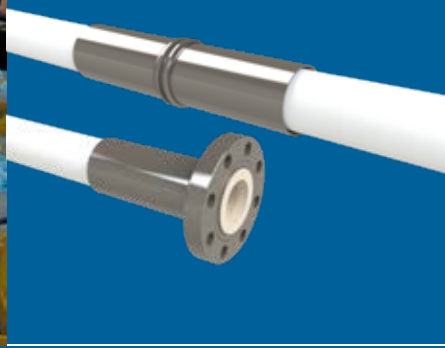
Electrofusion equipment

A Electrofusion fittings



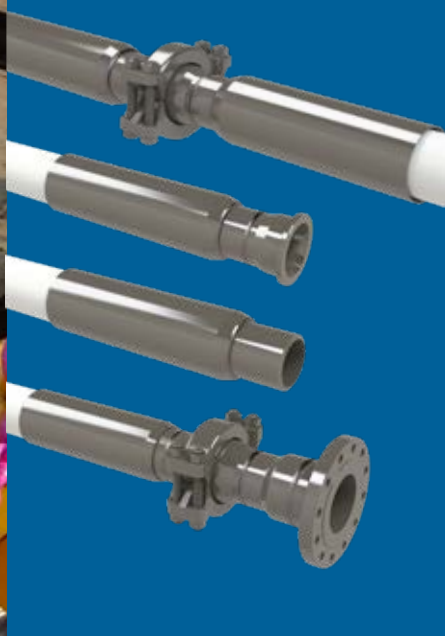
Single swage equipment

B Single swage fittings



Double swage equipment

C Double swage fittings



Full fitting solution for every application

A Electrofusion fittings

The non-metallic fittings and connectors used with the SoluForce Light, Classic and Heavy systems rely on electrofusion. Electrofusion welding of the coupling gives it strength and durability. By using a non-metallic insert, the fluid never comes into contact with metal parts, resulting in a completely metal-free pipeline system. Electrofusion requires only limited equipment and crew to create a safe connection. It's quick and proven to be maintenance-free and durable.

Electrofusion inline couplings:

- Can be used with SoluForce Light and Classic
- Fully non-metallic thanks to a combination of butt-welding and electrofusion

Electrofusion end fittings with steel flanges:

- Can be used with SoluForce Light, Classic and Heavy (up to 125 bar/ 1813psi)
- End flange with an electrofusion connection to the pipe
- Due to a non-metallic insert there is no direct contact between fluid and metal parts, corrosion free
- Available in 316 stainless steel RF 600#
- RF and RTJ flanges, available in different alloys and ratings

Electrofusion pipe-to-pipe connector:

- Can be used with SoluForce Light, Classic and Heavy (up to 125 bar/ 1813 psi)
- A metal pipe-to-pipe connector with electrofusion end-fitting.
- Due to a non-metallic insert there is no direct contact between fluid and metal parts, corrosion free.
- Easy and quick to (dis)assemble

Electrofusion end fitting with weld stub:

- Can be used with SoluForce Light, Classic and Heavy (up to 125 bar/ 1813 psi)
- Available in different schedules
- Ideally suited for gas operations

SoluForce electrofusion equipment

- Create a leak-tight connection by butt fusion welding of the liner pipe
- Fully automated electrofusion process
- Computer controlled CNC machine
- 100% traceability

B Single swage fittings

The SoluForce Heavy system employs swaged fittings for applications up to 150 bar/ 2175 psi. For onshore high pressure applications, our single swage fitting system, with non-metallic insert, is the fitting system of choice. The single swage system is fully corrosion free and combines high strength with cost effectiveness.

Single swage inline:

- Fully corrosion free due to non-metallic insert
- Easy and quick to install

Single swage pipe to pipe:

- Fully corrosion free due to non-metallic insert
- Easy and quick to (dis)assemble

Single swage end fitting:

- Fully corrosion free due to non-metallic insert
- Standard with swivel flange for easy connection

SoluForce single swage fittings:

- RF and RTJ flanges, available in different alloys and ratings

The SoluForce single swage machine

- Hydraulic pressure compresses the single swage fitting onto the SoluForce pipe
- Creates a high strength connection
- 100% traceability
- Lightweight equipment, easy to use

C Double swage fittings

For high performance and offshore operations, SoluForce offers the heavy duty double swaged fitting system, to be used in combination with SoluForce Heavy. This fitting system is optimised for extreme high pressures, high axial loads and dynamic operation. It's available with Grayloc connections, but weld stub and other user-specified connections are possible.

SoluForce double swage fittings:

- Connection by Grayloc, weld stub or customer specific fitting
- Available in stainless steel and duplex alloys
- Any flange type possible, connected to the fitting using Grayloc or weld stub

The SoluForce double swage machine

- Hydraulic pressure compresses the SoluForce pipe between the stem and ferrule of the double swage fitting
- Creates a connection for operating at high pressure and high axial load
- Fast, two-step process
- Specially designed for demanding environments
- 100% traceability
- Robust equipment, easy to use

Precision-manufactured in the Netherlands

SoluForce is the originator and technological leader in the research, development, manufacture, supply and installation of FCP systems (also known as RTP). As one of the first to develop FCP solutions, SoluForce maintains a large knowledge base and a strong R&D focus. Being at the forefront of FCP development, SoluForce is constantly expanding its knowledge base, improving its solutions and developing new ones.

Adding value for our customers and making their operation safe and more efficient

Our commitment to the environment

Environmental sustainability is central to plastic pipe technology. Mindful of the many communities we serve, Wienerberger companies and brands, including Pipelife and SoluForce, are committed to Corporate Social Responsibility. We take responsibility for the impact of our activities on the environment, consumers, employees and all other stakeholders in the public sphere. For more information about our commitment to CSR, please visit www.soluforce.com.

SoluForce was created in 1999 and is part of the Wienerberger group, a diversified building materials and pipeline specialist with revenues of over € 4.2 billion in 2023. Since its creation, SoluForce has been a leader in the development and manufacturing of Flexible Composite Pipe systems, with a strong focus on quality, safety and reliability.

SoluForce QA/QC

SoluForce pipeline systems are manufactured in Enkhuizen, the Netherlands, and are developed with constant improvement and innovation in mind. SoluForce pipeline systems focus on reliability, simplicity of installation and use, and, above all, safety. As a trusted expert in our field, the SoluForce brand stands for outstanding competence, extraordinary team spirit and visionary innovation.

Because the SoluForce system can be completely non-metallic, including the fitting system, they offer the ultimate solution in scaling and corrosion resistance. No corrosion or scaling inhibitor chemicals are needed. Their resistance to third party interference, earthquakes and landslides has been extensively proven and verified. Moreover, as a reusable system SoluForce FCP can be used over and over again.

Proven to be made to last

The SoluForce system has a solid track record in the oil and gas industry and has been in use since 2000. Since then, over 3,500km of SoluForce FCP pipes have been installed around the world, on and offshore, for a variety of applications. These include oil and gas utility pipelines, water distribution/injection lines, oil and gas transportation flow lines, and gas and oil gathering lines.

Certified by the world's leading verification societies

SoluForce is developed, manufactured and marketed under the ISO9001, ISO 14001 and API Q1 QA/QC systems, which is approved by KIWA.

The reliability of SoluForce is guaranteed by extensive lab testing and long-term field experience. To assess long-term strength, for example, SoluForce pipes are pressure-tested for over 10,000 hours – equivalent to more than one year – in line with internationally accepted standards.

Their resistance to third party interference, earthquakes and landslides has been verified in the lab by falling-weight impact testing, axial load and bending testing, all under the supervision of major oil companies. In-field impact testing with digging machines has shown that SoluForce delivers equal or better performance than conventional steel pipe.

Most importantly, SoluForce is field-proven. Our first flow lines were installed in the Middle East in 2000. These pipes have remained in service since then without interruption. In the meantime, SoluForce has been installed worldwide, both onshore and offshore, at major oil and gas companies. SoluForce has an excellent track record at various on and offshore oilfields around the world.

Quality assurance and quality control: SoluForce LLRTP's are developed and manufactured according to the API Q1 and ISO9001 Certified Management systems.

SoluForce maintains the highest levels of quality in the design, manufacturing and testing of all our products. As a result, they meet or exceed the various recognised international standards.

SoluForce products are manufactured according to the following standards:

- **Oilfield service**
  API 15S "Spoolable Reinforced Plastic Linepipe" (product requirement SoluForce Classic and SoluForce Heavy pipeline systems). API 17J "Specification for Unbonded Flexible Pipe" (product requirement SoluForce Heavy pipeline system).

- **Gas distribution and transport**
  ISO TS 18226 "Reinforced Thermoplastic Piping Systems for Gaseous Fuels" (SoluForce Classic and SoluForce Light, gas transport & distribution).

- **Qualification and certification**
  The design, testing and qualification of SoluForce is verified according to the applicable standards by ISO-accredited independent institutes. Bureau Veritas (BV) confirms that SoluForce Classic and Heavy comply with the product requirements of API 15S (Spoolable Reinforced Plastic Linepipe), for oilfield applications. Furthermore, Bureau Veritas and Det Norske Veritas (DNV) declare that SoluForce Heavy complies with API 17J (Specification for Unbonded Flexible Pipe) 3rd edition for sour applications.

Please contact us for more information about our qualifications and certifications.

SoluForce: this is why

SoluForce Flexible Composite Pipes deliver the benefits of next-generation technology right now. Our pipeline systems represent a significant improvement in the way water, oil and gas are transported around the world.

Durable, corrosion-free solution
SoluForce pipeline systems are resistant to all chemicals involved in the transportation of water and hydrocarbons and can be completely non-metallic.

Fast installation
Requiring only a small team and with a limited environmental footprint, SoluForce Flexible Composite Pipes are easy and quick to install.

No scaling or erosion
Smooth non-stick HDPE liner pipe (Darcy Weisbach surface roughness (e) 0.0015mm) prevents scaling and erosion from occurring.

Reusable
SoluForce Flexible Composite Pipes can be reused over and over again.

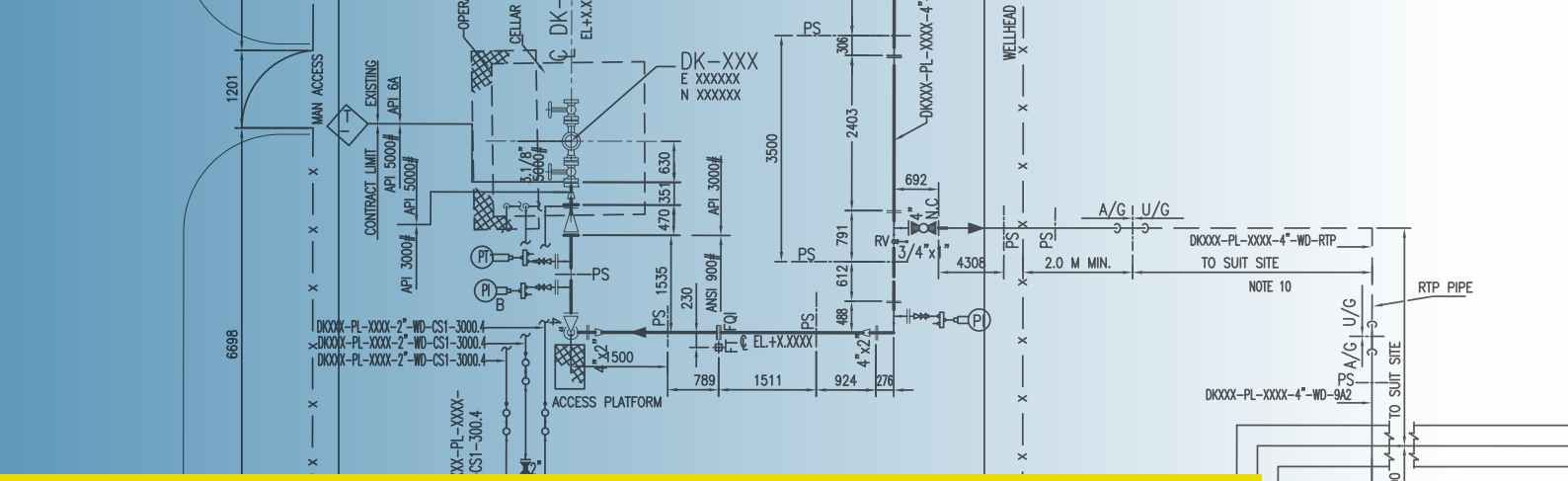
Maintenance-free
SoluForce Flexible Composite Pipes require no maintenance.

Design life of up to 50 years
The SoluForce pipeline system has a life expectancy of up to 20 years when surface installed and of up to 50 years when buried.

400-metre lengths per coil
With long-length and easy to handle coils, SoluForce drastically reduces transportation costs and installation time.

Extremely robust
The SoluForce pipeline system is designed to endure very heavy loads. This protects fluids in the SoluForce network from external influences and third party interference.

Professional installation training
SoluForce Academy offers extensive training programmes (locally or in the Netherlands) to certify local contractors for safe and reliable installation, operation, maintenance and inspection.



Technical specifications

See our Technical Data Brochure for detailed specifications of our Flexible Composite Pipeline systems.

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REVOLUTIONISING THE WAY ENERGY IS TRANSPORTED

SoluForce® is the originator of Flexible Composite Pipes. Our 100% metal-free pipeline systems and connectors for oil, gas and water are quick to deploy in challeging terrain. They go round corners, up hills, across gullies and under water. With ease. They last up to 50 years, maintenance-free. Plus we offer specialist installation equipment and support, including on-site training. Our customers are cutting their costs in the toughest physical and economic environments on Earth. Isn't it time you joined the revolution?

SoluForce®

www.soluforce.com
www.linkedin.com/company/soluforce/
info@soluforce.com

SoluForce B.V.
Flevolaan 7, 1601 MA Enkhuizen
The Netherlands
T +31 (0)228 355 688