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SMITH Fibercast™
A Varco Company

GREEN THREAD® *Performance Plus*™ Piping Systems

GREEN THREAD *Performance Plus* pipe is constructed of continuous glass fibers and aromatic amine cured epoxy resin. It comes standard with nominal 35 mil epoxy resin liner reinforced with surfacing veil. The pipe has pressure ratings up to 450 psig static and temperature ratings to 225°F.

Pipe is available in 8" - 24" diameters with bell x spigot ends and is manufactured in 39-foot random lengths.

A complete range of epoxy fittings is manufactured with the same temperature and pressure capabilities as the pipe. 8000 series adhesive is required for optimum pressure rating and corrosion resistance.

An 8" - 16" Grinding Tapering Tool or 18" - 24" Tapering Tool must be used to taper pipe.

Benefits include internal and external corrosion resistance, light weight, and ease of installation.

See Manual No. F6000, *General Installation Instructions for Matched Taper Bell and Spigot Joints,* for installation instructions and recommendations for your application.

Dimensional Data*

Nominal Pipe Size (In.) (In.)	Nominal I.D.		Nominal O.D.		Nominal Wall Thickness		Nominal Weight	
	(In.)	(mm)	(In.)	(mm)	(In.)	(mm)	(Lbs./Ft.)	(kg/m)
8	8.36	212	8.78	223	0.210	5.33	4.6	6.8
10	10.36	263	10.87	246	0.255	6.48	7.0	10.4
12	12.28	312	12.87	327	0.295	7.49	9.7	14.4
14	14.04	357	14.69	373	0.325	8.26	12.2	18.2
16	16.04	407	16.77	426	0.365	9.27	15.7	23.4
18	17.83	453	18.66	474	0.415	10.54	19.9	29.6
20	19.83	504	20.74	527	0.455	11.55	24.3	36.2
24	23.84	606	24.90	632	0.532	13.51	34.2	50.9

General Specifications*

Nom. Pipe Size (In.)	BONDED SYSTEM Max. Internal Pressure(1) (psig/MPa) Static		Min. Bending Radius(2) Entire Temp. Range		External Pressure(3) Maximum Ratings (psig/MPa)				Parallel Plate Loading(4) @ 5% Deflection ASTM D2412		
									Stiffness Factor	Pipe Stiffness	Hoop Modulus
	@225°F	@107°C	(Ft.)	(m)	@75°F	@24°C	@225°F	@107°C	In^3•Lbs./$In.^2$	(psi)	x 10^6 (psi)
8	450	3.10	270	82.3	46	.317	36	.248	760	66	2.2
10	450	3.10	340	104	46	.317	36	.248	1,720	78	2.5
12	450	3.10	400	122	46	.317	36	.248	2,850	78	2.5
14	450	3.10	460	140	46	.317	36	.248	4,580	84	2.9
16	450	3.10	520	158	46	.317	36	.248	7,670	94	3.3
18	450	3.10	590	180	46	.317	36	.248	10,300	92	2.9
20	450	3.10	655	200	46	.317	36	.248	13,800	90	2.9
24	450	3.10	785	240	31	.214	24	.165	23,100	86	2.9

* All values are nominal. Tolerances or maximum/minimum limits can be obtained from Smith Fibercast.

(1) Steady (static) pressure is created with the use of a gear pump, turbine pump, centrifugal pump, or multiplex pump having 4 or more pistons. For conditions involving unusual, intermittent, or erratic service (such as frequent daily shutdowns), consult Smith Fibercast.

(2) Sharper bends should be eliminated to avoid stress concentration which could result in premature pipe failure under pressure conditions.

(3) Vacuum Service: A full vacuum within the pipe is equivalent to 14.7 psig (1.01 bars) external pressure at sea level. External collapse ratings are based on representative testing and calculations per ASTM D2924.

(4) Parallel plate pipe stiffness & stiffness factors are based on representative testing and calculations per ASTM D2412.

GREEN THREAD® *Performance Plus*™ Piping Systems

ASTM D2996 Designation Codes at 75°F:

8"	RTRP-11FF1-3112
10"	RTRP-11FF1-3114
12"	RTRP-11FF1-3116
14"	RTRP-11FF1-3116
16"	RTRP-11FF1-3116

Designation Codes for physical properties only; dimensions are not in compliance with ASTM D2996

Average Physical Properties

Property	Value (psi) @ 75° F	@ 24° C	Value (MPa) @ 225° F	@ 107° C
Axial Tensile – ASTM D2105				
Ultimate Stress	10,300	71	7,160	49.4
Design Stress	2,575	17.8	1,790	12.3
Modulus of Elasticity	1.8×10^6	12411	1.03×10^6	7102
Poisson's Ratio	0.38		0.38	
Axial Compression – ASTM D695				
Ultimate Stress	33,300	230	17,800	122.7
Design Stress	8,300	57.2	4,450	30.7
Modulus of Elasticity	1.26×10^6	8687	0.54×10^6	3723
Beam Bending – ASTM D2925				
Ultimate Stress	23,000	158.6	16,000	110.0
Design Stress(1)	2,900	20.0	2,000	13.8
Modulus of Elasticity (long term)	2.18×10^6	15031	1.11×10^6	7653
Hydrostatic Burst – ASTM D1599				
Ultimate Hoop Tensile Stress	46,300	319.2	49,540	342.0
Ring Tensile – ASTM D2290				
Minimum Hoop Tensile Stress	27,280	188	–	–
Hydrostatic Design – ASTM D2992, Procedure A – Hoop Tensile Stress				
Cyclic 150×10^6 Cycles	8,850	61.0	5,540(2)	38.2
Coefficient of Linear Thermal Expansion – ASTM D696	1.26×10^{-5} in./in./°F		2.27×10^{-5} mm/mm/°C	
Thermal Conductivity – ASTM D177	.23 BTU/(ft.)(hr.)(°F)		0.14 W/(m)(°C)	
Specific Gravity – ASTM D792	1.8			
Flow Factor – SFP Hazen-Williams Coefficient	150			
Surface Roughness	1.7×10^{-5} Feet (0.00021 in.)			
Manning's "n"	0.009			

(1) Beam bending design stress is 1/8 of ultimate to account for combined stress (i.e. bending and pressure).

(2) Extrapolated value based on testing at 75°F and 200°F.

ISO 9001
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SAND SPRINGS, OK
SMITH FIBERCAST

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