

STAR™ Super Seal Line Pipe

API 15HR Design - Product Data

Applications

- Production Lines or Injection Lines
- Transfer Lines or Disposal Lines
- Pipeline Rehabilitation
- Oil, Gas, Saltwater
- CO₂ and Sour Services

Product Description

- **Sizes** - 2 through 12 inches
- **Pressure** - Up to 3,000 psi (20.7 MPa)
- **Temperature** -
Anhydride = up to 150°F (65.6°C) Max.
Aliphatic Amine = up to 200°F (93.3°C) Max.
Aromatic Amine = up to 212°F (100°C) Max.
- **Resin System** - Anhydride, Aliphatic Amine and Aromatic Amine Cured Epoxy
- **Reinforcement** - Premium Fiberglass
- **Joining Systems** - O-ring
- **Joint Length** - 30-37 feet (9-11 mts) nominal
- **Fittings** - A variety of filament wound threaded fittings are available.

High Pressure Design

(API 15HR Design)

- **Design Life** - 20 years at full rating
- **Design Temperature** - 150°F (65.6°C)
- **Wall Thickness** - Minimum
- **Hoop Stress** - 95% Lower Confidence Limit (LCL) of Long-Term Hydrostatic Strength (LTHS), ASTM D2992-B
- **100% Factory Hydro Test** - All sizes 1.5 times the Series pressure rating

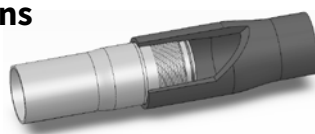
Joining System

- **CEN** - 4 thread-per-inch modified ACME thread with O-ring seal
- **SP** - 4 thread-per-inch round form thread with O-ring seal
- **SPH** - 4 thread-per-inch buttress thread with O-ring seal
- **SS** - 2 thread-per-inch mechanical joint with O-ring seal
- **SS HP** - 2 thread-per-inch mechanical joint with O-ring seal

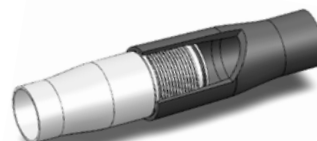
Benefits

- Corrosion Control
- Reduced Installation Costs
- Improved Flow Efficiency
- Reduced Paraffin & Scale Build-Up
- Reduced Maintenance Cost

View of Joint Illustrations



CEN



SP, SPH



SS, SS HP

Anhydride

Series 500

500 psi (3.4 MPa)

Pipe Size		Thread Type	Pipe Dimensions								Connection Diameter		Minimum Bending Radius		Short-Term Tensile Rating	
			Inside Diameter		Outside Diameter		Minimum Wall Thickness		Pipe Weight							
in.	mm		in.	mm	in.	mm	in.	mm	lb/ft	kg/m	in.	mm	ft	m	lb	kg
2	50	CEN	2.23	56.6	2.36	59.9	0.06	1.5	0.67	1.0	3.32	84.3	120	36.6	1800	816
3	80	CEN	3.35	85.1	3.49	88.6	0.06	1.5	0.97	1.4	4.48	113.8	176	53.7	2500	1133
6	150	SPH	6.10	154.9	6.34	161.0	0.11	2.8	3.21	4.8	7.93	201.4	319	97.3	8100	3674
6	150	SS-HP	6.10	154.9	6.34	161.0	0.11	2.8	3.42	5.1	7.50	190.5	319	97.3	8100	3674

Series 750

750 psi (5.2 MPa)

Pipe Size		Thread Type	Pipe Dimensions								Connection Diameter		Minimum Bending Radius		Short-Term Tensile Rating	
			Inside Diameter		Outside Diameter		Minimum Wall Thickness		Pipe Weight							
			in.	mm	in.	mm	in.	mm	lb/ft	kg/m						
3	80	SP	3.00	76.2	3.18	80.8	0.08	2.0	1.24	1.8	4.44	112.8	162	49.4	3200	1451
4	100	SP	3.91	99.3	4.14	105.2	0.11	2.8	1.91	2.8	5.44	138.2	210	64.1	5200	2358
6	150	SPH	6.10	154.9	6.46	164.1	0.16	4.1	4.16	6.2	8.05	204.5	325	99.1	11500	5216
6	150	SS-HP	6.10	154.9	6.47	164.3	0.16	4.1	4.37	6.5	7.62	193.5	325	99.1	11500	5216

Series 1000

1000 psi (6.9 MPa)

Pipe Size			Thread Type	Pipe Dimensions								Connection Diameter		Minimum Bending Radius		Short-Term Tensile Rating	
				Inside Diameter		Outside Diameter		Minimum Wall Thickness		Pipe Weight							
in.	mm		in.	mm	in.	mm	in.	mm	lb/ft	kg/m	in.	mm	ft	m	lb	kg	
2	50	SP	1.95	49.5	2.11	53.6	0.07	1.8	0.66	1.0	3.21	81.5	106	32.4	1600	725	
3	80	SP	3.00	76.2	3.24	82.3	0.11	2.8	1.48	2.2	4.50	114.3	165	50.3	4100	1859	
4	100	SP	3.91	99.3	4.22	107.2	0.14	3.6	2.22	3.3	5.50	139.7	213	65.0	6300	2857	
6	150	SPH	6.10	154.9	6.59	167.4	0.22	5.6	5.17	7.7	8.23	209.0	331	100.9	15000	6803	
6	150	SS-HP	6.10	154.9	6.59	167.4	0.22	5.6	5.35	8.0	7.74	196.6	331	100.9	15000	6803	
8	200	SS-HP	7.49	190.2	8.09	205.5	0.27	6.9	7.83	11.7	10.39	263.9	406	123.8	21800	9888	
10	250	SS-HP	9.84	249.9	10.63	270.0	0.36	9.1	12.68	18.9	13.27	337.1	533	162.5	37100	16828	
12	300	SS-HP	11.81	300.0	12.76	324.1	0.43	10.9	18.10	26.9	15.39	390.9	641	195.4	55100	24992	

Series 1250

1250 psi (8.6 MPa)

Pipe Size		Thread	Pipe Dimensions								Connection Diameter	Minimum Bending Radius	Short-Term Tensile Rating			
			Inside Diameter		Outside Diameter		Minimum Wall Thickness		Pipe Weight							
in.	mm	Type	in.	mm	in.	mm	in.	mm	lb/ft	kg/m	in.	mm	ft	m	lb	kg
2	50	SP	1.95	49.5	2.15	54.6	0.09	2.3	0.82	1.2	3.28	83.3	109	33.3	2200	997
3	80	SP	3.00	76.2	3.30	83.8	0.14	3.6	1.73	2.6	4.56	115.8	168	51.3	5000	2267
4	100	SP	3.91	99.3	4.31	109.5	0.18	4.6	2.61	3.9	5.64	143.3	216	65.9	7600	3447
6	150	SPH	6.10	154.9	6.72	170.7	0.28	7.1	6.33	9.4	8.59	218.2	338	103.1	18600	8436
6	150	SS-HP	6.10	154.9	6.72	170.7	0.28	7.1	6.43	9.6	7.93	201.4	338	103.1	18600	8436
8	200	SS-HP	7.49	190.2	8.24	209.3	0.34	8.6	9.53	14.2	10.68	271.3	414	126.2	26800	12156
10	250	SS-HP	9.84	249.9	10.84	275.3	0.45	11.4	15.94	23.7	13.57	344.7	545	166.2	48600	22044
12	300	SS-HP	11.81	300.0	13.01	330.5	0.54	13.7	22.24	33.1	15.76	400.3	653	199.1	69200	31388

Anhydride - Cont'd

Series 1500

1500 psi (10.3 MPa)

Pipe Size		Thread	Pipe Dimensions								Connection Diameter	Minimum Bending Radius	Short-Term Tensile Rating			
			Inside Diameter		Outside Diameter		Minimum Wall Thickness		Pipe Weight							
			in.	mm	in.	mm	in.	mm	lb/ft	kg/m					in.	mm
2	50	SP	1.95	49.5	2.19	55.6	0.11	2.8	0.88	1.3	3.32	84.3	110	33.6	2400	1088
3	80	SP	3.00	76.2	3.37	85.6	0.17	4.3	2.01	3.0	4.68	118.9	171	52.2	5900	2676
4	100	SP	3.91	99.3	4.39	111.5	0.22	5.6	3.24	4.8	5.80	147.3	222	67.7	9700	4399
6	150	SS-HP	5.85	148.6	6.57	166.9	0.32	8.1	7.24	10.8	8.99	228.3	331	100.9	21200	9616
6	150	SPH	6.10	154.9	6.85	174.0	0.34	8.6	7.46	11.1	8.83	224.3	344	104.9	22300	10115
8	200	SS-HP	7.49	190.2	8.40	213.4	0.41	10.4	10.88	16.2	10.92	277.4	421	128.4	32700	14832
10	250	SS-HP	9.84	249.9	11.05	280.7	0.54	13.7	18.56	27.6	13.87	352.3	554	168.9	57500	26081
12	300	SS-HP	11.81	300.0	13.26	336.8	0.65	16.5	26.37	39.2	16.13	409.7	665	202.7	83700	37965

Series 1750

1750 psi (12.1 MPa)

Pipe Size		Thread	Pipe Dimensions								Connection Diameter		Minimum Bending Radius		Short-Term Tensile Rating	
			Inside Diameter		Outside Diameter		Minimum Wall Thickness		Pipe Weight							
in.	mm	Type	in.	mm	in.	mm	in.	mm	lb/ft	kg/m	in.	mm	ft	m	lb	kg
2	50	SP	1.95	49.5	2.23	56.6	0.13	3.3	1.03	1.5	3.37	85.6	113	34.5	2900	1315
3	80	SP	3.00	76.2	3.43	87.1	0.19	4.8	2.29	3.4	4.81	122.2	174	53.1	6800	3084
4	100	SPH	3.91	99.3	4.47	113.5	0.25	6.4	3.73	5.6	6.13	155.7	225	68.6	11000	4989
6	150	SS-HP	5.85	148.6	6.69	169.9	0.38	9.7	8.30	12.4	9.18	233.2	337	102.8	24900	11294
6	150	SPH	6.10	154.9	6.98	177.3	0.40	10.2	8.67	12.9	9.14	232.2	350	106.7	26200	11884
8	200	SS-HP	7.49	190.2	8.57	217.7	0.49	12.4	12.84	19.1	11.17	283.7	430	131.1	39600	17962
10	250	SS-HP	9.84	249.9	11.26	286.0	0.64	16.3	21.33	31.7	14.24	361.7	563	171.7	66800	30300
12	300	SS-HP	11.81	300.0	13.52	343.4	0.77	19.6	30.72	45.7	16.51	419.4	678	206.7	98800	44814

Series 2000

2000 psi (13.8 MPa)

Pipe Size		Thread	Pipe Dimensions								Connection Diameter		Minimum Bending Radius		Short-Term Tensile Rating	
			Inside Diameter		Outside Diameter		Minimum Wall Thickness		Pipe Weight							
in.	mm	Type	in.	mm	in.	mm	in.	mm	lb/ft	kg/m	in.	mm	ft	m	lb	kg
2	50	SP	1.95	49.5	2.27	57.7	0.15	3.8	1.19	1.8	3.47	88.1	116	35.4	3500	1587
3	80	SP	3.00	76.2	3.50	88.9	0.22	5.6	2.59	3.9	4.93	125.2	177	54.0	7800	3538
4	100	SPH	3.91	99.3	4.56	115.8	0.29	7.4	4.43	6.6	6.26	159.0	231	70.5	13500	6123
6	150	SS-HP	5.85	148.6	6.82	173.2	0.44	11.2	9.44	14.0	9.43	239.5	343	104.6	28700	13018
6	150	SPH	6.10	154.9	7.12	180.8	0.46	11.7	9.87	14.7	9.39	238.5	356	108.6	30200	13698
8	200	SS-HP	7.49	190.2	8.73	221.7	0.56	14.2	14.87	22.1	11.41	289.8	439	133.9	46700	21182
10	250	SS-HP	9.84	249.9	11.48	291.6	0.74	18.8	24.92	37.1	14.55	369.6	576	175.6	79400	36015
12	300	SS-HP	11.81	300.0	13.78	350.0	0.89	22.6	35.29	52.5	16.95	430.5	691	210.7	114300	51845

Anhydride - Cont'd

Series 2250

2250 psi (15.5 MPa)

Pipe Size		Thread	Pipe Dimensions								Connection Diameter		Minimum Bending Radius		Short-Term Tensile Rating	
			Inside Diameter		Outside Diameter		Minimum Wall Thickness		Pipe Weight							
			in.	mm	in.	mm	in.	mm								
in.	mm	Type	in.	mm	in.	mm	in.	mm	lb/ft	kg/m	in.	mm	ft	m	lb	kg
3	80	SP	3.00	76.2	3.57	90.7	0.26	6.6	2.90	4.3	5.06	128.5	180	54.9	8800	3991
4	100	SPH	3.91	99.3	4.65	118.1	0.33	8.4	4.93	7.3	6.62	168.1	234	71.4	14800	6713
6	150	SS-HP	5.85	148.6	6.96	176.8	0.50	12.7	10.58	15.7	9.62	244.3	350	106.7	32600	14787
8	200	SS-HP	7.49	190.2	8.90	226.1	0.64	16.3	16.42	24.4	11.72	297.7	445	135.7	51700	23450
10	250	SS-HP	9.84	249.9	11.70	297.2	0.84	21.3	27.89	41.5	14.93	379.2	585	178.4	89300	40505

Series 2500

2500 psi (17.2 MPa)

Pipe Size		Thread	Pipe Dimensions								Connection Diameter	Minimum Bending Radius		Short-Term Tensile Rating		
			Inside Diameter		Outside Diameter		Minimum Wall Thickness		Pipe Weight							
			in.	mm	Type	in.	mm	in.	mm	in.		mm	lb/ft	kg/m	in.	mm
2	50	SP	1.95	49.5	2.36	59.9	0.19	4.8	1.48	2.2	3.76	95.5	120	36.6	4300	1950
3	80	SP	3.00	76.2	3.64	92.5	0.29	7.4	3.28	4.9	5.37	136.4	183	55.8	9900	4490
4	100	SPH	3.91	99.3	4.74	120.4	0.37	9.4	5.38	8.0	6.81	173.0	237	72.3	16200	7348
6	150	SS-HP	5.85	148.6	7.09	180.1	0.56	14.2	11.80	17.6	9.87	250.7	356	108.6	36700	16646
8	200	SS-HP	7.49	190.2	9.07	230.4	0.71	18.0	18.59	27.7	11.98	304.3	455	138.7	59200	26852

Series 2750

2750 psi (19.0 MPa)

Pipe Size		Thread Type	Pipe Dimensions								Connection Diameter	Minimum Bending Radius		Short-Term Tensile Rating		
			Inside Diameter		Outside Diameter		Minimum Wall Thickness		Pipe Weight							
			in.	mm	in.	mm	in.	mm	in.	mm		lb/ft	kg/m	in.	mm	ft
6	150	SS-HP	5.85	148.6	7.23	183.6	0.62	15.7	13.02	19.4	10.07	255.8	363	110.7	40900	18551
8	200	SS-HP	7.49	190.2	9.25	235.0	0.79	20.1	20.89	31.1	12.29	312.2	464	141.5	67100	30436

Series 3000

3000 psi (20.7 MPa)

Pipe Size		Thread Type	Pipe Dimensions								Connection Diameter		Minimum Bending Radius		Short-Term Tensile Rating	
			Inside Diameter		Outside Diameter		Minimum Wall Thickness		Pipe Weight							
			in.	mm	in.	mm	in.	mm	lb/ft	kg/m						
3	80	SP	3.00	76.2	3.78	96.0	0.35	8.9	3.98	5.9	5.70	144.8	190	58.0	12100	5488
6	150	SS-HP	5.85	148.6	7.37	187.2	0.68	17.3	14.32	21.3	10.33	262.4	369	112.5	45200	20502

Aliphatic Amine

Series 500

500 psi (3.4 MPa) 150°F (65.6°C), 421 psi (2.9 MPa) @ 200°F (93.3°C)

Pipe Size		Thread Type	Pipe Dimensions								Connection Diameter	Minimum Bending Radius	Short-Term Tensile Rating			
			Inside Diameter		Outside Diameter		Min Wall Thick-ness		Pipe Weight							
in.	mm		in.	mm	in.	mm	in.	mm	lb/ft	kg/m	in.	mm	ft	m	lb	kg
8	200	SS	7.74	196.6	8.10	205.7	0.16	4.1	4.98	7.4	9.70	246.4	407	124.1	14,000	6350
10	250	SS	9.84	249.9	10.31	261.9	0.21	5.3	8.22	12.2	11.97	304.0	516	157.3	21,600	9797
12	300	SS	11.81	300.0	12.37	314.2	0.25	6.4	11.76	17.5	14.25	362.0	620	189.0	31,800	14424

Series 750

750 psi (5.2 MPa) @150°F (65.6°C), 632 psi (4.4 MPa) @ 200°F (93.3°C)

Pipe Size		Thread Type	Pipe Dimensions								Connection Diameter		Minimum Bending Radius		Short-Term Tensile Rating	
			Inside Diameter		Outside Diameter		Minimum Wall Thickness		Pipe Weight							
in.	mm		in.	mm	in.	mm	in.	mm	lb/ft	kg/m	in.	mm	ft	m	lb	kg
8	200	SS	7.74	196.6	8.29	210.6	0.25	6.4	6.65	9.9	9.86	250.4	414	126.2	19,700	8935
10	250	SS	9.84	249.9	10.54	267.7	0.32	8.1	11.44	17.0	12.25	311.2	528	161.0	32,700	14832
12	300	SS	11.81	300.0	12.65	321.3	0.38	9.7	16.13	24.0	14.52	368.8	634	193.3	47,000	21318

Series 1000

1000 psi (6.9 MPa) @150°F (65.6°C), 843psi (5.8 MPa) @200°F (93.3°C)

Pipe Size		Thread Type	Pipe Dimensions								Connection Diameter	Minimum Bending Radius	Short-Term Tensile Rating			
			Inside Diameter		Outside Diameter		Minimum Wall Thickness		Pipe Weight							
in.	mm		in.	mm	in.	mm	in.	mm	lb/ft	kg/m	in.	mm	ft	m	lb	kg
8	200	SS	7.74	196.6	8.48	215.4	0.33	8.4	8.73	13.0	10.05	255.3	424	129.3	27,000	12247
10	250	SS	9.84	249.9	10.79	274.1	0.43	10.9	14.94	22.2	12.76	324.1	540	164.6	43,900	19912
12	300	SS	11.81	300.0	12.95	328.9	0.51	13.0	21.48	32.0	15.06	382.5	649	197.9	64,600	29302

Aromatic Amine

Series 500

500 psi (3.4 MPa) @ 150°F (65.6°C), 421 psi (2.9 MPa) @ 200°F (93.3°C), 405 psi (2.8 MPa) @ 212°F (100°C)

Pipe Size		Thread	Pipe Dimensions								Connection Diameter	Minimum Bending Radius	Short-Term Tensile Rating			
			Inside Diameter		Outside Diameter		Minimum Wall Thickness		Pipe Weight							
in.	mm	Type	in.	mm	in.	mm	in.	mm	lb/ft	kg/m	in.	mm	ft	m	lb	kg
2	50	CEN	2.23	56.6	2.36	59.9	0.06	1.5	0.63	0.9	3.27	83.1	119	36.3	1600	725
3	80	CEN	3.35	85.1	3.51	89.2	0.07	1.8	1.15	1.7	4.49	114.0	177	54.0	3000	1360
6	150	SPH	6.10	154.9	6.39	162.3	0.13	3.3	3.52	5.2	7.92	201.2	321	97.9	8700	3946

Series 750

750 psi (5.2 MPa) @ 150°F (65.6°C), 632 psi (4.4 MPa) @ 200°F (93.3°C), 608 psi (4.2 MPa) @ 212°F (100°C)

Pipe Size		Thread	Pipe Dimensions								Connection Diameter		Minimum Bending Radius		Short-Term Tensile Rating	
			Inside Diameter		Outside Diameter		Minimum Wall Thickness		Pipe Weight							
in.	mm	Type	in.	mm	in.	mm	in.	mm	lb/ft	kg/m	in.	mm	ft	m	lb	kg
3	80	SP	3.00	76.2	3.21	81.5	0.10	2.5	1.39	2.1	4.43	112.5	163	49.7	3600	1632
4	100	SP	3.91	99.3	4.19	106.4	0.13	3.3	2.08	3.1	5.43	137.9	211	64.4	5500	2494
6	150	SPH	6.10	154.9	6.53	165.9	0.20	5.1	4.80	7.1	8.07	205.0	328	100.0	13100	5942

Aromatic Amine - Cont'd

Series 1000

1000 psi (6.9 MPa) @ 150°F (65.6°C), 843 psi (5.8 MPa) @ 200°F (93.3° C), 810 psi (5.6 MPa) @ 212° F (100°C)

Pipe Size		Thread Type	Pipe Dimensions								Connection Diameter		Minimum Bending Radius		Short-Term Tensile Rating	
			Inside Diameter		Outside Diameter		Minimum Wall Thickness		Pipe Weight							
			in.	mm	in.	mm	in.	mm	lb/ft	kg/m						
2	50	SP	1.95	49.5	2.14	54.4	0.08	2.0	0.76	1.1	3.22	81.8	108	33.0	1900	861
3	80	SP	3.00	76.2	3.29	83.6	0.13	3.3	1.60	2.4	4.48	113.8	165	50.3	4300	1950
4	100	SP	3.91	99.3	4.29	109.0	0.17	4.3	2.63	3.9	5.53	140.5	216	65.9	7400	3356
6	150	SPH	6.10	154.9	6.69	169.9	0.26	6.6	6.17	9.2	8.33	211.6	336	102.5	17600	7983
8	200	SS-HP	7.49	190.2	8.20	208.3	0.32	8.1	9.37	13.9	10.63	270.0	412	125.6	26200	11884
10	250	SS-HP	9.84	249.9	10.79	274.1	0.43	10.9	15.49	23.1	13.52	343.4	540	164.6	44400	20139
12	300	SS-HP	11.81	300.0	12.94	328.7	0.51	13.0	21.33	31.7	15.68	398.3	648	197.6	62800	28485

Series 1250

1250 psi (8.6 MPa) @ 150°F (65.6°C), 1054 psi (7.3 MPa) @200°F (93.3°C), 1013 psi (7.0 MPa) @212°F (100°C)

Pipe Size		Thread Type	Pipe Dimensions								Connection Diameter		Minimum Bending Radius		Short-Term Tensile Rating	
			Inside Diameter		Outside Diameter		Minimum Wall Thickness		Pipe Weight							
in.	mm		in.	mm	in.	mm	in.	mm	lb/ft	kg/m	in.	mm	ft	m	lb	kg
2	50	SP	1.95	49.5	2.19	55.6	0.11	2.8	0.91	1.4	3.27	83.1	110	33.6	2400	1088
3	80	SP	3.00	76.2	3.36	85.3	0.16	4.1	2.04	3.0	4.58	116.3	170	51.9	5800	2630
4	100	SP	3.91	99.3	4.38	111.3	0.21	5.3	3.21	4.8	5.68	144.3	221	67.4	9300	4218
6	150	SPH	6.10	154.9	6.84	173.7	0.33	8.4	7.56	11.3	8.58	217.9	343	104.6	22200	10069
8	200	SS-HP	7.49	190.2	8.39	213.1	0.41	10.4	11.57	17.2	10.92	277.4	422	128.7	33500	15195
10	250	SS-HP	9.84	249.9	11.03	280.2	0.54	13.7	19.18	28.5	13.92	353.6	553	168.6	56500	25627
12	300	SS-HP	11.81	300.0	13.24	336.3	0.65	16.5	26.70	39.7	16.14	410.0	663	202.1	80600	36559

Series 1500

1500 psi (10.3 MPa) @ 150°F (65.6°C), 1264 psi (8.7 MPa) @200°F (93.3°C), 1215 psi (8.4 MPa) @ 212°F (100°C)

Pipe Size		Thread Type	Pipe Dimensions								Connection Diameter		Minimum Bending Radius		Short-Term Tensile Rating	
			Inside Diameter		Outside Diameter		Minimum Wall Thickness		Pipe Weight							
			in.	mm	in.	mm	in.	mm	lb/ft	kg/m						
2	50	SP	1.95	49.5	2.24	56.9	0.13	3.3	1.05	1.6	3.32	84.3	113	34.5	2900	1315
3	80	SP	3.00	76.2	3.44	87.4	0.20	5.1	2.27	3.4	4.68	118.9	173	52.8	6500	2948
4	100	SPH	3.91	99.3	4.49	114.0	0.26	6.6	3.90	5.8	5.98	151.9	226	68.9	11200	5080
6	150	SS-HP	5.85	148.6	6.71	170.4	0.39	9.9	8.87	13.2	9.23	234.4	338	103.1	25500	11566
6	150	SPH	6.10	154.9	7.00	177.8	0.40	10.2	8.98	13.4	8.83	224.3	351	107.0	26800	12156
8	200	SS-HP	7.49	190.2	8.59	218.2	0.50	12.7	13.81	20.6	11.21	284.7	431	131.4	40900	18551
10	250	SS-HP	9.84	249.9	11.29	286.8	0.65	16.5	22.93	34.1	14.32	363.7	565	172.3	68900	31252
12	300	SS-HP	Consult Fiber Glass Systems Applications Engineering for Availability													

Aromatic Amine - Cont'd

Series 1750

1750 psi (12.1 MPa) @150°F (65.6°C), 1475 psi (10.2 MPa) @200°F (93.3°C), 1418 psi (9.8 MPa) @ 212°F (100°C)

Pipe Dimensions																
Pipe Size		Thread Type	Inside Diameter		Outside Diameter		Minimum Wall Thickness		Pipe Weight		Connection Diameter		Minimum Bending Radius		Short-Term Tensile Rating	
in.	mm		in.	mm	in.	mm	in.	mm	lb/ft	kg/m	in.	mm	ft	m	lb	kg
2	50	SP	1.95	49.5	2.29	58.2	0.15	3.8	1.20	1.8	3.36	85.3	115	35.1	3400	1542
3	80	SP	3.00	76.2	3.52	89.4	0.23	5.8	2.73	4.1	4.78	121.4	178	54.3	8100	3674
4	100	SPH	3.91	99.3	4.59	116.6	0.31	7.9	4.56	6.8	6.27	159.3	230	70.2	13200	5987
6	150	SS-HP	5.85	148.6	6.87	174.5	0.46	11.7	10.27	15.3	9.52	241.8	345	105.2	30000	13607
6	150	SPH	6.10	154.9	7.16	181.9	0.48	12.2	10.45	15.6	9.13	231.9	358	109.2	31500	14288
8	200	SS-HP	7.49	190.2	8.79	223.3	0.59	15.0	16.12	24.0	11.55	293.4	441	134.5	48400	21953
10	250	SS-HP	Consult Fiber Glass Systems Applications Engineering for Availability													
12	300	SS-HP	Consult Fiber Glass Systems Applications Engineering for Availability													

Series 2000

2000 psi (13.8 MPa) @ 150° F (65.6°C), 1686 psi (11.6 MPa) @ 200°F (93.3°C), 1620 psi (11.2 MPa) @ 212°F (100°C)

Pipe Dimensions																
Pipe Size		Thread Type	Inside Diameter		Outside Diameter		Minimum Wall Thickness		Pipe Weight		Connection Diameter		Minimum Bending Radius		Short-Term Tensile Rating	
in.	mm		in.	mm	in.	mm	in.	mm	lb/ft	kg/m	in.	mm	ft	m	lb	kg
2	50	SP	1.95	49.5	2.34	59.4	0.18	4.6	1.36	2.0	3.46	87.9	118	36.0	3900	1769
3	80	SP	3.00	76.2	3.60	91.4	0.27	6.9	3.02	4.5	5.03	127.8	180	54.9	8800	3991
6	150	SS-HP	5.85	148.6	7.02	178.3	0.53	13.5	11.67	17.4	9.77	248.2	353	107.6	34500	15648
8	200	SS-HP	7.49	190.2	8.99	228.3	0.68	17.3	18.47	27.5	11.89	302.0	451	137.5	56000	25401
10	250	SS-HP	Consult Fiber Glass Systems Applications Engineering for Availability													

Series 2250

2250 psi (15.5 MPa) @ 150° F (65.6°C), 1897 psi (13.1 MPa) @ 200°F (93.3°C), 1823 psi (12.6 MPa) @ 212°F (100°C)

Pipe Dimensions																
Pipe Size		Thread Type	Inside Diameter		Outside Diameter		Minimum Wall Thickness		Pipe Weight		Connection Diameter		Minimum Bending Radius		Short-Term Tensile Rating	
in.	mm		in.	mm	in.	mm	in.	mm	lb/ft	kg/m	in.	mm	ft	m	lb	kg
6	150	SS-HP	5.85	148.6	7.19	182.6	0.60	15.2	13.11	19.5	10.06	255.5	360	109.8	39100	17735
8	200	SS-HP	Consult Fiber Glass Systems Applications Engineering for Availability													

Series 2500

2500 psi (17.2 MPa) @ 150°F (65.6°C), 2107 (14.5 MPa) @ 200°F (93.3°C), 2025 (14.0 MPa) @ 212°F (100°C)

Pipe Size		Thread Type	Pipe Dimensions								Connection Diameter		Minimum Bending Radius		Short-Term Tensile Rating	
			Inside Diameter		Outside Diameter		Minimum Wall Thickness		Pipe Weight							
			in.	mm	in.	mm	in.	mm	lb/ft	kg/m						
3	80	SP	3.00	76.2	3.77	95.8	0.35	8.9	4.01	6.0	5.37	136.4	190	58.0	12100	5488
6	150	SS-HP	5.85	148.6	7.35	186.7	0.68	17.3	15.02	22.4	10.35	262.9	370	112.8	45400	20593

Addition Pressure Classes are available on request.

All pipe dimensions are nominal except where noted. Nominal wall thickness is (OD-ID)/2.

Series Pressure Rating (API 15HR) – Based on minimum wall thickness dimensions and API 15HR for a 20-year life expectancy. API monogram pipe available on request.

Material selection is based on the desired design and operating conditions, and chemical compatibility of NOV Fiber Glass Systems constituents with fluids.

The standard pressure ratings are for non-cyclic, water, and hydrocarbon service. Additional service factors should be considered for compressible gas service. For guidance or for other applications, consult NOV Fiber Glass Systems Engineering.

STAR Super Seal (API 15HR Design- Product Data)

Typical SLT* Properties

Axial Modulus	psi	1.87×10^6
	GPa	12.9
Hoop Modulus	psi	3.58×10^6
	GPa	24.7
Shear Modulus	psi	1.6×10^6
	GPa	11

Poisson's Ratio		
V_{ah}		0.36
V_{ha}		0.69

Coefficient of Thermal Expansion		
Axial	in/in/°F	11.0×10^{-6}
	mm/mm/°C	19.8×10^{-6}
Hoop	in/in/°F	6.2×10^{-6}
	mm/mm/°C	11.2×10^{-6}
Thermal Conductivity	BTU/ft·hr·°F	0.23
	W/m·°C	0.4

Specific Gravity		2
Absolute Roughness	in.	0.00021
	mm	0.00533
Hazen-Williams Coefficient		150

* Ambient standard laboratory testing

Performance Ratings vs. Temperature

ASTM D 2992-B		Anhydride	Aliphatic Amine	Aromatic Amine
150°F (65.6°C) 20 Year Life,	psi	21,400	18,008	18,008
LCL (Lower Confidence Limit)	MPa	147.5	124.0	124.0

Joining System Information

Pipe Size	Thread Type	Pin Upset O.D.		Thread Length		Make Up Length Loss		O-Ring Dash Number
		in.	mm	in.	mm	in.	mm	
2	CEN	2.81	71.4	4.9	125.0	4.9	125.0	141
2	SP	2.78	70.6	4.5	114.3	4.5	114.3	226
3	CEN	3.99	101.3	4.9	125.0	4.9	125.0	152
3	SP	3.96	100.6	4.5	114.3	4.5	114.3	236
4	SP	4.96	126.0	4.5	114.3	4.5	114.3	244
4	SPH	5.07	128.7	4.5	114.3	4.5	114.3	346
6	SS HP	7.74	196.6	9.0	228.0	8.8	222.3	439
6	SPH	7.39	187.7	6.0	152.4	6.0	152.4	438
8	SS HP	9.42	239.3	9.0	228.6	8.8	222.3	445
8	SS	8.94	227.1	5.0	127.0	4.8	120.7	369
10	SS HP	11.98	304.3	9.0	228.6	8.8	222.3	450
10	SS	11.40	289.6	6.2	156.5	5.4	137.9	449
12	SS HP	13.92	353.5	9.0	228.6	8.8	222.3	454
12	SS	13.44	341.4	6.9	174.0	6.1	155.2	453

Pipe Capacity

Pipe Size	Inside Diameter		Capacity	
	in.	mm	bbls/1,000 ft	(m3/km)
2	1.95	49.5	3.7	1.9
2	2.23	56.6	4.8	2.5
3	3.00	76.2	8.7	4.6
3	3.35	85.1	10.9	5.7
4	3.91	99.3	14.9	7.7
6	5.85	148.6	33.2	17.3
6	6.10	154.9	36.1	18.9
8	7.49	190.2	54.5	28.4
8	7.74	196.6	58.2	30.4
10	9.84	249.9	94.1	49.1
12	11.81	300.0	135.5	70.7

Fiber Glass Systems

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