

Conley Product Data

HEAVY DUTY EXTRA CORROSION BARRIER ~ LONGER SERVICE LIFE

Description



- Heavy corrosion barrier wall filament wound piping for service up to 150 psi
- 100 mil four layers (min) Nexus® reinforced corrosion barrier (inner liner)
- Premium aromatic amine cured product for operating temperatures up to 275°F
- Sizes available from 2" through 30"
- Complete line of filament wound fittings available
- In house fabrication facilities "From your blueprints to pipe assemblies"
- Color coding available
- Patented interlocking union for thermal expansion (US Patent #5449204 & 5368338)
- See Sch 50/30 Specification
- See Sch 50 Product Data
- See Sch 30 Product Data

Typical Applications



- Waste water treatment
- Steel pickling
- Automotive
- Petrochemical
- Pharmaceutical
- Chemical processing
- Cooling water
- Jet fuel
- Gasoline – Diesel – Fuel Oil
- Odor control
- Industrial waste
- Food and beverages
- Fly ash
- Saturated brines

Performance

- Excellent chemical resistance inside and outside to a variety of caustics and acids ~ See the chemical resistance chart for fluid services
- External UV/Corrosion barrier minimum 10 mil on all pipe and fittings
- 25 year guarantee against '*fiber blooming*' on all pipe and fittings
- Straight socket joining system (No expensive tapering tools required)

Specifications

- ASTM D2996 Filament-Wound "Fiberglass" Pipe
- ASTM D2310 Classification for Machine-Made "Fiberglass" Pipe
- ASTM D3567 Determining Dimensions of "Fiberglass" Pipe and Fittings
- ASTM D4024 Machine Made "Fiberglass" Flanges
- ASTM D5685 "Fiberglass" Pressure Pipe Fittings

Codes & Standards

- AWWA C950 Fiberglass Pressure Pipe Standards
- ASME B31.1 Power Piping Code
- ASME B31.3 Process Piping Code

Listings

- U.S. Federal Regulations FDA 21 CFR 175.300

Application Legislation

- 40 CFR 280. RCRA, Subtitle 1
- 40 CFR 264/5
- CERCLA "Superfund Act"



**Schedule 50/30
Pipe Dimensional Data*
and Pressure Ratings⁽¹⁾
from -50° to 275°F**

⁽¹⁾Static pressure rating; steady (stationary) pressure is created when using a gear pump, turbine pump, centrifugal pump, etc.
⁽²⁾Vacuum Service: A full vacuum within the pipe is equivalent to 14.7 psi external pressure at sea level. Contact Conley for higher external pressure ratings.



NOM SIZE	ANNULUS CLEAR (IN)	SPIDER MIN OPENING (IN)	ANNULUS VOLUME (GAL/FT)	COMBINED WEIGHT (LB/FT)	ANNULUS PRESS (PSI)	ANNULUS VAC PRESS (PSI) ⁽²⁾
2"/4"	0.81	0.6	0.51	3.14	150	24.1
2"/6"	1.81	1.6	1.32	4.32	150	13.8
3"/6"	1.27	1.0	1.10	4.89	150	13.8
3"/8"	2.27	2.0	2.24	5.85	150	6.1
4"/6"	0.77	0.5	0.82	5.48	150	13.8
4"/8"	1.77	1.5	1.96	6.44	150	6.1
6"/8"	0.72	0.5	1.14	8.45	150	6.1
6"/10"	1.72	1.5	2.61	10.86	150	10.2
8"/10"	0.70	0.5	1.47	12.63	150	10.2
8"/12"	1.83	1.6	3.51	14.02	100	5.7
10"/12"	0.79	0.5	2.04	16.61	100	5.7
10"/14"	1.79	1.5	4.20	18.60	100	3.6
12"/14"	0.61	0.4	2.16	22.33	100	3.6
12"/16"	1.61	1.4	4.65	23.67	100	2.5
14"/16"	0.63	0.4	2.49	24.91	100	2.5
14"/18"	1.63	1.4	5.30	27.91	100	4.2
16"/18"	0.63	0.4	2.82	29.80	100	4.2
16"/20"	1.63	1.4	5.96	31.32	100	3.1
18"/20"	0.63	0.4	3.14	33.21	100	3.1
18"/24"	2.63	2.0	10.40	39.70	100	3.5
20"/24"	1.65	1.4	7.26	40.54	100	3.5
20"/30"	4.77	2.0	21.22	50.49	100	3.1
24"/30"	2.73	2.0	13.96	56.60	100	3.1

*All values are nominal. Minimum wall thickness shall not be less than 87.5% of nominal wall thickness in accordance with ASTM D2996.

NOTES:

For carrier pipe dimensions, see Schedule 50 Pipe Dimensional Data Table
For containment pipe dimensions, see Schedule 30 Pipe Dimensional Data Table



Support Spans (FT)



NOM SIZE	CARRIER PIPE TEMPERATURE							
	75	100	125	150	175	200	225	250
2"/4"	15.2	15.2	15.2	15.2	15.1	15.1	15.0	15.0
2"/6"	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5
3"/6"	18.1	18.1	18.1	18.1	18.1	18.0	18.0	18.0
3"/8"	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3
4"/6"	17.2	17.2	17.2	17.2	17.2	17.1	17.0	17.0
4"/8"	20.1	20.1	20.1	20.1	20.1	20.1	20.0	20.0
6"/8"	19.5	19.5	19.5	19.5	19.4	19.2	19.0	18.9
6"/10"	22.9	22.9	22.9	22.9	22.8	22.7	22.6	22.6
8"/10"	21.9	21.9	21.9	21.9	21.8	21.6	21.4	21.4
8"/12"	24.1	24.1	24.1	24.1	24.0	23.9	23.8	23.7
10"/12"	23.9	23.9	23.9	23.9	23.7	23.5	23.2	23.2
10"/14"	25.3	25.3	25.3	25.3	25.2	25.0	24.8	24.8
12"/14"	25.4	25.4	25.4	25.4	25.2	24.9	24.6	24.5
12"/16"	26.6	26.6	26.6	26.6	26.5	26.2	25.9	25.8
14"/16"	25.7	25.7	25.7	25.7	25.6	25.3	25.0	24.9
14"/18"	28.1	28.1	28.1	28.1	27.9	27.7	27.5	27.5
16"/18"	27.6	27.6	27.6	27.6	27.4	27.2	26.9	26.8
16"/20"	28.8	28.8	28.8	28.8	28.7	28.5	28.3	28.2
18"/20"	28.4	28.4	28.4	28.4	28.3	28.0	27.7	27.6
18"/24"	31.9	31.9	31.9	31.9	31.8	31.6	31.4	31.4
20"/24"	31.3	31.3	31.3	31.3	31.2	30.9	30.7	30.6
20"/30"	36.4	36.4	36.4	36.4	36.4	36.2	36.1	36.0
24"/30"	35.3	35.3	35.3	35.3	35.1	34.9	34.7	34.6

NOTE: These spans are valid for the containment pipe operating at ambient temperatures.

Span multipliers for fluids of different specific gravities

FLUID SPECIFIC GRAVITY							
AIR	0.75	0.9	1.0	1.1	1.25	1.5	2.0
1.40	1.07	1.02	1.0	0.98	0.95	0.90	0.84
(MULTIPLIER FOR CORRECTED SPAN LENGTHS)							

Span multipliers for fluids at different temperatures

FLUID TEMPERATURE						
75°F	100°F	150°F	200°F	225°F	250°F	275°F
1.0	0.98	0.93	0.88	0.84	0.80	0.75
(MULTIPLIER FOR CORRECTED SPAN LENGTHS)						



**Anchor Loads Due to
Restrained Thermal
Expansion (LBS)**

NOM SIZE	TEMPERATURE CHANGE IN CONTAINMENT PIPE			
	1°F	25°F	50°F	75°F
2"/4"	519	1,535	2,592	3,650
2"/6"	547	2,232	3,987	5,742
3"/6"	751	2,436	4,191	5,946
3"/8"	774	3,003	5,325	7,647
4"/6"	961	2,646	4,401	6,156
4"/8"	984	3,213	5,535	7,857
6"/8"	1,697	3,926	6,248	8,570
6"/10"	1,754	5,349	9,095	12,841
8"/10"	2,379	5,975	9,721	13,466
8"/12"	2,412	6,798	11,366	15,934
10"/12"	3,330	7,716	12,284	16,852
10"/14"	3,377	8,888	14,628	20,367
12"/14"	4,702	10,212	15,952	21,692
12"/16"	4,733	11,003	17,534	24,065
14"/16"	5,172	11,441	17,972	24,503
14"/18"	5,243	13,215	21,519	29,824
16"/18"	5,914	13,886	22,191	30,495
16"/20"	5,950	14,782	23,981	33,181
18"/20"	6,621	15,453	24,653	33,853
18"/24"	6,775	19,288	32,323	45,357
20"/24"	7,071	19,584	32,618	45,653
20"/30"	7,306	25,461	44,372	63,284
24"/30"	9,473	27,628	46,539	65,451

NOTE: Thermal end loads on anchors are independent of the carrier pipe temperature. The loads are based on the change in temperature of the containment pipe plus 10% or the maximum load from the carrier pipe at 150°F with uninsulated containment pipe.

Typical Properties

TEMPERATURE	75°F	250°F	
PROPERTY	VALUE	VALUE	METHOD
AXIAL TENSILE STRENGTH	14,200 psi	10,650 psi	ASTM D2105
AXIAL TENSILE DESIGN STRENGTH	3,550 psi	2,660 psi	ASTM D2105
AXIAL MODULUS OF ELASTICITY	1.75 x 10 ⁶ psi	1.30 x 10 ⁶ psi	ASTM D2105
COMPRESSIVE STRENGTH	22,750 psi	17,000 psi	ASTM D695
COMPRESSIVE DESIGN STRENGTH	5,685 psi	4,250 psi	ASTM D695
COMPRESSION MODULUS	2.80 x 10 ⁶ psi	2.10 x 10 ⁶ psi	ASTM D695
POISSON'S RATIO $V_{a/h}$ ($V_{h/a}$)	0.33 (0.23)		*CONLEY METHOD #20
BEAM BENDING, ULTIMATE STRESS	30,000 psi	22,500 psi	CONLEY METHOD 8
BEAM BENDING, DESIGN STRESS ⁽¹⁾	3,750 psi	2,810 psi	CONLEY METHOD 8
SHEAR MODULUS	1.30 x 10 ⁶ psi	1.00 x 10 ⁶ psi	*CONLEY METHOD #9
HYDROSTATIC DESIGN BASIS	16,000 psi	8,000 psi	ASTM D2992 PROCEDURE B
HYDROSTATIC BURST (WALL STRESS @ 72°F)	32,000 psi	24,000 psi	ASTM D1599
CIRCUMFERENTIAL MODULUS OF ELASTICITY	2.50 x 10 ⁶ psi	1.87 x 10 ⁶ psi	ASTM D1599
FLEXURAL MODULUS OF ELASTICITY	1.75 x 10 ⁶ psi	1.30 x 10 ⁶ psi	ASTM 2790
COEFFICIENT OF LINEAR THERMAL EXPANSION	9.5 x 10 ⁻⁶ IN/IN-°F		CONLEY METHOD 3
COEFFICIENT OF THERMAL CONDUCTIVITY	2.9 BTU/HR-IN/FT ² -°F		CONLEY METHOD 16
SPECIFIC GRAVITY	1.85		
DENSITY	0.067 LB/CU IN		
DIELECTRIC STRENGTH	535 VOLTS/MIL		ASTM D149
DEGREE OF CURE	175°C (347°F) Tg		DMA
HEAT DEFLECTION TEMPERATURE	150°C (302°F)		ISO 75-3
FLOW FACTOR (HAZEN-WILLIAMS)	150		
SURFACE ROUGHNESS	1.7 X 10 ⁻⁵ FEET		
MANNING'S "n"	0.009 INCH		

⁽¹⁾Beam bending design stress is 1/8 of ultimate to allow for combined stress (bending and pressure)



ISO 9001:2008
CERTIFIED
Conley
Composites
Tulsa,
Oklahoma USA

This product data sheet and recommendations it contains are based on data reasonably believed to be reliable. It is intended that this data be used by competent personnel having acceptable training in accordance with current industry practice and operating conditions. Variation in environment, application or installation, changes in operating procedures, or extrapolation of data may cause unsatisfactory results. Conley Composites makes no representation or warranty, express or implied, including warranties of merchantability or fitness for purpose, as to accuracy, adequacy or completeness of the recommendations or information contained herein. Conley Composites assumes no liability whatsoever in connection with this literature or the information or recommendations it contains.



2795 East 91st Street
Tulsa, Oklahoma 74137 USA
Phone: (918) 299-5051
Fax: (918) 299-5907
www.conleyfrp.com
E-Mail: sales@conleyfrp.com