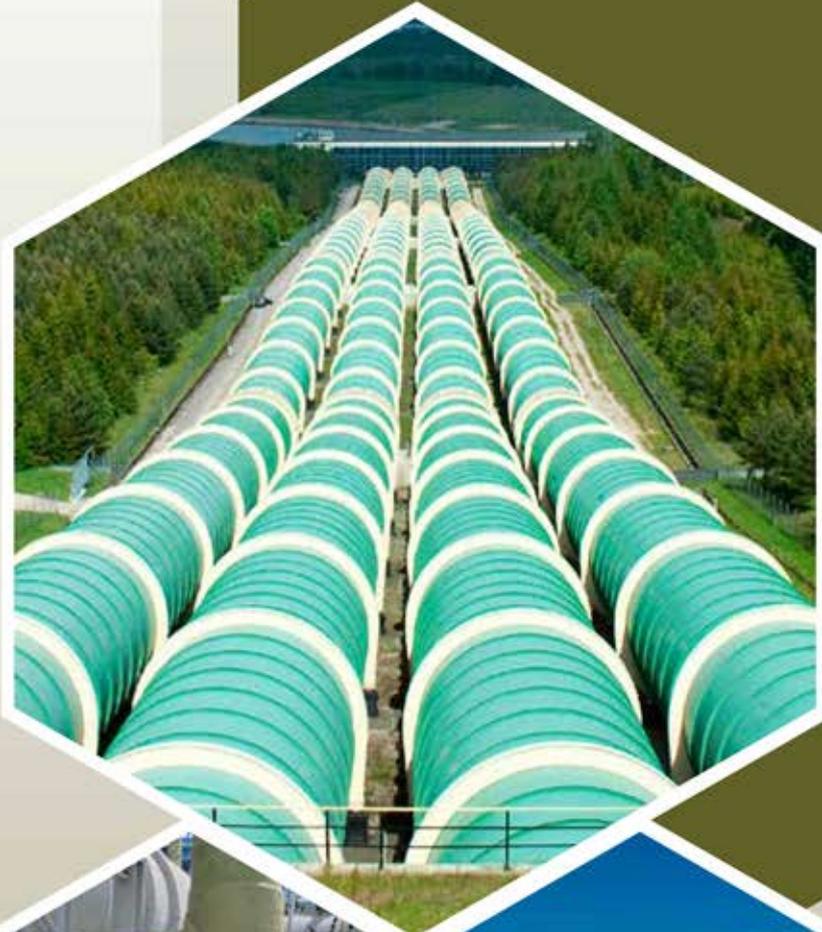




SMITHLINE REINFORCED COMPOSITES FZ-LLC

REINFORCING THE FUTURE



MANUFACTURER OF:

RTRP / GRP /
GRVE / GRE PIPES

FITTINGS

TANKS

COMPOSITE
MANHOLE COVERS

SPECIALS &
PRESSURE FILTERS





About us

Smithline Reinforced Composites is an established venture (ISO 9001, 14001, 18001 certified, API 15HR and API 15 LR Certified, kitemark and WRAS UK Certified) in the field of reinforced composite materials in the Middle East Region. The company's founders believe in the policy of using advanced technical expertise and high-quality raw materials to provide our customers with superior quality pipes, fittings, ducts and other GRP/GRV/GRE products. With the use of advanced machinery in our growing production facility along with a trained workforce we seek to satisfy the growing demand for GRP products in the region.



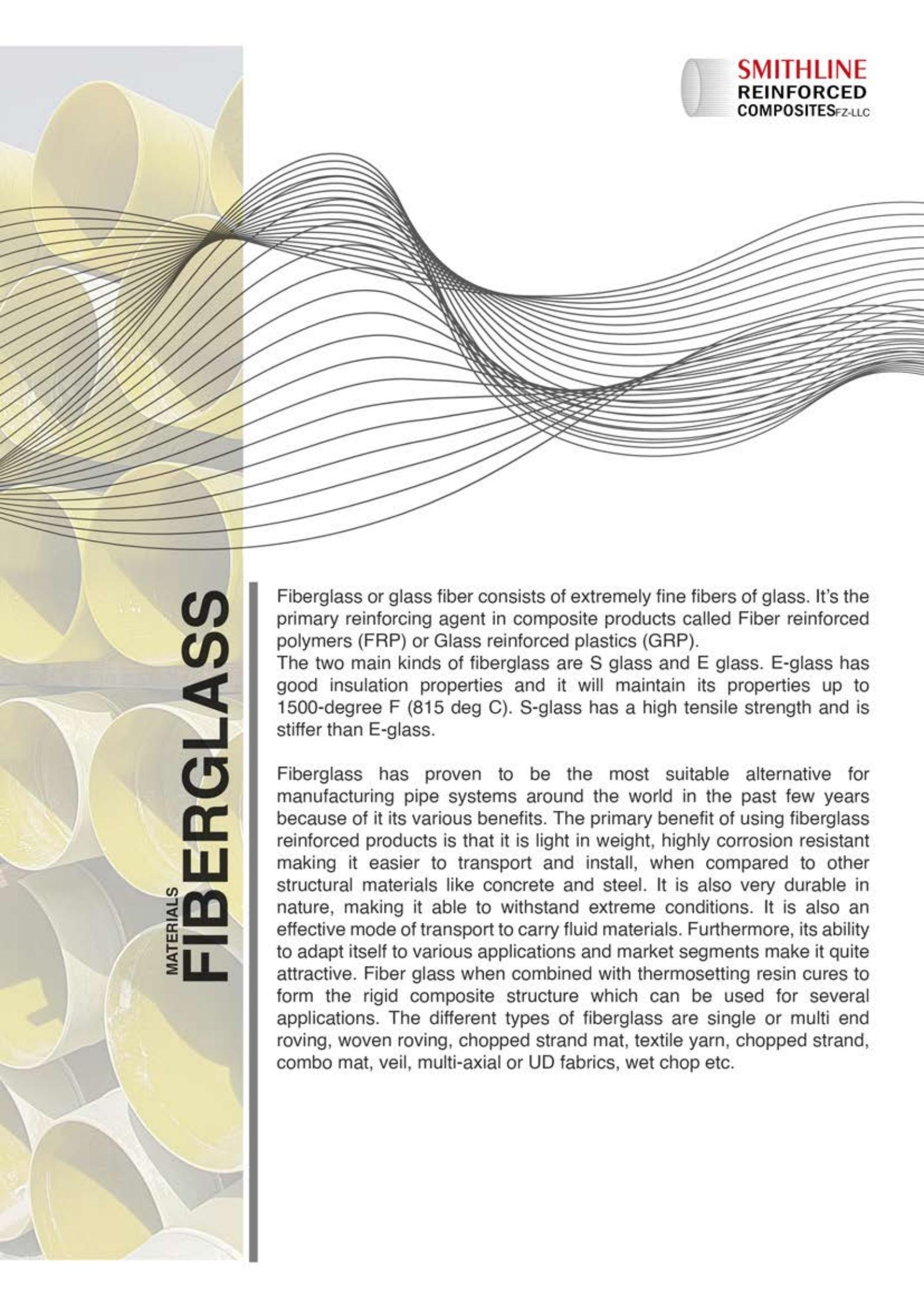
GRP- 1706505
 GRV- 1706506
 GRE- 1706510



API 15HR- 15HR-0102
 API 15LR- 15LR-0103



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MATERIALS
FIBERGLASS

Fiberglass or glass fiber consists of extremely fine fibers of glass. It's the primary reinforcing agent in composite products called Fiber reinforced polymers (FRP) or Glass reinforced plastics (GRP).

The two main kinds of fiberglass are S glass and E glass. E-glass has good insulation properties and it will maintain its properties up to 1500-degree F (815 deg C). S-glass has a high tensile strength and is stiffer than E-glass.

Fiberglass has proven to be the most suitable alternative for manufacturing pipe systems around the world in the past few years because of its various benefits. The primary benefit of using fiberglass reinforced products is that it is light in weight, highly corrosion resistant making it easier to transport and install, when compared to other structural materials like concrete and steel. It is also very durable in nature, making it able to withstand extreme conditions. It is also an effective mode of transport to carry fluid materials. Furthermore, its ability to adapt itself to various applications and market segments make it quite attractive. Fiber glass when combined with thermosetting resin cures to form the rigid composite structure which can be used for several applications. The different types of fiberglass are single or multi end roving, woven roving, chopped strand mat, textile yarn, chopped strand, combo mat, veil, multi-axial or UD fabrics, wet chop etc.

RAW MATERIALS

The fundamental raw materials that go into the manufacturing of the GRP pipes and fittings are:

• FIBER GLASS

The fiber glass serves the purpose of the providing the mechanical strength to the pipe. The different types of fiber glass used are E-Glass, C-Glass and ECR-Glass. The fiber glass is used in different forms such as woven roving, chopped strand mat (CSM) and surface veil.

• RESINS

The different types of resins used are Isophthalic, Vinyl Ester and Epoxy depending on the extent of chemical properties required for the final product.

AUXILIARY RAW MATERIALS

Other raw materials like catalyst, accelerators, inhibitors, aggregates and pigments are used together with resin and glass reinforcements to achieve the desired properties of the fiber glass product. Catalyst is an organic compound which when added to resin in presence of an accelerator determines the polymerization reaction at ambient temperature. Accelerator is a chemical compound used together with a catalyst to shorten the polymerization time. Inhibitor is added to the resin to reduce its reactivity at ambient temperature. Silica Sand is also used as an aggregate during the winding process to increase Stiffness in certain cases.



PROCESS

Filament winding is the technique for manufacturing composite material structures. It is the process for fabricating a composite structure in which continuous fiber reinforcement (glass, boron, silicon carbide), either previously impregnated with a matrix material or impregnated during winding, are wound under tension over a rotating core. Once the material is wound it is heated in the oven to speed up the curing



Dual Helical Winding:

In this process the fiber glass woven roving wetted with resin is wound on the steel mandrel at pre-calculated winding angles. The dual helical winding pattern is responsible for providing the composite product with maximum mechanical durability. The resin used will decide the extent of its chemical and temperature resistance. The entire process is controlled via the software in which we determine the winding angles as well as the number of layers to be wound on to the product. More the winding angle, the greater the elasticity of the pipe.

The inner line is mostly impregnated with Vinyl Ester resin to provide maximum chemical resistance. The structural wall is generally 70% resin and 30% glass providing it the optimum mechanical strength. The winding of the structural layer is usually done on a dry surface in case of GRP and wet liner surface in case of GRE. Use of ovens help in hastening the curing process and also makes sure the bonding takes place well. Once the pipes are extracted, they are calibrated at the ends.

Pipes manufactured through this process can be from 25mm up to 3600 mm diameter based on the mandrels used.

Pipes are available in stiffness classes of 1250N/M², 2500N/M², 5000 N/M² and 10000 N/M². In nominal pressure classes, it is available in PN1, PN3, PN6, PN10, PN16 and PN20. We can also manufacture high pressure pipes & joints that can withstand pressure of up to 50 bar for 25mm-250mm diameter, up to 32 bar for 300m-1000mm diameter and up to 16 bar for 1100mm diameter and above.

Four Axis Helical Winding



FRP tanks and vessels designed as per BS 4994 are widely used in the chemical industry in the following sectors: chlor-alkali manufacturers, fertilizer, wood pulp and paper, metal extraction, refining, electroplating, brine, vinegar, food processing, and in air pollution control equipment, especially at municipal waste water treatment plants and water treatment plants. The 4-axis filament winding machine we have is computer numerical controlled and can manufacture pressure vessel/tanks up to the diameter of 3000mm internal diameter.

The 4 axis filament winding machine has the most advanced software right now in the market which helps us to manufacture helical wound complex shaped fittings like elbow, reducer etc.



PRODUCTS



GLASS REINFORCED POLY ESTER PIPES

- Storm Water
- Cooling water / Drainage
- Portable water

GLASS REINFORCED VINYL ESTER PIPES

- Sewerage
- Fire Fighting
- Petrochemical Industry
- Portable Water (Chlorination)
- Chemical Resistance application upto 90 Degree C

GLASS REINFORCED EPOXY PIPES

- Oily Sewer
- Brackish water
- Crude Discharge
- Fire Fighting
- Any fluid upto 120 Degree C

GRP Pipes are made from the dual helical winding technology. The major raw materials used for this are fiber glass, Isophthalic resin (and aggregate in certain cases).

GRP Pipes can be used for medium of temperature up to 60 ° C. Diameters of pipe produced range from 25mm to 4000mm currently.

GRV Pipes are made from the dual helical winding technology. The major raw materials used for this are fiber glass, vinyl ester resin resin (and aggregate in certain cases).

GRV Pipes can be used for medium of temperature up to 90 ° C. Diameters of pipe produced range from 25mm to 4000mm currently.

GRE Pipes are made from the dual helical winding technology. The major raw materials used for this are fiber glass, Amine Cured Epoxy resin. GRE Pipes can be used for medium of temperature upto 110 ° C.

Diameters of pipe produced range from 25mm to 4000mm currently.



PRE INSULATED PIPES

PRE - INSULATED PIPES

A Pre-insulated GRP pipe consists of a GRP core pipe (also called carrier pipe) and a GRP jacket pipe (also called casing pipe) with polyurethane foam filled in the space between the pipes. Insulation provides the primary thermal resistance and prevents heat loss in chilled water systems. These pipes are mostly used in various District Cooling Projects to distribute chilled water from the central source to various users.

The major highlights of pre insulated tapes are its durability and flexibility. Smithline's highly tough corrosive resistant GRE pipes is the matter of choice while transporting high temperature fluids at high pressure especially in plant process piping, oil and gas flow lines and off-shore applications. Our pre insulate pipes are manufactured with high precision and they consist of a steel pipe, an insulating layer and an outer casing. Direct heat transfer between pipes and their supports can also be prevented by using insulated pipe supports.

STANDARD FITTINGS

The standard fittings include Flanges, Couplings, Elbows, Tees, Wyes, Reducers, Saddles, Crosses and End Caps. Special fittings to suit ac pipes. Ductile iron pipes etc



GRP/GRV/GRE TANKS

Given their lightweight, sturdy yet workable fibreglass design, GRP tanks provide safe storage for water without the risk of corrosion or contamination from bacteria. Furthermore, given the materials the tanks are made from, they are also resistant to external temperatures and adverse weather, meaning the tanks will not degrade over time.



FIBERGLASS GRATINGS

Fiberglass reinforced plastic grating (also known as GRP grating, glass reinforced plastic grating or fiberglass grating) is a composite material manufactured by combining a matrix of resin and fiberglass. Fiberglass grating does not corrode like steel grating and is therefore used in corrosive environments to reduce maintenance costs. It is used in a variety of applications including walkways and overhead platforms. FRP grating is a structural product that can be weight-bearing between spans.



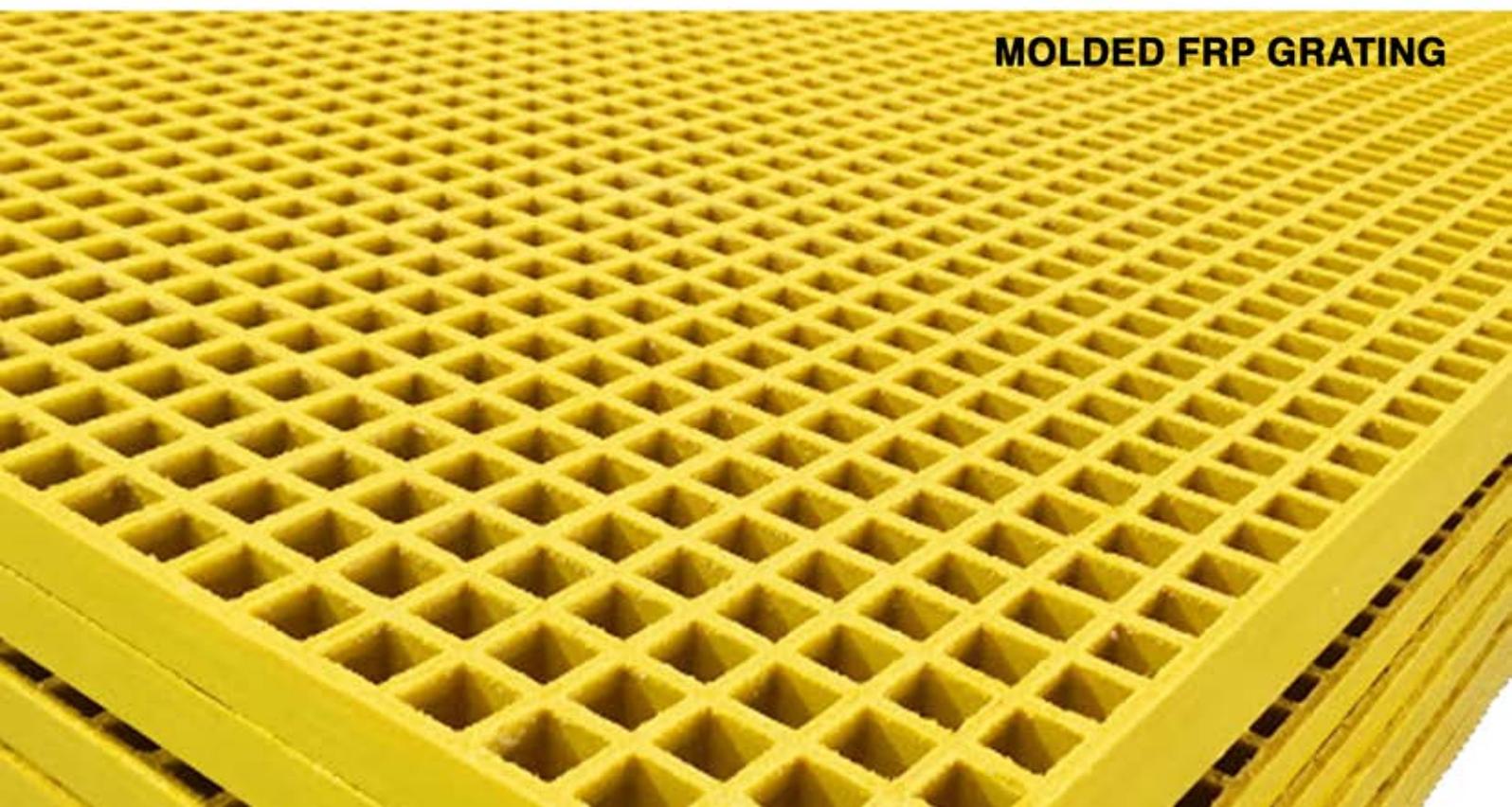
PULTRUDED GRATING



MOLDED FRP GRATING

FIBERGLASS ANGLE

GRP Pultruded Profile is a structural composite and handles different load requirements with ease. They are light, making them easy to use during the construction process and resistant to many chemicals.



MOLDED FRP GRATING



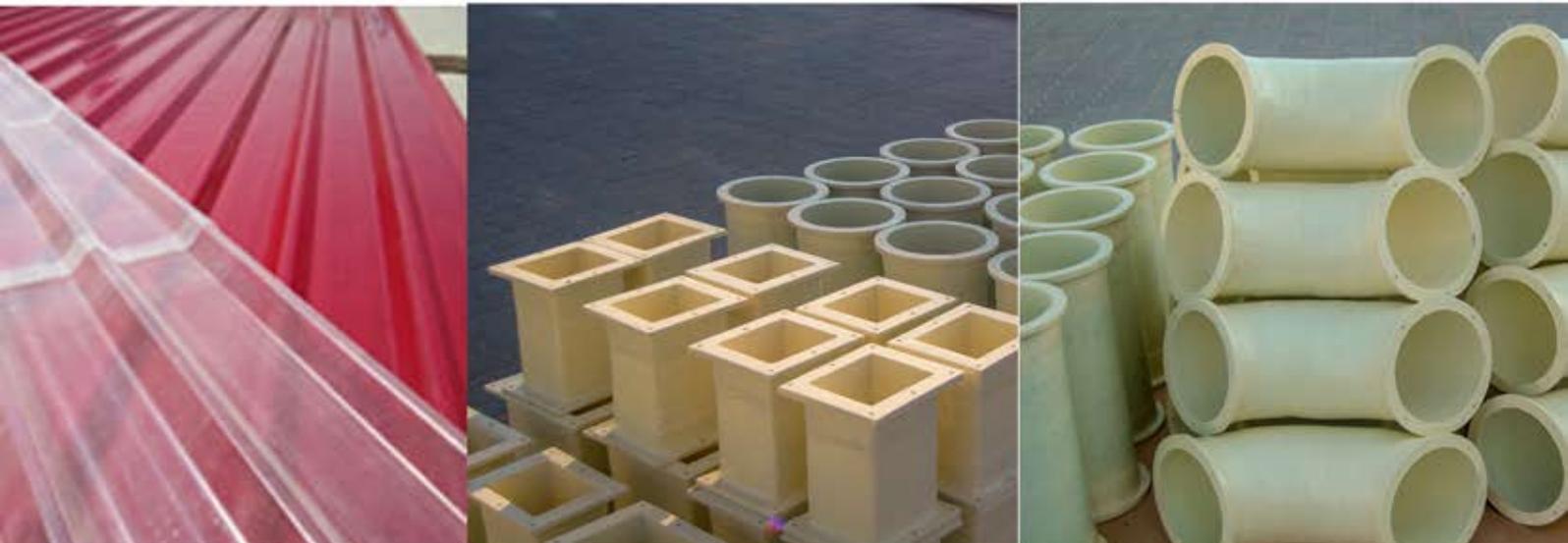
GRP DAF PERFORATED PIPES

**GRP DAF
PERFORATED PIPES**

Combined high rate floatation and media filtration
 Compact design with a very limited footprint (at least 25% gain compared to conventional design).
 Modularity: can be installed in plants of all sizes, it is the obvious choice for extending existing capacity.
 No thickening required: high concentration floated sludge avoiding an additional thickening stage in sludge treatment.

**CUSTOMIZABLE
GRP PRODUCTS**

Based on client specification , the material is costumised to their requirment



SITE INSTALLATION



JABEL ALI POWER AND
DESALINATION STATION M



GRP / GRV / GRE
LAMINATION KIT
MATERIALS,
SITE ERECTION,
INSTALLATION
AND TESTING



JOINT SYSTEM



FLEXIBLE JOINT

Un-restrained joint system, used for the installation of long runs of buried pipe lines . Hydraulic sealing performed by elastomeric rubber rings •Installation very fast and easy. Allows angular deflection- changes of gradient or curve.



GLUE JOINT

•Restrained joint system • Recommended for complex installation comprising many accessories, bends, reducers etc • Designed to sustain high pressure applications. • No thrust blocks are required since it resists longitudinal forces. • A rigid joint, as it will not allow any angular deflection



LAMINATION JOINT

•Restrained joint system used for joining plain end pipes consisting of overlapping layers of fiberglass reinforcement thoroughly impregnated with the resin to achieve the specified width and thickness. •It is generally preferred for field adjustments and repair work where no other joint systems can be used. •Also known as butt and strap joint and it results in high strength and requires skilled labor.



LOCK JOINT

•Restrained joint system which combines the advantages of both glue joint and flexible joint. •The hydraulic sealing is performed by elastomeric rubber rings, installed in circumferential groove on the integral socket and the coupling. •The locking device, which provides longitudinal thrust restraint is inserted into a groove through an opening and can be removed to disassemble the joint at some later stage. •The necessity of thrust blocks are eliminated in this joint system •Lock joint with Double rubber ring can be manufactured on request.



FLANGED JOINT

Restrained joint system which is normally used for joining fiber glass pipes with existing steel pipes and accessories like valves, pumps etc. •Also used where the installation has to be disassembled at a later stage. •The hydraulic sealing between the flanges is accomplished with an elastomeric gasket, which may be flat type or O-ring type depending on the specifications.

COMPOSITE MANHOLE COVERS (GRP)

Smithline GRP Manhole covers and frames are made by contact molded process



COMPOSITE MANHOLE CHAMBERS (GRP)

Pre-fabricated GRP manhole chambers are easy to install over civil foundation or compacted soil surface

Heavy duty class manhole D400 as per BSEN 124

Fabricated in variable sizes from DN 600 to DN 1600 mm diameter

All GRP manholes chambers are equipped with manhole lid, cable slack brackets, center rails, holes which are drilled and capped as per client requirement.

Rust proof and leak proof manhole lid which is also locked to prevent theft

All cable holes are provided with rubber gasket which will ensure leak tightness
Additional cable holes can be drilled with ease, using hole saw cutter.

4 Times lighter than steel, ease of installation under all weather conditions
Height as per site requirements.



SMART COMPOSITE MANHOLE COVERS (GRP)

SMART Sensor embedded on the manhole cover and chambers will be connected to the gateway either by using the wired network or through wireless networks. This helps in continuous monitoring of the system



ESSELAR
ECO FRIENDLY COMPOSITE MANHOLE COVERS





Smithline GRP Manholes & covers has the following advantages over DI/Cast iron :

- Light weight 1/4th of steel/Concrete weight
- Corrosion proof and chemical resistant
- Weather proof with long life.
- Locally manufactured, needs very less lead time
- Cannot be recycled and discourage theft
- Lockable and prevents vandalism
- Designed for D400 heavy duty class.
- GRP Manholes are designed as standalone products easy to install over compacted soil bedding or civil foundations.
- No need of pre-cast concrete clammers



ESSELAR
ECO FRIENDLY COMPOSITE MANHOLE COVERS



INDUSTRIES & MARKET



THE PRIMARY MARKETS FOR OUR PRODUCTS ARE:

- Water Distribution: Sea Water, Potable Water, Irrigation
- Sewage systems: Sanitary Sewage, Drainage, Industrial waste
- Industrial: Desalination, Power Generation, Petrochemical, Oil and Gas, Other production plants
- Ducts: Air ducts, Odor control system, air vents
- Tanks: Potable water tanks, septic tanks, foam tank

CODES & STANDARDS:

ASTM D2996, ASTM D3517, ASTM D3262, ASTM D4161, ASTM D 3754, API-15LR, API- 15HR, BS 5480, BS7159, ISO 14692/AWWA M45,AWWA C950

ENGINEERING



Smithline Reinforced Composites has its own engineering department designated to cater to various engineering design aspects of Pipeline systems.

ISOMETRIC DRAWINGS

Isometric drawings are created using AUTOCAD and the Bill of Quantities of Pipes and Fittings are generated from it. Spool Drawings are further produced to provide ease in pre-fabrication. 3D Pipeline drawings add depth to the line drawings and gives clearer picture of the pipeline system.

STRESS ANALYSIS

Stress Analysis is conducted on pipeline systems both above ground and underground using CEASER II software. Through this program we can determine the stresses, loads and deflections at different points of the pipeline system.

SURGE ANALYSIS

Surge Analysis is used to understand pressure surges, hydraulic transient forces and the water hammer in multi-branched pipeline systems. This is done using PIPENET software. We can also design thrust blocks, valve chambers and different supports by means of this software

QUALITY CONTROL



QUALITY CONTROL TESTS ON RAW MATERIALS:

GLASS:

Moisture Content
Texture

RESIN:

Solid Contents
Reactivity & Viscosity
Glass Transition

QUALITY CONTROL TESTS ON FINISHED PRODUCTS:

Long Term Type Tests:

Long Term Stiffness & Creep factor
Strain Corrosion based on ASTM D 3681 & BS EN 14364
Hydrostatic Design Basis (HDB)

OTHER:

Impact resistance
Curing – Barcol hardness
Loss on ignition based on ASTM D2584
Visual inspection & Dimensional control
Hydrostatic pressure test
Stiffness Test based on BS EN 1228 & ASTM D2412
Hoop Tensile Strength based on ASTM D2290 & BS EN 1394
Longitudinal Tensile Strength based on ASTM D638 & BS EN 1393
Glass transition temperature using Differential Scanning Calorimeter (DSC) based on ASTM D 3418



SMITHLINE
REINFORCED
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An ISO 9001:2015 certified company



GRP- 1706505
GRV- 1706506
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API 15HR- 15HR-0102
API 15LR- 15LR-0103



استدامة
estidama

PEARL BUILDING RATING SYSTEM
COMPLYING PRODUCTS



JEC COMPOSITES
INNOVATION AWARD WINNER 2013



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Please scan using any QR code reader for detailed product information.



Composite Manhole



Pre-insulated Pipe



GRP Tank



GRP Pipes



GRV Pipes



GRE Pipes



Smithline Reinforced Composites FZ-LLC

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