Dualoy™ 3000/L Fiberglass Pipe

(Product Data)

FUEL HANDLING

Applications

- Service Station
- Vent/Vapor Recovery
- Bulk Plant Terminals
- Fueling Terminals
- Central Fuel Oil Systems
- Marinas Terminals
- Ethanol Fuel Blends
- Diesel Exhaust Fluid
- UL/ULC Systems that require MV, HB, CT, A&M Fuels

Materials and Construction

Filament-wound fiberglass reinforced epoxy pipe with integral epoxy liner and exterior coating. When classified in accordance with ASTM D2310 and ASTM D2996, the pipe meets the following cell limits: RTRP 11CXF1-5420. The operating pressure of the pipe is up to 200 psig (13.8 bar) with continuous operating temperature to 150°F (66°C).

Dualoy 3000/L is Listed with Underwriters Laboratories Standard 971-2004 for nonmetallic underground piping for motor vehicle (MV), high blend (HB), concentrated (CT) and aviation and marine (A&M) fuels (File MH9162). Dualoy 3000/L pipe and fittings are also Listed with Underwriters Laboratories of Canada (File CMH 715). In Great Britain the Dualoy 3000/L system has been tested and accepted by the London Fire and Civil Defence Authority. Dualoy 3000/L has been issued a Certificate of Compliance to the Institute of Petroleum (IP) Specification by ERA Technology, Ltd.

Performance

Individual system components may not have the same ratings as the pipe. Refer to the detailed product information for the specific components to determine the pressure rating for the system as a whole.

Fittings

Compression-molded and filament-wound fiberglass reinforced epoxy.

For dimensions of fittings, consult publication Dualoy 3000/L Fittings Dimensions.

Pressure ratings of fittings without UL listing are available on request

Joining System

- **Bell & Spigot** - The primary joining method for fitting joints.

Nominal Dimensional Data

Pipe Size		Inside Diameter		Outside Diameter[1]		Wall Thickness				Capacity		Weight		Max. Deflection per 20 ft Joint	Min. Length Req. for 10° Change		Stiffness Factor[2]	
						Total		Structual										
in	mm	in	mm	in	mm	in	mm	in	mm	gal/ft	l/m	lb/ft	kg/m	deg	ft	m	lb•in³/in²	N•m
2	50	2.21	56	2.37	60	0.080	2.03	0.060	1.5	0.20	2.50	0.47	0.70	15	13	4	45	5.1
3	80	3.32	84	3.50	89	0.085	2.16	0.065	1.6	0.45	5.60	0.72	1.07	9	22	7	75	8.5
4	100	4.33	110	4.50	114	0.087	2.21	0.070	1.8	0.77	2.92	1.00	1.49	7.5	27	8	60	6.8
6	150	6.39	162	6.63	168	0.120	3.10	0.100	2.5	1.67	6.35	2.10	3.13	5	40	12	275	31.1

[1] Typical outside diameters of 2 through 6-inch pipe are within API, ASTM and ANSI fiberglass and steel pipe dimensions.

[2] At 5% deflection.

View of Joint Illustrations (Joint illustration only depicts type of connetion available, not type of pipe featured in data sheet)

Bell & Spigot

Typical Pipe Performance

Nominal Pipe Size		Pressure Rating[1]		Ultimate Internal Pressure [1]		Ultimate Collapse Pressure[2]	
in	mm	psig	MPa	psig	MPa	psig	MPa
2	50	200	2.07	3200	22.1	153	1.05
3	80	200	1.38	2400	16.5	90	0.62
4	100	175	1.21	2000	13.8	39	0.27
6	150	175	1.21	2000	13.8	38	0.26

[1] At 80°F (27°C).

[2] At 80°F (27°C). For continuous service do not exceed 75% of these values.

Typical Mechanical Properties

Pipe Property[1]			Method
Tensile Strength			
Longitudinal	35,000 psi	241.3 MPa	ASTM D2105
Circumferential	70,000 psi	482.7 MPa	ASTM D1599
Poisson's Ratio ν_{ha}[2] - ν_{ha}[3]	0.16 - 0.26		FGSTM
Tensile Modulus			
Longitudinal	25,000 psi	172.4 Mpa	ASTM D2105
Circumferential	38,000 psi	262.0 MPa	FGSTM
Compressive Strength			
Longitudinal	24,500 psi	168.9 MPa	FGSTM
Compressive Modulus			
Longitudinal	26,000 psi	179.3 MPa	FGSTM
Cyclic	8,000 psi	55.2 MPa	ASTM D2992 Procedure A

Typical Physical Properties

Pipe Property	Value	Value	Method
Thermal Conductivity	1.7 BTU-in/hr•ft²•°F	7.6 W/m-°C	ASTM C177
Thermal Expansion	8.5 x 10^{-6} in/in °F	15.3 x 10^{-6} cm/cm °C	ASTM D696
Friction Factor	Hazen-Williams 150.0		-
Absolute Roughness	0.00021 in	0.00053 mm	
Specific Gravity	1.8		ASTM D792
Barcol Hardness	65.0 (Impressor 934-1)		ASTM D2583

[1] Based on structural wall thickness.

[2] ν_{ha} = The ratio of axial strain to hoop strain resulting from stress in the hoop direction.

[3] ν_{ah} = The ratio of hoop strain to axial strain resulting from stress in the axial direction.

Pipe Length

Size		Standard		Random	
in	mm	ft	m	ft	m
2-6	50-150	20	6.1	17-21	5.2 - 6.4

Minimum Bending Radius

Size		Minimum Bending Radius[1]	
in	mm	ft	m
2	50	75	23
3	80	100	38
4	100	150	46
6	150	200	61

[1] At rated pressure. Sharper bends may create excessive stress concentrations. **Do not** bend pipe until adhesive has cured.

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