Conley Composites
an ANDRONACO INDUSTRIES company

CONDUCTIVE FURAN SCHEDULE 40 EXTRA HEAVY DUTY PIPING

ASTM DESIGNATION CODE RTRP-11IW1-2113

Conley Product Data

RUGGED TOP OF THE LINE PERFORMANCE ~ AFFORDABLE COST

Description

- Heavy wall conductive filament wound piping for service up to 300 psi
- 60 mil double Nexus® reinforced conductive corrosion barrier (inner liner)
- Premium conductive furan lined product for operating temperatures up to 235^{o}F
- Sizes available from 1" through 30"
- Complete line of filament wound fittings available
- In house fabrication facilities "From your blueprints to pipe assemblies"
- Color coding available
- Conductive systems available
- Fire-resistant systems available
- See Sch 40 Specification

Typical Applications

- Organic services
- Aggressive chlorinated solvents
- Acidic and alkali media
- VOC ducting
- CPI
- Groundwater remediation with severe VOC contaminants
- Pharmaceutical industry
- Chemical sewers

Performance

- Excellent chemical resistance to solvents, acids & caustic ~ See the chemical resistance chart for fluid services
- External UV/Corrosion barrier minimum 20 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

PERRY JOHNSON REGISTRARS, INC.

Schedule 40
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 PIPE DIA	PIPE I.D.	PIPE O.D.	NOM LINER THK (IN)	NOM REINF THK (IN)	NOM UV THK (IN)	TOT THK (IN)	INT PRESS (PSI)	VAC PRESS (PSI)[2]
1”	0.88	1.32	0.060	0.120	0.040	0.220	300	2026
1 ½”	1.38	1.88	0.060	0.150	0.040	0.250	300	1370
2"	1.88	2.38	0.060	0.150	0.040	0.250	300	675
2 ½”	2.38	2.88	0.060	0.150	0.040	0.250	300	380
3"	3.00	3.47	0.060	0.135	0.040	0.235	300	160
4"	4.00	4.48	0.060	0.160	0.020	0.240	300	123
6"	6.00	6.57	0.060	0.205	0.020	0.285	250	82
8"	8.00	8.60	0.060	0.220	0.020	0.300	250	45
10"	10.00	10.68	0.060	0.220	0.060	0.340	200	22.9
12"	12.25	13.00	0.060	0.275	0.040	0.375	200	24.8
14"	14.25	15.00	0.060	0.275	0.040	0.375	175	16.1
16"	16.25	17.00	0.060	0.275	0.040	0.375	150	11.1
18"	18.25	19.00	0.060	0.275	0.040	0.375	125	7.9
20"	20.25	20.96	0.060	0.275	0.020	0.355	125	5.9
24"	24.25	25.11	0.060	0.330	0.040	0.430	125	5.9
30"	30.50	31.43	0.060	.0385	0.020	0.465	100	4.8

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

Support Spans* and Capacities at 75°F

NOM PIPE DIA	TYPE I SIMPLE SPAN (FT)	TYPE II MAX CONT SPAN (FT)	TYPE IV FIXED END SPAN (FT)	MIN BEND RADIUS (FT)	WT/FT (LBS)	CAP (GAL/FT)
1”	7.6	9.0	11.4	20	0.61	0.03
1 ½”	9.1	10.7	13.7	32	1.03	0.08
2"	10.1	11.8	15.1	44	1.35	0.14
2 ½”	10.9	12.8	16.3	55	1.66	0.23
3"	11.5	13.5	17.2	69	1.92	0.37
4"	13.0	15.2	19.4	93	2.57	0.65
6"	15.3	18.0	22.9	139	4.52	1.47
8"	16.9	19.8	25.3	185	6.29	2.61
10"	18.1	21.2	27.0	231	8.88	4.08
12"	20.0	23.5	30.0	284	11.96	6.12
14"	20.9	24.5	31.3	330	13.85	8.28
16"	21.7	25.5	32.5	376	15.75	10.77
18"	22.5	26.3	33.6	422	17.64	13.59
20"	23.1	27.1	34.6	469	18.48	16.73
24"	25.3	29.6	37.7	561	26.81	23.99
30"	27.8	32.6	41.6	706	36.37	37.95

***NOTE:** Span deflection = ½” with fluid of 1.0 specific gravity

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	
1.0	0.98	0.93	0.88	0.84	0.80	
(MULTIPLIER FOR CORRECTED SPAN LENGTHS)						

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	1.75×10^6 psi	1.30×10^6 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	2.80×10^6 psi	2.10×10^6 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	1.30×10^6 psi	1.00×10^6 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	2.50×10^6 psi	1.87×10^6 psi	ASTM D1599
FLEXURAL MODULUS OF ELASTICITY	1.75×10^6 psi	1.30×10^6 psi	ASTM 2790
COEFFICIENT OF LINEAR THERMAL EXPANSION	$9.5 \times \frac{10^{-6}\ \text{IN}}{\text{IN-}\ ^\circ\text{F}}$		CONLEY METHOD 3
COEFFICIENT OF THERMAL CONDUCTIVITY	$2.9\ \frac{\text{BTU/HR-IN}}{\text{FT}^2 - ^\circ\text{F}}$		CONLEY METHOD 16
SPECIFIC GRAVITY	1.85		
DENSITY	0.067 LB/CU IN		
DIELECTRIC STRENGTH	$535\ \frac{\text{VOLTS}}{\text{MIL}}$		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	1.7×10^{-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)

Pipe Section Properties

(1)Use these values to calculate permissible spans.
(2)Use these values for calculating longitudinal thrust.

NOMINAL PIPE SIZE (IN)	REINFORCEMENT ONLY(STRUCTURAL CAGE)			TOTAL WALL END AREA (IN^2)(2)
	END AREA (IN^2)	MOMENT OF INERITA (IN^4)(1)	SECTION MODULUS (IN^3)	
1	0.42	0.07	0.11	0.76
1 ½	0.78	0.27	0.30	1.28
2	1.01	0.59	0.51	1.67
2 ½	1.25	1.10	0.78	2.07
3	1.38	1.83	1.08	2.39
4	2.15	4.93	2.22	3.20
6	4.07	20.40	6.23	5.63
8	5.76	50.16	11.70	7.82
10	7.15	95.58	18.07	11.05
12	10.93	218.51	33.76	14.87
14	12.65	339.41	45.41	17.23
16	14.38	498.28	58.78	19.59
18	16.11	700.30	73.88	21.94
20	17.84	950.66	90.70	22.98
24	25.61	1953.68	155.79	33.34
30	37.50	4508.11	286.65	45.24

ISO 9001:2008 CERTIFIED Conley Composites Tulsa, Oklahoma USA

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