

Large Diameter Piping System



Specifications

RPS LARGE DIAMETER PIPING SYSTEMS

RPS has a solid reputation in North American and world markets as a manufacturer of large diameter, fiberglass reinforced plastic (FRP) piping systems. RPS' Engineering and R&D staff have developed a cost-effective piping system that can handle the tough applications.

Using the filament winding process, RPS can manufacture standard piping up to 120" in diameter. Larger sizes are available on a custom basis.

Typical Large Diameter Applications:

POWER UTILITY:

- Penstocks
- Waste Water Treatment
- Cooling Circulation
- Slurry Piping

PULP & PAPER and CHEMICAL PLANTS:

- Sewer or Effluent Lines
- Drains
- Process Piping
- Desalination Processes

MUNICIPAL:

- Waste and Sewage Treatment Piping

Advantages of FRP Piping Systems:

1. Corrosion Resistance

FRP has a much higher resistance to corrosion than metal in most environments, giving it a much longer life. RPS offers a number of resins tailored to meet individual applications.



2. Strength/Light Weight

Due to the exceptional strength of FRP, RPS pipe products may weigh as little as 1/6th that of steel. This makes it easier to handle and less expensive to erect. The flexibility of FRP also allows considerable deflection without structural damage

3. Improved Flow

The smoothness of the interior surface in RPS' piping (Hazen Williams C factor of 150) results in improved flow rates, and less sludge and mineral accumulation than alternate materials. This may allow a reduction in required pipe diameter, reduce pumping costs, and allow greater efficiency.

4. Low Joining Costs

RPS can provide piping in lengths of 40' and, in some cases, 60'. This means fewer joints in the field. For example, steel in standard lengths of 20' would require three times (3x) the joints of a 60' length FRP system. In most cases, joining does not require expensive equipment purchase.

Features of RPS' Large Diameter Piping Systems:

RPS' piping systems, from 14" to 120" in diameter, come in a variety of pressure ratings ranging from 25 psi to 150 psi service. High factors of safety are built into the design of both pipe and fittings. The design

of fittings in a piping system is crucial because the “system” is only as good as its least satisfactory component.

RPS engineering is experienced in the design of buried and suspended systems, and can assist you in choosing an appropriate system for your purpose.

The Wall of RPS’ Large Diameter Piping Systems is Constructed as Follows:

1. 110 mil Corrosion Liner

RPS’ standard corrosion liner utilizes a vinyl ester resin because of its excellent corrosion resistance to a wide variety of chemicals. RPS’ tough, resin rich 110 mil liner employs a 10 mil synthetic veil (90% resin), backed by two (2) layers of chopped glass mat (70% resin), and creates a formidable barrier to corrosive attack. This 110 mil liner is present in fittings (elbows, tees, flanges, etc.) as well as the pipe so that the entire **system** has this same high level of protection. In certain environments that are extremely abrasive, such as limestone slurries, RPS will add a proprietary formulation to the liner to increase abrasion resistance. This abrasion liner has outperformed rubber lined steel in slurry service. RPS’ experience includes 220 mil liners, as well as exterior liners for corrosive, atmospheric or buried conditions. We can tailor one to meet your service requirements.

2. Structural Layer

The structural wall of RPS’ pipe is filament wound with continuous glass roving to provide the required hoop and axial strength (with high factors of safety) for the desired pressure rating. Filament wound pipe is less costly than contact molded pipe, as the necessary strength can be achieved with less material. RPS’ large diameter fittings are, in some cases, part hand lay-up, in addition to having a filament wound structural cage.

The resin in the structural layer can be varied to suit customer needs. RPS manufacturers piping systems using vinyl ester, polyester, or isophthalic resins in this layer. Properties affected include corrosion resistance, fire retardancy, economy, and pipe translucency. Please consult RPS for assistance.

3. Exterior Coat

RPS’ standard pipe and fittings are given an exterior brushcoat containing an U.V. absorber for added protection against spillage and environment.

RPS Joining Methods for Large Diameter Piping Systems:

1. O-Ring Joining

This form of joining is the most common on large diameter piping. It is particularly useful when speed of assembly is important, and when joining must be completed under cold or wet conditions.

O-Ring joints are made using factory produced, grooved spigots and accurate bells, which provide the required compression of the O-Ring gasket. The lubricated spigot end is inserted quite easily into the bell end in the field.

Single or double O-Ring systems are available on RPS’ pipe. The double O-Ring system permits pressurized joint testing of the seal without filling the piping system.

2. Butt Joining

This method of joining is permanent and is more common on small to intermediate diameter piping.

a. Standard Butt Joining

This type of joint is prepared by sanding the surface of the pipe and then applying a resin/glass build-up. It requires less joint preparation time than the tapered butt joint if PEEL-A-BOND™ is not used, and may be suitable where a reduction in strength and corrosion resistance is not important.

b. Tapered Butt Joining (Optional)

Plain ends of the pipe are tapered by sanding and a resin/glass build-up is applied. RPS PEEL-A-BOND™ can eliminate the need to sand these ends in the field. Ends can be factory tapered and have PEEL-A-BOND applied. In the field, the PEEL-A-BOND is simply removed and build-up can begin. Tremendous labour savings are possible over standard tapered butt joining, and working conditions are improved considerably. This type of joint is approximately 60% stronger than the Standard Butt Joining.

3. Flange Joining

Flanges are more often used on small and intermediate diameter piping systems. They are an expensive alternative to butt joining, but do offer faster assembly and require somewhat less expertise. RPS standard flanges are extremely strong and are able to withstand high bolt torques. Lap joint flanges are available, which permit sealing with lower bolt torques and have self-aligning bolt holes.

Other Major RPS Features:

1. Engineering Assistance

RPS' engineering staff is responsible for the successful track record. Assistance in the design stages, in drawing review during system installation, and post system start-up, keep system problems at a minimum. Customer support will continue to be one of RPS' strengths.

2. Pre-assembly

RPS offers in-factory joining of pipe and fittings either by RPS Union or U.A. Pipefitters labour. This minimizes joining in the field and yields substantial savings to the customer. Isometric drawings are always prepared for customer review and approval, as well as, for installation.

3. Quality Assurance

RPS' Mahone Bay and Minto manufacturing plants are ISO 9001 Certified by NSF.

4. Training

RPS has a qualified staff of field technicians who are well equipped to train field personnel on the correct methods of installation.

5. Transport

On large orders, RPS can offer delivery on dedicated trucks. This eliminates the need for trans-shipment and minimizes the danger of damaged material arriving on site.

The plant has access to both bulk and container shipping. RPS is experienced in crating for domestic and export markets.

SUMMARY

RPS offers tough, dependable piping systems, along with the Engineering assistance required to ensure a successful installation.

With RPS you get:

- Competent Engineering
- Quality Fabrication
- Pre-assembly
- Service
- Timely and Reliable Delivery
- Proven Track Record

RPS Composites Inc.

740 Main Street

P.O. Box 299

Mahone Bay, Nova Scotia

Canada B0J 2E0

Tel: (902) 624.8383 | (800) 343.9355

Fax: (902) 624.6395

www.rpscomposites.com