FiberTiex™

MANUFACTURER OF:

- TANKS
- FITTINGS & SPOOLS
- RTRP/GRP/GRVE/GRE PIPES
- SPECIALS AND PRESSURE FILTERS
- ENGINEERING DESIGN AND SERVICES
- TECHNICAL ASSISTANCE AND SITE SERVICES
- MAINTENANCE AND SHUT DOWN WORKS
- PIPELINE REHABILITATION
- INSTALLATION


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Introduction FiberTie Pipe Factory and Accessories W.L.L

FiberTie Pipe Factory and Accessories W.L.L was established in 2008 in Doha-Qatar as a fiber-glass pipe manufacturer for the industrial, municipal, and oil and gas sectors.

Our manufacturing procedure leverages state-of-the-art FiberTiex technology for dual helical winding on mandrels. We are a Qatar-based manufacturer of premium GRP/GRE/GRV products.

Usage of Epoxy, Vinyl ester & Isophtalic (Resin) in the winding process makes our pipes substantially the best in GCC and world market. We are privileged to have a team of professionals with extensive experience in various fields of engineering. FiberTie provide technology solutions for clients and manage our leading-edge manufacturing facility.

Total Area:	42,000 m2
Build-Up Area:	4,000 m2
Production Units Pipes:	30,000 tons per year
Production Lines:	4 lines
Material:	GRP/GRE/GRV
Product Range:	15mm up to 3000mm
Pressure Class:	up to 50 bars
Stiffness Class:	2,500, 5,000 & 10,000 and Higher

Other sizes and design classes are avaialbe upon request

Product and Applications

Codes and Standards: ISO 14692, AWWA C950, ASTM D 2996, ASTM D 3517, ASTM D 3262, ASTM D 3754, API-15LR, API-15HR, BS 5480, BSEN 1796, BS EN 14364 and many other international standards are applicable.

PIPES BASED ON RESIN					
PROPERTIES	FRP/GRP/RTRP POLYESTER PIPING	FRP/GRP/GRV/RTRP VINYLESTER PIPING		GRE EPOXY PIPING	
Resin	GRP	GRV 1	GRV 2	GRE 1	GRE 2
Range of Diameter	Isophtalic, Orthophtalic	Vinylester Bisphenol A or Equivalent	Vinylester Novolac or Equivalent	Epoxy, IPD cured	Epoxy with (IPD, Ethacure 100) hardener
Design Temperature	82 °C	103 °C	140 °C	120 °C	140 °C
Operating Temperature	-25 to 52 °C	-30 to 73 °C	-30 to 110 °C	-35 to 85 °C	-35 to 110 °C
Pressure *	Gravity to 32 Bar/ Full Vacuum	Gravity to 40 Bar/Full Vacuum	Gravity to 40 Bar/Full Vacuum	Gravity to 50 Bar/ Full Vacuum	Gravity to 50 Bar/Full Vacuum
Medium of Transport	Potable Water, Other Water, Sewer and Low corrosive	Other Water, Sewer and high corrosive/ acidic	Other Water, Sewer and Severe corrosive/ acidic	Potable Water, other Water, Corrosive heavy chemicals	Other Water, Severe corrosive heavy chemicals
*Pressure class varies according to Pipe diameter					

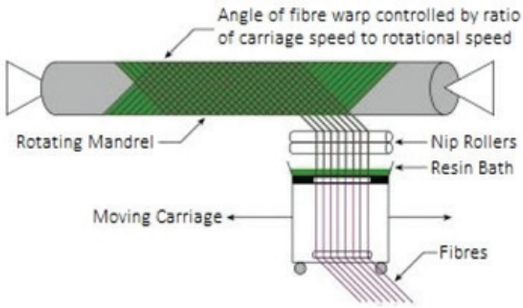
Our Pipes and Fittings can be used for all types of fluids

- Water Distribution System
- Fire Fighting Networks
- Sea Water Intake & Outfall Piping
- Re-lining, Slip-Lining Applications
- Industrial Waste Applications
- Slurry Transportation Piping
- Water Distribution Systems
- Pipe Jacking & Tunnelling Applications
- Storm Water Drainage
- Irrigation
- Distillate Water Piping
- Rehabilitation Application
- Desalination Plants
- Pressure / Forced Mains Sewer
- Chemical Plants
- Suitable usage for more than 400 Chemicals
- Drinking Potable Water
- Hydro-electric Plants
- Sewage Drainage
- Water Transmission Lines
- Water & Sewage Treatment Plants
- Above Ground Piping
- Sub-Aqueous Piping
- Special Application & Many Other

PRODUCT ABBREVIATION

GRE – Glass Reinforced Epoxy Resin
GRP – Glass Reinforced Plastic
FRP – Fiberglass Reinforced Plastic
GRV – Glass Reinforced Vinylester Resin
RTR – Reinforced Thermosetting Resin
RTMP – Reinforced Thermosetting Mortar Plastic
GRP – Glass Reinforced Polyester Resin
FRP – Fiberglass Reinforced Polyester Resin
RPMP – Reinforced Plastic Mortar Pipes

Filament Wound GRV/GRP/GRE Pipes:



Standard pipe manufacturing process in which the fiber glass roving is wetted with resin and is wound on mandrel at pre-calculated winding angles. The helical winding pattern is responsible for providing the composite product with maximum mechanical durability.

The reinforcing layers are alternatively weaved to form a "weaved mat-like structure." This interwoven form improves product integrity and mitigates failure. It is an essential requirement for high/very high-pressure GRP/GRE/GRV pipes used in oil & gas applications. Hence, for these reasons, all the high/very high-pressure pipes are manufactured exclusively through the helical winding process.

Filament Winding

Liner

Structure

Liner Layer:
The inner-most layer mostly impregnated with resin to provide maximum chemical resistance. The resin used will decide the extent of its chemical and temperature resistance.

Structure Layer:
The structural wall is generally 70% glass and 30% resin providing it the optimum mechanical strength. The entire process is controlled via 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, greater the elasticity of the pipe.

Use of ovens help in fastening the curing process and makes sure the bonding takes place well. Once the pipes are extracted, they are calibrated at the ends if required (flexible joint).

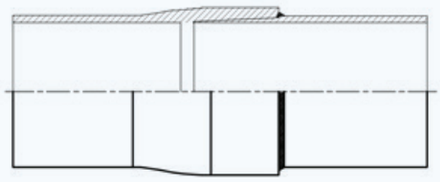
Joining System

Fully corrosion resistant regarding the conveyed fluids, aggressive soils, and vacant currents.

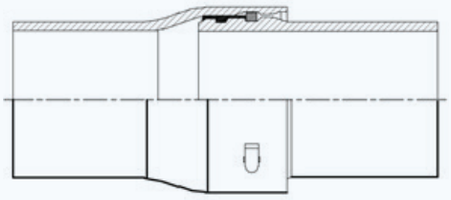
Below joining options are available:
- **PL/PL**: Plain End/Plain End lamination joint
- **FL/FL**: Flanged/Flanged joint / rigid joint
- **TB/TS**: Adhesive Bonded Tapered Bell/Spigot joint
- **CB/CS**: Adhesive Bonded Cemented Bell/Spigot joint
- **THB/THS**: Adhesive Bonded Threaded joints
- **SO/SP**: Socket Spigot flexible joint
- **LJSO/LJSP**: Lock joint Socket/Spigot joint

Standard pipe **lengths** are as below:
-DN 15 to 25 – 2.5 to 3.0 meters
-DN 40 to 100 – 6.0 meters
-DN 150 to 3050 - 11.0 to 12 meters
-Though any intermediate length is available.

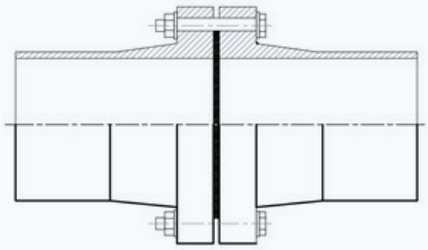
Fittings: FiberTie can produce in GRP/GRE/GRV a wide range of fittings (elbows, flanges, tees reducers, etc.) and spools prefabricated that are supplied ready to be installed. Fittings can be manufactured either by hand lay-up, by contact molding.



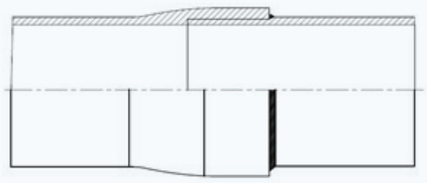
Tapper Adhesive Joint



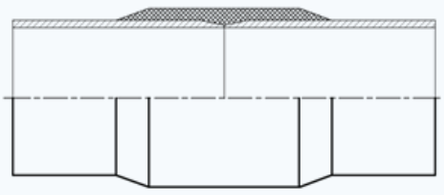
Rubber Seal Lock Joint



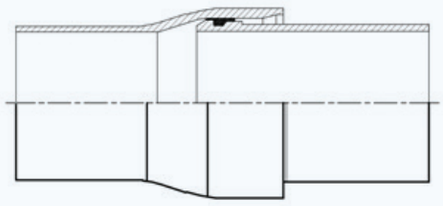
Flange Joint



Conical Adhesive Joint



Butt Wrap Laminated Joint



Unrestrained Spigot Bell Joint

Engineering Services:

- Stress Analysis on both aboveground and buried GRE/GRP/GRV piping system (CAESAR II Latest Revision.)
- Surge Analysis (transient and static) with AFT impulse / PIPENET.
- Calculation of behavior of GRP buried pipes according to AWWA M 45 Standard code.
- Hydraulic calculations for aboveground and buried piping.
- Piping support engineering and detailed design.
- FEA Analysis of Special fittings/Flange/Joint.
- Bill of quantities of pipes, fittings, valves, gaskets, and bolts.
- Isometrics of GRP lines for both aboveground and buried application (AUTOCAD.)
- Drawing of Profiles and altimetry of pipelines plans, sections, and details of various lines.
- The general, detailed, and spool drawing of GRP fittings, such as flanges,
- lamination, branch connection, etc.
- FEED assistance, including material selection report, material specification, thickness calculation, and piping pressure class selection.
- Tanks and Pressure Vessels design in alignment with ASTM, ASME, and BS Standards.
- Subsea pipe calculation.

Technical and Site Services:

FiberTie has the in-house capacity to supply highly experienced and skilled personnel for executing and supervising the following activities:

- Assembly activities.
- Lamination.
- Hydro-testing.
- Adhesive joint.
- Site surveying and pipe routing.
- Shutdown management.
- System failure investigation.
- Piping integrity and design life assessment.
- Pipeline repairs and piping rehabilitation.

Quality Control:

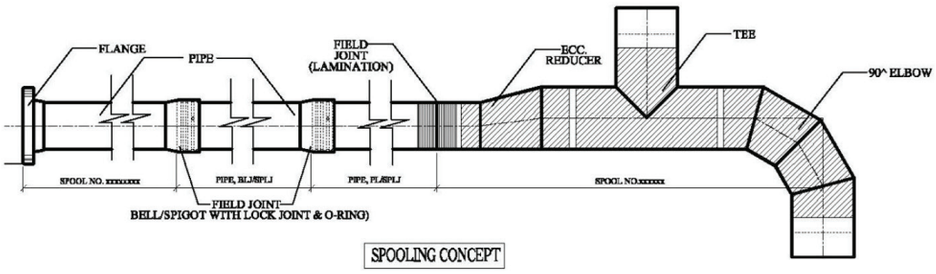
FiberTie has a well-established Quality Control Laboratory where all our raw materials and finished goods are put through various tests of quality control to ensure only the products of highest quality leave our factory.

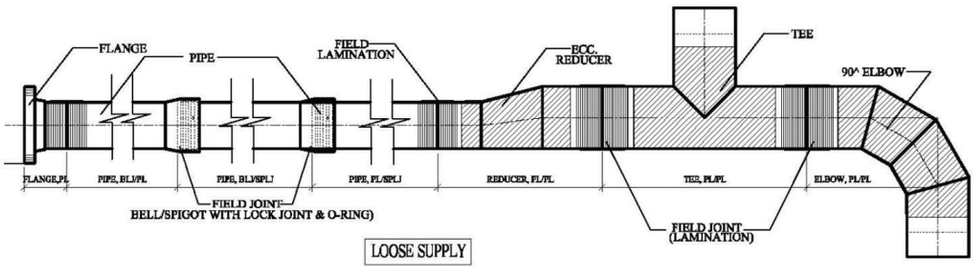
Spool Engineering:

The below options for product preparation are available for the Fibertie GRE Piping system:

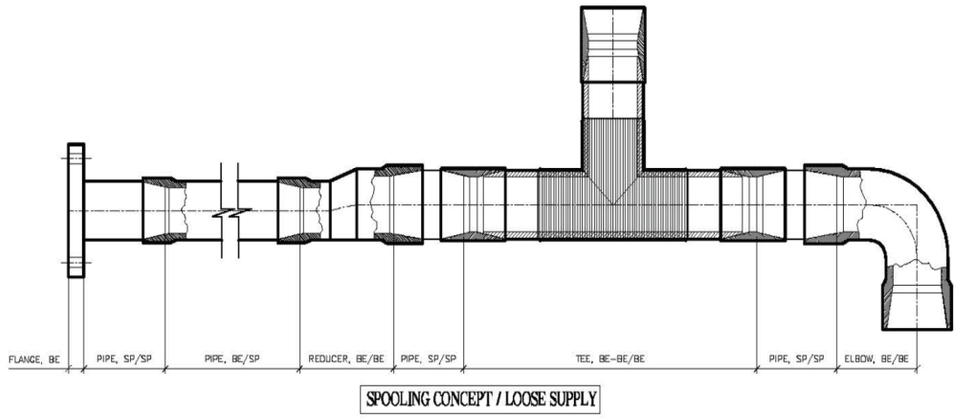
- 1. In scenarios where site adjustment is feasible, the piping system is prepared using the standards components that correspond to the tables above.
- 2. The piping system is prepared using a prefabricated spool with the standard component's dimensions. However, this option is feasible when isometric drawings are ready, and measurements are verified at the site.
- 3. This option is more relevant with plain end joints, especially for congested areas Adjustments can be provided at some joining locations with limited flexibility for site dimensions.

Spool Arrangement for Plain End





Spool Arrangement for Adhesive Joint



Spooling concept has the below advantages:

- Fast and hassle-free jointing.
- Minimize the need for jointing on-site.
- Reduced installation costs.
- Curtail material wastage.
- Minimize costs through reduced joints and dimensions.
- Tight dimensions for congested areas are doable with the spooling concept.

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