

PACIFIC

Pacific Pipe Systems Pvt Ltd



A Group Company of
Doshion[®]
Translating Source Into Resource

Pipes for Life

[Pacific Website](#)

Topics

- Introduction.
- Applications.
- History of GRP - an old and proven material.
- Features and benefits.
- Standards and testing.
- Quality control.
- Manufacturing.
- Installation and site services.

Introduction

- Pacific Pipe Systems Pvt Ltd.
- One of India's largest GRP pipe and fittings manufacturer.
- The head offices is located in Ahmedabad, Gujarat and the manufacturing plant in a 30 acre campus along the SH17 state highway outside Sanand, Ahmedabad.
- Manufacture a range of GRP pipes and fittings with both continuous filament winding (CFW) and a wrapped helical winding process (HW) in diameter range from 100 mm to 3000mm.
- A group company of Doshion Limited, an Rs.350 Crore group providing a wide gamut of products, technologies and EPC services in water and water treatment pertaining to industrial and municipal water needs.

Applications

- Pacific Pipes are used in numerous applications:
- Potable and raw water transmission and distribution.
- Sanitary sewerage collections and outfalls.
- Storm sewers and drainage.
- Sea water intakes, outfalls and cooling water lines.
- Circulating water, make-up and blow down lines for power plants.
- Penstock lines for mini-hydroelectric power plants.
- Industrial effluents.

History of GRP - an old and proven material.

- Modern glass fiber was invented in 1938 by Russell Games - Slayter of Owens Corning.
- The first polyester resin were made in a laboratory around 1850. Commercial polyester resin was patented by DuPont in 1936. It is one the most common resins. They are economical and provide a good long term Corrosion resistance. For pipe production, mainly used as orthophthalic or isophthalic resins where the latter has a slightly higher HDT and corrosion resistance.
- Vinyl Ester resins. A range of hybrid resins developed by Dow chemicals in the 1970's that provides improved chemical and heat resistance. Mainly used for media with strong acids and oxidizing chemicals.
- Epoxy resins. Initially developed in 1936 and licensed to Ciba. In pipes, used for very high pressure applications and where curing under water is required.

History of GRP - an old and proven material.

- GRP products widely used during WWII in the construction of radar screens, aircraft parts and other applications.
- In 1964, the first GRP fuel tank was installed in Chicago. It was uncovered and tested in 1985 and found to still exceed the UL standards for new tanks. This fuel tank is still in service.
- The first GRP pipes were made in the 1940's with helical winding and used mainly for very corrosive chemical applications.
- During the 1960's there were a number of active manufacturers and GRP pipes entered first the sewer sectors due to the high corrosion resistance and later also water transmission. The first continuous filament winding machine was designed by Drostholm in the late 1960's.

Features and Benefits.

- Economical.
- Corrosion resistant material.
- Proven jointing techniques, REKA sleeve, butt and strap, lock joints, mechanical joints.
- Stringent performance standards.
- Extremely smooth bore.
- Long standard lengths.
- Light weight.
- High technology pipe manufacturing platform.

- **Economical.**

- GRP pipes competitive with other commonly used materials.

- No corrosion surveys required.

- Low installation cost.

- Low operating (pumping and maintenance) costs.

- **Corrosion resistant materials.**

- Long service life.

- No need for linings, coatings, cathodic protection or other forms of corrosion protection.

- Low maintenance costs.

- Hydraulic characteristics essentially constant over life time.

PACIFIC

A Group Company of
doshion[®]
Translating Source Into Resource

- **Extremely smooth bore.**

- Low friction loss results in less pumping energy needed, lower operation costs.

- Allows flatter grades and less excavation for gravity flow.

- No slime build.

- **Long standard lengths.**

- Fewer joints reduces installation time and costs.

- Standard lengths 6 and 12 meters. Special lengths from 1 - 12 meters.

- **Light weight.**

- 1/4 weight of DI pipes and 1/10 weight of concrete pipes.

- Lower transporting costs, nestable pipes.

- No need for heavy pipe handling equipment.

PACIFIC

A Group Company of
doshion[®]
Translating Source Into Resource

- **Proven jointing system.**

- The standard REKA sleeve proven for more than 80 years.

- Simple design allows for rapid assembly and a faster fool proof pipeline installation.

- Precision manufacture ensures a leak proof system with no infiltration / exfiltration.

- Angular deflection at joints accommodates differential settlements.

- Angular deflection at joints can be used to eliminate small bends.

- **Fabricated fittings.**

- Almost any configuration possible.

- Fittings designed to meet exact project requirement.

- Special fittings can be manufactured.

- Fittings spooled together to eliminate joints and to reduce installation time.

PACIFIC


A Group Company of
Doshion[®]
Translating Source Into Resource

Standards and testing.

- **Qualification testing.**
- All major standards call for manufacturers to demonstrate compliance with minimum long term performance requirements. The most important of the long terms tests are:
- HDB - Hydrostatic design basis.
- Long term ring bending.
- Strain corrosion for sewer applications.
- Joint testing.
- These tests are done over a 10.000 hours cycle where the creep is extrapolated to 50 years values. When the 50 years safety factors are obtained, these are calculated back to required initial values.

Standards and testing.

Routine testing.

-  All incoming raw material are tested before release to production to ensure that it complies with the manufacturer's specifications as well as with Pacific Pipe's specifications.

TEST	FREQUENCY	STANDARD REF.
Wall Thickness	Every Pipe	ASTM D 3517
Visual Inspection	Every Pipe	ASTM D 3517
OD / Spigot End	Every Pipe	ASTM D 3517
Hydro Testing	Every Pipe	ASTM D 3517
Pipe Length	Every Pipe	ASTM D 3517
Barcol Hardness	Every Pipe	ASTM D 2583
Stiffness	Once per day	ASTM D 2412
LOI	Once per day	ASTM D 2584
Axial Tensile Strengths	Once per day	ASTM D 0638
Circumferential T.S.	Once per day	ASTM D 2290
Deflection to crack	Once per day	ASTM D 3517

PACIFIC

A Group Company of
Doshion[®]
Translating Source Into Resource

High technology manufacturing platform.

- A modern machine park incorporating the latest in PLC and other control systems.
- Imported from the most reputable companies in their field.



Manufacturing - Continuous filament winding (CFW)

- Diameter range up to DN2600. PN 1 - 32. All stiffness classes including the standard SN2500, SN5000 and SN10000.
- REKA sleeve joints, lock joints, butt and strap or mechanical couplings.
- CFW machines are in use since the late 1960's and have been improved and developed over time to always incorporate the latest technology in PLC control systems and raw material control.
- Several 100.000 km of pipes installed in the world.



Manufacturing - Helical winding (HW). Wrapped or glass/resin.

- Diameter range DN₁₀₀ - DN₃₀₀₀. PN 1 - 32. All stiffness classes including the standard SN₂₅₀₀, SN₅₀₀₀ and SN₁₀₀₀₀.
- REKA sleeve joints, bell and spigot, butt and strap, lock joints or mechanical couplings.
- Wrapped pipes consist of a liner and inner reinforcement layer of glass/resin. A core of premixed resin and sand, wrapped onto the mandrel to ensure that the core is in the neutral axis of the pipe, and an outer reinforced layer of glass/resin.
- Standard resin / glass pipes for higher pressure applications.
- Several 100.000 km of HW pipes installed in the world.



Manufacturing - fittings and specials.

- All standard fittings for both continuous filament winding and for helical winding.
- All standard pressure and stiffness classes.
- Special fittings manufactured as per project requirements and specifications.
- Fittings made for restrained and unrestrained systems.
- Manholes in GRP to ensure that the complete system is corrosion resistant.

Installation and site services.

- Pacific Pipe Systems provide for full site support during installation.
- Supply and install projects.
- Full engineering support including FEM and Caesar II studies when required.
- O & M services.
- Financial engineering for annuity and DBOOT projects.



Offices.

Reg. Offices:

Pacific Pipe Systems Pvt Ltd
1015-A ATMA House, Opp. Old RBI
Ashram Road, Ahmedabad 09, India
Phone: +91 79 26574377
Phone: +91 79 26573746
Fax: +91 79 26574367
Email: office@pacific-pipes.com



Plant Offices:

Pacific Pipe Systems Pvt Ltd
Plot no. 36-43(P), 101(P), Naranpura
Chandrasan, Sanand, Ahmedabad 382170,
India
Phone: +91 2717 273031
Fax: +91 2717 273032
Email: office@pacific-pipes.com



PACIFIC

A Group Company of
doshion
Translating Source Into Resource