

STAR™ Anhydride Line Pipe (High Pressure - API 15HR DESIGN - Product Data)

Product Description

- Pressure - Up to 2750 psi (19,0 MPa)
- Resin System - Anhydride Cured Epoxy
- Reinforcement - Premium Fiberglass
- Joining Systems - API 8rd Threaded
- Joint Length - 30 Feet (9,1 mts) Nominal
Random Lengths of 20 to 32 Feet (6,1 to 9,8 mts)
depending on size
- Temperature - Up to 150° F (65.6° C) Maximum
- Sizes - 1½ through 8 inches
- Fittings - A variety of filament wound API 5B threaded fittings are available. API 15HR design systems require higher rated fittings, refer to the chart on page 26, STAR™ High Pressure Threaded Fittings. Temperature interpolation is not recommended for fittings.

High Pressure Design \geq 500 psi

- API 15HR Designed and monogrammed products are indicated by a check mark (✓) in tables
- Design Life - 20 years at full rating
- Design Temperature - 150° F (65.6° C)
- Wall Thickness - Minimum
- Hoop Stress - Average Lower Confidence Limit (LCL), ASTM D2992-B
- 100% Factory Hydrotest - At 1.5 x the series rated pressure at 150° F (65.6° C)

Flow Factors

- Hazen Williams C=150
- Absolute Roughness = 0.00021 in. (0.00533 mm)

Nominal Moduli

- Modulus of Elasticity
 - Hoop - 3.5×10^6 psi (24,1 GPa)
 - Axial - 1.5×10^6 psi (10,3 GPa)
- Poisson's Ratio (Minor) = 0.38

Physical Properties

- Density = 121 lbs/cu ft (1938 kgs/cu m)
- Specific Gravity = 1.94

Thermal Properties

- Coefficient of Thermal Conductivity
 $0.23 \text{ BTU}/(\text{ft}\cdot\text{hr}\cdot^\circ\text{F})$ ($0.4 \text{ W}/(\text{m}\cdot^\circ\text{C})$)
- Coefficient of Thermal Expansion
 $13.7 \times 10^{-6} \text{ in}/\text{in}/^\circ\text{F}$ ($24,7 \times 10^{-6} \text{ mm}/\text{mm}/^\circ\text{C}$)

Benefits

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

Applications

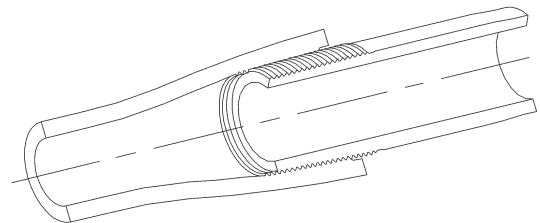
- Production Lines or Injection Lines
- Transfer Lines or Disposal Lines
- Oil, Gas, Saltwater, CO₂ and H₂S

Performance Ratings

| (ASTM D 2992-B) | 150° F (65.6° C) |
|---|------------------|
| 11.4 Year Life, LTHS | 24,503 (169,0) |
| 20 Year Life, LTHS | 23,768 (163,9) |
| 20 Year Life, LCL (Lower Confidence Limit) | 21,400 (147,6) |

Joining System

Advanced Composite Thread (ACT)



API Threads

- Advanced Composite Thread (ACT) - Molded threads using a graphite, ceramic and epoxy composite for high performance applications. (Patent No's 4,999,389 & 5,179,140)
- Precision Ground Thread (PGT) - Typical ground threads produced with numerical controlled grinding equipment.
- All 1½" EUE 10rd and 2-3/8" - 4½" EUE 8rd API threads conform to API 5B Table 14, 14th Edition (L4 is minimum) and all 5½" - 9 5/8" OD 8rd casing threads conform to API 5B Table 7, 14th Edition (L4 is minimum).

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 **Fiber Glass Systems**

| SIZE | | Product Code | PIPE DIMENSIONS (NOMINAL) | | | | | | | | | Maximum Support Span Ft (m) |
|---|-----------------|--------------|----------------------------|-----------------------------|---------------------------|------------------------------|---------------------------------|----|-------|--|--|--------------------------------|
| Nom. Size | API Thread Type | | Inside Diameter In (mm) | Outside Diameter In (mm) | Wall Thickness In (mm) | Pipe Weight Lbs/ft (kg/m) | API Thread Conn. Dia In (mm) | | | | | |
| Series 500 - ACT (All Sizes) or PGT (All Sizes except 5") | | | | | | | | | | | | |
| 3 | 3 1/2 | R0530 | 3.00 (76,2) | 3.12 (79,3) | 0.06 (1,5) | 0.92 (1,4) | 4.15 (105,4) | 10 | (3,1) | | | |
| 4 | 4 1/2 | R0539 | 3.91 (99,3) | 4.06 (103,4) | 0.08 (2,0) | 1.21 (1,8) | 5.15 (130,7) | 11 | (3,4) | | | |
| 5 | 5 1/2 | R0547 | 4.74 (120,4) | 4.93 (125,3) | 0.10 (2,5) | 1.89 (2,8) | 5.99 (152,2) | 12 | (3,7) | | | |
| 6 | 6 5/8 | R0558 | 5.85 (148,6) | 6.08 (154,6) | 0.12 (2,9) | 2.67 (4,0) | 7.09 (180,1) | 13 | (4,0) | | | |
| 8 | 8 5/8 | R0575 | 7.50 (190,5) | 7.79 (198,3) | 0.15 (3,7) | 4.22 (6,3) | 9.18 (233,1) | 15 | (4,6) | | | |
| Series 750 - ACT (All Sizes) or PGT (All Sizes except 5") | | | | | | | | | | | | |
| 2 1/2 | 2 7/8 | R0724 | 2.43 (61,7) | 2.58 (65,5) | 0.08 (1,9) | 0.72 (1,1) | 3.49 (88,7) | 10 | (3,1) | | | |
| 3 | 3 1/2 | R0730 | 3.00 (76,2) | 3.19 (80,9) | 0.09 (2,4) | 1.16 (1,7) | 4.21 (106,9) | 11 | (3,4) | | | |
| 4 | 4 1/2 | R0739 | 3.91 (99,3) | 4.15 (105,4) | 0.12 (3,1) | 1.80 (2,7) | 5.26 (133,7) | 12 | (3,7) | | | |
| 5 | 5 1/2 | R0747 | 4.74 (120,4) | 5.03 (127,8) | 0.15 (3,7) | 2.25 (3,3) | 6.11 (155,2) | 14 | (4,0) | | | |
| 6 | 6 5/8 | R0758 | 5.85 (148,6) | 6.21 (157,8) | 0.18 (4,6) | 3.55 (5,3) | 7.24 (183,9) | 15 | (4,6) | | | |
| 8 | 8 5/8 | R0775 | 7.50 (190,5) | 7.96 (202,3) | 0.23 (5,9) | 5.39 (8,0) | 9.35 (237,5) | 17 | (5,2) | | | |
| Series 1000 - ACT (All Sizes) or PGT (All Sizes except 5") | | | | | | | | | | | | |
| 2 | 2 3/8 | R1020 | 2.00 (50,8) | 2.17 (55,0) | 0.08 (2,1) | 0.60 (0,9) | 3.00 (76,3) | 9 | (2,8) | | | |
| 2 1/2 | 2 7/8 | R1024 | 2.43 (61,7) | 2.63 (66,9) | 0.10 (2,6) | 0.91 (1,4) | 3.55 (90,3) | 10 | (3,1) | | | |
| 3 | 3 1/2 | R1030 | 3.00 (76,2) | 3.25 (82,5) | 0.12 (3,2) | 1.40 (2,1) | 4.27 (108,5) | 12 | (3,7) | | | |
| 4 | 4 1/2 | R1039 | 3.91 (99,3) | 4.24 (107,6) | 0.16 (4,1) | 2.12 (3,2) | 5.32 (135,2) | 13 | (4,0) | | | |
| 5 | 5 1/2 | R1047 | 4.74 (120,4) | 5.13 (130,4) | 0.20 (5,0) | 3.00 (4,5) | 6.23 (158,2) | 14 | (4,3) | | | |
| 6 | 6 5/8 | R1058 | 5.85 (148,6) | 6.34 (160,9) | 0.24 (6,2) | 4.50 (6,7) | 7.42 (188,4) | 16 | (4,9) | | | |
| 8 | 8 5/8 | R1075 | 7.50 (190,5) | 8.12 (206,3) | 0.31 (7,9) | 7.21 (10,7) | 9.64 (244,9) | 18 | (5,5) | | | |
| Series 1250 - ACT (All Sizes) or PGT (2", 2 1/2", 3", 4" and 6" Sizes) | | | | | | | | | | | | |
| 1 1/2 | 1.90 | R1215 | 1.50 (38,1) | 1.66 (42,1) | 0.08 (2,0) | 0.46 (0,7) | 2.51 (63,8) | 8 | (2,5) | | | |
| 2 | 2 3/8 | R1220 | 2.00 (50,8) | 2.21 (56,1) | 0.10 (2,7) | 0.76 (1,1) | 3.06 (77,8) | 10 | (3,1) | | | |
| 2 1/2 | 2 7/8 | R1224 | 2.43 (61,7) | 2.68 (68,2) | 0.13 (3,2) | 1.12 (1,7) | 3.62 (91,8) | 11 | (3,4) | | | |
| 3 | 3 1/2 | R1230 | 3.00 (76,2) | 3.31 (84,2) | 0.16 (4,0) | 1.65 (2,5) | 4.33 (110,1) | 12 | (3,7) | | | |
| 4 | 4 1/2 | R1239 | 3.91 (99,3) | 4.32 (109,7) | 0.21 (5,2) | 2.51 (3,7) | 5.46 (138,6) | 13 | (4,0) | | | |
| 5 | 5 1/2 | R1247 | 4.74 (120,4) | 5.24 (133,0) | 0.25 (6,3) | 3.79 (5,6) | 6.40 (162,7) | 15 | (4,6) | | | |
| 6 | 6 5/8 | R1258 | 5.85 (148,6) | 6.46 (164,2) | 0.31 (7,8) | 5.48 (8,2) | 7.59 (192,9) | 17 | (5,2) | | | |
| 8 | 8 5/8 | R1275 | 7.50 (190,5) | 8.29 (210,5) | 0.39 (10,0) | 9.04 (13,5) | 9.88 (250,9) | 19 | (5,9) | | | |
| Series 1500 - ACT (All Sizes) or PGT (2", 2 1/2", 3" and 4" Sizes) | | | | | | | | | | | | |
| 1 1/2 | 1.90 | R1515 | 1.50 (38,1) | 1.69 (42,9) | 0.10 (2,4) | 0.59 (0,9) | 2.57 (65,4) | 9 | (2,8) | | | |
| 2 | 2 3/8 | R1520 | 2.00 (50,8) | 2.25 (57,3) | 0.13 (3,2) | 0.83 (1,2) | 3.11 (78,9) | 10 | (3,1) | | | |
| 2 1/2 | 2 7/8 | R1524 | 2.43 (61,7) | 2.74 (69,6) | 0.15 (3,9) | 1.19 (1,8) | 3.65 (92,8) | 11 | (3,4) | | | |
| 3 | 3 1/2 | R1530 | 3.00 (76,2) | 3.38 (85,9) | 0.19 (4,8) | 1.93 (2,9) | 4.46 (113,2) | 12 | (3,7) | | | |
| 4 | 4 1/2 | R1539 | 3.91 (99,3) | 4.41 (111,9) | 0.25 (6,3) | 3.14 (4,7) | 5.62 (142,8) | 14 | (4,3) | | | |
| 5 | 5 1/2 | R1547 | 4.74 (120,4) | 5.34 (135,7) | 0.30 (7,7) | 4.60 (6,8) | 6.58 (167,2) | 16 | (4,9) | | | |
| 6 | 6 5/8 | R1558 | 5.85 (148,6) | 6.59 (167,5) | 0.37 (9,5) | 6.51 (9,7) | 7.83 (199,0) | 17 | (5,2) | | | |
| 8 | 8 5/8 | R1575 | 7.50 (190,5) | 8.45 (214,7) | 0.48 (12,1) | 11.00 (16,4) | 10.18 (258,5) | 20 | (6,2) | | | |
| Series 1750 - ACT (All Sizes) or PGT (2", 2 1/2", 3" and 4" Sizes) | | | | | | | | | | | | |
| 2 | 2 3/8 | R1720 | 2.00 (50,8) | 2.30 (58,4) | 0.15 (3,8) | 0.98 (1,5) | 3.15 (80,1) | 10 | (3,1) | | | |
| 2 1/2 | 2 7/8 | R1724 | 2.43 (61,7) | 2.79 (71,0) | 0.18 (4,6) | 1.39 (2,1) | 3.76 (95,6) | 11 | (3,4) | | | |
| 3 | 3 1/2 | R1730 | 3.00 (76,2) | 3.45 (87,6) | 0.22 (5,7) | 2.22 (3,3) | 4.58 (116,3) | 13 | (4,0) | | | |
| 4 | 4 1/2 | R1739 | 3.91 (99,3) | 4.50 (114,2) | 0.29 (7,4) | 3.54 (5,3) | 5.81 (147,5) | 14 | (4,3) | | | |
| 5 | 5 1/2 | R1747 | 4.74 (120,4) | 5.45 (138,4) | 0.36 (9,0) | 5.23 (7,8) | 6.75 (171,4) | 16 | (4,9) | | | |
| 6 | 6 5/8 | R1755 | 5.50 (139,7) | 6.32 (160,6) | 0.41 (10,5) | 7.09 (10,6) | 8.04 (204,3) | 17 | (5,2) | | | |

(Metric Conversions are in Parentheses)

| SIZE | | ✓ | STAR [™] RATED PRESSURE ⁽⁴⁾ | | Ultimate ⁽²⁾ Pressure ASTM D-1599 psi (MPa) | Minimum Bending Radius Ft (m) | Maximum Deflection In/jt (cm/jt) | Collapse Rating psi (MPa) | Short Term | | Threaded Adapter Product Code |
|-----------|-----------------|---|--|--|---|--|--|---------------------------------|-----------------------------|--|--|
| Nom. Size | API Thread Type | | Static ⁽¹⁾ 150° F (65.6° C) psi (MPa) | | | | | | Tensile Rating Lbs (kgs) | | |

Series 500 - ACT (All Sizes) or PGT (All Sizes except 5")

| | | | | | | | | | | | | | | | |
|---|-------|---|-----|-------|------|--------|-----|---------|----|---------|----|-------|-------|--------|------|
| 3 | 3 1/2 | ✓ | 500 | (3,4) | 1800 | (12,4) | 159 | (48,5) | 41 | (104,1) | 62 | (0,4) | 2400 | (1089) | 35NT |
| 4 | 4 1/2 | ✓ | 500 | (3,4) | 1400 | (9,7) | 204 | (62,2) | 32 | (81,3) | 28 | (0,2) | 3000 | (1361) | 45NT |
| 5 | 5 1/2 | ✓ | 500 | (3,4) | 1500 | (10,3) | 248 | (75,6) | 25 | (63,5) | 35 | (0,2) | 4800 | (2177) | 55NR |
| 6 | 6 5/8 | ✓ | 500 | (3,4) | 1300 | (9,0) | 304 | (92,7) | 20 | (50,8) | 23 | (0,2) | 6300 | (2858) | 65NV |
| 8 | 8 5/8 | ✓ | 500 | (3,4) | 1400 | (9,7) | 392 | (119,5) | 16 | (40,6) | 30 | (0,2) | 11500 | (5216) | 85NU |

Series 750 - ACT (All Sizes) or PGT (All Sizes except 5")

| | | | | | | | | | | | | | | | |
|-------|-------|---|-----|-------|------|--------|-----|---------|----|---------|-----|-------|-------|--------|------|
| 2 1/2 | 2 7/8 | ✓ | 750 | (5,2) | 2200 | (15,2) | 130 | (39,6) | 50 | (127,0) | 113 | (0,8) | 1900 | (862) | 27NT |
| 3 | 3 1/2 | ✓ | 750 | (5,2) | 2400 | (16,5) | 162 | (49,4) | 40 | (101,6) | 145 | (1,0) | 3200 | (1452) | 35NT |
| 4 | 4 1/2 | ✓ | 750 | (5,2) | 2300 | (15,9) | 210 | (64,0) | 31 | (78,7) | 124 | (0,9) | 5200 | (2359) | 45NT |
| 5 | 5 1/2 | ✓ | 750 | (5,2) | 2200 | (15,2) | 254 | (77,4) | 24 | (61,0) | 117 | (0,8) | 7400 | (3357) | 55NR |
| 6 | 6 5/8 | ✓ | 750 | (5,2) | 2100 | (14,5) | 312 | (95,1) | 20 | (50,8) | 101 | (0,7) | 10700 | (4854) | 65NV |
| 8 | 8 5/8 | ✓ | 750 | (5,2) | 1900 | (13,1) | 398 | (121,3) | 15 | (38,1) | 76 | (0,5) | 15900 | (7212) | 85NU |

Series 1000 - ACT (All Sizes) or PGT (All Sizes except 5")

| | | | | | | | | | | | | | | | |
|-------|-------|---|------|-------|------|--------|-----|---------|----|---------|-----|-------|-------|--------|------|
| 2 | 2 3/8 | ✓ | 1000 | (6,9) | 2700 | (18,6) | 109 | (33,2) | 60 | (152,4) | 212 | (1,5) | 1600 | (726) | 23NS |
| 2 1/2 | 2 7/8 | ✓ | 1000 | (6,9) | 2900 | (20,0) | 133 | (40,5) | 49 | (124,5) | 265 | (1,8) | 2600 | (1179) | 27NT |
| 3 | 3 1/2 | ✓ | 1000 | (6,9) | 3000 | (20,7) | 165 | (50,3) | 39 | (99,1) | 281 | (1,9) | 4100 | (1860) | 35NT |
| 4 | 4 1/2 | ✓ | 1000 | (6,9) | 2800 | (19,3) | 213 | (64,9) | 30 | (76,2) | 215 | (1,5) | 6300 | (2858) | 45NT |
| 5 | 5 1/2 | ✓ | 1000 | (6,9) | 2600 | (17,9) | 257 | (78,3) | 24 | (61,0) | 186 | (1,3) | 8800 | (3992) | 55NR |
| 6 | 6 5/8 | ✓ | 1000 | (6,9) | 2700 | (18,6) | 318 | (96,9) | 19 | (48,3) | 212 | (1,5) | 14000 | (6350) | 65NS |
| 8 | 8 5/8 | ✓ | 1000 | (6,9) | 2600 | (17,9) | 406 | (123,7) | 15 | (38,1) | 183 | (1,3) | 21800 | (9888) | 85NS |

Series 1250 - ACT (All Sizes) or PGT (2", 2 1/2", 3", 4" and 6" Sizes)

| | | | | | | | | | | | | | | | |
|-------|-------|---|------|-------|------|--------|-----|---------|----|---------|-----|-------|-------|---------|------|
| 1 1/2 | 1.90 | ✓ | 1250 | (8,6) | 3600 | (24,8) | 84 | (25,6) | 64 | (162,6) | 487 | (3,4) | 1200 | (544) | 19NR |
| 2 | 2 3/8 | ✓ | 1250 | (8,6) | 3600 | (24,8) | 112 | (34,1) | 58 | (147,3) | 491 | (3,4) | 2200 | (998) | 23NS |
| 2 1/2 | 2 7/8 | ✓ | 1250 | (8,6) | 3700 | (25,5) | 136 | (41,5) | 48 | (121,9) | 510 | (3,5) | 3300 | (1497) | 27NT |
| 3 | 3 1/2 | ✓ | 1250 | (8,6) | 3600 | (24,8) | 168 | (51,2) | 39 | (99,1) | 482 | (3,3) | 5000 | (2268) | 35NT |
| 4 | 4 1/2 | ✓ | 1250 | (8,6) | 3300 | (22,8) | 216 | (65,8) | 30 | (76,2) | 361 | (2,5) | 7600 | (3447) | 45NS |
| 5 | 5 1/2 | ✓ | 1250 | (8,6) | 3400 | (23,4) | 263 | (80,2) | 23 | (58,4) | 390 | (2,7) | 11500 | (5216) | 55NQ |
| 6 | 6 5/8 | ✓ | 1250 | (8,6) | 3300 | (22,8) | 324 | (98,8) | 19 | (48,3) | 384 | (2,6) | 17400 | (7893) | 65NQ |
| 8 | 8 5/8 | ✓ | 1250 | (8,6) | 3300 | (22,8) | 415 | (126,5) | 15 | (38,1) | 373 | (2,6) | 28300 | (12837) | N/A |

Series 1500 - ACT (All Sizes) or PGT (2", 2 1/2", 3" and 4" Sizes)

| | | | | | | | | | | | | | | | |
|-------|-------|---|------|--------|------|--------|-----|---------|----|---------|------|-------|-------|---------|------|
| 1 1/2 | 1.90 | ✓ | 1500 | (10,3) | 4800 | (33,1) | 87 | (26,5) | 62 | (157,5) | 1114 | (7,7) | 1700 | (771) | 19NR |
| 2 | 2 3/8 | ✓ | 1500 | (10,3) | 3900 | (26,9) | 113 | (34,4) | 58 | (147,3) | 622 | (4,3) | 2400 | (1089) | 23NS |
| 2 1/2 | 2 7/8 | ✓ | 1500 | (10,3) | 3900 | (26,9) | 137 | (41,8) | 47 | (119,4) | 623 | (4,3) | 3600 | (1633) | 27NT |
| 3 | 3 1/2 | ✓ | 1500 | (10,3) | 4200 | (29,0) | 171 | (52,1) | 38 | (96,5) | 759 | (5,2) | 5900 | (2676) | 35NS |
| 4 | 4 1/2 | ✓ | 1500 | (10,3) | 4100 | (28,3) | 222 | (67,7) | 29 | (73,7) | 707 | (4,9) | 9800 | (4445) | 45NR |
| 5 | 5 1/2 | ✓ | 1500 | (10,3) | 4100 | (28,3) | 269 | (82,0) | 23 | (58,4) | 701 | (4,8) | 14300 | (6486) | 55NP |
| 6 | 6 5/8 | ✓ | 1500 | (10,3) | 3900 | (26,9) | 330 | (100,6) | 19 | (48,3) | 630 | (4,3) | 20900 | (9480) | N/A |
| 8 | 8 5/8 | ✓ | 1500 | (10,3) | 4000 | (27,6) | 424 | (129,2) | 14 | (35,6) | 660 | (4,6) | 35000 | (15876) | N/A |

Series 1750 - ACT (All Sizes) or PGT (2", 2 1/2", 3" and 4" Sizes)

| | | | | | | | | | | | | | | | |
|-------|-------|---|------|--------|------|--------|-----|--------|----|---------|------|-------|-------|--------|------|
| 2 | 2 3/8 | ✓ | 1750 | (12,1) | 4700 | (32,4) | 116 | (35,4) | 56 | (142,2) | 1067 | (7,4) | 3000 | (1361) | 23NS |
| 2 1/2 | 2 7/8 | ✓ | 1750 | (12,1) | 4500 | (31,0) | 140 | (42,7) | 46 | (116,8) | 970 | (6,7) | 4200 | (1905) | 27NS |
| 3 | 3 1/2 | ✓ | 1750 | (12,1) | 4800 | (33,1) | 174 | (53,0) | 37 | (94,0) | 1124 | (7,7) | 6900 | (3130) | 35NS |
| 4 | 4 1/2 | ✓ | 1750 | (12,1) | 4500 | (31,0) | 225 | (68,6) | 29 | (73,7) | 969 | (6,7) | 11000 | (4990) | 45NR |
| 5 | 5 1/2 | ✓ | 1750 | (12,1) | 4600 | (31,7) | 273 | (83,2) | 22 | (55,9) | 1007 | (6,9) | 16400 | (7439) | N/A |
| 6 | 6 5/8 | ✓ | 1750 | (12,1) | 4600 | (31,7) | 317 | (96,6) | 19 | (48,3) | 991 | (6,8) | 21900 | (9934) | N/A |

(Metric Conversions are in Parentheses)

NA - Not Available (Repair Joint Required)

| SIZE | | Product Code | PIPE DIMENSIONS (NOMINAL) | | | | | | | | | | Maximum Support Span Ft (m) |
|---|-----------------|--------------|----------------------------|-----------------------------|---------------------------|------------------------------|---------------------------------|----|-------|--|--|--|--------------------------------|
| Nom. Size | API Thread Type | | Inside Diameter In (mm) | Outside Diameter In (mm) | Wall Thickness In (mm) | Pipe Weight Lbs/ft (kg/m) | API Thread Conn. Dia In (mm) | | | | | | |
| Series 2000 - ACT (All Sizes) or PGT (2", 2 1/2", 3" and 4" Sizes) | | | | | | | | | | | | | |
| 1 1/2 | 1.90 | R2015 | 1.50 (38,1) | 1.76 (44,7) | 0.13 (3,3) | 0.73 (1,1) | 2.64 (67,1) | 9 | (2,8) | | | | |
| 2 | 2 3/8 | R2020 | 2.00 (50,8) | 2.35 (59,6) | 0.17 (4,4) | 1.14 (1,7) | 3.26 (82,7) | 11 | (3,4) | | | | |
| 2 1/2 | 2 7/8 | R2024 | 2.43 (61,7) | 2.85 (72,4) | 0.21 (5,3) | 1.64 (2,4) | 3.89 (98,8) | 12 | (3,7) | | | | |
| 3 | 3 1/2 | R2030 | 3.00 (76,2) | 3.52 (89,4) | 0.26 (6,6) | 2.52 (3,7) | 4.71 (119,5) | 13 | (4,0) | | | | |
| 4 | 4 1/2 | R2039 | 3.91 (99,3) | 4.59 (116,5) | 0.34 (8,6) | 4.24 (6,3) | 5.93 (150,7) | 15 | (4,6) | | | | |
| 6 | 6 5/8 | R2055 | 5.50 (139,7) | 6.45 (163,9) | 0.48 (12,1) | 8.18 (12,2) | 8.29 (210,7) | 18 | (5,5) | | | | |
| Series 2250 - ACT (All Sizes) or PGT (2 1/2" and 3" Sizes) | | | | | | | | | | | | | |
| 2 1/2 | 2 7/8 | R2224 | 2.43 (61,7) | 2.91 (73,9) | 0.24 (6,1) | 1.89 (2,8) | 4.02 (102,1) | 12 | (3,7) | | | | |
| 3 | 3 1/2 | R2230 | 3.00 (76,2) | 3.59 (91,2) | 0.30 (7,5) | 2.82 (4,2) | 4.83 (122,8) | 13 | (4,0) | | | | |
| 4 | 4 1/2 | R2239 | 3.91 (99,3) | 4.68 (118,9) | 0.39 (9,8) | 4.65 (6,9) | 6.12 (155,4) | 15 | (4,6) | | | | |
| Series 2500 - ACT (All Sizes) or PGT (2", 2 1/2" and 3" Sizes) | | | | | | | | | | | | | |
| 1 1/2 | 1.90 | R2515 | 1.50 (38,1) | 1.83 (46,5) | 0.17 (4,2) | 0.90 (1,3) | 2.83 (71,9) | 10 | (3,1) | | | | |
| 2 | 2 3/8 | R2520 | 2.00 (50,8) | 2.44 (62,0) | 0.22 (5,6) | 1.42 (2,1) | 3.48 (88,5) | 11 | (3,4) | | | | |
| 2 1/2 | 2 7/8 | R2524 | 2.43 (61,7) | 2.97 (75,4) | 0.27 (6,8) | 2.08 (3,1) | 4.12 (104,6) | 12 | (3,7) | | | | |
| 3 | 3 1/2 | R2530 | 3.00 (76,2) | 3.66 (93,1) | 0.33 (8,4) | 3.13 (4,7) | 4.96 (126,1) | 14 | (4,3) | | | | |
| 4 | 4 1/2 | R2537 | 3.75 (95,3) | 4.58 (116,3) | 0.42 (10,5) | 5.09 (7,6) | 6.33 (160,8) | 15 | (4,6) | | | | |
| Series 2750 - ACT (All Sizes) | | | | | | | | | | | | | |
| 3 | 3 1/2 | R2727 | 2.72 (69,1) | 3.39 (86,1) | 0.34 (8,5) | 3.14 (4,7) | 5.14 (130,5) | 13 | (4,0) | | | | |

(Metric Conversions are in Parenthesis)

Joining System Information (API 8rd Thread)

| Pipe Size - Inches Joining System | 1 1/2 | 2 | 2 1/2 | 3 | 4 | 5 | 6 | 8 | 8 |
|--------------------------------------|------------------------|------------------------|------------------------|------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Thread Size ⁽³⁾ | 1.90" EUE 10rd | 2 3/8" EUE 8rd | 2 7/8" EUE 8rd | 3 1/2" EUE 8rd | 4 1/2" EUE 8rd | 5 1/2" OD 8rd | 6 5/8" OD 8rd | 8 5/8" OD 8rd | 9 5/8" OD 8rd |
| • Pin Upset O.D. | In 2.15 (mm) (54,6) | In 2.60 (mm) (66,0) | In 3.10 (mm) (78,7) | In 3.75 (mm) (95,3) | In 4.75 (mm) (120,7) | In 5.55 (mm) (141,0) | In 6.65 (mm) (168,9) | In 8.65 (mm) (219,7) | In 9.65 (mm) (245,1) |
| • Thread Length | In 2.36 (mm) (59,9) | In 2.94 (mm) (74,7) | In 3.25 (mm) (82,6) | In 3.50 (mm) (88,9) | In 3.88 (mm) (98,6) | In 4.75 (mm) (120,7) | In 4.25 (mm) (108,0) | In 4.85 (mm) (123,2) | In 5.13 (mm) (130,3) |
| • Make Up Length Loss | In 2.06 (mm) (52,4) | In 2.56 (mm) (65,1) | In 2.86 (mm) (73,0) | In 3.13 (mm) (79,4) | In 3.50 (mm) (88,9) | In 4.38 (mm) (111,1) | In 3.88 (mm) (98,4) | In 4.50 (mm) (114,3) | In 4.75 (mm) (120,7) |

(Metric Conversions are in Parentheses)

Corresponding Numbered Notes:

- SERIES PRESSURE (API 15HR)** - Based on minimum wall thickness dimensions and API 15HR Edition 3, for a 20 year life expectancy. Since some of the long term test data is incomplete for some of these products, not all are available with an API Monogram. API Monogramable products are designated by check marks. NOV Fiber Glass Systems Standard Design products are not API monogrammed.
- ULTIMATE PRESSURE** - The typical mode of failure for pressure is weep.
- API CONNECTIONS** - All products are produced integral joint unless indicated (TC) Threaded and Coupled. All 1 1/2" EUE 10rd and 2 3/8" - 4 1/2" EUE 8rd API threads conform to API 5B Table 14, 14th Edition (L4 is minimum) and all 5 1/2" - 9 5/8" OD 8rd casing threads conform to API 5B Table 7, 14th Edition (L4 is minimum).
- CYCLIC PRESSURE** - Consult a NOV Fiber Glass Systems technical services personnel in applications where pressure fluctuations of more than 20 percent of the steady pressure rating are anticipated.

| SIZE | | ✓ | STAR [™] RATED PRESSURE ⁽⁴⁾ | | Ultimate ⁽²⁾ Pressure ASTM D-1599 psi (MPa) | Minimum Bending Radius Ft (m) | Maximum Deflection In/jt (cm/jt) | Collapse Rating psi (MPa) | Short Term Tensile Rating Lbs (kgs) | Threaded Adapter Product Code |
|-----------|-----------------|---|--|--|---|--|--|---------------------------------|---|--|
| Nom. Size | API Thread Type | | Static ⁽¹⁾ 150° F (65.6° C) psi (MPa) | | | | | | | |

| Series 2000 - ACT (All Sizes) or PGT (2", 2 1/2", 3" and 4" Sizes) | | | | | | | | | | | | | | | |
|--|-------|--|------|--------|------|--------|-----|--------|----|---------|------|--------|-------|---------|------|
| 1 1/2 | 1.90 | | 2000 | (13,8) | 5900 | (40,7) | 90 | (27,4) | 60 | (152,4) | 2141 | (14,8) | 2200 | (998) | 19NQ |
| 2 | 2 3/8 | | 2000 | (13,8) | 5400 | (37,2) | 118 | (36,0) | 55 | (139,7) | 1619 | (11,2) | 3500 | (1588) | 23NQ |
| 2 1/2 | 2 7/8 | | 2000 | (13,8) | 5300 | (36,5) | 143 | (43,6) | 45 | (114,3) | 1518 | (10,5) | 5100 | (2313) | 27NQ |
| 3 | 3 1/2 | | 2000 | (13,8) | 5400 | (37,2) | 177 | (53,9) | 37 | (94,0) | 1588 | (10,9) | 7800 | (3538) | 35NR |
| 4 | 4 1/2 | | 2000 | (13,8) | 5400 | (37,2) | 231 | (70,4) | 28 | (71,1) | 1637 | (11,3) | 13500 | (6124) | 45NP |
| 6 | 6 5/8 | | 2000 | (13,8) | 5200 | (35,9) | 323 | (98,5) | 19 | (48,3) | 1465 | (10,1) | 25500 | (11567) | N/A |

| Series 2250 - ACT (All Sizes) or PGT (2 1/2" and 3" Sizes) | | | | | | | | | | | | | | | |
|--|-------|--|------|--------|------|--------|-----|--------|----|---------|------|--------|-------|--------|------|
| 2 1/2 | 2 7/8 | | 2250 | (15,5) | 6000 | (41,4) | 146 | (44,5) | 45 | (114,3) | 2232 | (15,4) | 5900 | (2676) | 27NQ |
| 3 | 3 1/2 | | 2250 | (15,5) | 5900 | (40,7) | 180 | (54,9) | 36 | (91,4) | 2163 | (14,9) | 8900 | (4037) | 35NQ |
| 4 | 4 1/2 | | 2250 | (15,5) | 5900 | (40,7) | 234 | (71,3) | 28 | (71,1) | 2080 | (14,3) | 14800 | (6713) | N/A |

| Series 2500 - ACT (All Sizes) or PGT (2", 2 1/2" and 3" Sizes) | | | | | | | | | | | | | | | |
|--|-------|--|------|--------|------|--------|-----|--------|----|---------|------|--------|-------|--------|------|
| 1 1/2 | 1.90 | | 2500 | (17,2) | 7100 | (49,0) | 93 | (28,3) | 58 | (147,3) | 3645 | (25,1) | 2700 | (1225) | 19NS |
| 2 | 2 3/8 | | 2500 | (17,2) | 6500 | (44,8) | 122 | (37,2) | 54 | (137,2) | 2853 | (19,7) | 4400 | (1996) | 23NP |
| 2 1/2 | 2 7/8 | | 2500 | (17,2) | 6500 | (44,8) | 149 | (45,4) | 44 | (111,8) | 2870 | (19,8) | 6500 | (2948) | N/A |
| 3 | 3 1/2 | | 2500 | (17,2) | 6500 | (44,8) | 183 | (55,8) | 35 | (88,9) | 2859 | (19,7) | 9900 | (4491) | 35NP |
| 4 | 4 1/2 | | 2500 | (17,2) | 6600 | (45,5) | 230 | (70,1) | 23 | (58,4) | 3015 | (20,8) | 15800 | (7167) | N/A |

| Series 2750 - ACT (All Sizes) | | | | | | | | | | | | | | | |
|-------------------------------|-------|--|------|--------|------|--------|-----|--------|----|--------|------|--------|------|--------|-----|
| 3 | 3 1/2 | | 2750 | (19,0) | 7400 | (51,0) | 171 | (52,1) | 36 | (91,4) | 4128 | (28,5) | 9500 | (4309) | N/A |

(Metric Conversions are in Parentheses) N/A - Not Available (Repair Joint Required)

| Pipe Capacity | | | | | |
|---------------|--------|-----------------|---------|----------------|----------------------|
| Size | | Inside Diameter | | Capacity | |
| Pipe | Thread | in | (mm) | Bbls/1,000 ft. | (m ³ /km) |
| 1 1/2 | 1.90 | 1.50 | (38,1) | 2.20 | (1,1) |
| 2 | 2 3/8 | 2.00 | (50,8) | 3.90 | (2,0) |
| 2 1/2 | 2 7/8 | 2.43 | (61,7) | 5.70 | (3,0) |
| 3 | 3 1/2 | 3.00 | (76,2) | 8.70 | (4,5) |
| 4 | 4 1/2 | 3.75 | (95,3) | 13.70 | (7,1) |
| 4 | 4 1/2 | 3.91 | (99,3) | 14.80 | (7,7) |
| 5 | 5 1/2 | 4.74 | (120,4) | 21.80 | (11,4) |
| 6 | 6 5/8 | 5.50 | (139,7) | 29.40 | (15,3) |
| 6 | 6 5/8 | 5.85 | (148,6) | 33.20 | (17,3) |
| 8 | 8 5/8 | 7.50 | (190,5) | 54.60 | (28,5) |

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