

# STAR™ Aliphatic Amine Line Pipe (High Pressure - STANDARD DESIGN - Product Data)

## Product Description

- Pressure - Up to 4000 psi (27,6 MPa)
- Resin System - Aliphatic Amine Cured Epoxy
- Reinforcement - Premium Fiberglass
- Joining Systems - API 8rd Threaded and Mechanical O-Ring (SSS)
- Joint Length - 30 Feet (9,1 mts) Nominal  
Random Lengths of 20 to 32 Feet (6,1 to 9,8 mts)
- Temperature - Up to 200° F (93.3° C) Maximum
- Sizes - 1½ through 8 inches - API 8rd Thread  
8, 10 and 12 inches - SSS Thread
- Fittings - A variety of filament wound API 5B threaded and SSS fittings are available. Purchase all fittings by thread size and design pressure rating only.

## High Pressure Design ≥ 500 psi

- Design Life - 20 years at full rating
- Design Temperature - 150° F (65.6° C)
- Wall Thickness - Nominal
- Hoop Stress - Average Long Term Hydrostatic Strength (LTHS), ASTM D2992-B
- 100% Factory Hydrotest - All products are tested at a minimum of 1.25 x the series rated pressure at 150° F (65.6° C)
- Non API Design

## Flow Factors

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

## Nominal Moduli

- Modulus of Elasticity  
Hoop -  $3.3 \times 10^6$  psi (22,8 GPa)  
Axial -  $2.0 \times 10^6$  psi (13,8 GPa)
- Poisson's Ratio (Minor) = 0.39

## Physical Properties

- Density = 124 lbs/cu ft (1986 kgs/cu m)
- Specific Gravity = 1.99

## 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  
 $8.7 \times 10^{-6} \text{ in}/\text{in}/^\circ\text{F}$  ( $15,7 \times 10^{-6} \text{ mm}/\text{mm}/^\circ\text{C}$ )

## 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, CO<sub>2</sub> and H<sub>2</sub>S

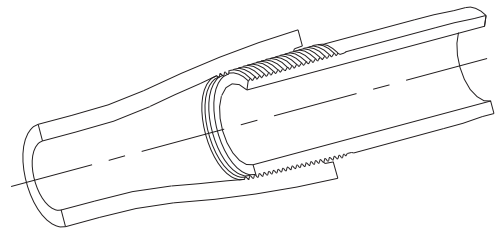
## Performance Ratings vs. Temperature

| (ASTM D 2992-B)                               | 73.4° F<br>(23° C) | 150° F<br>(65.6° C) | 180° F<br>(82.2° C) | 200° F<br>(93.3° C) |
|---|--------------------|---------------------|---------------------|---------------------|
| 11.4 Year Life, LTHS                          | 26,353<br>(181,7)  | 22,203<br>(153,1)   | 20,578<br>(141,9)   | 19,494<br>(134,4)   |
| 20 Year Life, LTHS                            | 26,004<br>(179,3)  | 21,404<br>(147,6)   | 19,602<br>(135,2)   | 18,401<br>(126,9)   |
| 20 Year Life, LCL<br>(Lower Confidence Limit) | 24,596<br>(169,6)  | 20,335<br>(140,2)   | 18,666<br>(128,7)   | 17,554<br>(121,0)   |

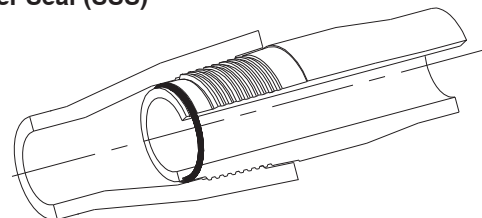
\* 150° F and 180° F data are interpolated

## Joining System

Advanced Composite Thread (ACT) or  
Precision Ground Thread (PGT)



## Star Super Seal (SSS)



- Refer to Page 6 for Joining System specifications

[www.fiberglasssystems.com](http://www.fiberglasssystems.com)

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**NOV** Fiber Glass Systems

| SIZE (in) |        | Product Code | PIPE DIMENSIONS (NOMINAL)  |                             |                           |                              |                                | Minimum Bending Radius |               | Maximum Deflection |  |
|-----------|--------|--------------|----------------------------|-----------------------------|---------------------------|------------------------------|--------------------------------|------------------------|---------------|--------------------|--|
| Pipe      | Thread |              | Inside Diameter<br>In (mm) | Outside Diameter<br>In (mm) | Wall Thickness<br>In (mm) | Pipe Weight<br>lbs/ft (kg/m) | Connection Diameter<br>In (mm) | Ft (m)                 | In/ft (cm/ft) | In/ft (cm/ft)      |  |

| Series 500 - PGT (All Sizes) or SSS (8", 10", 12") |                     |       |               |               |            |             |               |             |           |  |  |
|--|---------------------|-------|---------------|---------------|------------|-------------|---------------|-------------|-----------|--|--|
| 3  | 3 1/2               | I0530 | 2.94 (74,7)   | 3.07 (78,0)   | 0.07 (1,8) | 0.70 (1,0)  | 4.20 (106,7)  | 154 (46,9)  | 34 (86,4) |  |  |
| 4  | 4 1/2               | I0540 | 3.85 (97,8)   | 4.01 (101,9)  | 0.08 (2,0) | 1.20 (1,8)  | 5.45 (138,4)  | 201 (61,3)  | 26 (66,0) |  |  |
| 5  | <sup>TC</sup> 5 1/2 | I0550 | 4.74 (120,4)  | 4.91 (124,7)  | 0.09 (2,3) | 1.80 (2,7)  | 6.25 (158,8)  | 246 (75,0)  | 21 (53,3) |  |  |
| 6  | 6 5/8               | I0560 | 5.93 (150,6)  | 6.15 (156,2)  | 0.11 (2,8) | 2.10 (3,1)  | 7.10 (180,3)  | 308 (93,9)  | 17 (43,2) |  |  |
| 8  | 8 5/8               | I0580 | 7.74 (196,6)  | 8.03 (204,0)  | 0.15 (3,8) | 3.90 (5,8)  | 9.25 (235,0)  | 401 (122,2) | 13 (33,0) |  |  |
| 8  | 8SS <sup>(5)</sup>  | I0577 | 7.74 (196,6)  | 8.01 (203,5)  | 0.14 (3,6) | 3.50 (5,2)  | 9.39 (238,5)  | 401 (122,2) | 13 (33,0) |  |  |
| 10   | 10SS <sup>(5)</sup> | I0598 | 9.84 (249,9)  | 10.20 (259,1) | 0.18 (4,6) | 6.60 (9,8)  | 12.10 (307,3) | 510 (155,4) | 10 (25,4) |  |  |
| 12   | 12SS <sup>(5)</sup> | I05B8 | 11.81 (300,0) | 12.23 (310,6) | 0.21 (5,3) | 8.60 (12,8) | 14.10 (358,1) | 611 (186,2) | 9 (22,9)  |  |  |

| Series 800 - ACT, PGT (All Sizes) or SSS (8", 10", 12") |                     |       |               |               |            |              |               |             |            |  |  |
|---|---------------------|-------|---------------|---------------|------------|--------------|---------------|-------------|------------|--|--|
| 2   | 2 3/8               | I0820 | 1.94 (49,3)   | 2.11 (53,6)   | 0.08 (2,0) | 0.50 (0,7)   | 3.05 (77,5)   | 105 (32,0)  | 49 (124,5) |  |  |
| 2 1/2   | 2 7/8               | I0825 | 2.37 (60,2)   | 2.53 (64,3)   | 0.08 (2,0) | 0.60 (0,9)   | 3.55 (90,2)   | 127 (38,7)  | 41 (104,1) |  |  |
| 3   | 3 1/2               | I0830 | 2.94 (74,7)   | 3.11 (79,0)   | 0.09 (2,3) | 0.90 (1,3)   | 4.25 (108,0)  | 156 (47,5)  | 33 (83,8)  |  |  |
| 4   | 4 1/2               | I0840 | 3.85 (97,8)   | 4.08 (103,6)  | 0.12 (3,0) | 1.60 (2,4)   | 5.55 (141,0)  | 204 (62,2)  | 26 (66,0)  |  |  |
| 5   | <sup>TC</sup> 5 1/2 | I0850 | 4.74 (120,4)  | 5.02 (127,5)  | 0.14 (3,6) | 2.50 (3,7)   | 6.25 (158,8)  | 251 (76,5)  | 21 (53,3)  |  |  |
| 6   | 6 5/8               | I0855 | 5.50 (139,7)  | 5.83 (148,1)  | 0.17 (4,3) | 3.10 (4,6)   | 7.35 (186,7)  | 292 (89,0)  | 18 (45,7)  |  |  |
| 6   | 6 5/8               | I0860 | 5.93 (150,6)  | 6.27 (159,3)  | 0.17 (4,3) | 3.10 (4,6)   | 7.30 (185,4)  | 314 (95,7)  | 17 (43,2)  |  |  |
| 8   | 8 5/8               | I0880 | 7.74 (196,6)  | 8.18 (207,8)  | 0.22 (5,6) | 5.80 (8,6)   | 9.55 (242,6)  | 409 (124,7) | 13 (33,0)  |  |  |
| 8   | 8SS <sup>(5)</sup>  | I0877 | 7.74 (196,6)  | 8.18 (207,8)  | 0.22 (5,6) | 5.50 (8,2)   | 9.63 (244,6)  | 409 (124,7) | 13 (33,0)  |  |  |
| 10  | 10SS <sup>(5)</sup> | I0898 | 9.84 (249,9)  | 10.41 (264,4) | 0.28 (7,1) | 9.70 (14,4)  | 12.35 (313,7) | 520 (158,5) | 10 (25,4)  |  |  |
| 12  | 12SS <sup>(5)</sup> | I08B8 | 11.81 (300,0) | 12.48 (317,0) | 0.33 (8,4) | 12.50 (18,6) | 14.40 (365,8) | 624 (190,2) | 8 (20,3)   |  |  |

| Series 1000 - ACT (All Sizes) , PGT (All Sizes Except 8") or SSS (8", 10", 12") |                     |       |               |               |             |              |               |             |            |  |  |
|---|---------------------|-------|---------------|---------------|-------------|--------------|---------------|-------------|------------|--|--|
| 2   | 2 3/8               | I1020 | 1.94 (49,3)   | 2.11 (53,6)   | 0.08 (2,0)  | 0.50 (0,7)   | 3.10 (78,7)   | 105 (32,0)  | 49 (124,5) |  |  |
| 2 1/2   | 2 7/8               | I1025 | 2.37 (60,2)   | 2.54 (64,5)   | 0.09 (2,3)  | 0.70 (1,0)   | 3.55 (90,2)   | 127 (38,7)  | 41 (104,1) |  |  |
| 3   | 3 1/2               | I1030 | 2.94 (74,7)   | 3.15 (80,0)   | 0.11 (2,8)  | 1.00 (1,5)   | 4.30 (109,2)  | 158 (48,2)  | 33 (83,8)  |  |  |
| 4   | 4 1/2               | I1040 | 3.85 (97,8)   | 4.13 (104,9)  | 0.14 (3,6)  | 1.90 (2,8)   | 5.60 (142,2)  | 206 (62,8)  | 25 (63,5)  |  |  |
| 5   | <sup>TC</sup> 5 1/2 | I1050 | 4.74 (120,4)  | 5.09 (129,3)  | 0.17 (4,3)  | 2.90 (4,3)   | 6.25 (158,8)  | 254 (77,4)  | 21 (53,3)  |  |  |
| 6   | 6 5/8               | I1055 | 5.50 (139,7)  | 5.91 (150,1)  | 0.21 (5,3)  | 3.70 (5,5)   | 7.45 (189,2)  | 296 (90,2)  | 18 (45,7)  |  |  |
| 6   | 6 5/8               | I1060 | 5.93 (150,6)  | 6.38 (162,1)  | 0.22 (5,6)  | 4.10 (6,1)   | 7.50 (190,5)  | 319 (97,2)  | 16 (40,6)  |  |  |
| 8   | 8 5/8               | I1080 | 7.74 (196,6)  | 8.29 (210,6)  | 0.28 (7,1)  | 7.10 (10,6)  | 9.75 (247,7)  | 415 (126,5) | 13 (33,0)  |  |  |
| 8   | 8SS <sup>(5)</sup>  | I1077 | 7.74 (196,6)  | 8.29 (210,6)  | 0.28 (7,1)  | 6.90 (10,3)  | 9.79 (248,7)  | 415 (126,5) | 13 (33,0)  |  |  |
| 10  | 10SS <sup>(5)</sup> | I1098 | 9.84 (249,9)  | 10.56 (268,2) | 0.36 (9,1)  | 11.80 (17,6) | 12.50 (317,5) | 528 (160,9) | 10 (25,4)  |  |  |
| 12  | 12SS <sup>(5)</sup> | I10B8 | 11.81 (300,0) | 12.65 (321,3) | 0.42 (10,7) | 15.30 (22,8) | 14.70 (373,4) | 633 (192,9) | 8 (20,3)   |  |  |

| Series 1250 - ACT (All Sizes) , PGT (2", 2 1/2", 3" and 4" Sizes) or SSS (8", 10", 12") |                     |       |               |               |             |              |               |             |            |  |  |
|---|---------------------|-------|---------------|---------------|-------------|--------------|---------------|-------------|------------|--|--|
| 2   | 2 3/8               | I1220 | 1.94 (49,3)   | 2.13 (54,1)   | 0.10 (2,5)  | 0.60 (0,9)   | 3.15 (80,0)   | 107 (32,6)  | 49 (124,5) |  |  |
| 2 1/2   | 2 7/8               | I1225 | 2.37 (60,2)   | 2.58 (65,5)   | 0.11 (2,8)  | 0.80 (1,2)   | 3.60 (91,4)   | 129 (39,3)  | 40 (101,6) |  |  |
| 3   | 3 1/2               | I1230 | 2.94 (74,7)   | 3.22 (81,8)   | 0.14 (3,6)  | 1.30 (1,9)   | 4.35 (110,5)  | 161 (49,1)  | 32 (81,3)  |  |  |
| 4   | 4 1/2               | I1240 | 3.85 (97,8)   | 4.19 (106,4)  | 0.17 (4,3)  | 2.30 (3,4)   | 5.70 (144,8)  | 210 (64,0)  | 25 (63,5)  |  |  |
| 5   | <sup>TC</sup> 5 1/2 | I1250 | 4.74 (120,4)  | 5.18 (131,6)  | 0.22 (5,6)  | 3.50 (5,2)   | 6.45 (163,8)  | 259 (78,9)  | 20 (50,8)  |  |  |
| 6   | 6 5/8               | I1255 | 5.50 (139,7)  | 6.00 (152,4)  | 0.25 (6,4)  | 4.50 (6,7)   | 7.57 (192,3)  | 300 (91,4)  | 17 (43,2)  |  |  |
| 6   | 7                   | I1260 | 5.93 (150,6)  | 6.48 (164,6)  | 0.27 (6,9)  | 5.20 (7,7)   | 8.00 (203,2)  | 324 (98,8)  | 16 (40,6)  |  |  |
| 8   | 8 5/8               | I1280 | 7.74 (196,6)  | 8.44 (214,4)  | 0.35 (8,9)  | 8.80 (13,1)  | 10.00 (254,0) | 422 (128,6) | 12 (30,5)  |  |  |
| 8   | 8SS <sup>(5)</sup>  | I1277 | 7.74 (196,6)  | 8.45 (214,6)  | 0.36 (9,1)  | 8.60 (12,8)  | 10.00 (254,0) | 422 (128,6) | 12 (30,5)  |  |  |
| 10  | 10SS <sup>(5)</sup> | I1298 | 9.84 (249,9)  | 10.74 (272,8) | 0.45 (11,4) | 14.50 (21,6) | 12.80 (325,1) | 537 (163,7) | 10 (25,4)  |  |  |
| 12  | 12SS <sup>(5)</sup> | I12B8 | 11.81 (300,0) | 12.89 (327,4) | 0.54 (13,7) | 19.20 (28,6) | 15.00 (381,0) | 645 (196,6) | 8 (20,3)   |  |  |

| Series 1500 - ACT (All Sizes) or PGT (2", 2 1/2", 3" and 4" Sizes) |                     |       |              |              |             |              |               |             |            |  |  |
|--|---------------------|-------|--------------|--------------|-------------|--------------|---------------|-------------|------------|--|--|
| 1 1/2  | 1.90                | I1515 | 1.44 (36,6)  | 1.60 (40,6)  | 0.08 (2,0)  | 0.40 (0,6)   | 2.70 (68,6)   | 80 (24,4)   | 64 (162,6) |  |  |
| 2  | 2 3/8               | I1520 | 1.94 (49,3)  | 2.17 (55,1)  | 0.12 (3,0)  | 0.70 (1,0)   | 3.20 (81,3)   | 109 (33,2)  | 48 (121,9) |  |  |
| 2 1/2  | 2 7/8               | I1525 | 2.37 (60,2)  | 2.62 (66,5)  | 0.13 (3,3)  | 1.00 (1,5)   | 3.67 (93,2)   | 131 (39,9)  | 40 (101,6) |  |  |
| 3  | 3 1/2               | I1530 | 2.94 (74,7)  | 3.26 (82,8)  | 0.16 (4,1)  | 1.50 (2,2)   | 4.42 (112,3)  | 163 (49,7)  | 32 (81,3)  |  |  |
| 4  | 4 1/2               | I1540 | 3.85 (97,8)  | 4.28 (108,7) | 0.22 (5,6)  | 2.70 (4,0)   | 5.80 (147,3)  | 214 (65,2)  | 24 (61,0)  |  |  |
| 5  | <sup>TC</sup> 5 1/2 | I1550 | 4.74 (120,4) | 5.27 (133,9) | 0.26 (6,6)  | 4.20 (6,2)   | 6.60 (167,6)  | 263 (80,2)  | 20 (50,8)  |  |  |
| 6  | 6 5/8               | I1555 | 5.50 (139,7) | 6.11 (155,2) | 0.31 (7,9)  | 5.50 (8,2)   | 7.74 (196,6)  | 306 (93,3)  | 17 (43,2)  |  |  |
| 6  | 7                   | I1560 | 5.93 (150,6) | 6.59 (167,4) | 0.33 (8,4)  | 6.30 (9,4)   | 8.20 (208,3)  | 330 (100,6) | 16 (40,6)  |  |  |
| 8  | 8 5/8               | I1574 | 7.43 (188,7) | 8.27 (210,1) | 0.42 (10,7) | 10.50 (15,6) | 10.25 (260,4) | 414 (126,2) | 13 (33,0)  |  |  |
| 8  | 9 5/8               | I1580 | 7.74 (196,6) | 8.59 (218,2) | 0.43 (10,9) | 12.10 (18,0) | 11.40 (289,6) | 430 (131,1) | 12 (30,5)  |  |  |

(Metric Conversions are in Parentheses)

| SIZE (in) |        | STAR™ RATED PRESSURES <sup>(4)</sup>      |   |   | Ultimate <sup>(2)</sup><br>Pressure<br>ASTM D-1599 |           | Collapse<br>Rating |           | Short Term<br>Tensile Rating |        | Maximum<br>Support<br>Span | Threaded<br>Adapter<br>Product<br>Code |
|-----------|--------|---|---|---|--|-----------|--------------------|-----------|------------------------------|--------|----------------------------|--|
| Pipe      | Thread | Static <sup>(1)</sup><br>150° F (65.6° C) | Static <sup>(1)</sup><br>180° F (82.2° C) | Static <sup>(1)</sup><br>200° F (93.3° C) | psi (MPa)  |           | psi (MPa)          |           | Lbs (kgs)                    |        | Ft (m)                     |  |
|           |        | psi (MPa)                                 | psi (MPa)                                 | psi (MPa)                                 | psi (MPa)  | psi (MPa) | psi (MPa)          | Lbs (kgs) | Lbs (kgs)                    | Ft (m) |                            |  |

| Series 500 - PGT (All Sizes) or SSS (8", 10", 12") |                     |           |           |           |            |          |               |          |      |  |  |  |
|--|---------------------|-----------|-----------|-----------|------------|----------|---------------|----------|------|--|--|--|
| 3  | 3 1/2               | 500 (3,4) | 450 (3,1) | 400 (2,8) | 1400 (9,7) | 30 (0,2) | 1700 (771)    | 10 (3,1) | 35NU |  |  |  |
| 4  | 4 1/2               | 500 (3,4) | 450 (3,1) | 400 (2,8) | 1300 (9,0) | 30 (0,2) | 2900 (1315)   | 11 (3,4) | 45NU |  |  |  |
| 5  | TC5 1/2             | 500 (3,4) | 450 (3,1) | 400 (2,8) | 1100 (7,6) | 16 (0,1) | 3600 (1633)   | 12 (3,7) | 55NR |  |  |  |
| 6  | 6 5/8               | 500 (3,4) | 450 (3,1) | 400 (2,8) | 1100 (7,6) | 16 (0,1) | 5800 (2631)   | 13 (4,0) | 65NS |  |  |  |
| 8  | 8 5/8               | 500 (3,4) | 450 (3,1) | 400 (2,8) | 1200 (8,3) | 18 (0,1) | 10300 (4672)  | 15 (4,6) | 85NU |  |  |  |
| 8  | 8SS <sup>(5)</sup>  | 500 (3,4) | 450 (3,1) | 400 (2,8) | 1100 (7,6) | 15 (0,1) | 9600 (4355)   | 15 (4,6) | 088R |  |  |  |
| 10   | 10SS <sup>(5)</sup> | 500 (3,4) | 450 (3,1) | 400 (2,8) | 1100 (7,6) | 16 (0,1) | 15900 (7212)  | 17 (5,2) | 05AR |  |  |  |
| 12   | 12SS <sup>(5)</sup> | 500 (3,4) | 450 (3,1) | 400 (2,8) | 1100 (7,6) | 15 (0,1) | 22400 (10161) | 18 (5,5) | 05CR |  |  |  |

| Series 800 - ACT, PGT (All Sizes) or SSS (8", 10", 12") |                     |           |           |           |             |           |               |          |      |  |  |  |
|---|---------------------|-----------|-----------|-----------|-------------|-----------|---------------|----------|------|--|--|--|
| 2   | 2 3/8               | 800 (5,5) | 700 (4,8) | 650 (4,5) | 2600 (17,9) | 190 (1,3) | 1400 (635)    | 9 (2,8)  | 23NR |  |  |  |
| 2 1/2   | 2 7/8               | 800 (5,5) | 700 (4,8) | 650 (4,5) | 2200 (15,2) | 110 (0,8) | 1800 (816)    | 10 (3,1) | 27NU |  |  |  |
| 3   | 3 1/2               | 800 (5,5) | 700 (4,8) | 650 (4,5) | 1800 (12,4) | 60 (0,4)  | 2300 (1043)   | 10 (3,1) | 35NU |  |  |  |
| 4   | 4 1/2               | 800 (5,5) | 700 (4,8) | 650 (4,5) | 1900 (13,1) | 80 (0,6)  | 4200 (1905)   | 12 (3,7) | 45NU |  |  |  |
| 5   | TC5 1/2             | 800 (5,5) | 700 (4,8) | 650 (4,5) | 1800 (12,4) | 70 (0,5)  | 6100 (2767)   | 13 (4,0) | 55NR |  |  |  |
| 6   | 6 5/8               | 800 (5,5) | 700 (4,8) | 650 (4,5) | 1800 (12,4) | 70 (0,5)  | 8300 (3765)   | 14 (4,3) | 65NU |  |  |  |
| 6   | 6 5/8               | 800 (5,5) | 700 (4,8) | 650 (4,5) | 1800 (12,4) | 60 (0,4)  | 9200 (4173)   | 15 (4,6) | 65NS |  |  |  |
| 8   | 8 5/8               | 800 (5,5) | 700 (4,8) | 650 (4,5) | 1800 (12,4) | 60 (0,4)  | 15800 (7167)  | 17 (5,2) | 85NR |  |  |  |
| 8   | 8SS <sup>(5)</sup>  | 800 (5,5) | 700 (4,8) | 650 (4,5) | 1800 (12,4) | 60 (0,4)  | 15600 (7076)  | 17 (5,2) | 088R |  |  |  |
| 10  | 10SS <sup>(5)</sup> | 800 (5,5) | 700 (4,8) | 650 (4,5) | 1800 (12,4) | 60 (0,4)  | 25600 (11612) | 19 (5,9) | N/A  |  |  |  |
| 12  | 12SS <sup>(5)</sup> | 800 (5,5) | 700 (4,8) | 650 (4,5) | 1700 (11,7) | 60 (0,4)  | 36100 (16375) | 20 (6,2) | N/A  |  |  |  |

| Series 1000 - ACT (All Sizes) , PGT (All Sizes Except 8") or SSS (8", 10", 12") |                     |            |           |           |             |           |               |          |      |  |  |  |
|---|---------------------|------------|-----------|-----------|-------------|-----------|---------------|----------|------|--|--|--|
| 2   | 2 3/8               | 1000 (6,9) | 900 (6,2) | 850 (5,9) | 2600 (17,9) | 190 (1,3) | 1400 (635)    | 9 (2,8)  | 23NR |  |  |  |
| 2 1/2   | 2 7/8               | 1000 (6,9) | 900 (6,2) | 850 (5,9) | 2300 (15,9) | 130 (0,9) | 1900 (862)    | 10 (3,1) | 27NU |  |  |  |
| 3   | 3 1/2               | 1000 (6,9) | 900 (6,2) | 850 (5,9) | 2200 (15,2) | 120 (0,8) | 2800 (1270)   | 11 (3,4) | 35NU |  |  |  |
| 4   | 4 1/2               | 1000 (6,9) | 900 (6,2) | 850 (5,9) | 2200 (15,2) | 130 (0,9) | 5000 (2268)   | 12 (3,7) | 45NU |  |  |  |
| 5   | TC5 1/2             | 1000 (6,9) | 900 (6,2) | 850 (5,9) | 2200 (15,2) | 120 (0,8) | 7500 (3402)   | 14 (4,3) | 55NR |  |  |  |
| 6   | 6 5/8               | 1000 (6,9) | 900 (6,2) | 850 (5,9) | 2300 (15,9) | 130 (0,9) | 10400 (4717)  | 15 (4,6) | 65NU |  |  |  |
| 6   | 6 5/8               | 1000 (6,9) | 900 (6,2) | 850 (5,9) | 2300 (15,9) | 130 (0,9) | 12000 (5443)  | 15 (4,6) | 65NR |  |  |  |
| 8   | 8 5/8               | 1000 (6,9) | 900 (6,2) | 850 (5,9) | 2200 (15,2) | 120 (0,8) | 19800 (8981)  | 17 (5,2) | N/A  |  |  |  |
| 8   | 8SS <sup>(5)</sup>  | 1000 (6,9) | 900 (6,2) | 850 (5,9) | 2200 (15,2) | 120 (0,8) | 19900 (9027)  | 17 (5,2) | N/A  |  |  |  |
| 10  | 10SS <sup>(5)</sup> | 1000 (6,9) | 900 (6,2) | 850 (5,9) | 2200 (15,2) | 120 (0,8) | 32500 (14742) | 20 (6,2) | N/A  |  |  |  |
| 12  | 12SS <sup>(5)</sup> | 1000 (6,9) | 900 (6,2) | 850 (5,9) | 2200 (15,2) | 120 (0,8) | 45800 (20775) | 22 (6,8) | N/A  |  |  |  |

| Series 1250 - ACT (All Sizes) , PGT (2", 2 1/2", 3" and 4" Sizes) or SSS (8", 10", 12") |                     |            |            |            |             |           |               |          |      |  |  |  |
|---|---------------------|------------|------------|------------|-------------|-----------|---------------|----------|------|--|--|--|
| 2   | 2 3/8               | 1250 (8,6) | 1100 (7,6) | 1050 (7,2) | 3100 (21,4) | 310 (2,1) | 1700 (771)    | 9 (2,8)  | 23NR |  |  |  |
| 2 1/2   | 2 7/8               | 1250 (8,6) | 1100 (7,6) | 1050 (7,2) | 2800 (19,3) | 230 (1,6) | 2300 (1043)   | 10 (3,1) | 27NU |  |  |  |
| 3   | 3 1/2               | 1250 (8,6) | 1100 (7,6) | 1050 (7,2) | 2900 (20,0) | 250 (1,7) | 3700 (1678)   | 11 (3,4) | 35NU |  |  |  |
| 4   | 4 1/2               | 1250 (8,6) | 1100 (7,6) | 1050 (7,2) | 2800 (19,3) | 230 (1,6) | 6100 (2767)   | 13 (4,0) | 45NU |  |  |  |
| 5   | TC5 1/2             | 1250 (8,6) | 1100 (7,6) | 1050 (7,2) | 2800 (19,3) | 240 (1,7) | 9600 (4355)   | 14 (4,3) | 55NQ |  |  |  |
| 6   | 6 5/8               | 1250 (8,6) | 1100 (7,6) | 1050 (7,2) | 2800 (19,3) | 230 (1,6) | 12700 (5761)  | 15 (4,6) | N/A  |  |  |  |
| 6   | 7                   | 1250 (8,6) | 1100 (7,6) | 1050 (7,2) | 2800 (19,3) | 240 (1,7) | 14900 (6759)  | 16 (4,9) | N/A  |  |  |  |
| 8   | 8 5/8               | 1250 (8,6) | 1100 (7,6) | 1050 (7,2) | 2800 (19,3) | 230 (1,6) | 25300 (11476) | 18 (5,5) | N/A  |  |  |  |
| 8   | 8SS <sup>(5)</sup>  | 1250 (8,6) | 1100 (7,6) | 1050 (7,2) | 2800 (19,3) | 240 (1,7) | 25700 (11658) | 18 (5,5) | N/A  |  |  |  |
| 10  | 10SS <sup>(5)</sup> | 1250 (8,6) | 1100 (7,6) | 1050 (7,2) | 2800 (19,3) | 240 (1,7) | 41400 (18779) | 21 (6,5) | N/A  |  |  |  |
| 12  | 12SS <sup>(5)</sup> | 1250 (8,6) | 1100 (7,6) | 1050 (7,2) | 2800 (19,3) | 240 (1,7) | 59400 (26944) | 23 (7,1) | N/A  |  |  |  |

| Series 1500 - ACT (All Sizes) or PGT (2", 2 1/2", 3" and 4" Sizes) |         |             |            |            |             |           |               |          |      |  |  |  |
|--|---------|-------------|------------|------------|-------------|-----------|---------------|----------|------|--|--|--|
| 1 1/2  | 1.9     | 1500 (10,3) | 1350 (9,3) | 1250 (8,6) | 3400 (23,4) | 440 (3,0) | 1100 (499)    | 8 (2,5)  | 19NR |  |  |  |
| 2  | 2 3/8   | 1500 (10,3) | 1350 (9,3) | 1250 (8,6) | 3600 (24,8) | 500 (3,4) | 2100 (953)    | 10 (3,1) | 23NR |  |  |  |
| 2 1/2  | 2 7/8   | 1500 (10,3) | 1350 (9,3) | 1250 (8,6) | 3300 (22,8) | 390 (2,7) | 2800 (1270)   | 11 (3,4) | 27NU |  |  |  |
| 3  | 3 1/2   | 1500 (10,3) | 1350 (9,3) | 1250 (8,6) | 3300 (22,8) | 400 (2,8) | 4400 (1996)   | 12 (3,7) | 35NU |  |  |  |
| 4  | 4 1/2   | 1500 (10,3) | 1350 (9,3) | 1250 (8,6) | 3400 (23,4) | 420 (2,9) | 7700 (3493)   | 13 (4,0) | 45NS |  |  |  |
| 5  | TC5 1/2 | 1500 (10,3) | 1350 (9,3) | 1250 (8,6) | 3400 (23,4) | 410 (2,8) | 11700 (5307)  | 15 (4,6) | 55NP |  |  |  |
| 6  | 6 5/8   | 1500 (10,3) | 1350 (9,3) | 1250 (8,6) | 3400 (23,4) | 410 (2,8) | 15700 (7122)  | 16 (4,9) | N/A  |  |  |  |
| 6  | 7       | 1500 (10,3) | 1350 (9,3) | 1250 (8,6) | 3400 (23,4) | 410 (2,8) | 18200 (8256)  | 17 (5,2) | N/A  |  |  |  |
| 8  | 8 5/8   | 1500 (10,3) | 1350 (9,3) | 1250 (8,6) | 3400 (23,4) | 430 (3,0) | 29200 (13245) | 19 (5,9) | N/A  |  |  |  |
| 8  | 9 5/8   | 1500 (10,3) | 1350 (9,3) | 1250 (8,6) | 3400 (23,4) | 410 (2,8) | 31100 (14107) | 19 (5,9) | N/A  |  |  |  |

(Metric Conversions are in Parentheses)

N/A - Not Available (Repair Joint Required)

| SIZE (in)  |         | Product Code | PIPE DIMENSIONS (NOMINAL) |                          |                        |                           |                             |             |            | Minimum Bending Radius Ft (m) | Maximum Deflection In/ft (cm/ft) |
|--|---------|--------------|---------------------------|--------------------------|------------------------|---------------------------|-----------------------------|-------------|------------|-------------------------------|----------------------------------|
| Pipe   | Thread  |              | Inside Diameter In (mm)   | Outside Diameter In (mm) | Wall Thickness In (mm) | Pipe Weight lbs/ft (kg/m) | Connection Diameter In (mm) |             |            |                               |                                  |
| <b>Series 1750 - ACT (All Sizes) or PGT (2", 2½", 3" and 4" Sizes)</b> |         |              |                           |                          |                        |                           |                             |             |            |                               |                                  |
| 1 1/2  | 1.90    | I1715        | 1.44 (36,6)               | 1.63 (41,4)              | 0.10 (2,5)             | 0.50 (0,7)                | 2.75 (69,9)                 | 82 (25,0)   | 63 (160,0) |                               |                                  |
| 2  | 2 3/8   | I1720        | 1.94 (49,3)               | 2.20 (55,9)              | 0.13 (3,3)             | 0.80 (1,2)                | 3.25 (82,6)                 | 110 (33,5)  | 47 (119,4) |                               |                                  |
| 2 1/2  | 2 7/8   | I1725        | 2.37 (60,2)               | 2.67 (67,8)              | 0.15 (3,8)             | 1.20 (1,8)                | 3.76 (95,5)                 | 134 (40,8)  | 39 (99,1)  |                               |                                  |
| 3  | 3 1/2   | I1730        | 2.94 (74,7)               | 3.32 (84,3)              | 0.19 (4,8)             | 1.80 (2,7)                | 4.52 (114,8)                | 166 (50,6)  | 31 (78,7)  |                               |                                  |
| 4  | 4 1/2   | I1740        | 3.85 (97,8)               | 4.36 (110,7)             | 0.26 (6,6)             | 3.30 (4,9)                | 5.90 (149,9)                | 218 (66,4)  | 24 (61,0)  |                               |                                  |
| 5  | TC5 1/2 | I1750        | 4.74 (120,4)              | 5.35 (135,9)             | 0.30 (7,6)             | 4.80 (7,1)                | 7.00 (177,8)                | 267 (81,4)  | 19 (48,3)  |                               |                                  |
| 6  | 6 5/8   | I1755        | 5.50 (139,7)              | 6.21 (157,7)             | 0.36 (9,1)             | 6.30 (9,4)                | 7.92 (201,2)                | 311 (94,8)  | 17 (43,2)  |                               |                                  |
| 6  | 7       | I1760        | 5.93 (150,6)              | 6.70 (170,2)             | 0.38 (9,7)             | 7.30 (10,9)               | 8.39 (213,1)                | 335 (102,1) | 16 (40,6)  |                               |                                  |
| 8  | 8 5/8   | I1774        | 7.43 (188,7)              | 8.42 (213,9)             | 0.49 (12,4)            | 12.20 (18,2)              | 10.50 (266,7)               | 421 (128,3) | 12 (30,5)  |                               |                                  |
| 8  | 9 5/8   | I1780        | 7.74 (196,6)              | 8.73 (221,7)             | 0.50 (12,7)            | 13.80 (20,5)              | 11.60 (294,6)               | 437 (133,2) | 12 (30,5)  |                               |                                  |
| <b>Series 2000 - ACT (All Sizes) or PGT (2", 2½", 3" and 4" Sizes)</b> |         |              |                           |                          |                        |                           |                             |             |            |                               |                                  |
| 1 1/2  | 1.90    | I2015        | 1.44 (36,6)               | 1.67 (42,4)              | 0.11 (2,8)             | 0.60 (0,9)                | 2.75 (69,9)                 | 83 (25,3)   | 62 (157,5) |                               |                                  |
| 2  | 2 3/8   | I2020        | 1.94 (49,3)               | 2.24 (56,9)              | 0.15 (3,8)             | 0.90 (1,3)                | 3.30 (83,8)                 | 112 (34,1)  | 46 (116,8) |                               |                                  |
| 2 1/2  | 2 7/8   | I2025        | 2.37 (60,2)               | 2.72 (69,1)              | 0.18 (4,6)             | 1.40 (2,1)                | 3.85 (97,8)                 | 136 (41,5)  | 38 (96,5)  |                               |                                  |
| 3  | 3 1/2   | I2030        | 2.94 (74,7)               | 3.38 (85,9)              | 0.22 (5,6)             | 2.10 (3,1)                | 4.63 (117,6)                | 169 (51,5)  | 31 (78,7)  |                               |                                  |
| 4  | 4 1/2   | I2040        | 3.85 (97,8)               | 4.43 (112,5)             | 0.29 (7,4)             | 3.70 (5,5)                | 6.00 (152,4)                | 221 (67,4)  | 24 (61,0)  |                               |                                  |
| 5  | TC5 1/2 | I2050        | 4.74 (120,4)              | 5.45 (138,4)             | 0.36 (9,1)             | 5.50 (8,2)                | 7.00 (177,8)                | 273 (83,2)  | 19 (48,3)  |                               |                                  |
| 6  | 6 5/8   | I2055        | 5.50 (139,7)              | 6.33 (160,8)             | 0.41 (10,4)            | 7.30 (10,9)               | 8.11 (206,0)                | 316 (96,3)  | 16 (40,6)  |                               |                                  |
| 6  | 7       | I2060        | 5.93 (150,6)              | 6.82 (173,2)             | 0.44 (11,2)            | 8.40 (12,5)               | 8.59 (218,2)                | 341 (103,9) | 15 (38,1)  |                               |                                  |
| 8  | 8 5/8   | I2074        | 7.43 (188,7)              | 8.57 (217,7)             | 0.57 (14,5)            | 14.00 (20,8)              | 10.75 (273,1)               | 428 (130,5) | 12 (30,5)  |                               |                                  |
| 8  | 9 5/8   | I2080        | 7.74 (196,6)              | 8.90 (226,1)             | 0.58 (14,7)            | 16.00 (23,8)              | 12.00 (304,8)               | 445 (135,6) | 12 (30,5)  |                               |                                  |
| <b>Series 2250 - ACT (All Sizes) or PGT (2", 2½" and 3" Sizes)</b>     |         |              |                           |                          |                        |                           |                             |             |            |                               |                                  |
| 1 1/2  | 1.90    | I2215        | 1.44 (36,6)               | 1.70 (43,2)              | 0.13 (3,3)             | 0.60 (0,9)                | 2.80 (71,1)                 | 85 (25,9)   | 61 (154,9) |                               |                                  |
| 2  | 2 3/8   | I2220        | 1.94 (49,3)               | 2.27 (57,7)              | 0.17 (4,3)             | 1.10 (1,6)                | 3.35 (85,1)                 | 114 (34,7)  | 46 (116,8) |                               |                                  |
| 2 1/2  | 2 7/8   | I2225        | 2.37 (60,2)               | 2.77 (70,4)              | 0.20 (5,1)             | 1.60 (2,4)                | 3.94 (100,1)                | 139 (42,4)  | 37 (94,0)  |                               |                                  |
| 3  | 3 1/2   | I2230        | 2.94 (74,7)               | 3.44 (87,4)              | 0.25 (6,4)             | 2.40 (3,6)                | 4.74 (120,4)                | 172 (52,4)  | 30 (76,2)  |                               |                                  |
| 4  | 4 1/2   | I2240        | 3.85 (97,8)               | 4.51 (114,6)             | 0.33 (8,4)             | 4.20 (6,2)                | 6.05 (153,7)                | 226 (68,9)  | 23 (58,4)  |                               |                                  |
| 6  | 6 5/8   | I2255        | 5.50 (139,7)              | 6.45 (163,8)             | 0.48 (12,2)            | 8.50 (12,6)               | 8.40 (213,4)                | 323 (98,5)  | 16 (40,6)  |                               |                                  |
| <b>Series 2500 - ACT (All Sizes) or PGT (2", 2½" and 3" Sizes)</b>     |         |              |                           |                          |                        |                           |                             |             |            |                               |                                  |
| 1 1/2  | 1.90    | I2515        | 1.44 (36,6)               | 1.71 (43,4)              | 0.14 (3,6)             | 0.70 (1,0)                | 2.84 (72,1)                 | 86 (26,2)   | 60 (152,4) |                               |                                  |
| 2  | 2 3/8   | I2520        | 1.94 (49,3)               | 2.32 (58,9)              | 0.19 (4,8)             | 1.20 (1,8)                | 3.40 (86,4)                 | 116 (35,4)  | 45 (114,3) |                               |                                  |
| 2 1/2  | 2 7/8   | I2525        | 2.37 (60,2)               | 2.82 (71,6)              | 0.23 (5,8)             | 1.80 (2,7)                | 4.03 (102,4)                | 141 (43,0)  | 37 (94,0)  |                               |                                  |
| 3  | 3 1/2   | I2530        | 2.94 (74,7)               | 3.51 (89,2)              | 0.29 (7,4)             | 2.80 (4,2)                | 4.85 (123,2)                | 176 (53,6)  | 30 (76,2)  |                               |                                  |
| 4  | 4 1/2   | I2540        | 3.85 (97,8)               | 4.58 (116,3)             | 0.37 (9,4)             | 4.60 (6,8)                | 6.11 (155,2)                | 229 (69,8)  | 23 (58,4)  |                               |                                  |
| 6  | 7       | I2555        | 5.50 (139,7)              | 6.56 (166,6)             | 0.53 (13,5)            | 9.70 (14,4)               | 9.01 (228,9)                | 328 (100,0) | 16 (40,6)  |                               |                                  |
| <b>Series 2750 - ACT (All Sizes) or PGT (2" and 2½" Sizes)</b>         |         |              |                           |                          |                        |                           |                             |             |            |                               |                                  |
| 1 1/2  | 1.90    | I2715        | 1.44 (36,6)               | 1.74 (44,2)              | 0.15 (3,8)             | 0.80 (1,2)                | 2.90 (73,7)                 | 87 (26,5)   | 59 (149,9) |                               |                                  |
| 2  | 2 3/8   | I2720        | 1.94 (49,3)               | 2.35 (59,7)              | 0.21 (5,3)             | 1.30 (1,9)                | 3.49 (88,6)                 | 118 (36,0)  | 44 (111,8) |                               |                                  |
| 2 1/2  | 2 7/8   | I2725        | 2.37 (60,2)               | 2.87 (72,9)              | 0.25 (6,4)             | 2.00 (3,0)                | 4.13 (104,9)                | 143 (43,6)  | 36 (91,4)  |                               |                                  |
| 3  | 3 1/2   | I2730        | 2.94 (74,7)               | 3.57 (90,7)              | 0.32 (8,1)             | 3.10 (4,6)                | 4.98 (126,5)                | 179 (54,6)  | 29 (73,7)  |                               |                                  |
| 3 1/2  | 4 1/2   | I2733        | 3.33 (84,6)               | 4.04 (102,6)             | 0.36 (9,1)             | 4.30 (6,4)                | 6.60 (167,6)                | 202 (61,6)  | 26 (66,0)  |                               |                                  |
| 4  | 5 1/2   | I2740        | 3.85 (97,8)               | 4.68 (118,9)             | 0.42 (10,7)            | 5.90 (8,8)                | 7.29 (185,2)                | 234 (71,3)  | 22 (55,9)  |                               |                                  |
| <b>Series 3000 - ACT (All Sizes) or PGT (2" and 2½" Sizes)</b>         |         |              |                           |                          |                        |                           |                             |             |            |                               |                                  |
| 1 1/2  | 1.90    | I3015        | 1.44 (36,6)               | 1.78 (45,2)              | 0.17 (4,3)             | 0.80 (1,2)                | 2.98 (75,7)                 | 89 (27,1)   | 58 (147,3) |                               |                                  |
| 2  | 2 3/8   | I3020        | 1.94 (49,3)               | 2.40 (61,0)              | 0.23 (5,8)             | 1.50 (2,2)                | 3.57 (90,7)                 | 120 (36,6)  | 43 (109,2) |                               |                                  |
| 2 1/2  | 2 7/8   | I3025        | 2.37 (60,2)               | 2.92 (74,2)              | 0.28 (7,1)             | 2.20 (3,3)                | 4.23 (107,4)                | 146 (44,5)  | 36 (91,4)  |                               |                                  |
| 3  | 3 1/2   | I3030        | 2.94 (74,7)               | 3.63 (92,2)              | 0.34 (8,6)             | 3.40 (5,1)                | 5.10 (129,5)                | 181 (55,2)  | 29 (73,7)  |                               |                                  |
| 3 1/2  | 4 1/2   | I3033        | 3.33 (84,6)               | 4.12 (104,6)             | 0.40 (10,2)            | 4.70 (7,0)                | 6.65 (168,9)                | 206 (62,8)  | 25 (63,5)  |                               |                                  |
| 4  | 5 1/2   | I3040        | 3.85 (97,8)               | 4.75 (120,7)             | 0.45 (11,4)            | 6.40 (9,5)                | 7.47 (189,7)                | 237 (72,2)  | 22 (55,9)  |                               |                                  |
| <b>Series 3500 - ACT (Only)</b>  |         |              |                           |                          |                        |                           |                             |             |            |                               |                                  |
| 1 1/2  | 1.90    | I3515        | 1.44 (36,6)               | 1.85 (47,0)              | 0.20 (5,1)             | 1.00 (1,5)                | 3.13 (79,5)                 | 92 (28,0)   | 56 (142,2) |                               |                                  |
| 2  | 2 3/8   | I3520        | 1.94 (49,3)               | 2.48 (63,0)              | 0.27 (6,9)             | 1.80 (2,7)                | 3.75 (95,3)                 | 124 (37,8)  | 42 (106,7) |                               |                                  |
| 2 1/2  | 2 7/8   | I3525        | 2.37 (60,2)               | 3.04 (77,2)              | 0.34 (8,6)             | 2.70 (4,0)                | 4.45 (113,0)                | 152 (46,3)  | 34 (86,4)  |                               |                                  |
| 3  | TC4 1/2 | I3530        | 2.94 (74,7)               | 3.76 (95,5)              | 0.41 (10,4)            | 4.90 (7,3)                | 7.00 (177,8)                | 188 (57,3)  | 28 (71,1)  |                               |                                  |
| 3 1/2  | 4 1/2   | I3533        | 3.33 (84,6)               | 4.26 (108,2)             | 0.46 (11,7)            | 5.40 (8,0)                | 6.74 (171,2)                | 213 (64,9)  | 24 (61,0)  |                               |                                  |
| 4  | 5 1/2   | I3540        | 3.85 (97,8)               | 4.92 (125,0)             | 0.54 (13,7)            | 7.60 (11,3)               | 7.86 (199,6)                | 246 (75,0)  | 21 (53,3)  |                               |                                  |

(Metric Conversions are in Parentheses)

| SIZE (in)  |         | STAR™ RATED PRESSURES <sup>(4)</sup>      |   |   | Ultimate <sup>(2)</sup><br>Pressure<br>ASTM D-1599 |             | Collapse<br>Rating |           | Short Term<br>Tensile Rating |        | Maximum<br>Support<br>Span |  | Threaded<br>Adapter<br>Product<br>Code |
|--|---------|---|---|---|--|-------------|--------------------|-----------|------------------------------|--------|----------------------------|--|--|
| Pipe   | Thread  | Static <sup>(1)</sup><br>150° F (65.6° C) | Static <sup>(1)</sup><br>180° F (82.2° C) | Static <sup>(1)</sup><br>200° F (93.3° C) | psi (MPa)  |             | psi (MPa)          |           | Lbs (kgs)                    |        | Ft (m)                     |  |  |
|  |         | psi (MPa)                                 | psi (MPa)                                 | psi (MPa)                                 | psi (MPa)  | psi (MPa)   | psi (MPa)          | Lbs (kgs) | Lbs (kgs)                    | Ft (m) | Ft (m)                     |  |  |
| <b>Series 1750 - ACT (All Sizes) or PGT (2", 2½", 3" and 4" Sizes)</b> |         |   |   |   |  |             |                    |           |                              |        |                            |  |  |
| 1 1/2  | 1.90    | 1750 (12,1)                               | 1550 (10,7)                               | 1450 (10,0)                               | 4000 (27,6)  | 690 (4,8)   | 1300 (590)         | 8 (2,5)   | 19NR                         |        |                            |  |  |
| 2  | 2 3/8   | 1750 (12,1)                               | 1550 (10,7)                               | 1450 (10,0)                               | 4100 (28,3)  | 720 (5,0)   | 2400 (1089)        | 10 (3,1)  | 23NR                         |        |                            |  |  |
| 2 1/2  | 2 7/8   | 1750 (12,1)                               | 1550 (10,7)                               | 1450 (10,0)                               | 3900 (26,9)  | 630 (4,3)   | 3400 (1542)        | 11 (3,4)  | 27NT                         |        |                            |  |  |
| 3  | 3 1/2   | 1750 (12,1)                               | 1550 (10,7)                               | 1450 (10,0)                               | 3900 (26,9)  | 640 (4,4)   | 5300 (2404)        | 12 (3,7)  | 35NS                         |        |                            |  |  |
| 4  | 4 1/2   | 1750 (12,1)                               | 1550 (10,7)                               | 1450 (10,0)                               | 4000 (27,6)  | 690 (4,8)   | 9300 (4218)        | 14 (4,3)  | 45NR                         |        |                            |  |  |
| 5  | TC5 1/2 | 1750 (12,1)                               | 1550 (10,7)                               | 1450 (10,0)                               | 3900 (26,9)  | 620 (4,3)   | 13600 (6169)       | 15 (4,6)  | N/A                          |        |                            |  |  |
| 6  | 6 5/8   | 1750 (12,1)                               | 1550 (10,7)                               | 1450 (10,0)                               | 3900 (26,9)  | 630 (4,3)   | 18500 (8392)       | 17 (5,2)  | N/A                          |        |                            |  |  |
| 6  | 7       | 1750 (12,1)                               | 1550 (10,7)                               | 1450 (10,0)                               | 3900 (26,9)  | 640 (4,4)   | 21600 (9798)       | 17 (5,2)  | N/A                          |        |                            |  |  |
| 8  | 8 5/8   | 1750 (12,1)                               | 1550 (10,7)                               | 1450 (10,0)                               | 4000 (27,6)  | 680 (4,7)   | 34700 (15740)      | 19 (5,9)  | N/A                          |        |                            |  |  |
| 8  | 9 5/8   | 1750 (12,1)                               | 1550 (10,7)                               | 1450 (10,0)                               | 3900 (26,9)  | 630 (4,3)   | 36500 (16556)      | 19 (5,9)  | N/A                          |        |                            |  |  |
| <b>Series 2000 - ACT (All Sizes) or PGT (2", 2½", 3" and 4" Sizes)</b> |         |   |   |   |  |             |                    |           |                              |        |                            |  |  |
| 1 1/2  | 1.90    | 2000 (13,8)                               | 1800 (12,4)                               | 1700 (11,7)                               | 4700 (32,4)  | 1140 (7,9)  | 1500 (680)         | 9 (2,8)   | 19NR                         |        |                            |  |  |
| 2  | 2 3/8   | 2000 (13,8)                               | 1800 (12,4)                               | 1700 (11,7)                               | 4600 (31,7)  | 1030 (7,1)  | 2700 (1225)        | 10 (3,1)  | 23NS                         |        |                            |  |  |
| 2 1/2  | 2 7/8   | 2000 (13,8)                               | 1800 (12,4)                               | 1700 (11,7)                               | 4500 (31,0)  | 970 (6,7)   | 4000 (1814)        | 11 (3,4)  | 27NS                         |        |                            |  |  |
| 3  | 3 1/2   | 2000 (13,8)                               | 1800 (12,4)                               | 1700 (11,7)                               | 4400 (30,3)  | 930 (6,4)   | 6100 (2767)        | 12 (3,7)  | 35NS                         |        |                            |  |  |
| 4  | 4 1/2   | 2000 (13,8)                               | 1800 (12,4)                               | 1700 (11,7)                               | 4500 (31,0)  | 1000 (6,9)  | 10700 (4854)       | 14 (4,3)  | 45NR                         |        |                            |  |  |
| 5  | TC5 1/2 | 2000 (13,8)                               | 1800 (12,4)                               | 1700 (11,7)                               | 4500 (31,0)  | 980 (6,8)   | 16200 (7348)       | 16 (4,9)  | N/A                          |        |                            |  |  |
| 6  | 6 5/8   | 2000 (13,8)                               | 1800 (12,4)                               | 1700 (11,7)                               | 4500 (31,0)  | 970 (6,7)   | 21700 (9843)       | 17 (5,2)  | N/A                          |        |                            |  |  |
| 6  | 7       | 2000 (13,8)                               | 1800 (12,4)                               | 1700 (11,7)                               | 4400 (30,3)  | 940 (6,5)   | 25000 (11340)      | 18 (5,5)  | N/A                          |        |                            |  |  |
| 8  | 8 5/8   | 2000 (13,8)                               | 1800 (12,4)                               | 1700 (11,7)                               | 4600 (31,7)  | 1010 (7,0)  | 40300 (18280)      | 20 (6,2)  | N/A                          |        |                            |  |  |
| 8  | 9 5/8   | 2000 (13,8)                               | 1800 (12,4)                               | 1700 (11,7)                               | 4500 (31,0)  | 970 (6,7)   | 43000 (19505)      | 20 (6,2)  | N/A                          |        |                            |  |  |
| <b>Series 2250 - ACT (All Sizes) or PGT (2", 2½" and 3" Sizes)</b>     |         |   |   |   |  |             |                    |           |                              |        |                            |  |  |
| 1 1/2  | 1.90    | 2250 (15,5)                               | 2050 (14,1)                               | 1900 (13,1)                               | 5300 (36,5)  | 1570 (10,8) | 1700 (771)         | 9 (2,8)   | 19NR                         |        |                            |  |  |
| 2  | 2 3/8   | 2250 (15,5)                               | 2050 (14,1)                               | 1900 (13,1)                               | 5100 (35,2)  | 1420 (9,8)  | 3100 (1406)        | 10 (3,1)  | 23NS                         |        |                            |  |  |
| 2 1/2  | 2 7/8   | 2250 (15,5)                               | 2050 (14,1)                               | 1900 (13,1)                               | 5100 (35,2)  | 1430 (9,9)  | 4600 (2087)        | 12 (3,7)  | 27NR                         |        |                            |  |  |
| 3  | 3 1/2   | 2250 (15,5)                               | 2050 (14,1)                               | 1900 (13,1)                               | 5000 (34,5)  | 1350 (9,3)  | 7000 (3175)        | 13 (4,0)  | 35NR                         |        |                            |  |  |
| 4  | 4 1/2   | 2250 (15,5)                               | 2050 (14,1)                               | 1900 (13,1)                               | 5100 (35,2)  | 1430 (9,9)  | 12300 (5579)       | 15 (4,6)  | N/A                          |        |                            |  |  |
| 6  | 6 5/8   | 2250 (15,5)                               | 2050 (14,1)                               | 1900 (13,1)                               | 5100 (35,2)  | 1430 (9,9)  | 25300 (11476)      | 18 (5,5)  | N/A                          |        |                            |  |  |
| <b>Series 2500 - ACT (All Sizes) or PGT (2", 2½" and 3" Sizes)</b>     |         |   |   |   |  |             |                    |           |                              |        |                            |  |  |
| 1 1/2  | 1.9     | 2500 (17,2)                               | 2250 (15,5)                               | 2100 (14,5)                               | 5600 (38,6)  | 1840 (12,7) | 1900 (862)         | 9 (2,8)   | 19NR                         |        |                            |  |  |
| 2  | 2 3/8   | 2500 (17,2)                               | 2250 (15,5)                               | 2100 (14,5)                               | 5800 (40,0)  | 2080 (14,3) | 3600 (1633)        | 11 (3,4)  | 23NQ                         |        |                            |  |  |
| 2 1/2  | 2 7/8   | 2500 (17,2)                               | 2250 (15,5)                               | 2100 (14,5)                               | 5700 (39,3)  | 1910 (13,2) | 5200 (2359)        | 12 (3,7)  | 27NQ                         |        |                            |  |  |
| 3  | 3 1/2   | 2500 (17,2)                               | 2250 (15,5)                               | 2100 (14,5)                               | 5700 (39,3)  | 1980 (13,7) | 8200 (3720)        | 13 (4,0)  | 35NR                         |        |                            |  |  |
| 4  | 4 1/2   | 2500 (17,2)                               | 2250 (15,5)                               | 2100 (14,5)                               | 5600 (38,6)  | 1900 (13,1) | 13800 (6260)       | 15 (4,6)  | N/A                          |        |                            |  |  |
| 6  | 7       | 2500 (17,2)                               | 2250 (15,5)                               | 2100 (14,5)                               | 5600 (38,6)  | 1900 (13,1) | 28300 (12837)      | 18 (5,5)  | N/A                          |        |                            |  |  |
| <b>Series 2750 - ACT (All Sizes) or PGT (2" and 2½" Sizes)</b>         |         |   |   |   |  |             |                    |           |                              |        |                            |  |  |
| 1 1/2  | 1.9     | 2750 (19,0)                               | 2500 (17,2)                               | 2350 (16,2)                               | 6200 (42,7)  | 2470 (17,0) | 2100 (953)         | 9 (2,8)   | N/A                          |        |                            |  |  |
| 2  | 2 3/8   | 2750 (19,0)                               | 2500 (17,2)                               | 2350 (16,2)                               | 6200 (42,7)  | 2540 (17,5) | 3900 (1769)        | 11 (3,4)  | N/A                          |        |                            |  |  |
| 2 1/2  | 2 7/8   | 2750 (19,0)                               | 2500 (17,2)                               | 2350 (16,2)                               | 6200 (42,7)  | 2510 (17,3) | 5800 (2631)        | 12 (3,7)  | N/A                          |        |                            |  |  |
| 3  | 3 1/2   | 2750 (19,0)                               | 2500 (17,2)                               | 2350 (16,2)                               | 6300 (43,4)  | 2620 (18,1) | 9100 (4128)        | 13 (4,0)  | N/A                          |        |                            |  |  |
| 3 1/2  | 4 1/2   | 2750 (19,0)                               | 2500 (17,2)                               | 2350 (16,2)                               | 6200 (42,7)  | 2560 (17,7) | 11600 (5262)       | 14 (4,3)  | N/A                          |        |                            |  |  |
| 4  | 5 1/2   | 2750 (19,0)                               | 2500 (17,2)                               | 2350 (16,2)                               | 6300 (43,4)  | 2650 (18,3) | 15800 (7167)       | 15 (4,6)  | N/A                          |        |                            |  |  |
| <b>Series 3000 - ACT (All Sizes) or PGT (2" and 2½" Sizes)</b>         |         |   |   |   |  |             |                    |           |                              |        |                            |  |  |
| 1 1/2  | 1.9     | 3000 (20,7)                               | 2700 (18,6)                               | 2550 (17,6)                               | 6800 (46,9)  | 3320 (22,9) | 2400 (1089)        | 10 (3,1)  | N/A                          |        |                            |  |  |
| 2  | 2 3/8   | 3000 (20,7)                               | 2700 (18,6)                               | 2550 (17,6)                               | 6800 (46,9)  | 3300 (22,8) | 4400 (1996)        | 11 (3,4)  | N/A                          |        |                            |  |  |
| 2 1/2  | 2 7/8   | 3000 (20,7)                               | 2700 (18,6)                               | 2550 (17,6)                               | 6800 (46,9)  | 3250 (22,4) | 6500 (2948)        | 12 (3,7)  | N/A                          |        |                            |  |  |
| 3  | 3 1/2   | 3000 (20,7)                               | 2700 (18,6)                               | 2550 (17,6)                               | 6800 (46,9)  | 3280 (22,6) | 10000 (4536)       | 14 (4,3)  | N/A                          |        |                            |  |  |
| 3 1/2  | 4 1/2   | 3000 (20,7)                               | 2700 (18,6)                               | 2550 (17,6)                               | 6800 (46,9)  | 3380 (23,3) | 13100 (5942)       | 14 (4,3)  | N/A                          |        |                            |  |  |
| 4  | 5 1/2   | 3000 (20,7)                               | 2700 (18,6)                               | 2550 (17,6)                               | 6800 (46,9)  | 3290 (22,7) | 17200 (7802)       | 15 (4,6)  | N/A                          |        |                            |  |  |
| <b>Series 3500 - ACT (Only)</b>  |         |   |   |   |  |             |                    |           |                              |        |                            |  |  |
| 1 1/2  | 1.9     | 3500 (24,1)                               | 3150 (21,7)                               | 2950 (20,3)                               | 8000 (55,2)  | 5340 (36,8) | 2900 (1315)        | 10 (3,1)  | N/A                          |        |                            |  |  |
| 2  | 2 3/8   | 3500 (24,1)                               | 3150 (21,7)                               | 2950 (20,3)                               | 7900 (54,5)  | 5250 (36,2) | 5300 (2404)        | 11 (3,4)  | N/A                          |        |                            |  |  |
| 2 1/2  | 2 7/8   | 3500 (24,1)                               | 3150 (21,7)                               | 2950 (20,3)                               | 8100 (55,8)  | 5500 (37,9) | 8100 (3674)        | 13 (4,0)  | N/A                          |        |                            |  |  |
| 3  | TC4 1/2 | 3500 (24,1)                               | 3150 (21,7)                               | 2950 (20,3)                               | 7900 (54,5)  | 5250 (36,2) | 12200 (5534)       | 14 (4,3)  | N/A                          |        |                            |  |  |
| 3 1/2  | 4 1/2   | 3500 (24,1)                               | 3150 (21,7)                               | 2950 (20,3)                               | 7900 (54,5)  | 5210 (35,9) | 15700 (7122)       | 15 (4,6)  | N/A                          |        |                            |  |  |
| 4  | 5 1/2   | 3500 (24,1)                               | 3150 (21,7)                               | 2950 (20,3)                               | 7900 (54,5)  | 5260 (36,3) | 21000 (9526)       | 16 (4,9)  | N/A                          |        |                            |  |  |

(Metric Conversions are in Parentheses)

N/A - Not Available (Repair Joint Required)

## Joining System Information (API 8rd Thread and Mechanical O-Ring)

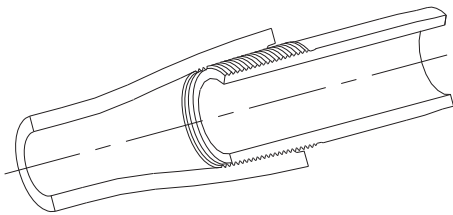
| Pipe Size - Inches<br>Joining System |            | 1 1/2             | 2                 | 2 1/2             | 3                 | 4                 | 5                |
|--------------------------------------|------------|-------------------|-------------------|-------------------|-------------------|-------------------|------------------|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

*(Metric Conversions are in Parentheses)*

## Joining System Information (API 8rd Thread and Mechanical O-Ring)

| Pipe Size - Inches<br>Joining System |            | 6                | 6               | 8                | 8                | 8SS             | 10SS            | 12SS            |
|--------------------------------------|------------|------------------|-----------------|------------------|------------------|-----------------|-----------------|-----------------|
| Thread Size <sup>(3)</sup>           |            | 6 5/8"<br>OD 8rd | 7"<br>OD 8rd    | 8 5/8"<br>OD 8rd | 9 5/8"<br>OD 8rd | Super Seal      | Super Seal      | Super Seal      |
| • Pin Upset O.D.                     | In<br>(mm) | 6.65<br>(168,9)  | 7.05<br>(179,1) | 8.65<br>(219,7)  | 9.65<br>(245,1)  | 4.75<br>(120,7) | 6.65<br>(168,9) | 8.65<br>(219,7) |
| • Thread Length                      | In<br>(mm) | 4.25<br>(108,0)  | 4.88<br>(124,0) | 4.85<br>(123,2)  | 5.13<br>(130,3)  | 3.88<br>(98,6)  | 4.25<br>(108,0) | 4.85<br>(123,2) |
| • Make Up Length Loss                | In<br>(mm) | 3.88<br>(98,4)   | 4.50<br>(114,3) | 4.50<br>(114,3)  | 4.75<br>(120,7)  | 3.50<br>(88,9)  | 3.88<br>(98,4)  | 4.50<br>(114,3) |
| • O-Ring Dash Number                 |            |                  |                 |                  |                  | 2-369           | 2-449           | 2-453           |

*(Metric Conversions are in Parentheses)*

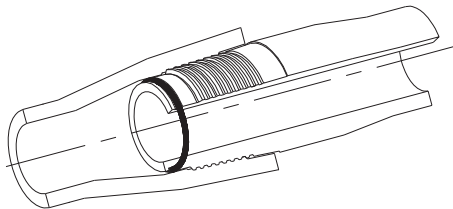


### API Threads

- 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 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).

### Star Super Seal (SSS)

- Fast, Reliable Installation
- Proprietary Self Restrained Mechanical O-Ring Seal
  - 2"-6" 4 Threads per inch
  - 8"-12" 2 Threads per inch
- All Weather Connection
- Standard O-Rings are Standard Nitrile for applications up to 150° F (65.6° C)
- Special O-Rings available for high concentrations of CO<sub>2</sub>, H<sub>2</sub>S and other special applications.



**Corresponding Numbered Notes:**

1. **STATIC PRESSURE RATING** - Maximum operating pressure at design temperature.
2. **ULTIMATE PRESSURE** - The typical mode of failure for pressure is weep.
3. **API CONNECTIONS** - All products are produced integral joint unless indicated (TC) Threaded and Coupled. Any order may include up to 15% threaded and coupled pipe. 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 thread conform to API 5B Table 7, 14th Edition (L4 is minimum).
4. **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.
5. **O-RINGS** - Standard commercial 70 durometer nitrile unless otherwise specified. Refer to Section 2.5 of the NOV Fiber Glass Systems Threaded Line Pipe Installation and Application Practices for additional o-ring specifications.

| <b>Pipe Capacity</b> |        |                        |         |                                     |        |
|----------------------|--------|------------------------|---------|-------------------------------------|--------|
| <b>Size</b>          |        | <b>Inside Diameter</b> |         | <b>Capacity</b>                     |        |
| Pipe                 | Thread | in                     | (mm)    | Bbls/1,000 ft. (m <sup>3</sup> /km) |        |
| 1 1/2                | 1.90   | 1.44                   | (36,6)  | 2.00                                | (1,0)  |
| 2                    | 2 3/8  | 1.94                   | (49,3)  | 3.70                                | (1,9)  |
| 2 1/2                | 2 7/8  | 2.37                   | (60,2)  | 5.40                                | (2,8)  |
| 3                    | 3 1/2  | 2.94                   | (74,7)  | 8.40                                | (4,4)  |
| 4                    | 4 1/2  | 3.85                   | (97,8)  | 14.40                               | (7,5)  |
| 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  | 5.93                   | (150,6) | 34.20                               | (17,8) |
| 6                    | 7      | 5.93                   | (150,6) | 34.20                               | (17,8) |
| 8                    | 8 5/8  | 7.43                   | (188,7) | 53.70                               | (28,0) |
| 8                    | 8 5/8  | 7.74                   | (196,6) | 58.10                               | (30,3) |
| 8                    | 9 5/8  | 7.74                   | (196,6) | 58.10                               | (30,3) |
| 8                    | 8SS    | 7.74                   | (196,6) | 58.10                               | (30,3) |
| 10                   | 10SS   | 9.84                   | (249,9) | 94.10                               | (49,1) |
| 12                   | 12SS   | 11.81                  | (300,0) | 135.50                              | (70,7) |

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