



AMERON
INTERNATIONAL

FIBERGLASS - COMPOSITE PIPE GROUP

Bondstrand 7000 Pipe and Fittings

Fiberglass reinforced
thermosetting epoxy resin pipe
for anti-static applications

Scope

This specification defines the reinforced thermosetting resin (RTR) piping system to be used in those services that may produce a dangerous build-up of static electrical charges. Such services include above-ground jet fuel lines, double-contained jet fuel lines, and transmission of refined petroleum products, gases, or non-polar fluids at high velocities.

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	70°F 21°C	200°F 93°C	ASTM Method
Circumferential Tensile Stress at Weeping	10 ³ psi MPa	24.0 165.0	– –	D1599
Circumferential Tensile Modulus	10 ⁶ psi GPa	3.65 25.5	3.20 22.1	
Circumferential Poisson's Ratio	–	.56	.70	
Longitudinal Tensile Strength	10 ³ psi MPa	8.50 59.0	6.90 44.6	D2105
Longitudinal Tensile Modulus	10 ⁶ psi GPa	1.6 11.0	1.24 8.5	D2105
Longitudinal Poisson's Ratio	–	.37	.41	
Hydrostatic Design Basis (cyclic) [at 150°F(66°C)]	10 ³ psi MPa	6.0 41.4		D2992(A)
Beam Apparent Elastic Modulus	10 ⁶ psi GPa	1.7 11.7	1.0 6.9	D2925
Flow Coefficient	Value			
	Hazen Williams 150			
Thermal Conductivity Pipe Wall	BTU-in./(hr. ft. ² °F) W/M °C		2.3 .33	
Grounding Resistance at 1500 volts	10 ⁶ ohms		1.0 max.	
Coefficient of Thermal Expansion, Linear	10 ⁻⁶ in./in./°F 10 ⁻⁶ mm/mm/°C		10 18	D696

Performance Requirements

The pipe shall meet or exceed the requirements of MIL-P-29206A and ASTM D5677-95. Pipe dimensions must conform to Iron Pipe Size (IPS) outside diameters. In sizes 2" through 16" the piping must be rated for a minimum internal pressure rating of 165 psig at 200°F. In 2" through 16" sizes the pipe shall have full vacuum capabilities at 70°F when installed above ground.

Pipe shall be manufactured in accordance with ASTM D2996 Specifications for RTRP, with designations as follows:

2", 3"	RTRP-11AE-1112	8", 10", 12"	RTRP-11AE-1114
4", 6"	RTRP-11AE-1113	14"	RTRP-11AE-1115
		16"	RTRP-11AE-1116

ISO-9001



DNV
CERTIFICATED FIRM

Materials

Pipe Construction

The conductive filament wound fiberglass reinforced epoxy resin pipe shall be Bondstrand 7000 as manufactured by Ameron Fiberglass Pipe Group or approved equal. The piping system will be made electrically continuous by using conductive filaments in the pipe wall, conductive adhesive in the bonded joints, and may be grounded by use of filament wound fiberglass saddles with stainless steel grounding cable. External or field installed techniques such as conductive wire or mesh, for achieving conductivity along the length of the pipe shall not be allowed.

Structural wall

The pipe shall have the following nominal wall thickness:

Pipe end preparation options

The piping manufacturer will provide standard pipe joint lengths up to 30 feet RL in sizes 2" through 8" to reduce field labor assembly time. The pipe manufacturer will prepare the bell end and the spigot end of each joint in the factory to reduce field labor assembly time.

Pipe Diameter (inches)	Nominal Wall Thickness	
	inches	mm
2	.16	4.1
3	.16	4.1
4	.20	5.2
6	.20	5.2
8	.25	6.3
10	.32	8.1
12	.38	9.6
14	.41	10.4
16	.47	11.9

Fittings

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

Fittings will be constructed with epoxy resin and conductive material, filament wound to specific dimensions. Flanges will be filament wound with epoxy resin and conductive filaments.

Spray up or hand lay-up fittings shall not be allowed.

Testing

The RTRP manufacturer will provide test and repair procedures in the event field repairs are required. The installed piping shall be hydrostatically tested with water at 1½ times the design pressure of the lowest rated piping system component.

Hydrostatic and conductivity testing of buried systems will be completed prior to backfill.

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, express 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. Product specifications are subject to change.



FIBERGLASS - COMPOSITE PIPE GROUP - HEADQUARTERS

P.O. Box 801148 • Houston, TX 77280 • Tel: (713) 690-7777 • Fax: (713) 690-2842 • <http://www.ameron.com>

Asia
Ameron (Pte) Ltd.
No. 7A, Tuas Avenue 3
Singapore 639407
Tel: 65 861 6118
Fax: 65 862 1302/861 7834

Europe
Ameron B.V.
J.F. Kennedylaan 7
4191 MZ Geldermalsen
The Netherlands
Tel: +31 345 587 587
Fax: +31 345 587 561

Americas
P.O. Box 878
Burkburnett, TX 76354
Tel: (940) 569-1471
Fax: (940) 569-2764

Composites
P.O. Box 71370
11 McBride Street
Newnan, Georgia 30263
Tel: (770) 253-2000
Fax: (770) 253-9234

Centron International
P.O. Box 490
600 FM 1195 South
Mineral Wells, Texas 76068
Tel: (940) 325-1341
Fax: (940) 325-9681