

FIBERGLASS PIPE GROUP

Bondstrand 3000A Pipe and Fittings

Fiberglass reinforced
thermosetting epoxy resin pipe
for plant piping general services

Scope

This specification defines the reinforced thermosetting resin (RTR) piping system to be used in those sections of Plant Piping General Services calling for fiberglass piping systems.

References, Quality Assurance

References are made to other standards and tests which are a part of this section as modified. Where conflict exists between the requirements of this specification and listed references, the specification shall prevail.

Physical and Mechanical Properties

Typical Pipe Property	Units	Value (2"-6") (8"-16")		ASTM Method
Tensile Strength Longitudinal	10 ³ psi MPa	35.0 240.0	20.0 138.0	D2105
Circumferential Strength	10 ³ psi MPa	70.0 480.0	40.0 275.0	D1599
Tensile Modulus Longitudinal	10 ⁶ psi GPa	3.0 20.6	1.5 10.3	D2105
Tensile Modulus Circumferential	10 ³ psi GPa	4.2 29.0	2.3 15.9	
Compressive Strength Longitudinal	10 ³ psi MPa	35.0 240.0	20.0 138.0	
Compressive Modulus Longitudinal	10 ⁶ psi GPa	3.0 20.6	1.5 10.3	
Hydrostatic Design Basis (cyclic)	10 ³ psi MPa	8.0 55.0		D2992(A)
Coefficient of Thermal Expansion (linear)	10 ⁶ in./in./°F 10 ⁻⁶ mm/mm/°C	8.5 12.0	15.3 21.6	
Flow Coefficient	Hazen Williams 150			

Performance Requirements

The pipe shall be manufactured in accordance with ASTM D2996 Specification for RTRP. When classified under ASTM D2310, the pipe shall be Type I, Grade I and Class F for 2" through 16" nominal pipe sizes. The piping must meet or exceed the requirements of MIL-P-29206A and ASTM D5677-95. The pipe shall be rated for a minimum internal pressure of 150 psig at 210°F in sizes 2" through 16" and have a full vacuum capability at 80°F when buried and properly backfilled.

Materials

Pipe Construction

Filament-wound fiberglass reinforced epoxy resin pipe shall be Bondstrand 3000A as manufactured by Ameron Fiberglass Pipe Group, or approved equal. The pipe shall have an integral corrosion barrier constructed with the same epoxy resin as the pipe structural wall. RTR piping without a corrosion barrier shall not be allowed.

ISO-9001



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Materials (cont'd)

Structural wall

The pipe shall have the following nominal reinforced wall thickness:

Pipe end preparation options

The piping manufacturer will provide standard pipe joint lengths up to 39 feet RL to reduce field labor assembly time. The piping system shall be suitable to be joined with a

bell and spigot taper/taper adhesive bonded joint, or with a mechanical joint not requiring adhesive.

Pipe Diameter (inches)	Nominal Wall Thickness	
	inches	mm
2	.064	1.6
3	.071	1.8
4	.074	1.9
6	.105	2.7
8	.125	3.2
10	.150	3.8
12	.175	4.4
14	.190	4.8
16	.210	5.3

Fittings

It is important to maintain compatibility of fittings, piping and adhesives to ensure that the system performs as specified. Therefore, the pipe, fittings and adhesive shall be supplied by the same manufacturer.

Compression Molded Fittings

Fittings in 2" through 6" nominal sizes may be compression molded using the same resin type as used in the pipe.

Filament-wound fittings

Elbows in 8" through 16" nominal sizes shall be filament-wound incorporating a reinforced resin-rich corrosion barrier.

Contact molded, spray up or hand lay-up fittings shall not be allowed.

Testing

The manufacturer will test samples of pipe and fittings at random, based on standard quality control practices to determine conformance with ASTM D1599, D2105, D2925, D2992A or D2992B, and D5677-95. The installed piping system shall be hydrostatic tested with water at 1½ times the design pressure of the lowest rated piping system component.

Test and repair procedures

The RTRP manufacturer will provide test and repair procedures in the event field repairs are required.

Installation

Installation procedures and techniques as well as system design criteria including burial, anchoring, guiding and supporting shall be in accordance with manufacturer's recommendations.

Piping system installers and fitters will be trained by a direct factory employee of the piping system manufacturer and certified by the trainer prior to system assembly in the field.

Important notice

This literature and the information and recommendations it contains are based on data reasonably believed to be reliable. However, such factors as variations in environment, application or installation, changes in operating procedures, or extrapolation of data may cause different results. Ameron makes no representation or warranty, expressed or implied, including warranties of merchantability or fitness for purpose, as to the accuracy, adequacy or completeness of the recommendations or information contained herein. Ameron assumes no liability whatsoever in connection with this literature or the information or recommendations it contains.



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