ATAGOR

www.atagor.com

CATALOGUE OF PRODUCTS

ACTIVE AND PASSIVE CORROSION PROTECTION

GRP PIPES & FITTINGS

EDITION 2020

ATAGOR

Since 15 years we proudly operate as leaders in our trade. We employ a variety of advanced anticorrosive pipeline protection systems. We are proud that during that time we induced many technologies in gas and power industry, which became standards and significantly improved quality and safety of key installations.

- Inover Casing Filler technology which protects casing pipes
- Viscoelastic coatings with exceptional insulation capabilities
- Service repairs and pipeline reinforcement standards with use of composite materials
- PUPP first automatised method of mechanical protection of field joints, used in drilling technology

Our goal is to provide reliable and economic anticorrosion technology as well as mechanical protection of pipelines. More details regarding our anticorrosion systems on pages 3-14.

We also produce wide range of GRP (Glass fiber Reinforced Plastic) pipeline systems, which are made of two or more different materials, the qualities of which combine to provide superior strength. GRP pipes consist of vinylester resins, or unsaturated polyester, glass fiber pieces and reinforcing agents. More details of our scope of production and deliveries on pages 15-19.

ATAGOR TEAM

Inover Wax is cold-applied petrolatum tape that complies with PN EN 12068 standard for corrosion prevention on fittings and flange connections and in pipelines situated underground and in the water. System is built of T-Wax inner petrolatum tape, E-Wax external mechanical protection tape and M-Wax mastic for profiling the irregular shapes before application of the two tapes system.

Petrolatum tape is the world's first passive corrosion prevention system for pipelines – synonymous of permanent corrosion prevention. Atagor owns recipe of formulation, production and certification of whole Inover Wax components.

Special Advantages:

- ideal for the complex surfaces of pipeline components (flanges, screws, fittings and moving parts)
- high plasticity and flexibility
- re-useable
- for operating temperatures of -30°C to +55°C
- approved for stress class A 30 in accordance with DIN 30672 and EN 12068
- easiest manual processing
- reliable and permanent corrosion prevention




INOVER Casing filler

Benefits:

- stops the corrosion process (including microbiological corrosion)
- inside the casing pipe and outside the medium pipe
- absorptive gets rid of any electrolytes inside the casing pipe
- the constant plasticity of the mass eliminates any vibrations caused by ground oscillation
- doesn't interfere with cathodic protection, eliminates threats caused by stray currents
- a lasting barrier that prevents water from entering the casing pipe
- ecological safety-the mass is neutral for the environment, including groundwater and is atested by Hygienic Institute
- high adherence to steel and factory isolation

Range of use:

- a preventive solution for new pipelines, prevents electrolytes from entering the casing pipe
- rehabilitation of existing pipelines by eliminating electrolytic short circuits, and stopping the corrosion process

Corrosion protection coatings

BITUMEN BASED COATINGS

MOULDING PUTTY

EXTREME CORROSION PROTECION

INJECTION FILLER

VISCOELASTIC COATINGS

SUBSEA & SPLASH ZONE COATINGS

MONOTAPE AND TWO TAPES SYSTEMS

SHRINKABLE SLEEVES

PETROLATUM SYSTEM

UV RESISTANT COATINGS

PUR POLYURETHANE COATINGS

Spray coatings for securing underground pipeline infrastructure

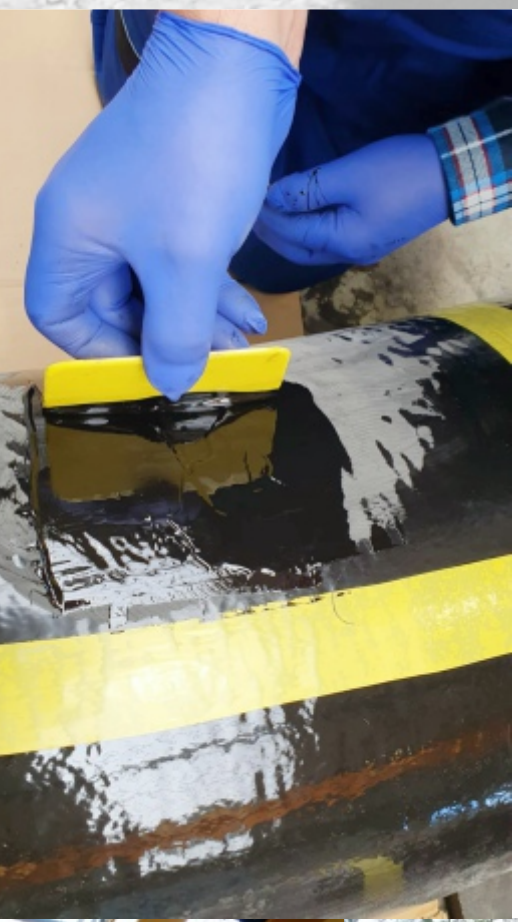
Spray PUR coating

Range of use:

- Secures steel and cast iron external pipeline surfaces, welded connections, induction bends, valves, containers, constructions and fittings
- Secures steel and cast iron internal pipeline surfaces including water pipes – such coating decreases the cost of pumping process and increases the abrasive resistance
- Can also be used as a protective coating when securing welded connections in above-ground constructions

Benefits:

- The material is applied by airless spraying, and it contains two components. 100% solid particles
- Excellent anticorrosive protection, highly adhesive to steel (>13MPa)
- High abrasive and mechanical resistance
- High chemical resistance



Hand-applied PUR

Range of use:

- Punctual isolation of vulnerable elements, underground and above-ground infrastructure: flanges, bolts, sharp edges, surface priming

Benefits:

- Universal material, made and measured by the producer, packed into ready-to-use kits. Compatible with machine-type material, applied with a brush or a spatula

Cartridge PUR

Range of use:

- Used for small repairs and defects, it cooperates with 3LPE, 3LPP, FBE and PUR. It can also be used when isolating cathode cable connections, pin brazing technology

Benefits:

- Universal repair material, applied with the use of applicator and cartridges, it hardens quickly

M-WAX

Range of use:
- Profiling mass Inover M-Wax is a component of T-Wax system
- It is used for profiling sharp edges and filling gaps between tape and the surface
- Can be used when isolating a variety of irregularly shaped connections, flanges, compensators etc.

Benefits:
- The mass remains elastic in a wide range of temperatures, it is odourless and skin friendly
- It goes very well with T-Wax tape, and can be re-used even after long periods of time

MOULDING PUTTY

Range of use:
- Profiles the edges of casing pipes, flanged connections, fittings, protects the screws, and valve supports

Benefits:
- Soft and elastic during application in wide range of temperatures
- Ready-to-use

INJECTION FILLER

INJECTION FILLER creates a secure anticorrosive seal that fills the empty space between flanged connections. It halts the corrosion process of steel elements.

ATAGOR MASTIC

Range of use:
- The main goal of this mass is to fill the gaps between the tape and the pipe, and to profile any sharp edges.
- It is a perfect addition to polyethylene – butyl tapes, great choice when isolating irregularly shaped connections, flanges, compensators and so on

Benefits:
- It goes well with butyl primers and with variety of polyethylene – butyl tapes.
- It does not age, it's easy to use and remains elastic in wide range of temperatures

AEROWAX

Range of use:
- Profiling mass Inover Aero-Wax goes perfectly with T-Wax system
- It is used for profiling sharp edges and filling gaps between tape and the surface
- Can be used when isolating a variety of irregularly shaped connections, flanges, compensators etc.

Benefits:
- Low price and low weight make this mass the optimal choice when isolating bigger elements
- Polystyrene significantly reduces the mass and therefore prevents the lower part of isolation from peeling off

SYSTEM 2100 AQUASTOP

Range of use:
- Leak stopper designed to seal leaks around pipes and cables that go through walls
- It provides active water protection system and can be easily applied, even in case of serious leaks

Benefits:
- Can seal leaks around pipes/cables that go through walls, foundations and concrete
- The leak can have various shapes
- When applied it immediately stops the leak up to 0,6 bar of pressure
- The mass expands when exposed to water

Pipe structural repair system

We provide both solutions that comply with EN ISO 24817:2017 and ASME PCC-2:

- MCU (moisture cured) a high-strength, water-activated fiberglass composite pre-impregnated systems. It is designed for restoring the structural strength of degraded pipe with varying geometries. It restores defects, adding up to 80% thickness up to 10MPa. The system also includes filler and primer in hydrophobic version
- Wet lay-up system can support on-site applications that reinforce pipes in aggressive environments by containing hoop and axial loads. The high-strength composite repair system uses an epoxy resin and tri-axial glass or carbon fiber reinforcement for customizable operations
- Ideal for extreme ambient and pipeline operation conditions

Range of use:

- Regenerates internal and external wall loss, dents, factory faults, internal corrosion, and can fix weak welded connections
- Can be used when fixing gas and oil pipelines, containers, compressor stations, industrial facilities, process piping

Benefits:

- Water-activated, pre-impregnated material allows for easy installation
- Can be applied on dry or wet surfaces, even underwater
- Sets within an hour and fully cures after 24 hours at (20±3°C)
- Fits to any shape including elbows, tees, reducers, flanges & more
- The composite bandages come in a variety of sizes
- Wet lay-up system suitable for extreme temperatures in process piping to 260°C

Live Leak Sealing
Patented hybrid technology combining composite strength and unique leak sealing make us possible to stop leakages up to 63 bars on natural gas pipelines.
Advantages: no shutdown, irregular pipe geometry including weld seams, high pressure leaks, permanent repair, references from pipeline operators

Coating & rehab jobs
Due to our experience we're ready to apply various corrosion protection coatings for buried and underground metal structures including:

- field joint coating
- polyurethane liquid coatings
- epoxy coating
- ground to air passages
- rehabilitation of pipeline coatings
- mechanical protection coatings
- composite reinforcement materials

Our **skilled personnel** has sufficient knowledge, training and approvals for execution of works on pressurized pipelines, at heights, underwater, with different kinds of tapes, shrink sleeves and liquid coatings.

Pipelines diagnostic surveys
Using the Cathodic Protection systems together with DCVG and CIPS diagnostic methods we are providing the diagnostic for buried pipeline infrastructure to locate defects, stray currents or electrical shorts. Then after analysis we can introduce the recovery plan.

Inover PUPP technology

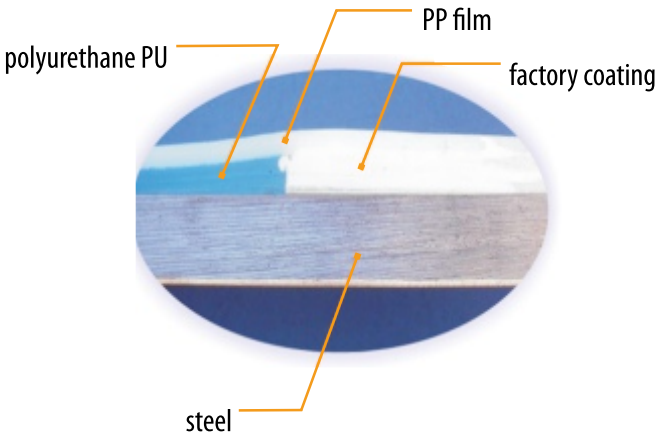
Range of use:

- Provides anticorrosive and mechanical protection for welded joints during processes such as: HDD, Direct Pipe, Bend drilling and microtunneling of pipelines coated with 3LPP
- This technology is proven to be effective in the toughest conditions- it has been used during the longest horizontal directional drilling operation on Texel Island (4,6km)
- Recommended technology in ST IGG 0601:2013

Benefits:

- PUPP sleeve is welded into factory coating of a pipe, creating homogenous structure. Remarkable abrasive and shear force resistance
- Excellent sleeve adhesion to factory coating 3LPP>10MPa (1000N/cm^2) wich is superior to FBE layer of factory coating and polyurethane to steel >8MPa
- Thick layer of polyurethane (2-3mm) is an anticorrosive protection for welded joints, which has documented isolation resistance of $10^{10}\Omega m^2$

Cross section



INOVER STONE

- A popular mechanical protection system based on epoxy resin and glass fiber laminate
- Possibility to apply the laminate continiously in field conditions
- Effectively protects a pipe's factory isolation and welded joints isolation during HDD
- Secures the anticorrosive isolation of pipes in tough geological conditions (coarse gravel, cobble etc.)

INOVER STONE F

- Factory laminate, used to protect anticorrosive factory coating of a pipe
- An ideal technical solution, allows to perform HDD without using an additional protective pipe
- When performing directional drilling under obstacles such as rivers, roads, heat-pipes an additional mechanical reinforcement is required; for example,factory polyethylene isolation is too soft, and it requires tough and durable laminate coating
- The technological process of INOVER STONE F consists of winding up glass fiber or roving mat on a pipe and saturating it with epoxy resin; we use machines to ensure the material is winded up continiously and properly
- This coating is compatible with the following factory coatings: 3LPE, 3LPP, bitumen, PE tape,epoxy and PU; we can also use polyester resin or chemical resistant resin on demand
- On request, we offer an additional service of isolating welded joints on site with the following options: heat-shrinkable sleeve + laminate, Densolid HDD + laminate, Densolid HDD

Cathodic protection

SOILBOX

Benefits:
- Specially selected dimensions
- Durable clips that also work as sockets for cables and measuring instruments
- Transparent case that allows visual inspection of a sample

Range of use:
- Used for resistivity survey of soil and other materials

DL-1 4 CHANNEL DATA LOGGER

Benefits:
- 4 channels with separate groundings
- Can gather samples from 1ms up to 99s
- 1,000,000 reads total memory
- USB high speed Interface
- Free software available on CD and internet
- Water tight case

Range of use:
- Measures the levels of: interference, potential, telluric current and stray currents

CS-10 PORTABLE CURRENT SUPPLY

Benefits:
- Lightweight (2.72kg)
- Built in battery
- LCD display
- Possibility to plug in external power supply (12V)
- Adjustable DC output up to 10 Amps
- Continuous or interrupted output

Range of use:
- Portable current supply, essential for measurement, tests, monitoring and conservation of cathodic protection

TRISTAR GPS 50 AMP CURRENT INTERRUPTER

Benefits:
- Durable, water tight case
- 50 AMP at 120 volts (6,000 Watt Max)
- Holds 10 programs in memory
- Cycles between 000.005's and 999.999s

Range of use:
- Used when identifying faults in isolation with DCVG and CIPS methods.
- Used for monitoring the effectiveness and the state of cathodic protection

EUROSPACER SPACERS

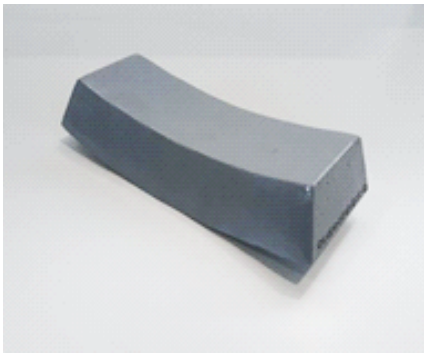
- One of the most resistant spacers on the market
- Installed on water, oil and gas pipelines
- Installed on culverts (inside the casing pipe) under the railway lines, roads or bridges
- The spacers position medium pipe inside casing pipe, allowing insertion of the medium pipe to be done without damaging factory isolation
- Made with high quality polyethylene, that is known for its durability
- Electric isolation between casing and medium pipe - spacers are made of non conductive material
- Possibility to install cables along with the pipeline
- EUROSPACER has a very high mechanical resistance - an important factor during the installment of the pipeline
- Easy set-up that doesn't require special equipment - a hammer is enough

ATAGOR SPACER TAPE

- Reliable protective tape that goes under the spacers
- Improves adherence and immobilizes the spacers
- Provides excellent mechanical protection while remaining flexible
- Compatible with all types of spacers
- Compatible with the following factory isolations: PE, PP, PU, bitumen
- Applied as a regular tape
- Not affected by water and oxygen, resistant to electrolytes and ground bacteria

AVAILABLE SIZES

½" DN 15	¾"-DN 20	1" - DN 25	1" ¼ - DN 32	1" ½ DN 40	2" - DN 50	2" ½- DN 60-65	3" - DN80	4" - DN 100	5" - DN 125	6" -DN 150	8" - DN 200	10" - DN 250	12" - DN 300	14" - DN 350	16" - DN 400	18" - DN 450	20" - DN 500	24" - DN 600	26" -DN 650	28" - DN 700	30" - DN 750	32" - DN 800	34" - DN 850	36" - DN 900	38" - DN 950	40" - DN 1000	42" -DN1050	44" - DN 1100	46"- DN 1150	48" - DN 1200
FAST																													
							MINI																							
								MIDI																						
											MAGNUM																			



INOVER SUPPORT - ISOLATION BLOCK

- Used as a support for the medium pipes, placed at two ends of the casing pipe
- INNOVER SUPPORT prevents center spacers from being crushed
- Prevents the medium pipe from touching the casing pipe
- Provides additional support in case of unwanted pipe movement or ground oscillation
- High durability thanks to multi directional glass fiber reinforcement
- Designed and made individually - based on the sizes of casing and medium pipes
- Made with polyester resin reinforced with fiberglass
- Produced for medium pipes from DN80 up to DN1500

INOVER PILOT SPACER

- Special rollers, designed for moving the medium pipe inside casing pipe
- Strong steel construction, with a durable composite roller and a clamp
- Can withstand up to 50 Kn (5t.) of weight, making the installment safer and easier
- Can be easily mounted on medium pipe (up 25mm thick) and easily fastened with a clamp
- Multiple use
- Can be used with spacer as high as (H) 25 - 41 - 60
- Other dimension of this tool are avaliable on demand

ATAGOR NORMAL wrapping machine is used for anticorrosive tape application on any type of pipelines. The wrapping machines are used to isolate passive as well as active pipelines. This tool can also be used when isolating vertical pipes.

DENSOMAT 1 ensures that the tape is properly stretched, and gives the ability to regulate the amount of tape overlap. Convenient in use, it is equipped with additional roller that winds up the protective plastic film. It can be used while isolating straight and curved sections, as well aswelded connections.

DENSOMAT MINI is simple in use, and can fit easily in tight spaces. It can be used on pipelines that are as small as DN40, it is also equipped with additional roller that winds up the protective plastic film.

ATAGOR SPECIAL wrapping machine is equipped with additional roller, which winds up protective layer of plastic film, used in most self-vulcanising tapes.

Diagnostic tools

PYROMETER T4

Benefits:
- Capable of measuring the temperature of an object from a distance
- Handy tool when measuring hot surfaces, heated up by hand-held burner

Range of use:
- Measures the exact temperature of anticorrosive surfaces

AMPERI LOCATOR

Benefits:
- High instrument sensivity, up to 2,5 meters of range
- Clear display
- Supresses any possible interference
- Easy sensivity regulation

Range of use:
- Pinpoints the location of any underground ferromagnetic objects such as pipes, manholes, hatches etc.
- Can detect objects through dirt, concrete, asphalt or snow

DYNAMOMETER

Benefits:
- A simple and reliable measuring instrument
- Can be used in laboratories and on construction sites
- Measures the maximum breaking load of isolation

Range of use:
- Used when determining the resililience of anticorrosive coatings

APS HOLIDAY DETECTOR

Benefits:
- Adjustable voltage from 0,8 kV up to 35 kV
- Display shows the actual output voltage
- Ergonomic case that can withstand harsh weather conditions
- Acoustic and visual information about the condition of a surface

Range of use:
- Measures the surface integrity of containers, pipelines, fittings etc.

T2 HOLIDAY DETECTOR

Benefits:
- Convenient in use, in every weather condition
- Acoustic and visual information about the condition of a surface
- Adjustable voltage from 2,5 kV up to 30 kV

Range of use:
- Measures the surface integrity of containers, pipelines, fittings etc.

Isolation and bundling of electric cables

REPERO 701 SUPER QUALITY
High quality electric isolation PVC tape, thickness 0,18mm

REPERO 711 E
Durable electric isolation PVC tape, thickness 0,13mm

REPERO 721 E
Professional selffusional electric isolation tape with a protective film

REPERO 722 E
Highly plastic selffusional electric isolation tape with a protective film

REPERO 747 DOUBLE SIDE
Double sided foam tape

REPERO 738 TERMOBALANS
High quality polymer electric isolation tape, wide range temperatures from -40°C to +120°C

REPERO 735 INDUSTRY
High quality polyester muffling tape

REPERO 734 MONTERSKA
High quality textile tape for professionals

REPERO 761 & 762
For marking restricted and dangerous areas, glueless

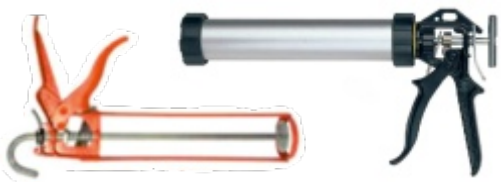
REPERO 1100 MULTIMASA
Sealing mass, water resistant, to protect electricity in wet conditions

REPERO 801P
Multi purpose duct tape - reinforced with polyester and cotton mesh

REPERO 652
PVC tape, for use in sub - zero temperatures (down to -18°C)

REPERO 621/REPERO 621 ALUBUTYL FOIL
Tape and aluminium foil based on butyl rubber with exteremly high adhesion for difficult surface, and for roofing works- UV 100% resistant

APPLICATOR INOVER 310 & 530
Professional application pistol for AQUASTOP 2100 cartridges for 310ml and 530g packages



ATAGOR MORTAR
Fireproof, single component mineral mortar used as a support for AQUASTOP 2100 mass

Range of use of FiberFlow pipeline systems:

NAME	DESCRIPTION	RANGE OF USE
System FIBERFLOW A	DIN 16965-1 and DIN 16965-4 norm type A: a system of laminates which has 1mm of chemical resistant layer and constructional layer – cross-woven rowing with 60% glass fiber and 40% resin content.	Water, salt solutions, sewage, non-agressive gases.
System FIBERFLOW B	According to norm no. DIN 16965-2 type B: a system of laminates with chemical resistant layer of the thermoplasts (PP, PE, PVC-U, PVC-C, PVDF, ECTFE).	Duolaminates in this system have the chemical resistance of thermoplasts and a high mechanical durability.
System FIBERFLOW D	According to norm no. DIN 16965-4 type D: a system witch has a 2,5 mm chemical resistant layer with 25-30% glass fiber content. Constructional layer consists of cross-woven rowing, 60% of glass fiber content.	Resistant to almost every single chemical substance except concentrated oxidized acids and chlorofenols.
System FIBERFLOW DSiC	Constructed just like fiberflow system D. Additionally 30% of the resin mix contains silicone carbide (SiC), for additional abrasive protection.	Slimes, for example: gypsum suspension, water with sand and pneumatic transport, flue gas desulphurisation.
System FIBERFLOW E	Pipes and fittings up to DN 65 are made according to standard no. DIN 16965-5, pipes with bigger diameter are made with 4,5 mm chemical resistant layer. Constructional layer is cross-woven rowing, containing 60% of glass fiber.	Resistant to almost every single chemical substance except concentrated oxidized acids and chlorofenols. Usually used for agressive chemicals such as chlorine, ozone and liquids saturated with those gases.

GRP Advantages:

- low mass (over 4 times lower than steel) – low production costs
- full corrosion resistance
- excellent chemical resistance against most gases and liquid chemicals
- low linear expansion factor
- long service life – 20 up to 50 years
- smooth internal surface – low pumping costs
- high temperature resistance – up to 150^{0}C
- anti-abrasive (for type D SiC with silicon carbide additive)
- maintenance free (fit & forget)

Pipelines and gas pipelines:

- diameter range: DN 25 up to DN 2000
- chemical resistant layer 1mm - 4,5mm
- roving woven constructional layer
- pressure range PN4-PN40
- operating temperature up to 150^{0}C
- anti-abrasive layer SiC
- additional thermoplast layers
- wide range of connections: flanged, laminated, glued, socket welding

Tanks and vessels:

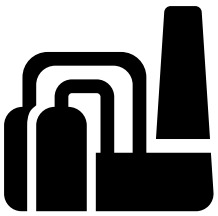
- diameter range: DN 600 up to DN 4000
- length 500 - 12000mm
- pressurised and no pressure containters up to PN16
- vertical and horizontal oriented containers
- double jacket containers for storing hazardous materials
- spigots and connections according to a project
- thermal insulation, leak monitoring

Special products and apparatuses:

- lamella apparatuses
- filters, rinsers
- absorbers, scrubbers
- pressure and pressureless apparatuses (based on the project)
- atypical diameters, bends and fittings

Pultruded profiles:

- we can make any transversal profile (max. size 1000mm x 260mm) in cooperation with a client
- T-profiles, C- profiles, double-T profiles
- try brackets, rods
- daises, covers
- floor plates
- profiles for electronics



GRP by Industry

Cellulose and paper industry

Waste incineration

Chemical industry

Power plants

Electroplating

Mining

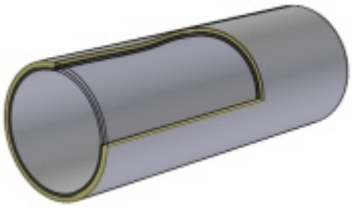
Heating industry

Ship-building

Sewage treatment plants

Water pumping stations

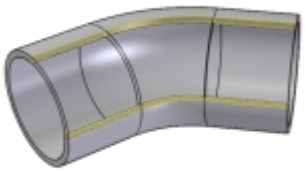
Pipes



Based on polyester, vinylester or epoxy resin, reinforced with glass fiber, based on DIN 16965 standard.

Elbows

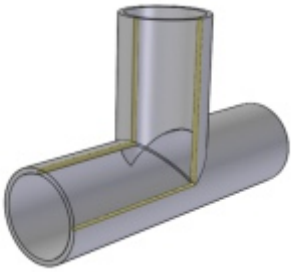
30°, 45°, 90°



Based on polyester or vinylester resin, reinforced with glass fiber, based on DIN 16965 standard.

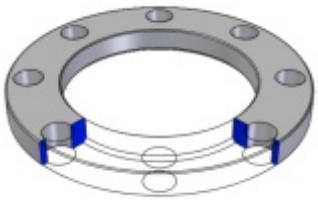
T- joints

equal, reducing



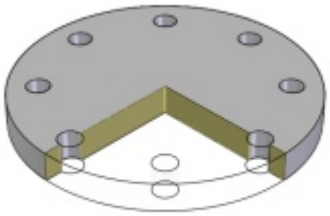
Based on polyester or vinylester resin, reinforced with glass fiber, based on DIN 16965 Standard.

Flanges



Zinc plated or galvanized steel.

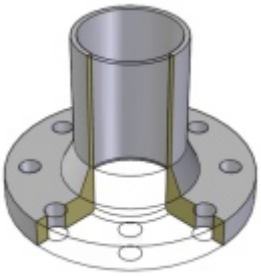
Plugs



Based on polyester or vinyloester resin, reinforced with glass fiber, based on DIN 16965 norm.

Stub flanges

LF, FF

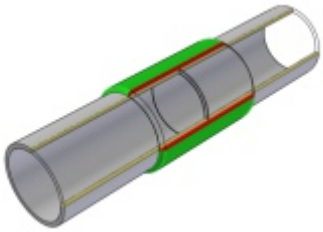


Based on polyester or vinylester resin, reinforced with glass fiber, based on DIN 16965 standard.

Reducers

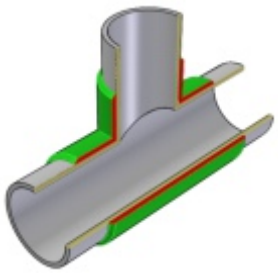
Based on polyester or vinylester resin, reinforced with glass fiber, based on DIN 16965 standard.

Butt joint laminate



Based on polyester or vinylester resin, reinforced with glass fiber, based on DIN 16965 norm.

Cross joint laminate



Based on polyester or vinylester resin, reinforced with glass fiber, based on DIN 16965 norm.

Examples of our projects

ZTUO Szczecin, Poland

Flue Gas Heat Recovery Installation

Customer: Termomeccanica Ecologia SpA

The project consisted on supply and installation of technological pipelines alongside with the pumps, heat exchangers and fittings.

PKN Orlen S.A., Poland

Cooling water transportation apparatus.

Shipment of DN600 collectors, prefabricated PVC DN160 pipes along with EP type spatter apparatus.

DRAX Power Station, UK

FGD installation

Drax Power Station in North Yorkshire is the biggest coal (1.3 GW) and biomass (2.6 GW) power plant in Great Britain and the second in Europe. Shipment of pipes and fittings with increased anti abrasive resistance layer for renovations of flue gas desulfurization installation.

EC POWER PLANT BIAŁYSTOK, Poland
Shipment and installation of 12 m3 water tank
Customer: RAFAKO S.A.

The container was designed and built with use of progressive weaving technology, which consists of continuous rowing fiber weaving. This method guarantees a steady glass fiber content which is impossible to accomplish using different weaving methods, resulting in very high structural strength and overall endurance. During the production process a special honeycomb sandwich panels has been used in order to ensure proper stiffness and thickness of the product while still maintaining low mass.

FARM FRITES POLAND
Lamella apparatus
Customer: Farm Frites Lębork Poland,

Shipment of automatic water purifying system used for potato cleaning process, container and desedimentation apparatus design along with complex assembly. (Installation start-up, supporting structure, C&I control and instrumentation).

ATAGOR

Atagor Spółka z o. o.
tel. +48 695 340 711,
+48 12 35 721 81,
fax +48 12 357 21 82
www.atagor.com
cok@atagor.com

Trzebinia
ul. Generała Sikorskiego 22
32-540 Trzebinia
Poland

Poznań
ul. Niepodległości 11B
62-030 Luboń
Poland