

گروه صنعتی عالم آرا

Alam Ara

Industrial Group Co.







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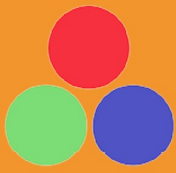
We live in an era in which good alternatives are proposed to replace many underground and fossil resources. Polymers, plastics, bitumen, rubber, clothing, adhesives, caoutchouc, protein, and cellulose are all new terms used in our time. Wasting in an age where every bit of every particle has a huge amount of energy, is a significant crisis. Therefore, the proper transfer of energy is highly important. Obviously, Today, the science and technology of producing pipes for transferring water, oil, natural gas, and other energy sources have made it easier, low cost, and healthier to transfer energy.

The Mission of Alam Ara Industrial Group

In order to create added value in mineral process industries and create new technological opportunities, Alam Ara Industrial Group strives to create one of the largest advanced technology complexes in Asia in glass fibers and related industries. By playing a role in the international economy network, the company tries to win the satisfaction of shareholders and stakeholders while providing quality products and services to Iran's industries and infrastructure projects.

History of Company

Alam Ara Industrial Group (private limited company), consisting of shareholders of the Social Security Organization, Pension Fund for Civil Servants, started its activity in June 2006, in order to construct glass fiber factories and related industries, such as the construction of a GRP pipe production factory (Social Security Organization, subsidiaries of Social Security Investment Company, State Pension Fund, Marand Development Company, and other shareholders).



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GRP Pipes

Full name: glass fiber reinforced polyester pipe

Due to the smooth surface, full resistance to chemical corrosion, high-pressure tolerance, UV impermeability, lightweight, easy installation, and also the possibility of fitting with inhomogeneous pipes are a superior option in selecting transmission pipelines of gravitational water networks, water, and sewage.



Production Process:

All products of the company are produced using the latest world-class raw material technology and based on AWWA, ISIRI, ASTM, ISO standards.

Types of pipes based on process:

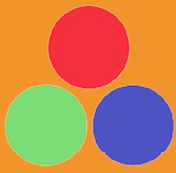
Pipe production is done by Continuous Filament Winding (CFW).

Types of fiberglass fittings include couplings, tees, traps, flanges, short pipe-fitting, and hand lay-up conversions.



Pipe structure

Exterior Shell	Including chemical grade glass fibers (C-glass) + resin with UV protection
Outer Skin	Including electrical grade glass fibers (E-glass) in forms of direct and chopped + resins with UV protection
Mortar Core	Including electrical grade glass fibers (E-glass) in forms of direct and chopped + silica sand + resin with UV protection
Inner Skin	Including electrical grade glass fibers (E-glass) in forms of direct and chopped
Liner	Including electrical grade glass fibers (E-glass) in forms of direct and chopped + resin
Interior Shell	Including chemical grade glass fibers (C-glass) + resin



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DN	mm	300 – 3000
PN	Bar	2 – 32
SN	Pascal	1250 / 2500 / 5000 / 10000



SN

PN

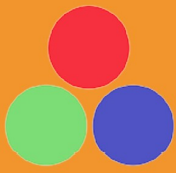


Qualification test training:

Quality control tests based on ISO, ASTM, AWWA, ISIRI standards are done in three stages.

First stage: raw materials.

The quality of the final product is directly related to the quality of raw materials. Thus, selecting and purchasing the appropriate raw material is the first and most important issue in the production of pipes and fittings. These tests are performed not only on the samples but also when raw materials enter the factory, during storage, and during production.



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Second stage:

product quality settings and parameters are controlled and checked during production.

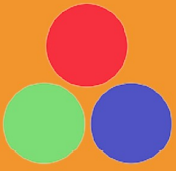


Third stage:

Performing various mechanical and chemical tests on the final product

- Visual inspection
- Barcol
- Dimensions
- Hydrostatic (under pressure twice the nominal pressure of the pipes)
- Stiffness
- Deflection change
- Tensile in the axial and radial directions
- Compression in the axial and radial directions
- Material composition tests





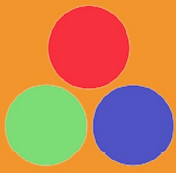
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Application of GRP Pipes:

GRP pipes have many applications such as transfer of potable and agricultural water and are used in important sectors of industry such as

- Dry fire hydrant networks
- Sewerage networks
- Oil networks (special types of GRP fireproof pipe)
- Reservoirs of water, chemicals, and oil
- Car CNG capsule
- Half pipe
- Irrigation and drainage networks and high-volume dam transmission
- Seawater transmission system



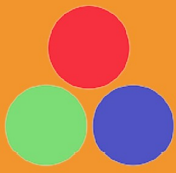
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Advantages of GRP Pipes:

- Highly polished inner surface (which leads to fluid transfer with lower pumping cost and less sedimentation.)
- Low weight (about 10% concrete pipes, 30% steel pipes, and 25% cast iron pipes)
- Possibility of producing pipes up to 12 meters with different pressures (up to 32 bar) and different stiffness (up to 10,000 N/m²)
- Application of health and environmental standards for potable water
- Easy installation
- Resistance to corrosion due to thermal changes and radiation
- Resistance to freezing and thawing
- UV resistance
- High static load resistance
- High stability and chemical resistance
- Long life (about 50 years)
- Ability to withstand pressure up to 1.8 times other pipes under any pressure
- No need for external cover for external protection

It has a low coefficient of roughness hydraulically. According to Hazen–Williams equation, the hydraulic transfer coefficient of these pipes is 150, which saves 30% in transmission energy consumption compared to other types of pipes. Moreover, the roughness coefficient (Manning) for these pipes is 0.01, which is about 30% better than other pipes.





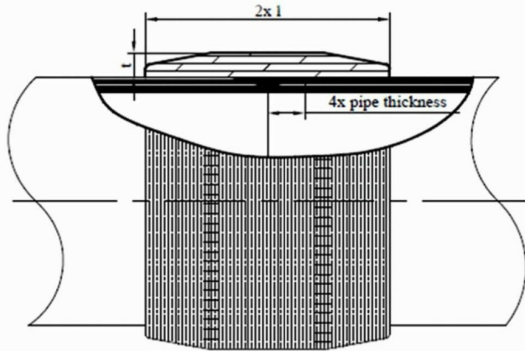
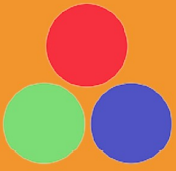
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Comparison of various other pipes with GRP pipes

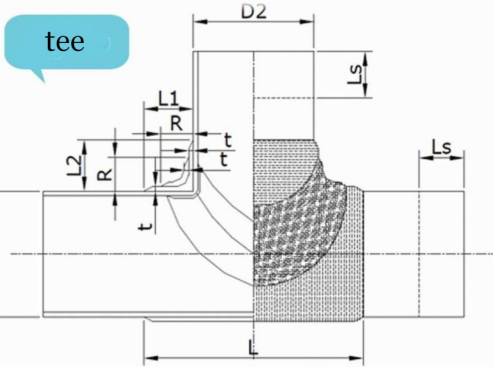
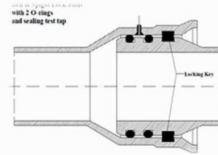
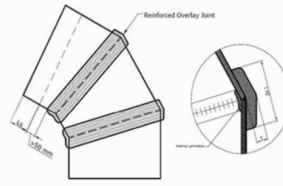
PVC	PE	Cast iron	Metal	Asbestos	Concrete	GRP	Pipe type / Properties
YES	YES	YES	YES	NO	NO	YES	Existence of connections
NO	If there is an inner layer, yes	NO	NO	NO	YES	YES	Ability to install with PIPE JACKING
NO	YES	If there is an inner layer, yes	If there is an inner layer, yes	If there is an inner layer, yes	If there is an inner layer, yes	YES	Corrosion resistance
NO	YES	NO	YES	YES	YES	YES	Pressure resistance
NO	NO	YES	YES	NO	YES	YES	Environmentally friendly

Fittings:

all fittings, including, traps, conversion, tees, flanges in a discontinuous and hand layup manner, are made in accordance with AWWA, ISIRI, ISO, ASTM standards, and any other standard custom-tailored for customers.

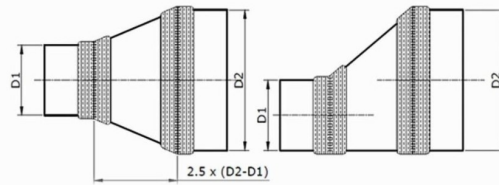


Elbow

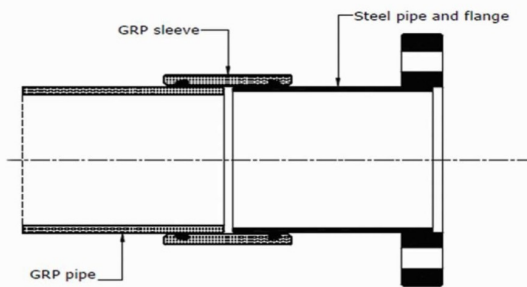


tee

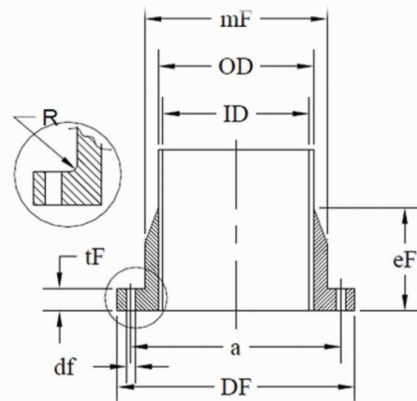
Reducer

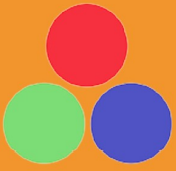


Connection to metal pipes



flange





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Installation:

Based on the installation, GRP pipe systems can be fitted as two-o-ring installed in different places, including underground and semi-buried, on the ground, underwater, installed inside the tunnel, and on a sloping surface. All personnel involved in the installation process are trained by the manufacturer. The company's after-sales service experts can cooperate and interact with buyers during installation and after installation. The company is willing to implement all projects related to water and sewage.



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