

# Tolerances (Excerpts from API Specifications)

| Pipe Specification                                  |               | API 5L                                                                                                                                                                       |                                                                                                                                                                                                                       | API 5LU                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                               |
|-----------------------------------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Outside Diameter                                    | Pipe Body     | 1.900 in. and smaller<br>2-3/8 in. through 18 in.<br><br>20 in. through 36 in.<br>Non-expanded<br>Cold-expanded<br><br>Larger than 36 in.<br>Non-expanded<br>Cold-expanded*2 | + 0.016 in.<br>+ 0.75%<br><br>+ 1.00%<br>+ 0.75%<br><br>+ 1.00%<br>+ 1/4 in.<br><br>+ 1/15 in.<br>(measured with ring gage)<br>+ 3/32 in.<br>(measured with ring gage)<br>+ 3/32 in.<br>(measured with diameter tape) | - 0.031 in.<br>- 0.75%<br><br>- 1.00%<br>- 0.25%<br><br>- 1.00%<br>- 1/8 in.<br><br>- 1/64 in.<br>(measured with ring gage)<br>- 1/32 in.<br>(measured with ring gage)<br>- 1/32 in.<br>(measured with diameter tape) | + 0.75%<br>+ 1.00%<br><br>- 0.75%<br>- 1.00%                                                                                                                                                                                                                                  |
|                                                     | Pipe Ends*1   | 10-3/4 in. and smaller<br><br>12-3/4 in. through 20 in.<br><br>Larger than 20 in.<br>(22 in. and larger)                                                                     | Grade A, B<br>+ 20.0%<br>+ 18.0%<br>+ 15.0%<br>+ 17.5%<br><br>Grade A, B<br>+ 20.0%<br>+ 18.0%<br>+ 15.0%<br>+ 17.5%                                                                                                  | - 12.5%<br>- 12.5%<br>- 12.5%<br>- 10.0%<br><br>- 12.5%<br>- 12.5%<br>- 12.5%<br>- 10.0%                                                                                                                              | + 1/16 in.<br>(measured with ring gage)<br>+ 3/32 in.<br>(measured with ring gage)<br>+ 3/32 in.<br>(measured with diameter tape)<br><br>Welded Pipe:<br>18 in. OD and smaller<br>20 in. OD and larger<br><br>Seamless Pipe:<br>18 in. OD and smaller<br>20 in. OD and larger |
| Weight                                              | Single Length | Standard weight<br>Regular weight<br>Extra strong weight<br>Double extra strong weight<br>Special plain end weight                                                           | + 10.0%<br><br>+ 10.0%                                                                                                                                                                                                | - 3.5%<br><br>- 5.0%                                                                                                                                                                                                  | + 10.0%<br><br>+ 10.0%                                                                                                                                                                                                                                                        |
|                                                     | Carload Lots  |                                                                                                                                                                              | - 1.75%                                                                                                                                                                                                               | - 1.75%                                                                                                                                                                                                               | - 1.75%                                                                                                                                                                                                                                                                       |
| Straightness                                        |               | For pipe 4-1/2 in. OD and larger                                                                                                                                             | Max. 0.2%                                                                                                                                                                                                             | Max. 0.2%                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                               |
| Out of Roundness<br>(for pipe larger than 20in. OD) |               | Max. OD - specified OD $\leq 1\%$ x specified OD<br>Specified OD - min. OD $\leq 1\%$ x specified OD                                                                         |                                                                                                                                                                                                                       |                                                                                                                                                                                                                       | Max. OD - specified OD $\leq 1\%$ x specified OD<br>Specified OD - min. OD $\leq 1\%$ x specified OD                                                                                                                                                                          |
| Pipe End Preparation                                |               | For pipe 2/38 in. OD and larger<br>Bevel angle 30° + 5° - 0°<br>Root face 1/16 in. $\pm$ 1/32 in.<br>Squareness for 10-3/4 in. OD and larger max. 1/16 in.                   |                                                                                                                                                                                                                       |                                                                                                                                                                                                                       | Bevel angle 30° + 5° - 0°<br>Root face 1/16 in. $\pm$ 1/32 in.<br>Squareness 10-3/4 in. OD and larger max. 1/16 in.                                                                                                                                                           |

Note \* 1 Pipe and tolerances are applicable 4 in. from either end.

\* 2 Not applicable to pipe hydrostatically tested to pressures in excess of standard test pressures.

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## Tensile and Chemical Requirements (Excerpts from API Specifications, 1983 edition)

| Application |         |                           | Tensile Requirements |            |                           |                             |                    |                           |                                              |     |
|-------------|---------|---------------------------|----------------------|------------|---------------------------|-----------------------------|--------------------|---------------------------|----------------------------------------------|-----|
|             | Grade   |                           | Yield Strength       |            |                           | Tensile Strength            |                    |                           | Elongation                                   |     |
|             |         |                           | psi<br>min           | MPa<br>min | kg/mm <sup>2</sup><br>min | psi<br>min                  | MPa<br>min         | kg/mm <sup>2</sup><br>min | %                                            | min |
| Line Pipe   | API 5L  | Grade A                   | 30,000               | 207        | 21.1                      | 48,000                      | 331                | 33.7                      | e =<br><br>625,000 $\frac{A^{0.2}}{U^{0.9}}$ |     |
|             | API 5L  | Grade B                   | 35,000               | 241        | 24.6                      | 60,000                      | 413                | 42.2                      |                                              |     |
|             | API 5L  | Grade X42                 | 42,000               | 289        | 29.5                      | 60,000                      | 413                | 42.2                      |                                              |     |
|             | API 5L  | Grade X46                 | 46,000               | 317        | 32.3                      | 63,000                      | 434                | 44.3                      |                                              |     |
|             | API 5L  | Grade X52                 | 52,000               | 358        | 36.6                      | (1) 66,000 *1<br>(2) 72,000 | (1) 455<br>(2) 496 | 46.4<br>50.6              |                                              |     |
|             | API 5L  | Grade X56 *6              | 56,000               | 386        | 39.2                      | (1) 71,000 *1<br>(2) 75,000 | (1) 489<br>(2) 517 | 49.9<br>52.7              |                                              |     |
|             | API 5L  | Grade X60 *3<br>*6        | 60,000               | 413        | 42.2                      | (1) 75,000 *1<br>(2) 78,000 | (1) 517<br>(2) 537 | 52.7<br>54.8              |                                              |     |
|             | API 5L  | Grade X65 *6<br>*8<br>*11 | 65,000               | 448        | 45.7                      | (1) 77,000 *1<br>(2) 80,000 | (1) 530<br>(2) 551 | 54.1<br>56.2              |                                              |     |
|             | API 5L  | Grade X70 *6<br>*11       | 70,000               | 482        | 49.2                      | 82,000                      | 565                | 57.6                      |                                              |     |
|             | API 5LU | Grade X80                 | 80,000               | 551        | 56.2                      | *4<br>95,000/125,000        | 655/862            | 66.8/87.8                 |                                              |     |
|             | API 5LU | Grade X100                | 100,000              | 689        | 70.3                      | *4<br>110,000/135,000       | 758/931            | 77.3/94.9                 |                                              |     |

- \*1 (1) Wall thickness > 0.375in., OD ≥ 20in.  
Any wall thickness, OD < 20in.  
(2) Wall thickness ≤ 0.375in., OD ≥ 20in.

- \*2 The minimum elongation in 2 inches (60.8 mm) shall be determined by the following formula:

$$e = \frac{625,000}{U} \frac{A^{0.2}}{0.9}$$

where:

e = minimum elongation in 2 inches (50.80 mm) in per cent rounded to the nearest 1/2 per cent.

A = cross sectional area of the tensile test specimen in square inches, based on specified outside diameter or nominal specimen width and specified wall thickness rounded to the nearest 0.01 sq. in., or 0.75 sq. in., whichever is smaller.

U = specified tensile strength, psi.

- \*3 The minimum tensile strength for grade X60 electric-resistance welded pipe in all sizes and wall thick-nesses shall be 75,000 psi (52.7 kg/mm<sup>2</sup>).

- \*4 Tensile strength means min. value/max. value

- \*5 Figures in parentheses are values for seamless pipe. Upper line value means non-expanded, Lowerline value means cold-expanded. In grades X42 through X65, for each reduction of 0.01 per cent below the maximum carbon content, an increase of 0.05 per cent manganese above the specified maximum is permissible, up to a maximum of 1.45 per cent for X52 and lower and up to a maximum of 1.60 per cent for grades higher than X52.

- \*6 Other chemical analyses may be furnished by agreement between purchaser and manufacturer.

- \*7 Either columbium, vanadium, titanium, or a combination thereof, shall be used at the discretion of the manufacturer.

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| Chemical Requirements for Ladle Analyses, % |      |                     |      |      |                     |                    |                    |
|---------------------------------------------|------|---------------------|------|------|---------------------|--------------------|--------------------|
| C <sup>*5</sup>                             | Si   | Mn <sup>*5</sup>    | P    | S    | Cb                  | V                  | Ti                 |
| max                                         | max  | max                 | max  | max  | min                 | min                | min                |
| 0.21 (0.22)                                 |      | 0.90                | 0.04 | 0.05 |                     |                    |                    |
| 0.26 (0.27)                                 |      | 1.15                | 0.04 | 0.05 |                     |                    |                    |
| <sup>*13</sup><br>0.28 (0.29)               |      | 1.25                | 0.04 | 0.05 |                     |                    |                    |
| 0.30 (0.31) <sup>*13</sup><br>0.28 (0.29)   |      | 1.35<br>1.25        | 0.04 | 0.05 |                     |                    |                    |
| 0.30 (0.31) <sup>*13</sup><br>0.28 (0.29)   |      | 1.35<br>1.25        | 0.04 | 0.05 |                     |                    |                    |
| 0.26                                        |      | 1.35                | 0.04 | 0.05 | 0.005 <sup>*7</sup> | 0.02 <sup>*7</sup> | 0.03 <sup>*7</sup> |
| 0.26                                        |      | 1.35                | 0.04 | 0.05 | 0.005 <sup>*7</sup> | 0.02 <sup>*7</sup> | 0.03 <sup>*7</sup> |
| 0.26                                        |      | 1.40                | 0.04 | 0.05 | 0.005 <sup>*9</sup> | 0.02 <sup>*9</sup> |                    |
| 0.23 <sup>*10</sup>                         |      | 1.60 <sup>*10</sup> | 0.04 | 0.05 |                     |                    |                    |
| 0.26 <sup>*12</sup>                         | 0.35 | 1.40 <sup>*12</sup> | 0.04 | 0.05 |                     |                    |                    |
| 0.26 <sup>*12</sup>                         | 0.35 | 1.40 <sup>*12</sup> | 0.04 | 0.05 |                     |                    |                    |

<sup>\*8</sup> For grades X65 in sizes 16in. and larger with wall thickness 0.500 in. and less, the chemical composition shall be as shown or as agreed upon between the purchaser and manufacturer. For other sizes and wall thicknesses the chemical composition shall be as agreed upon between the purchaser and manufacturer. (Applicable to welded pipe only.)

<sup>\*9</sup> Either columbium or vanadium or a combination of both shall be used at the discretion of the manufacturer.

<sup>\*10</sup> For each reduction of 0.01 per cent below the specified maximum carbon content, an increase of 0.05 per cent manganese above the specified maximum is permissible.

<sup>\*11</sup> For seamless pipe of grades X65 and X70, the chemical composition shall be agreed upon between the purchaser and manufacturer.

<sup>\*12</sup> For each reduction of 0.01% below the specified maximum carbon content, an increase of 0.05% manganese above the specified maximum is permissible, up to a maximum of 1.50%.

<sup>\*13</sup> For cold expanded seamless pipe in size 20 in. and larger, the maximum carbon content shall be 0.28 percent.

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| Mechanical Values |                           |                         |                      |           | Chemical Analysis |           |             |             |           |           |           |                               |
|-------------------|---------------------------|-------------------------|----------------------|-----------|-------------------|-----------|-------------|-------------|-----------|-----------|-----------|-------------------------------|
| Material          | Tensile Strength<br>N/mm2 | Yield Strength<br>(Min) | Elongation<br>% min. | C<br>%    | Si<br>%           | Mn<br>%   | P<br>% max. | S<br>% max. | Mo<br>%   | Cr<br>%   | Ni<br>%   | Div<br>%                      |
| A53-Grade A       | min. 330                  | 205                     | variable             | max. 0.25 | -                 | max. 0.95 | 0.050       | 0.80        |           |           |           |                               |
| A53-Grade B       | min. 415                  | 240                     | variable             | max. 0.30 | -                 | max. 1.20 | 0.050       | 0.60        |           |           |           |                               |
| A106-Grade A      | min. 330                  | 205                     | 35                   | max. 0.25 | min. 0.10         | 0.27-0.93 | 0.048       | 0.058       |           |           |           |                               |
| A106-Grade B      | min. 415                  | 240                     | 30                   | max. 0.30 | min. 0.10         | 0.29-1.06 | 0.048       | 0.058       |           |           |           |                               |
| A179              | Hardness Rb. max. 72      |                         |                      | 0.06-0.18 | -                 | 0.27-0.63 | 0.048       | 0.058       |           |           |           |                               |
| A333-Grade 1      | min. 379                  | 207                     | 35                   | max. 0.30 | -                 | 0.40-1.06 | 0.050       | 0.60        |           |           |           |                               |
| A333-Grade 6      | min. 414                  | 241                     | 30                   | max. 0.30 | min. 0.10         | 0.29-1.06 | 0.048       | 0.058       |           |           |           |                               |
| A333-Grade 3      | min. 448                  | 241                     | 30                   | max. 0.19 | 0.18-0.37         | 0.31-0.64 | 0.050       | 0.050       |           |           | 3.18-3.82 |                               |
| A335-Grade P1     | min. 379                  | 207                     | 30                   | 0.10-0.20 | 0.10-0.50         | 0.30-0.80 | 0.045       | 0.045       | 0.44-0.65 |           |           |                               |
| A335-Grade P5     | min. 414                  | 207                     | 30                   | max. 0.15 | max. 0.50         | 0.30-0.60 | 0.030       | 0.030       | 0.44-0.55 | 4.00-6.00 |           |                               |
| A335-Grade P11    | min. 414                  | 207                     | 30                   | max. 0.15 | 0.50-1.00         | 0.30-0.60 | 0.030       | 0.030       | 0.44-0.65 | 1.00-1.50 |           |                               |
| A335-Grade P12    | min. 414                  | 207                     | 30                   | max. 0.15 | max. 0.50         | 0.30-0.60 | 0.045       | 0.045       | 0.44-0.65 | 0.80-1.25 |           |                               |
| A335-Grade P22    | min. 414                  | 207                     | 30                   | max. 0.15 | max. 0.50         | 0.30-0.60 | 0.030       | 0.030       | 0.87-1.13 | 1.90-2.60 |           |                               |
| API-5L-Grade A    | min. 331                  | 207                     | variable             | max. 0.22 | -                 | max. 0.90 | 0.040       | 0.050       |           |           |           |                               |
| API-5L-Grade B    | min. 413                  | 241                     | variable             | max. 0.27 | -                 | max. 1.15 | 0.040       | 0.050       |           |           |           |                               |
| API-5L-Grade X42  | min. 413                  | 289                     | variable             | max. 0.29 | -                 | max. 1.25 | 0.040       | 0.050       |           |           |           |                               |
| API-5L-Grade X46  | min. 434                  | 317                     | variable             | max. 0.29 | -                 | max. 1.35 | 0.040       | 0.050       |           |           |           |                               |
| API-5L-Grade X52  | min. 455                  | 358                     | variable             | max. 0.31 | -                 | max. 1.35 | 0.040       | 0.050       |           |           |           |                               |
| API-5L-Grade X56  | min. 489                  | 386                     | variable             | max. 0.26 | -                 | max. 1.35 | 0.040       | 0.050       |           |           |           |                               |
| API-5L-Grade X60  | min. 517                  | 413                     | variable             | max. 0.26 | -                 | max. 1.35 | 0.040       | 0.050       |           |           |           |                               |
| BS3059/1-320      | 320-480                   | 195                     | 25                   | max. 0.16 | -                 | min. 0.30 | 0.050       | 0.050       |           |           |           |                               |
| BS3059/2-360      | 360-500                   | 215                     | 24                   | max. 0.17 | max. 0.35         | 0.40-0.80 | 0.045       | 0.045       |           |           |           |                               |
| BS3601-ERW320     | 320-440                   | 195                     | 25                   | max. 0.16 | -                 | 0.30-0.70 | 0.050       | 0.050       |           |           |           |                               |
| BS3601-ERW360     | 360-480                   | 215                     | 24                   | max. 0.17 | max. 0.35         | 0.40-0.80 | 0.045       | 0.045       |           |           |           |                               |
| BS3602-ERW/SAW410 | 410-530                   | 235                     | 22                   | max. 0.21 | max. 0.35         | 0.40-1.20 | 0.050       | 0.050       |           |           |           |                               |
| BS3601-S360       | 360-480                   | 215                     | 24                   | max. 0.17 | max. 0.35         | 0.40-0.80 | 0.050       | 0.050       |           |           |           |                               |
| BS3601-S410       | 410-530                   | 235                     | 22                   | max. 0.21 | max. 0.35         | 0.40-1.20 | 0.050       | 0.050       |           |           |           |                               |
| BS3602/1-360      | 360-500                   | 215                     | 24                   | max. 0.17 | max. 0.35         | 0.40-0.80 | 0.045       | 0.045       |           |           |           |                               |
| BS3602/1-410      | 410-550                   | 245                     | 22                   | max. 0.21 | max. 0.35         | 0.40-1.20 | 0.045       | 0.045       |           |           |           |                               |
| BS3602/1-490Nb    | 490-630                   | 340                     | 20                   | max. 0.23 | max. 0.35         | 0.80-1.50 | 0.045       | 0.045       |           |           |           | Nb 0.01-0.10                  |
| BS3602/2-410      | 410-550                   | 245                     | 24                   | max. 0.20 | max. 0.35         | 0.50-1.30 | 0.040       | 0.040       |           |           |           |                               |
| BS3603-410        | 410-530                   | 235                     | 22                   | max. 0.20 | max. 0.35         | 0.60-1.20 | 0.045       | 0.045       |           |           |           |                               |
| BS3603-503        | 440-590                   | 245                     | 16                   | max. 0.15 | 0.15-0.35         | 0.30-0.80 | 0.025       | 0.020       |           |           | 3.25-3.75 |                               |
| BS3604-620        | 440-590                   | 290                     | 22                   | 0.10-0.18 | 0.10-0.35         | 0.40-0.70 | 0.050       | 0.050       | 0.45-0.65 | 0.70-1.10 |           |                               |
| BS3604-622        | 440-640                   | 275                     | 20                   | 0.08-0.15 | max. 0.50         | 0.40-0.70 | 0.040       | 0.040       | 0.90-1.20 | 2.00-2.50 |           |                               |
| BS3604-625        | 450-600                   | 170                     | 20                   | max. 0.15 | max. 0.50         | 0.30-0.60 | 0.040       | 0.040       | 0.45-0.65 | 4.00-6.00 |           |                               |
| BS4360-50D        | 490-640                   | 355                     | 20                   | max. 0.20 | max. 0.40         | max. 1.40 | 0.040       | 0.040       |           |           |           | Nb 0.003-0.10<br>V 0.0003-0.1 |

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| Technical Standards |                        |                      | Comparable Qualities |             |                     |                 |                                          |                          |
|---------------------|------------------------|----------------------|----------------------|-------------|---------------------|-----------------|------------------------------------------|--------------------------|
| Material            | Specification Standard | Dimensional Standard | ASTM                 | API         | BS                  | DIN             | Euro Standard EU 25-72                   | DIV                      |
| A53                 | A53                    | ANSI-B36.10          |                      | API-5L-Gr.A | 3601-320/360        | St. 37.0        | FE 310                                   | BS4360-43B/C             |
| A53                 | A53                    | ANSI-B36.10          |                      | API-5L-Gr.B | 3601-410            | St. 44.0        | Fe 360B/430B                             |                          |
| A106/A530           | A106/A530              | ANSI-B 36.10         |                      | API-5L-Gr.A | 3602-S360           | St. 35.8        |                                          |                          |
| A106/A530           | A106/A530              | ANSI-B 36.10         |                      | API-5L-Gr.B | 3602-S410           | St. 45.8        |                                          |                          |
| A179/A450           | A179/A450              | ANSI-B 36.10         |                      |             | 3059-320/360        | St. 35.8        |                                          |                          |
| A333/A530           | A333/A530              | ANSI-B 36.10         |                      |             | 360 1HFS27LT50      | TT St.35N       |                                          |                          |
| A333/A530           | A333/A530              | ANSI-B 36.10         |                      |             | 3603HFS503LT100     | TT St.35V       |                                          |                          |
| A333/A530           | A333/A530              |                      |                      |             |                     | 10 Ni 14        |                                          |                          |
| A335/A530           | A335/A530              | ANSI-B 36.10         |                      |             |                     | 15 Mo 3/16 Mo 5 |                                          |                          |
| A335/A530           | A335/A530              | ANSI-B 36.10         |                      |             | 3604-625            | 12 Cr Mo 19.5   |                                          |                          |
| A335/A530           | A335/A530              | ANSI-B 36.10         |                      |             | 3604-620-440-460    | 13 Cr Mo 44     |                                          |                          |
| A335/A530           | A335/A530              | ANSI-B 36.10         |                      |             | 3604-620-440-460    | 13 Cr Mo 44     |                                          |                          |
| A335/A530           | A335/A530              | ANSI-B 36.10         |                      |             | 3604-620-440        | 10 Cr Mo 910    |                                          |                          |
| API-5L              | API-5L                 | API-5L               | A53 Gr.A             |             | 3601-320/360        | St. 37.0        | Fe 310                                   | St.E 210.7               |
| API-5L              | API-5L                 | API-5L               | A53 Gr.B             |             | 3601-410-4360-43B/C | St. 44.0        | Fe 360B/430B                             | St E 240.7               |
| API-5L              | API-5L                 | API-5L               |                      |             | 4360-43 B/C         | St. E 290.7     | Fe 430B                                  | St. E 355                |
| API-5L              | API-5L                 | API-5L               |                      |             |                     | St. E 320.7     |                                          |                          |
| API-5L              | API-5L                 | API-5L               |                      |             | 4360-50 B/C/D       | St. E 360.7     | Fe510B/C/D                               |                          |
| API-5L              | API-5L                 | API-5L               |                      |             |                     | St. E 385.7     |                                          |                          |
| API-5L              | API-5L                 | API-5L               |                      |             |                     | St. E 415.7     |                                          |                          |
| BS3059 part1        | BS3059 part1           | BS3059 part1         | A179                 |             |                     | St.35.8/St.37.8 | Fe 310<br>Fe 360B<br>Fe430B/C<br>Fe 360B | A672-B60<br>A672-B65/C65 |
| BS3059 part2        | BS3059 part2           | BS3059 part2         | A179                 |             |                     | St.35.8/St.37.8 |                                          |                          |
| BS3601              | BS3601                 | BS1600/BS3600        | A53 Gr.A             | 5L-Gr.A     |                     | St. 33          |                                          |                          |
| BS3601              | BS3601                 | BS1600/BS3600        | A53 Gr.B             | 5L-Gr.B     |                     | St.37.0/St.37.2 |                                          |                          |
| BS3601              | BS3601                 | BS1600/BS3600        | A53 Gr.B             | 5L-Gr.B     | 4360-43B/C          | St.44.0/St.44.3 |                                          |                          |
| BS3601              | BS3601                 | BS1600/BS3600        | A106 Gr.B            | 5L-Gr.B     |                     | St.37.0/St.37.2 |                                          |                          |
| BS3601              | BS3601                 | BS1600/BS3600        | A106 Gr.B            | 5L-Gr.B     |                     | St.44.0/St.44.3 |                                          |                          |
| BS3602 part1        | BS3602 part1           | BS1600/BS3600        | A106 Gr.B            | 5L-Gr.B     |                     | St.35.8/St.37.8 |                                          |                          |
| BS3602 part1        | BS3602 part1           | BS1600/BS3600        | A106 Gr.B            | 5L-Gr.B     |                     | St.45.8         |                                          |                          |
| BS3602 part1        | BS3602 part1           | BS1600/BS3600        |                      | 5L-Gr.X52   | 4360-50 B/C/D       | St.52/St.52.3   | Fe510 B/C/D                              |                          |
| BS3602 part2        | BS3602 part2           | BS1600/BS3600        | A672 B65/C65         | 5L-Gr.B     | 4360-43 B/C         | St. E240.7      | Fe 430 B/C                               |                          |
| BS3603              | BS3603                 | BS1600/BS3600        | A333 Gr.6            |             |                     | TT St. 35V      |                                          |                          |
| BS3603              | BS3603                 | BS1600/BS3600        | A333 Gr.3            |             |                     | 10 Ni 14        |                                          |                          |
| BS3604              | BS3604                 | BS1600/BS3600        | A335 P12             |             |                     | 13 Cr Mo 44     |                                          |                          |
| BS3604              | BS3604                 | BS1600/BS3600        | A335 P22             |             |                     | 10 Cr Mo 910    |                                          |                          |
| BS3604              | BS3604                 | BS1600/BS3600        | A335 P5              |             |                     | 12 Cr Mo 195    |                                          |                          |
| BS4360              | BS4360                 | BS1600               | A671 CC70            | 5L-X52      |                     | St. 52-3        | Fe 510D                                  | St. E 555                |

# API Pipes

| Size             |       |       |                                                                                               |                                  |                               | Weight                       |                              |                              | Hydrostatic Test Pressure |                  |                           |                  |                  |                  |                  |                  |                  |                  |      |      |      |      |
|------------------|-------|-------|-----------------------------------------------------------------------------------------------|----------------------------------|-------------------------------|------------------------------|------------------------------|------------------------------|---------------------------|------------------|---------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------|------|------|------|
| Outside Diameter |       |       | Wall Thickness                                                                                |                                  |                               | lb/ft                        | kg/m                         | kg/ft                        | API 5L                    |                  |                           |                  | API 5LX          |                  |                  |                  |                  |                  |      |      |      |      |
|                  |       |       |                                                                                               |                                  |                               |                              |                              |                              | A                         |                  | B                         |                  | X42              | X46              | X52              | X56              | X60              | X65              | X70  |      |      |      |
| Nominal Size     | in    | mm    | Sch. No.                                                                                      | in                               | mm                            |                              |                              |                              | Std.                      | Alt.             | Std.                      | Alt.             |                  |                  |                  |                  |                  |                  |      |      |      |      |
| ⅝                | 0.405 | 10.3  | 40(Std)<br>80(XS)                                                                             | 0.068<br>0.096                   | 1.73<br>2.41                  | 0.24<br>0.31                 | 0.36<br>0.45                 | -<br>-                       | 700<br>850                | -<br>-           | 700<br>850                | -<br>-           | -<br>-           | -<br>-           | -<br>-           | -<br>-           | -<br>-           | -<br>-           |      |      |      |      |
| ¾                | 0.540 | 13.7  | 40(Std)<br>80(XS)                                                                             | 0.088<br>0.119                   | 2.24<br>3.02                  | 0.42<br>0.54                 | 0.63<br>0.80                 | -<br>-                       | 700<br>850                | -<br>-           | 700<br>850                | -<br>-           | -<br>-           | -<br>-           | -<br>-           | -<br>-           | -<br>-           | -<br>-           |      |      |      |      |
| ⅞                | 0.675 | 17.1  | 40(Std)<br>80(XS)                                                                             | 0.091<br>0.126                   | 2.31<br>3.20                  | 0.57<br>0.74                 | 0.85<br>1.10                 | -<br>-                       | 700<br>850                | -<br>-           | 700<br>850                | -<br>-           | -<br>-           | -<br>-           | -<br>-           | -<br>-           | -<br>-           | -<br>-           |      |      |      |      |
| 1½               | 0.840 | 21.3  | 40(Std)<br>80(XS)<br>(XXS)                                                                    | 0.109<br>0.147<br>0.294          | 2.77<br>3.73<br>7.47          | 0.85<br>1.09<br>1.71         | 1.27<br>1.62<br>2.55         | -<br>-<br>-                  | 700<br>850<br>1000        | -<br>-<br>-      | 700<br>850<br>1000        | -<br>-<br>-      | -<br>-<br>-      | -<br>-<br>-      | -<br>-<br>-      | -<br>-<br>-      | -<br>-<br>-      | -<br>-<br>-      |      |      |      |      |
| ¾                | 1.050 | 26.7  | 40(Std)<br>80(XS)<br>(XXS)                                                                    | 0.113<br>0.154<br>0.308          | 2.87<br>3.91<br>7.82          | 1.13<br>1.47<br>2.44         | 1.68<br>2.19<br>3.63         | -<br>-<br>-                  | 700<br>850<br>1000        | -<br>-<br>-      | 700<br>850<br>1000        | -<br>-<br>-      | -<br>-<br>-      | -<br>-<br>-      | -<br>-<br>-      | -<br>-<br>-      | -<br>-<br>-      | -<br>-<br>-      |      |      |      |      |
| 1                | 1.315 | 33.4  | 40(Std)<br>80(XS)<br>160<br>(XXS)                                                             | 0.133<br>0.179<br>0.250<br>0.358 | 3.38<br>4.55<br>6.35<br>9.09  | 1.68<br>2.17<br>2.84<br>3.66 | 2.50<br>3.23<br>4.23<br>5.45 | 0.76<br>0.99<br>1.29<br>1.66 | 700<br>850<br>-<br>1000   | -<br>-<br>-<br>- | 700<br>850<br>-<br>1000   | -<br>-<br>-<br>- | -<br>-<br>-<br>- | -<br>-<br>-<br>- | -<br>-<br>-<br>- | -<br>-<br>-<br>- | -<br>-<br>-<br>- | -<br>-<br>-<br>- |      |      |      |      |
| 1¼               | 1.660 | 42.2  | 40(Std)<br>80(XS)<br>160<br>(XXS)                                                             | 0.140<br>0.191<br>0.250<br>0.382 | 3.56<br>4.85<br>6.35<br>9.70  | 2.27<br>3.00<br>3.76<br>5.21 | 3.38<br>4.47<br>5.60<br>7.76 | 1.03<br>1.36<br>1.71<br>2.37 | 1200<br>1800<br>-<br>2200 | -<br>-<br>-<br>- | 1300<br>1900<br>-<br>2300 | -<br>-<br>-<br>- | -<br>-<br>-<br>- | -<br>-<br>-<br>- | -<br>-<br>-<br>- | -<br>-<br>-<br>- | -<br>-<br>-<br>- | -<br>-<br>-<br>- |      |      |      |      |
| 1½               | 1.900 | 48.3  | 40(Std)<br>80(XS)<br>160<br>(XXS)                                                             | 0.145<br>0.200<br>0.281<br>0.400 | 3.68<br>5.08<br>7.14<br>10.16 | 2.72<br>3.63<br>4.86<br>6.41 | 4.05<br>5.41<br>7.24<br>9.55 | 1.23<br>1.65<br>2.21<br>2.91 | 1200<br>1800<br>-<br>2200 | -<br>-<br>-<br>- | 1300<br>1900<br>-<br>2300 | -<br>-<br>-<br>- | -<br>-<br>-<br>- | -<br>-<br>-<br>- | -<br>-<br>-<br>- | -<br>-<br>-<br>- | -<br>-<br>-<br>- | -<br>-<br>-<br>- |      |      |      |      |
| 2                | 2¾t   | 60.3  | 40(Std)<br><br><br><br><br><br><br><br><br><br>80(XS)<br><br><br><br><br><br><br>160<br>(XXS) | 0.083                            | 2.11                          | 2.03                         | 3.02                         | 0.92                         | 1260                      | -                | 1470                      | -                | 1760             | 1930             | 2180             | 2350             | 2520             | 2730             | 2940 |      |      |      |
|                  |       |       |                                                                                               | 0.109                            | 2.77                          | 2.64                         | 3.93                         | 1.20                         | -                         | -                | -                         | -                | 2310             | 2530             | 2860             | 3000             | 3000             | 3000             | 3000 | 3000 |      |      |
|                  |       |       |                                                                                               | 0.125                            | 3.18                          | 3.00                         | 4.47                         | 1.36                         | -                         | -                | -                         | -                | 2650             | 2910             | 3000             | 3000             | 3000             | 3000             | 3000 | 3000 | 3000 |      |
|                  |       |       |                                                                                               | 0.141                            | 3.58                          | 3.36                         | 5.00                         | 1.53                         | -                         | -                | -                         | -                | 2990             | 3000             | 3000             | 3000             | 3000             | 3000             | 3000 | 3000 | 3000 |      |
|                  |       |       |                                                                                               | 0.154                            | 3.91                          | 3.65                         | 5.44                         | 1.66                         | 2330                      | -                | 2500                      | -                | 3000             | 3000             | 3000             | 3000             | 3000             | 3000             | 3000 | 3000 | 3000 |      |
|                  |       |       |                                                                                               | 0.172                            | 4.37                          | 4.05                         | 6.03                         | 1.84                         | 2500                      | -                | 2500                      | -                | 3000             | 3000             | 3000             | 3000             | 3000             | 3000             | 3000 | 3000 | 3000 |      |
|                  |       |       |                                                                                               | 0.188                            | 4.78                          | 4.39                         | 6.54                         | 1.99                         | 2500                      | -                | 2500                      | -                | 3000             | 3000             | 3000             | 3000             | 3000             | 3000             | 3000 | 3000 | 3000 |      |
|                  |       |       |                                                                                               | 0.218                            | 5.54                          | 5.02                         | 7.48                         | 2.28                         | 2500                      | -                | 2500                      | -                | 3000             | 3000             | 3000             | 3000             | 3000             | 3000             | 3000 | 3000 | 3000 |      |
|                  |       |       |                                                                                               | 0.250                            | 6.35                          | 5.67                         | 8.45                         | 2.57                         | 2500                      | -                | 2500                      | -                | 3000             | 3000             | 3000             | 3000             | 3000             | 3000             | 3000 | 3000 | 3000 |      |
|                  |       |       |                                                                                               | 0.281                            | 7.14                          | 6.28                         | 9.35                         | 2.85                         | 2500                      | -                | 2500                      | -                | 3000             | 3000             | 3000             | 3000             | 3000             | 3000             | 3000 | 3000 | 3000 |      |
|                  |       |       |                                                                                               | 0.344                            | 8.74                          | 7.46                         | 11.11                        | 3.39                         | -                         | -                | -                         | -                | -                | -                | -                | -                | -                | -                | -    | -    | -    | -    |
|                  |       |       |                                                                                               | 0.436                            | 11.07                         | 9.03                         | 13.45                        | 4.10                         | 2500                      | -                | 2500                      | -                | 3000             | 3000             | 3000             | 3000             | 3000             | 3000             | 3000 | 3000 | 3000 | 3000 |
| 2½               | 2%    | 73.0  | 40(Std)<br><br><br><br><br><br><br><br><br><br>80(XS)<br><br><br><br><br><br><br>160<br>(XXS) | 0.083                            | 2.11                          | 2.47                         | 3.68                         | 1.12                         | 1040                      | -                | 1040                      | -                | 1460             | 1590             | 1800             | 1940             | 2080             | 2250             | 2430 |      |      |      |
|                  |       |       |                                                                                               | 0.109                            | 2.77                          | 3.22                         | 4.80                         | 1.46                         | -                         | -                | -                         | -                | 1910             | 2090             | 2370             | 2550             | 2730             | 2960             | 3000 | 3000 |      |      |
|                  |       |       |                                                                                               | 0.125                            | 3.18                          | 3.67                         | 5.47                         | 1.67                         | -                         | -                | -                         | -                | 2190             | 2400             | 2710             | 2920             | 3000             | 3000             | 3000 | 3000 |      |      |
|                  |       |       |                                                                                               | 0.141                            | 3.58                          | 4.12                         | 6.14                         | 1.87                         | -                         | -                | -                         | -                | 2470             | 2710             | 3000             | 3000             | 3000             | 3000             | 3000 | 3000 |      |      |
|                  |       |       |                                                                                               | 0.156                            | 3.96                          | 4.53                         | 6.75                         | 2.06                         | 1950                      | -                | 2280                      | -                | 2730             | 3000             | 3000             | 3000             | 3000             | 3000             | 3000 | 3000 |      |      |
|                  |       |       |                                                                                               | 0.172                            | 4.37                          | 4.97                         | 7.40                         | 2.26                         | 2150                      | -                | 2500                      | -                | 3000             | 3000             | 3000             | 3000             | 3000             | 3000             | 3000 | 3000 |      |      |
|                  |       |       |                                                                                               | 0.188                            | 4.78                          | 5.40                         | 8.04                         | 2.45                         | 2350                      | -                | 2500                      | -                | 3000             | 3000             | 3000             | 3000             | 3000             | 3000             | 3000 | 3000 |      |      |
|                  |       |       |                                                                                               | 0.203                            | 5.16                          | 5.79                         | 8.62                         | 2.63                         | 2500                      | -                | 2500                      | -                | 3000             | 3000             | 3000             | 3000             | 3000             | 3000             | 3000 | 3000 |      |      |
|                  |       |       |                                                                                               | 0.216                            | 5.49                          | 6.13                         | 9.13                         | 2.78                         | 2500                      | -                | 2500                      | -                | 3000             | 3000             | 3000             | 3000             | 3000             | 3000             | 3000 | 3000 |      |      |
|                  |       |       |                                                                                               | 0.250                            | 6.35                          | 7.01                         | 10.44                        | 3.18                         | 2500                      | -                | 2500                      | -                | 3000             | 3000             | 3000             | 3000             | 3000             | 3000             | 3000 | 3000 |      |      |
|                  |       |       |                                                                                               | 0.276                            | 7.01                          | 7.66                         | 11.41                        | 3.48                         | 2500                      | -                | 2500                      | -                | 3000             | 3000             | 3000             | 3000             | 3000             | 3000             | 3000 | 3000 |      |      |
|                  |       |       |                                                                                               | 0.375                            | 9.52                          | 10.01                        | 14.91                        | 4.54                         | -                         | -                | -                         | -                | -                | -                | -                | -                | -                | -                | -    | -    | -    |      |
| 0.552            | 14.02 | 13.69 | 20.39                                                                                         | 6.22                             | 2500                          | -                            | 2500                         | -                            | 3000                      | 3000             | 3000                      | 3000             | 3000             | 3000             | 3000             | 3000             | 3000             |                  |      |      |      |      |
| 3                | 3½    | 88.9  | 40(Std)<br><br><br><br><br><br><br><br><br><br>80(XS)<br><br><br><br><br><br><br>160<br>(XXS) | 0.083                            | 2.11                          | 3.03                         | 4.51                         | 1.38                         | 850                       | -                | 1000                      | -                | 1200             | 1310             | 1480             | 1590             | 1710             | 1850             | 1990 |      |      |      |
|                  |       |       |                                                                                               | 0.109                            | 2.77                          | 3.95                         | 5.88                         | 1.79                         | -                         | -                | -                         | -                | 1570             | 1720             | 1940             | 2090             | 2240             | 2430             | 2620 | 3000 |      |      |
|                  |       |       |                                                                                               | 0.125                            | 3.18                          | 4.51                         | 6.72                         | 2.05                         | 1290                      | -                | 1500                      | -                | 1800             | 1970             | 2230             | 2400             | 2570             | 2790             | 3000 | 3000 |      |      |
|                  |       |       |                                                                                               | 0.141                            | 3.58                          | 5.06                         | 7.54                         | 2.30                         | -                         | -                | -                         | -                | 2030             | 2220             | 2510             | 2710             | 2900             | 3000             | 3000 | 3000 |      |      |
|                  |       |       |                                                                                               | 0.156                            | 3.96                          | 5.57                         | 8.30                         | 2.53                         | 1600                      | -                | 1870                      | -                | 2250             | 2460             | 2780             | 3000             | 3000             | 3000             | 3000 | 3000 |      |      |
|                  |       |       |                                                                                               | 0.172                            | 4.37                          | 6.11                         | 9.10                         | 2.77                         | 1770                      | -                | 2060                      | -                | 2480             | 2710             | 3000             | 3000             | 3000             | 3000             | 3000 | 3000 |      |      |
|                  |       |       |                                                                                               | 0.188                            | 4.78                          | 6.65                         | 9.91                         | 3.02                         | 1930                      | -                | 2260                      | -                | 2710             | 2970             | 3000             | 3000             | 3000             | 3000             | 3000 | 3000 |      |      |
|                  |       |       |                                                                                               | 0.216                            | 5.49                          | 7.58                         | 11.29                        | 3.44                         | 2220                      | -                | 2500                      | -                | 3000             | 3000             | 3000             | 3000             | 3000             | 3000             | 3000 | 3000 |      |      |
|                  |       |       |                                                                                               | 0.250                            | 6.35                          | 8.68                         | 12.93                        | 3.94                         | 2500                      | -                | 2500                      | -                | 3000             | 3000             | 3000             | 3000             | 3000             | 3000             | 3000 | 3000 |      |      |
|                  |       |       |                                                                                               | 0.281                            | 7.14                          | 9.66                         | 14.39                        | 4.39                         | 2500                      | -                | 2500                      | -                | 3000             | 3000             | 3000             | 3000             | 3000             | 3000             | 3000 | 3000 |      |      |
|                  |       |       |                                                                                               | 0.300                            | 7.62                          | 10.25                        | 15.27                        | 4.65                         | 2500                      | -                | 2500                      | -                | 3000             | 3000             | 3000             | 3000             | 3000             | 3000             | 3000 | 3000 |      |      |
|                  |       |       |                                                                                               | 0.438                            | 11.13                         | 14.32                        | 21.33                        | 6.50                         | -                         | -                | -                         | -                | -                | -                | -                | -                | -                | -                | -    | -    | -    |      |
| 0.600            | 15.24 | 18.58 | 27.67                                                                                         | 8.44                             | 2500                          | -                            | 2500                         | -                            | 3000                      | 3000             | 3000                      | 3000             | 3000             | 3000             | 3000             | 3000             | 3000             |                  |      |      |      |      |
| 3½               | 4     | 101.6 | 40(Std)<br><br><br><br><br><br><br><br><br><br>80(XS)                                         | 0.083                            | 2.11                          | 3.47                         | 5.17                         | 1.58                         | 750                       | -                | 870                       | -                | 1050             | 1150             | 1290             | 1390             | 1490             | 1620             | 1740 |      |      |      |
|                  |       |       |                                                                                               | 0.109                            | 2.77                          | 4.53                         | 6.75                         | 2.06                         | 980                       | -                | 1140                      | -                | 1370             | 1500             | 1700             | 1830             | 1960             | 2130             | 2290 | 3000 |      |      |
|                  |       |       |                                                                                               | 0.125                            | 3.18                          | 5.17                         | 7.70                         | 2.35                         | 1120                      | -                | 1310                      | -                | 1580             | 1720             | 1950             | 2100             | 2250             | 2440             | 2630 | 3000 |      |      |
|                  |       |       |                                                                                               | 0.141                            | 3.58                          | 5.81                         | 8.65                         | 2.64                         | 1270                      | -                | 1480                      | -                | 1700             | 1950             | 2200             | 2370             | 2540             | 2750             | 2960 | 3000 |      |      |
|                  |       |       |                                                                                               | 0.156                            | 3.96                          | 6.40                         | 9.53                         | 2.91                         | 1400                      | -                | 1640                      | -                | 1970             | 2150             | 2430             | 2620             | 2810             | 3000             | 3000 | 3000 |      |      |
|                  |       |       |                                                                                               | 0.172                            | 4.37                          | 7.03                         | 10.47                        | 3.19                         | 1550                      | -                | 1810                      | -                | 2170             | 2370             | 2680             | 2890             | 3000             | 3000             | 3000 | 3000 |      |      |
|                  |       |       |                                                                                               | 0.188                            | 4.78                          | 7.65                         | 11.39                        | 3.47                         | 1690                      | -                | 1970                      | -                | 2370             | 2590             | 2930             | 3000             | 3000             | 3000             | 3000 | 3000 |      |      |
|                  |       |       |                                                                                               | 0.226                            | 5.74                          | 9.11                         | 13.57                        | 4.14                         | 2030                      | -                | 2370                      | -                | 2850             | 3000             | 3000             | 3000             | 3000             | 3000             | 3000 | 3000 |      |      |
|                  |       |       |                                                                                               | 0.250                            | 6.35                          | 10.01                        | 14.91                        | 4.54                         | 2250                      | -                | 2620                      | -                | 3000             | 3000             | 3000             | 3000             | 3000             | 3000             | 3000 | 3000 |      |      |
|                  |       |       |                                                                                               | 0.281                            | 7.14                          | 11.16                        | 16.62                        | 5.07                         | 2530                      | -                | 2800                      | -                | 3000             | 3000             | 3000             | 3000             | 3000             | 3000             | 3000 | 3000 |      |      |
|                  |       |       |                                                                                               | 0.318                            | 8.08                          | 12.50                        | 18.62                        | 5.68                         | 2800                      | -                | 2800                      | -                | 3000             | 3000             | 3000             | 3000             | 3000             | 3000             | 3000 | 3000 |      |      |

# API Pipes (Continued)

| Size             |                                |       |                |        |       | Weight |       |       | Hydrostatic Test Pressure |       |       |       |         |       |       |       |       |
|------------------|--------------------------------|-------|----------------|--------|-------|--------|-------|-------|---------------------------|-------|-------|-------|---------|-------|-------|-------|-------|
| Outside Diameter |                                |       | Wall Thickness |        |       | lb/ft  | kg/m  | kg/ft | API 5L                    |       |       |       | API 5LX |       |       |       |       |
|                  |                                |       |                |        |       |        |       |       | A                         |       | B     |       | X42     | X46   | X52   | X56   |       |
| Nominal Size     | in                             | mm    | Sch No         | in     | mm    |        |       |       | Std.                      | Alt.  | Std.  | Alt.  |         |       |       |       |       |
| 4                | 4½                             | 114.3 | 40(Std)        | 0.083  | 2.11  | 3.92   | 5.84  | 1.78  | 660                       | ..... | 770   | ..... | 930     | 1020  | 1150  | 1240  |       |
|                  |                                |       |                | 0.109  | 2.77  | 5.11   | 7.61  | 2.32  | 870                       | ..... | 1020  | ..... | .....   | ..... | ..... | ..... |       |
|                  |                                |       |                | 0.125  | 3.18  | 5.84   | 8.70  | 2.65  | 1000                      | ..... | 1170  | ..... | 1400    | 1530  | 1730  | 1870  |       |
|                  |                                |       |                | 0.141  | 3.58  | 6.56   | 9.77  | 2.98  | 1130                      | ..... | 1320  | ..... | 1580    | 1730  | 1960  | 2110  |       |
|                  |                                |       |                | 0.156  | 3.96  | 7.24   | 10.78 | 3.29  | 1250                      | ..... | 1460  | ..... | 1750    | 1910  | 2160  | 2330  |       |
|                  |                                |       |                | 0.172  | 4.37  | 7.95   | 11.84 | 3.61  | 1380                      | ..... | 1610  | ..... | 1930    | 2110  | 2390  | 2570  |       |
|                  |                                |       |                | 0.188  | 4.78  | 8.66   | 12.90 | 3.93  | 1500                      | ..... | 1750  | ..... | 2110    | 2310  | 2610  | 2810  |       |
|                  |                                |       |                | 0.203  | 5.16  | 9.32   | 13.88 | 4.23  | 1620                      | ..... | 1890  | ..... | 2270    | 2490  | 2810  | 3000  |       |
|                  |                                |       |                | 0.219  | 5.56  | 10.01  | 14.91 | 4.54  | 1750                      | ..... | 2040  | ..... | 2450    | 2690  | 3000  | 3000  |       |
|                  |                                |       |                | 0.237  | 6.02  | 10.79  | 16.07 | 4.90  | 1900                      | ..... | 2210  | ..... | 2650    | 2910  | 3000  | 3000  |       |
|                  |                                |       |                | 0.250  | 6.35  | 11.35  | 16.91 | 5.15  | 2000                      | ..... | 2330  | ..... | 2800    | 3000  | 3000  | 3000  |       |
|                  |                                |       |                | 0.281  | 7.14  | 12.66  | 18.86 | 5.75  | 2250                      | ..... | 2620  | ..... | 3000    | 3000  | 3000  | 3000  |       |
|                  |                                |       |                | 0.312  | 7.92  | 13.96  | 20.79 | 6.34  | 2500                      | ..... | 2800  | ..... | 3000    | 3000  | 3000  | 3000  |       |
|                  |                                |       |                | 80(XS) | 0.337 | 8.56   | 14.98 | 22.31 | 6.80                      | 2700  | ..... | 2800  | .....   | 3000  | 3000  | 3000  | 3000  |
|                  |                                |       |                | 120    | 0.438 | 11.13  | 19.00 | 28.30 | 8.63                      | 2800  | ..... | 2800  | .....   | 3000  | 3000  | 3000  | 3000  |
|                  |                                |       |                | 160    | 0.531 | 13.49  | 22.51 | 33.53 | 10.22                     | 2800  | ..... | 2800  | .....   | 3000  | 3000  | 3000  | 3000  |
|                  |                                |       |                | (XXS)  | 0.674 | 17.12  | 27.54 | 41.02 | 12.50                     | 2800  | ..... | 2800  | .....   | 3000  | 3000  | 3000  | 3000  |
| 5                | 5 <sup>9</sup> / <sub>16</sub> | 141.3 | 40(Std)        | 0.083  | 2.11  | 4.86   | 7.24  | 2.21  | 540                       | ..... | 630   | ..... | .....   | ..... | ..... | ..... |       |
|                  |                                |       |                | 0.125  | 3.18  | 7.26   | 10.81 | 3.30  | 810                       | ..... | 940   | ..... | .....   | ..... | ..... | ..... |       |
|                  |                                |       |                | 0.156  | 3.96  | 9.01   | 13.42 | 4.09  | 1010                      | ..... | 1180  | ..... | .....   | ..... | ..... | ..... |       |
|                  |                                |       |                | 0.188  | 4.78  | 10.79  | 16.07 | 4.90  | 1220                      | ..... | 1420  | ..... | .....   | ..... | ..... | ..... |       |
|                  |                                |       |                | 0.219  | 5.56  | 12.50  | 18.62 | 5.68  | 1420                      | ..... | 1650  | ..... | .....   | ..... | ..... | ..... |       |
|                  |                                |       |                | 0.258  | 6.55  | 14.62  | 21.76 | 6.63  | 1670                      | ..... | 1950  | ..... | .....   | ..... | ..... | ..... |       |
|                  |                                |       |                | 0.281  | 7.14  | 15.85  | 23.61 | 7.20  | 1820                      | ..... | 2120  | ..... | .....   | ..... | ..... | ..... |       |
|                  |                                |       |                | 0.312  | 7.92  | 17.50  | 26.05 | 7.94  | 2020                      | ..... | 2360  | ..... | .....   | ..... | ..... | ..... |       |
|                  |                                |       |                | 0.344  | 8.74  | 19.17  | 28.55 | 8.70  | 2230                      | ..... | 2600  | ..... | .....   | ..... | ..... | ..... |       |
|                  |                                |       |                | 80(XS) | 0.375 | 9.52   | 20.78 | 30.94 | 9.43                      | 2430  | ..... | 2800  | .....   | ..... | ..... | ..... | ..... |
|                  |                                |       |                | 120    | 0.500 | 12.70  | 27.03 | 40.26 | 12.27                     | 2800  | ..... | 2800  | .....   | ..... | ..... | ..... | ..... |
|                  |                                |       |                | 160    | 0.625 | 15.88  | 32.96 | 49.08 | 14.96                     | 2800  | ..... | 2800  | .....   | ..... | ..... | ..... | ..... |
|                  |                                |       |                | (XXS)  | 0.750 | 19.05  | 38.55 | 57.41 | 17.50                     | 2800  | ..... | 2800  | .....   | ..... | ..... | ..... | ..... |
| 6                | 6 <sup>3</sup> / <sub>8</sub>  | 168.3 | 30             | 0.083  | 2.11  | 5.80   | 8.64  | 2.63  | 450                       | 560   | 530   | 660   | 790     | 860   | 980   | 1050  |       |
|                  |                                |       |                | 0.109  | 2.77  | 7.59   | 11.31 | 3.45  | 590                       | 740   | 690   | 860   | 1040    | 1140  | 1280  | 1380  |       |
|                  |                                |       |                | 0.125  | 3.18  | 8.68   | 12.93 | 3.94  | 680                       | 850   | 790   | 990   | 1190    | 1300  | 1470  | 1580  |       |
|                  |                                |       |                | 0.141  | 3.58  | 9.76   | 14.54 | 4.43  | 770                       | 960   | 890   | 1120  | 1340    | 1470  | 1660  | 1790  |       |
|                  |                                |       |                | 0.156  | 3.96  | 10.78  | 16.06 | 4.89  | 850                       | 1060  | 990   | 1240  | 1480    | 1620  | 1840  | 1980  |       |
|                  |                                |       |                | 0.173  | 4.37  | 11.85  | 17.65 | 5.38  | 930                       | 1170  | 1090  | 1360  | 1640    | 1790  | 2030  | 2180  |       |
|                  |                                |       |                | 0.188  | 4.78  | 12.92  | 19.24 | 5.87  | 1020                      | 1280  | 1190  | 1490  | 1790    | 1960  | 2210  | 2380  |       |
|                  |                                |       |                | 0.203  | 5.16  | 13.92  | 20.73 | 6.32  | 1100                      | 1380  | 1290  | 1610  | 1930    | 2110  | 2390  | 2579  |       |
|                  |                                |       |                | 0.219  | 5.56  | 14.98  | 22.31 | 6.80  | 1190                      | 1490  | 1390  | 1740  | 2080    | 2280  | 2580  | 2780  |       |
|                  |                                |       |                | 0.250  | 6.35  | 17.02  | 25.35 | 7.73  | 1360                      | 1700  | 1580  | 1980  | 2380    | 2600  | 2940  | 3000  |       |
|                  |                                |       |                | 0.280  | 7.11  | 18.97  | 28.26 | 8.61  | 1520                      | 1900  | 1790  | 2220  | 2660    | 2920  | 3000  | 3000  |       |
|                  |                                |       |                | 0.312  | 7.92  | 21.04  | 31.34 | 9.55  | 1700                      | 2120  | 1980  | 2470  | 2970    | 3000  | 3000  | 3000  |       |
|                  |                                |       |                | 0.344  | 8.74  | 23.08  | 34.38 | 10.48 | 1870                      | 2340  | 2180  | 2730  | 3000    | 3000  | 3000  | 3000  |       |
|                  |                                |       |                | 0.375  | 9.52  | 25.03  | 37.28 | 11.36 | 2040                      | 2550  | 2380  | 2800  | 3000    | 3000  | 3000  | 3000  |       |
|                  |                                |       |                | 80(XS) | 0.432 | 10.97  | 28.57 | 42.56 | 12.97                     | 2350  | 2800  | 2740  | 2800    | 3000  | 3000  | 3000  | 3000  |
|                  |                                |       |                | 120    | 0.500 | 12.70  | 32.71 | 48.72 | 14.85                     | 2720  | 2800  | 2800  | 2800    | 3000  | 3000  | 3000  | 3000  |
|                  |                                |       |                | 160    | 0.562 | 14.27  | 36.39 | 54.20 | 16.52                     | 2800  | 2800  | 2800  | 2800    | 3000  | 3000  | 3000  | 3000  |
| (XXS)            | 0.625                          | 15.88 | 40.05          | 59.65  | 18.18 | 2800   | 2800  | 2800  | 2800                      | 3000  | 3000  | 3000  | 3000    |       |       |       |       |
|                  | 0.719                          | 18.26 | 45.35          | 67.55  | 20.59 | 2800   | 2800  | 2800  | 2800                      | 3000  | 3000  | 3000  | 3000    |       |       |       |       |
|                  | 0.864                          | 21.95 | 53.16          | 79.18  | 24.13 | 2800   | 2800  | 2800  | 2800                      | ..... | ..... | ..... | .....   |       |       |       |       |
| 8                | 8 <sup>5</sup> / <sub>8</sub>  | 219.1 | 20             | 0.125  | 3.18  | 11.35  | 16.91 | 5.15  | 520                       | 650   | 610   | 760   | 910     | 1000  | 1130  | 1220  |       |
|                  |                                |       |                | 0.156  | 3.96  | 14.11  | 21.02 | 6.41  | 650                       | 810   | 760   | 950   | 1140    | 1250  | 1410  | 1520  |       |
|                  |                                |       |                | 0.188  | 4.78  | 16.94  | 25.23 | 7.69  | 780                       | 980   | 920   | 1140  | 1370    | 1500  | 1700  | 1830  |       |
|                  |                                |       | 30             | 0.203  | 5.16  | 18.26  | 27.20 | 8.29  | .....                     | ..... | ..... | ..... | 1480    | 1620  | 1840  | 2000  |       |
|                  |                                |       |                | 0.219  | 5.56  | 19.66  | 29.28 | 8.93  | 910                       | 1140  | 1070  | 1330  | 1600    | 1750  | 1980  | 2130  |       |
|                  |                                |       |                | 0.250  | 6.35  | 22.36  | 33.31 | 10.15 | 1040                      | 1300  | 1220  | 1520  | 1830    | 2000  | 2260  | 2430  |       |
|                  |                                |       | 40(Std)        | 0.277  | 7.04  | 24.70  | 36.79 | 11.21 | 1160                      | 1450  | 1350  | 1690  | 2020    | 2220  | 2510  | 2700  |       |
|                  |                                |       |                | 0.312  | 7.92  | 27.70  | 41.26 | 12.58 | 1300                      | 1630  | 1520  | 1900  | 2280    | 2500  | 2820  | 3000  |       |
|                  |                                |       |                | 0.322  | 8.18  | 28.55  | 42.53 | 12.96 | 1340                      | 1680  | 1570  | 1960  | 2350    | 2580  | 2910  | 3000  |       |
|                  |                                |       | 60             | 0.344  | 8.74  | 30.42  | 45.31 | 13.81 | 1440                      | 1790  | 1680  | 2090  | 2510    | 2750  | 3000  | 3000  |       |
|                  |                                |       |                | 0.375  | 9.52  | 33.04  | 49.21 | 15.00 | 1570                      | 1960  | 1830  | 2280  | 2740    | 3000  | 3000  | 3000  |       |
|                  |                                |       |                | 0.406  | 10.31 | 35.64  | 53.09 | 16.18 | .....                     | ..... | ..... | ..... | .....   | ..... | ..... | ..... |       |
|                  |                                |       | 80(XS)         | 0.438  | 11.13 | 38.30  | 57.05 | 17.39 | 1830                      | 2290  | 2130  | 2670  | 3000    | 3000  | 3000  | 3000  |       |
|                  |                                |       |                | 0.500  | 12.70 | 43.39  | 64.63 | 19.70 | 2090                      | 2610  | 2430  | 2800  | 3000    | 3000  | 3000  | 3000  |       |
|                  |                                |       |                | 0.562  | 14.27 | 48.40  | 72.09 | 21.97 | 2350                      | 2800  | 2740  | 2800  | 3000    | 3000  | 3000  | 3000  |       |
|                  |                                |       | 100            | 0.594  | 15.09 | 50.95  | 75.89 | 23.13 | .....                     | ..... | ..... | ..... | .....   | ..... | ..... | ..... |       |
|                  |                                |       |                | 0.625  | 15.88 | 53.40  | 79.54 | 24.24 | 2610                      | 2800  | 2800  | 2800  | 3000    | 3000  | 3000  | 3000  |       |
| 0.719            | 18.26                          | 60.71 |                | 90.43  | 27.56 | 2800   | 2800  | 2800  | 2800                      | 3000  | 3000  | 3000  | 3000    |       |       |       |       |
| 120              | 0.812                          | 20.62 | 67.76          | 100.93 | 30.76 | .....  | ..... | ..... | .....                     | ..... | ..... | ..... | .....   |       |       |       |       |
|                  | 0.875                          | 22.22 | 72.42          | 107.87 | 32.88 | 2800   | 2800  | 2800  | 2800                      | ..... | ..... | ..... | .....   |       |       |       |       |
|                  | 0.906                          | 23.01 | 74.69          | 111.25 | 33.91 | .....  | ..... | ..... | .....                     | ..... | ..... | ..... | .....   |       |       |       |       |

# API Pipes (Continued)

| Size             |       |       |                |       |       | Weight |        |       | Hydrostatic Test Pressure |       |       |       |         |       |       |       |
|------------------|-------|-------|----------------|-------|-------|--------|--------|-------|---------------------------|-------|-------|-------|---------|-------|-------|-------|
| Outside Diameter |       |       | Wall Thickness |       |       | lb/ft  | kg/m   | kg/ft | API 5L                    |       |       |       | API 5LX |       |       |       |
|                  |       |       |                |       |       |        |        |       | A                         |       | B     |       | X42     | X46   | X52   | X56   |
| Nominal Size     | in    | mm    | Sch No         | in    | mm    | Std.   | Alt.   | Std.  | Alt.                      |       |       |       |         |       |       |       |
| 10               | 10¾   | 273.0 | 20             | 0.156 | 3.96  | 17.65  | 26.29  | 8.01  | 520                       | 650   | 610   | 760   | 1040    | 1130  | 1280  | 1380  |
|                  |       |       |                | 0.188 | 4.78  | 21.21  | 31.59  | 9.63  | 630                       | 790   | 730   | 920   | 1250    | 1370  | 1550  | 1660  |
|                  |       |       |                | 0.203 | 5.16  | 22.87  | 34.06  | 10.38 | .....                     | ..... | ..... | ..... | 1350    | 1480  | 1670  | 1800  |
|                  |       |       |                | 0.219 | 5.56  | 24.63  | 36.69  | 11.18 | 730                       | 920   | 860   | 1070  | 1450    | 1590  | 1800  | 1940  |
|                  |       |       |                | 0.250 | 6.35  | 28.04  | 41.77  | 12.73 | 840                       | 1050  | 980   | 1220  | 1660    | 1820  | 2060  | 2210  |
|                  |       |       | 30             | 0.279 | 7.09  | 31.20  | 46.47  | 14.16 | 930                       | 1170  | 1090  | 1360  | 1850    | 2030  | 2290  | 2470  |
|                  |       |       |                | 0.307 | 7.80  | 34.24  | 51.00  | 15.54 | 1030                      | 1290  | 1200  | 1500  | 2040    | 2230  | 2520  | 2720  |
|                  |       |       |                | 0.344 | 8.74  | 38.23  | 56.94  | 17.36 | 1150                      | 1440  | 1340  | 1680  | 2280    | 2500  | 2830  | 3000  |
|                  |       |       |                | 0.365 | 9.27  | 40.48  | 60.29  | 18.38 | 1220                      | 1530  | 1430  | 1780  | 2420    | 2660  | 3000  | 3000  |
|                  |       |       |                | 0.438 | 11.13 | 48.24  | 71.85  | 21.90 | 1470                      | 1830  | 1710  | 2140  | 2910    | 3000  | 3000  | 3000  |
|                  |       |       | 40(Std)        | 0.500 | 12.70 | 54.74  | 81.54  | 24.85 | 1670                      | 2090  | 1950  | 2440  | 3000    | 3000  | 3000  | 3000  |
|                  |       |       |                | 0.562 | 14.27 | 61.15  | 91.08  | 27.76 | 1880                      | 2350  | 2200  | 2740  | 3000    | 3000  | 3000  | 3000  |
|                  |       |       |                | 0.594 | 15.09 | 64.43  | 95.97  | 29.25 | .....                     | ..... | ..... | ..... | .....   | ..... | ..... | ..... |
|                  |       |       | 80             | 0.625 | 15.88 | 67.58  | 100.66 | 30.68 | 2090                      | 2620  | 2440  | 2800  | 3000    | 3000  | 3000  | 3000  |
|                  |       |       |                | 0.719 | 18.26 | 77.03  | 114.74 | 34.97 | 2410                      | 2800  | 2800  | 2800  | 3000    | 3000  | 3000  | 3000  |
|                  |       |       |                | 0.812 | 20.62 | 86.18  | 128.37 | 39.13 | 2720                      | 2800  | 2800  | 2800  | .....   | ..... | ..... | ..... |
|                  |       |       | 120            | 0.844 | 21.44 | 89.29  | 133.00 | 40.54 | .....                     | ..... | ..... | ..... | .....   | ..... | ..... | ..... |
|                  |       |       |                | 1.000 | 25.40 | 104.13 | 155.10 | 47.28 | .....                     | ..... | ..... | ..... | .....   | ..... | ..... | ..... |
|                  |       |       | 12             | 12¾   | 323.8 | 20     | 0.172  | 4.37  | 23.11                     | 34.42 | 10.49 | 490   | 610     | 570   | 710   | 960   |
| 0.188            | 4.78  | 25.22 |                |       |       |        | 37.57  | 11.45 | 530                       | 660   | 620   | 770   | 1050    | 1150  | 1300  | 1400  |
| 0.203            | 5.16  | 27.20 |                |       |       |        | 40.51  | 12.35 | .....                     | ..... | ..... | ..... | 1140    | 1250  | 1410  | 1520  |
| 0.219            | 5.56  | 29.31 |                |       |       |        | 43.66  | 13.31 | 620                       | 770   | 720   | 900   | 1230    | 1340  | 1520  | 1640  |
| 0.250            | 6.35  | 33.38 |                |       |       |        | 49.72  | 15.15 | 710                       | 880   | 820   | 1030  | 1400    | 1530  | 1730  | 1870  |
| 30               | 0.281 | 7.14  |                |       |       | 37.42  | 55.74  | 16.99 | 790                       | 990   | 930   | 1160  | 1570    | 1720  | 1950  | 2100  |
|                  | 0.312 | 7.92  |                |       |       | 41.45  | 61.74  | 18.82 | 880                       | 1100  | 1030  | 1280  | 1750    | 1910  | 2160  | 2330  |
|                  | 0.330 | 8.38  |                |       |       | 43.77  | 65.20  | 19.87 | 930                       | 1160  | 1090  | 1360  | 1850    | 2020  | 2290  | 2460  |
|                  | 0.344 | 8.74  |                |       |       | 45.58  | 67.89  | 20.69 | 970                       | 1210  | 1130  | 1420  | 1930    | 2110  | 2390  | 2570  |
|                  | 0.375 | 9.52  |                |       |       | 49.56  | 73.82  | 22.50 | 1060                      | 1320  | 1240  | 1540  | 2100    | 2300  | 2600  | 2800  |
| 40               | 0.406 | 10.31 |                |       |       | 53.52  | 79.72  | 24.30 | .....                     | ..... | ..... | ..... | 2270    | 2490  | 2810  | 3000  |
|                  | 0.438 | 11.13 |                |       |       | 57.59  | 85.78  | 26.15 | 1240                      | 1550  | 1440  | 1800  | 2450    | 2690  | 3000  | 3000  |
|                  | 0.500 | 12.70 |                |       |       | 65.42  | 97.44  | 29.70 | 1410                      | 1760  | 1650  | 2060  | 2800    | 3000  | 3000  | 3000  |
| 60               | 0.562 | 14.27 |                |       |       | 73.15  | 108.96 | 33.21 | 1590                      | 1980  | 1850  | 2310  | 3000    | 3000  | 3000  | 3000  |
|                  | 0.625 | 15.88 |                |       |       | 80.93  | 120.55 | 36.74 | 1760                      | 2210  | 2060  | 2570  | 3000    | 3000  | 3000  | 3000  |
|                  | 0.688 | 17.48 |                |       |       | 88.63  | 132.01 | 40.24 | 1940                      | 2430  | 2270  | 2800  | 3000    | 3000  | 3000  | 3000  |
| 80               | 0.750 | 19.05 |                |       |       | 96.12  | 143.17 | 43.64 | 2120                      | 2650  | 2470  | 2800  | 3000    | 3000  | 3000  | 3000  |
|                  | 0.812 | 20.62 |                |       |       | 103.53 | 154.21 | 47.00 | 2290                      | 2800  | 2670  | 2800  | 3000    | 3000  | 3000  | 3000  |
|                  | 0.844 | 21.44 |                |       |       | 107.32 | 159.86 | 48.72 | .....                     | ..... | ..... | ..... | .....   | ..... | ..... | ..... |
| 100              | 0.875 | 22.22 |                |       |       | 110.97 | 165.29 | 50.38 | 2470                      | 2800  | 2800  | 2800  | 3000    | 3000  | 3000  | 3000  |
|                  | 1.000 | 25.40 |                |       |       | 125.49 | 186.92 | 56.97 | .....                     | ..... | ..... | ..... | .....   | ..... | ..... | ..... |
| 14               | 14    | 355.6 |                |       |       | 10     | 0.188  | 4.78  | 27.73                     | 41.30 | 12.59 | 480   | 600     | 560   | 700   | 960   |
|                  |       |       | 0.203          | 5.16  | 29.91 |        | 44.55  | 13.58 | 520                       | 650   | 610   | 760   | .....   | ..... | ..... | ..... |
|                  |       |       | 0.210          | 5.33  | 30.93 |        | 46.07  | 14.04 | .....                     | ..... | ..... | ..... | 1070    | 1170  | 1330  | 1430  |
|                  |       |       | 0.219          | 5.56  | 32.23 |        | 48.01  | 14.63 | .....                     | ..... | ..... | ..... | 1120    | 1220  | 1380  | 1490  |
|                  |       |       | 0.250          | 6.35  | 36.71 |        | 54.68  | 16.67 | 640                       | 800   | 750   | 940   | 1280    | 1400  | 1580  | 1700  |
|                  |       |       | 20             | 0.281 | 7.14  | 41.17  | 61.32  | 18.69 | 720                       | 900   | 840   | 1050  | 1430    | 1570  | 1770  | 1910  |
|                  |       |       |                | 0.312 | 7.92  | 45.61  | 67.94  | 20.71 | 800                       | 1000  | 940   | 1170  | 1590    | 1740  | 1970  | 2120  |
|                  |       |       |                | 0.344 | 8.74  | 50.17  | 74.73  | 22.78 | 880                       | 1110  | 1030  | 1290  | 1750    | 1920  | 2170  | 2340  |
|                  |       |       |                | 0.375 | 9.52  | 54.57  | 81.28  | 24.77 | 960                       | 1210  | 1120  | 1410  | 1910    | 2090  | 2370  | 2550  |
|                  |       |       |                | 0.406 | 10.31 | 58.94  | 87.79  | 26.76 | .....                     | ..... | ..... | ..... | 2070    | 2270  | 2560  | 2760  |
|                  |       |       | 40             | 0.438 | 11.13 | 63.44  | 94.49  | 28.80 | 1130                      | 1410  | 1310  | 1640  | 2230    | 2450  | 2770  | 2980  |
|                  |       |       |                | 0.469 | 11.91 | 67.78  | 100.96 | 30.77 | .....                     | ..... | ..... | ..... | 2390    | 2620  | 2960  | 3000  |
|                  |       |       |                | 0.500 | 12.70 | 72.09  | 107.38 | 32.73 | 1290                      | 1610  | 1500  | 1880  | 2550    | 2790  | 3000  | 3000  |
|                  |       |       | 60             | 0.562 | 14.27 | 80.66  | 120.14 | 36.62 | 1450                      | 1810  | 1690  | 2110  | 2870    | 3000  | 3000  | 3000  |
|                  |       |       |                | 0.594 | 15.09 | 85.05  | 126.68 | 38.61 | .....                     | ..... | ..... | ..... | .....   | ..... | ..... | ..... |
|                  |       |       |                | 0.625 | 15.88 | 89.28  | 132.98 | 40.53 | 1610                      | 2010  | 1880  | 2340  | 3000    | 3000  | 3000  | 3000  |
|                  |       |       | 80             | 0.688 | 17.48 | 97.81  | 145.69 | 44.41 | 1770                      | 2210  | 2060  | 2580  | 3000    | 3000  | 3000  | 3000  |
|                  |       |       |                | 0.750 | 19.05 | 106.13 | 158.08 | 48.18 | 1930                      | 2410  | 2250  | 2800  | 3000    | 3000  | 3000  | 3000  |
|                  |       |       |                | 0.812 | 20.62 | 114.37 | 170.35 | 51.92 | 2090                      | 2610  | 2440  | 2800  | 3000    | 3000  | 3000  | 3000  |
|                  |       |       | 100            | 0.875 | 22.22 | 122.65 | 182.69 | 55.68 | 2250                      | 2800  | 2520  | 2800  | 3000    | 3000  | 3000  | 3000  |
|                  |       |       |                | 0.938 | 23.83 | 130.85 | 194.90 | 59.41 | 2410                      | 2800  | 2800  | 2800  | 3000    | 3000  | 3000  | 3000  |
|                  |       |       |                | 1.000 | 25.40 | 138.54 | 206.80 | 63.03 | .....                     | ..... | ..... | ..... | .....   | ..... | ..... | ..... |
| 16               | 16    | 406.4 | 10             | 0.188 | 4.78  | 31.75  | 47.29  | 14.40 | 420                       | 530   | 490   | 620   | 840     | 920   | 1040  | 1120  |
|                  |       |       |                | 0.203 | 5.16  | 34.25  | 51.02  | 15.54 | 460                       | 570   | 530   | 670   | 910     | 990   | 1120  | 1210  |
|                  |       |       |                | 0.219 | 5.56  | 36.91  | 54.98  | 16.74 | 490                       | 620   | 570   | 720   | 980     | 1070  | 1210  | 1300  |
|                  |       |       |                | 0.250 | 6.35  | 42.05  | 62.63  | 19.07 | 560                       | 700   | 660   | 820   | 1120    | 1220  | 1380  | 1490  |
|                  |       |       |                | 0.281 | 7.14  | 47.17  | 70.26  | 21.40 | 630                       | 790   | 740   | 920   | 1250    | 1370  | 1550  | 1670  |
|                  |       |       | 20             | 0.312 | 7.92  | 52.27  | 77.86  | 23.71 | 700                       | 880   | 820   | 1020  | 1390    | 1520  | 1720  | 1860  |
|                  |       |       |                | 0.344 | 8.74  | 57.52  | 85.68  | 26.09 | 770                       | 970   | 900   | 1130  | 1540    | 1680  | 1900  | 2050  |
|                  |       |       |                | 0.375 | 9.52  | 62.58  | 93.21  | 28.39 | 840                       | 1050  | 980   | 1230  | 1670    | 1830  | 2070  | 2230  |
|                  |       |       |                | 0.406 | 10.31 | 67.62  | 100.72 | 30.67 | .....                     | ..... | ..... | ..... | 1810    | 1980  | 2240  | 2420  |
|                  |       |       |                | 0.406 | 10.31 | 67.62  | 100.72 | 30.67 | .....                     | ..... | ..... | ..... |         |       |       |       |

# API Pipes (Continued)

| Size             |       |       |                |        |        | Weight |        |        | Hydrostatic Test Pressure |       |       |       |         |       |       |       |      |
|------------------|-------|-------|----------------|--------|--------|--------|--------|--------|---------------------------|-------|-------|-------|---------|-------|-------|-------|------|
| Outside Diameter |       |       | Wall Thickness |        |        | lb/ft  | kg/m   | kg/ft  | API 5L                    |       |       |       | API 5LX |       |       |       |      |
|                  |       |       |                |        |        |        |        |        | A                         |       | B     |       | X42     | X46   | X52   | X56   |      |
| Nominal Size     | in    | mm    | Sch No         | in     | mm     |        |        |        | Std.                      | Alt.  | Std.  | Alt.  |         |       |       |       |      |
| 16               | 16    | 406.4 | 40(XS)         | 0.438  | 11.13  | 72.80  | 108.44 | 33.02  | 990                       | 1230  | 1150  | 1440  | 1950    | 2140  | 2420  | 2610  |      |
|                  |       |       |                | 0.469  | 11.91  | 77.79  | 115.87 | 35.29  | .....                     | ..... | ..... | ..... | 2090    | 2290  | 2590  | 2790  |      |
|                  |       |       |                | 0.500  | 12.70  | 82.77  | 123.29 | 37.54  | 1120                      | 1410  | 1310  | 1640  | 2230    | 2440  | 2760  | 2980  |      |
|                  |       |       |                | 0.562  | 14.27  | 92.66  | 138.02 | 42.03  | 1260                      | 1580  | 1480  | 1840  | 2510    | 2750  | 3000  | 3000  |      |
|                  |       |       |                | 0.625  | 15.88  | 102.63 | 152.87 | 46.55  | 1410                      | 1760  | 1640  | 2050  | 2790    | 3000  | 3000  | 3000  |      |
|                  |       |       |                | 0.656  | 16.66  | 107.50 | 160.12 | 48.80  | .....                     | ..... | ..... | ..... | .....   | ..... | ..... | ..... |      |
|                  |       |       | 60             | 0.688  | 17.48  | 112.51 | 167.58 | 51.03  | 1550                      | 1940  | 1810  | 2260  | 3000    | 3000  | 3000  | 3000  |      |
|                  |       |       |                | 0.750  | 19.05  | 122.15 | 181.94 | 55.41  | 1690                      | 2110  | 1970  | 2460  | 3000    | 3000  | 3000  | 3000  |      |
|                  |       |       |                | 0.812  | 20.62  | 131.71 | 196.18 | 59.74  | 1830                      | 2280  | 2130  | 2660  | 3000    | 3000  | 3000  | 3000  |      |
|                  |       |       |                | 0.844  | 21.44  | 136.61 | 203.48 | 62.02  | .....                     | ..... | ..... | ..... | .....   | ..... | ..... | ..... |      |
|                  |       |       |                | 0.875  | 22.22  | 141.34 | 210.53 | 64.11  | 1970                      | 2460  | 2300  | 2800  | 3000    | 3000  | 3000  | 3000  |      |
|                  |       |       |                | 0.938  | 23.83  | 150.89 | 224.75 | 68.44  | 2110                      | 2640  | 2460  | 2800  | 3000    | 3000  | 3000  | 3000  |      |
|                  |       |       |                | 1.000  | 25.40  | 160.20 | 238.62 | 72.67  | 2250                      | 2800  | 2620  | 2800  | 3000    | 3000  | 3000  | 3000  |      |
|                  |       |       |                | 1.062  | 26.97  | 169.43 | 252.37 | 76.85  | 2390                      | 2800  | 2790  | 2800  | 3000    | 3000  | 3000  | 3000  |      |
|                  |       |       |                | 1.125  | 28.58  | 178.72 | 266.20 | 81.07  | 2530                      | 2800  | 2800  | 2800  | 3000    | 3000  | 3000  | 3000  |      |
| 18               | 18    | 457.2 | 10             | 0.188  | 4.78   | 35.76  | 53.26  | 16.22  | 380                       | 470   | 440   | 550   | 750     | 820   | 920   | 990   |      |
|                  |       |       |                | 0.219  | 5.56   | 41.59  | 61.95  | 18.87  | 440                       | 550   | 510   | 640   | 870     | 950   | 1080  | 1160  |      |
|                  |       |       |                | 0.250  | 6.35   | 47.39  | 70.59  | 21.50  | 500                       | 620   | 580   | 730   | 990     | 1090  | 1230  | 1320  |      |
|                  |       |       |                | 0.281  | 7.14   | 53.18  | 79.21  | 24.12  | 560                       | 700   | 660   | 820   | 1110    | 1220  | 1380  | 1490  |      |
|                  |       |       | 20             | 0.312  | 7.92   | 58.94  | 87.79  | 26.74  | 620                       | 780   | 730   | 910   | 1240    | 1360  | 1530  | 1650  |      |
|                  |       |       |                | 0.344  | 8.74   | 64.87  | 96.62  | 29.43  | 690                       | 860   | 800   | 1000  | 1360    | 1490  | 1690  | 1820  |      |
|                  |       |       |                | 0.375  | 9.52   | 70.59  | 105.14 | 32.02  | 750                       | 940   | 880   | 1090  | 1490    | 1630  | 1840  | 1980  |      |
|                  |       |       |                | 0.406  | 10.31  | 76.29  | 113.63 | 34.61  | .....                     | ..... | ..... | ..... | 1610    | 1760  | 1990  | 2150  |      |
|                  |       |       | 30             | 0.438  | 11.13  | 82.15  | 122.36 | 37.26  | 880                       | 1100  | 1020  | 1280  | 1740    | 1900  | 2150  | 2320  |      |
|                  |       |       |                | 0.469  | 11.91  | 87.81  | 130.79 | 39.83  | .....                     | ..... | ..... | ..... | 1860    | 2040  | 2300  | 2480  |      |
|                  |       |       |                | 0.500  | 12.70  | 93.45  | 139.19 | 42.39  | 1000                      | 1250  | 1170  | 1460  | 1980    | 2170  | 2460  | 2640  |      |
|                  |       |       |                | 0.562  | 14.27  | 104.67 | 155.91 | 47.48  | 1120                      | 1400  | 1310  | 1640  | 2230    | 2440  | 2760  | 2970  |      |
|                  |       |       | 40             | 0.625  | 15.88  | 115.98 | 172.75 | 52.61  | 1250                      | 1560  | 1460  | 1820  | 2480    | 2720  | 3000  | 3000  |      |
|                  |       |       |                | 0.688  | 17.48  | 127.21 | 189.48 | 57.70  | 1380                      | 1720  | 1610  | 2010  | 2730    | 2990  | 3000  | 3000  |      |
|                  |       |       |                | 0.750  | 19.05  | 138.17 | 205.80 | 62.67  | 1500                      | 1880  | 1750  | 2190  | 2980    | 3000  | 3000  | 3000  |      |
|                  |       |       |                | 0.812  | 20.62  | 149.06 | 222.02 | 67.61  | 1620                      | 2030  | 1890  | 2370  | 3000    | 3000  | 3000  | 3000  |      |
|                  |       |       |                | 0.875  | 22.22  | 160.03 | 238.36 | 72.59  | 1750                      | 2190  | 2040  | 2550  | 3000    | 3000  | 3000  | 3000  |      |
|                  |       |       |                | 0.938  | 23.83  | 170.92 | 254.59 | 77.53  | 1880                      | 2340  | 2190  | 2740  | 3000    | 3000  | 3000  | 3000  |      |
|                  |       |       |                | 1.000  | 25.40  | 181.56 | 270.43 | 82.36  | 2000                      | 2500  | 2330  | 2800  | 3000    | 3000  | 3000  | 3000  |      |
|                  |       |       |                | 1.062  | 26.97  | 192.11 | 286.15 | 87.14  | 2120                      | 2660  | 2480  | 2800  | 3000    | 3000  | 3000  | 3000  |      |
|                  |       |       | 60             | 1.125  | 28.58  | 202.75 | 302.00 | 91.97  | 2250                      | 2800  | 2620  | 2800  | 3000    | 3000  | 3000  | 3000  |      |
|                  |       |       |                | 1.187  | 30.15  | 213.14 | 317.47 | 96.68  | 2370                      | 2800  | 2770  | 2800  | .....   | ..... | ..... | ..... |      |
|                  |       |       |                | 1.188  | 30.18  | 213.31 | 317.73 | 96.76  | .....                     | ..... | ..... | ..... | 3000    | 3000  | 3000  | 3000  |      |
|                  |       |       |                | 1.250  | 31.75  | 223.61 | 333.07 | 101.43 | 2500                      | 2800  | 2800  | 2800  | 3000    | 3000  | 3000  | 3000  |      |
| 20               | 20    | 508.0 |                | 10     | 0.219  | 5.56   | 46.27  | 68.92  | 20.99                     | 390   | 490   | 460   | 570     | 830   | 910   | 1020  | 1100 |
|                  |       |       |                |        | 0.250  | 6.35   | 52.73  | 78.54  | 23.92                     | 450   | 560   | 520   | 660     | 940   | 1040  | 1170  | 1260 |
|                  |       |       |                |        | 0.281  | 7.14   | 59.18  | 88.15  | 26.84                     | 510   | 630   | 590   | 740     | 1060  | 1160  | 1320  | 1420 |
|                  |       |       |                |        | 0.312  | 7.92   | 65.60  | 97.71  | 29.76                     | 560   | 700   | 660   | 820     | 1180  | 1290  | 1460  | 1570 |
|                  |       |       | 20             | 0.344  | 8.74   | 72.21  | 107.56 | 32.75  | 620                       | 770   | 720   | 900   | 1300    | 1420  | 1610  | 1730  |      |
|                  |       |       |                | 0.375  | 9.52   | 78.60  | 117.07 | 35.65  | 680                       | 840   | 790   | 980   | 1420    | 1550  | 1760  | 1890  |      |
|                  |       |       |                | 0.406  | 10.31  | 84.96  | 126.55 | 38.54  | .....                     | ..... | ..... | ..... | 1530    | 1680  | 1900  | 2050  |      |
|                  |       |       |                | 0.438  | 11.13  | 91.51  | 136.30 | 41.51  | 790                       | 990   | 920   | 1150  | 1660    | 1810  | 2050  | 2210  |      |
|                  |       |       | 30             | 0.469  | 11.91  | 97.83  | 145.72 | 44.38  | .....                     | ..... | ..... | ..... | 1770    | 1940  | 2190  | 2360  |      |
|                  |       |       |                | 0.500  | 12.70  | 104.13 | 151.10 | 47.23  | 900                       | 1120  | 1050  | 1310  | 1890    | 2070  | 2340  | 2520  |      |
|                  |       |       |                | 0.562  | 14.27  | 116.67 | 173.78 | 52.92  | 1010                      | 1260  | 1180  | 1480  | 2120    | 2330  | 2630  | 2750  |      |
|                  |       |       |                | 0.625  | 15.88  | 129.33 | 192.64 | 58.66  | 1120                      | 1410  | 1310  | 1640  | 2360    | 2590  | 2750  | 2750  |      |
| 60               | 0.688 | 17.48 | 141.90         | 211.36 | 64.37  | 1240   | 1550   | 1440   | 1810                      | 2600  | 2750  | 2750  | 2750    |       |       |       |      |
|                  | 0.750 | 19.05 | 154.19         | 229.67 | 69.94  | 1350   | 1690   | 1580   | 1970                      | 2750  | 2750  | 2750  | 2750    |       |       |       |      |
|                  | 0.812 | 20.62 | 166.40         | 247.85 | 75.48  | 1460   | 1830   | 1710   | 2130                      | 2750  | 2750  | 2750  | 2750    |       |       |       |      |
|                  | 0.875 | 22.22 | 179.72         | 266.20 | 81.07  | 1580   | 1970   | 1840   | 2300                      | 2750  | 2750  | 2750  | 2750    |       |       |       |      |
|                  | 0.938 | 23.83 | 190.96         | 284.43 | 86.62  | 1690   | 2110   | 1970   | 2460                      | 2750  | 2750  | 2750  | 2750    |       |       |       |      |
|                  | 1.000 | 25.40 | 202.92         | 302.25 | 92.04  | 1800   | 2250   | 2100   | 2620                      | 2750  | 2750  | 2750  | 2750    |       |       |       |      |
|                  | 1.062 | 26.97 | 214.80         | 319.94 | 97.43  | 1910   | 2390   | 2230   | 2750                      | 2750  | 2750  | 2750  | 2750    |       |       |       |      |
|                  | 1.125 | 28.58 | 226.78         | 337.79 | 102.87 | 2020   | 2530   | 2360   | 2750                      | 2750  | 2750  | 2750  | 2750    |       |       |       |      |
| 20               | 1.187 | 30.15 | 238.50         | 355.25 | 108.18 | 2140   | 2670   | 2490   | 2750                      | ..... | ..... | ..... | .....   |       |       |       |      |
|                  | 1.188 | 30.15 | 238.68         | .....  | .....  | .....  | .....  | .....  | .....                     | 2750  | 2750  | 2750  | 2750    |       |       |       |      |
|                  | 1.250 | 31.76 | 250.31         | 372.84 | 113.54 | 2250   | 2760   | 2620   | 2750                      | 2750  | 2750  | 2750  | 2750    |       |       |       |      |
|                  | 1.312 | 33.32 | 261.86         | 390.04 | 118.78 | 2360   | 2750   | 2750   | 2750                      | 2750  | 2750  | 2750  | 2750    |       |       |       |      |
|                  | 1.375 | 34.92 | 273.51         | 407.39 | 124.06 | 2480   | 2750   | 2750   | 2750                      | 2750  | 2750  | 2750  | 2750    |       |       |       |      |
| 22               | 22    | 558.8 | 10             | 0.219  | 5.56   | 50.94  | 75.88  | 23.11  | 360                       | 450   | 420   | 520   | 750     | 820   | 930   | 1000  |      |
|                  |       |       |                | 0.250  | 6.35   | 58.07  | 86.50  | 26.34  | 410                       | 510   | 480   | 600   | 860     | 940   | 1060  | 1150  |      |
|                  |       |       |                | 0.281  | 7.14   | 65.18  | 97.09  | 29.57  | 460                       | 570   | 540   | 670   | 970     | 1060  | 1200  | 1290  |      |
|                  |       |       |                | 0.312  | 7.92   | 72.27  | 107.65 | 32.78  | 510                       | 640   | 600   | 740   | 1070    | 1170  | 1330  | 1430  |      |
|                  |       |       | 20             | 0.344  | 8.74   | 79.56  | 118.50 | 36.09  | 560                       | 700   | 660   | 820   | 1180    | 1290  | 1460  | 1580  |      |
|                  |       |       |                | 0.375  | 9.52   | 86.61  | 129.01 | 39.29  | 610                       | 770   | 720   | 890   | 1290    | 1410  | 1600  | 1720  |      |

# API Pipes (Continued)

| Size             |       |        |                |        |        | Weight |        |        | Hydrostatic Test Pressure |       |       |       |         |       |       |       |      |
|------------------|-------|--------|----------------|--------|--------|--------|--------|--------|---------------------------|-------|-------|-------|---------|-------|-------|-------|------|
| Outside Diameter |       |        | Wall Thickness |        |        | lb/ft  | kg/m   | kg/ft  | API 5L                    |       |       |       | API 5LX |       |       |       |      |
|                  |       |        |                |        |        |        |        |        | A                         |       | B     |       | X42     | X46   | X52   | X56   |      |
| Nominal Size     | in    | mm     | Sch No         | in     | mm     |        |        |        | Std.                      | Alt.  | Std.  | Alt.  |         |       |       |       |      |
| 22               | 22    | 558.8  | 30             | 0.406  | 10.31  | 93.63  | 139.46 | 42.47  | .....                     | ..... | ..... | ..... | 1400    | 1530  | 1730  | 1860  |      |
|                  |       |        |                | 0.438  | 11.13  | 100.86 | 150.23 | 45.75  | 720                       | 900   | 840   | 1050  | 1510    | 1650  | 1860  | 2010  |      |
|                  |       |        |                | 0.469  | 11.91  | 107.85 | 160.64 | 48.92  | .....                     | ..... | ..... | ..... | 1610    | 1770  | 2000  | 2150  |      |
|                  |       |        |                | 0.500  | 12.70  | 114.81 | 171.01 | 52.08  | 820                       | 1020  | 950   | 1190  | 1720    | 1880  | 2130  | 2290  |      |
|                  |       |        |                | 0.562  | 14.27  | 128.67 | 191.65 | 58.36  | 920                       | 1150  | 1070  | 1340  | 1930    | 2120  | 2390  | 2500  |      |
|                  |       |        |                | 0.625  | 15.88  | 142.68 | 212.52 | 64.72  | 1020                      | 1280  | 1190  | 1490  | 2150    | 2350  | 2500  | 2500  |      |
|                  |       |        | 60             | 0.688  | 17.48  | 156.60 | 233.26 | 71.03  | 1130                      | 1410  | 1310  | 1640  | 2360    | 2500  | 2500  | 2500  |      |
|                  |       |        |                | 0.750  | 19.05  | 170.21 | 253.53 | 77.21  | 1230                      | 1530  | 1430  | 1790  | 2500    | 2500  | 2500  | 2500  |      |
|                  |       |        |                | 0.812  | 20.62  | 183.75 | 273.70 | 83.35  | 1330                      | 1660  | 1550  | 1940  | 2500    | 2500  | 2500  | 2500  |      |
|                  |       |        |                | 0.875  | 22.22  | 197.41 | 294.02 | 89.55  | 1430                      | 1790  | 1670  | 2090  | 2500    | 2500  | 2500  | 2500  |      |
|                  |       |        |                | 0.938  | 23.83  | 211.00 | 314.28 | 95.71  | 1530                      | 1920  | 1790  | 2240  | 2500    | 2500  | 2500  | 2500  |      |
|                  |       |        |                | 1.000  | 25.40  | 224.28 | 334.07 | 101.73 | 1640                      | 2050  | 1910  | 2390  | 2500    | 2500  | 2500  | 2500  |      |
|                  |       |        | 80             | 1.062  | 26.97  | 237.48 | 353.73 | 107.72 | 1740                      | 2170  | 2030  | 2500  | 2500    | 2500  | 2500  | 2500  |      |
|                  |       |        |                | 1.125  | 28.58  | 250.81 | 373.58 | 113.77 | 1840                      | 2300  | 2150  | 2500  | 2500    | 2500  | 2500  | 2500  |      |
|                  |       |        |                | 1.188  | 30.15  | 263.85 | 393.00 | 119.68 | 1940                      | 2430  | 2270  | 2500  | 2500    | 2500  | 2500  | 2500  |      |
|                  |       |        |                | 1.250  | 31.75  | 277.01 | 412.61 | 125.65 | 2050                      | 2500  | 2390  | 2500  | 2500    | 2500  | 2500  | 2500  |      |
|                  |       |        |                | 1.312  | 33.32  | 289.88 | 431.78 | 129.22 | 2150                      | 2500  | 2500  | 2500  | 2500    | 2500  | 2500  | 2500  |      |
|                  |       |        |                | 1.375  | 34.92  | 302.88 | 451.14 | 137.39 | 2250                      | 2500  | 2500  | 2500  | 2500    | 2500  | 2500  | 2500  |      |
|                  |       |        | 100            | 1.437  | 36.50  | 315.58 | 470.06 | 143.15 | 2350                      | 2500  | 2500  | 2500  | .....   | ..... | ..... | ..... |      |
|                  |       |        |                | 1.438  | 36.53  | .....  | .....  | .....  | .....                     | ..... | ..... | ..... | 2500    | 2500  | 2500  | 2500  |      |
|                  |       |        |                | 1.500  | 38.10  | 328.41 | 489.17 | 148.97 | 2450                      | 2500  | 2500  | 2500  | 2500    | 2500  | 2500  | 2500  |      |
| 24               | 24    | 609.6  |                | 10     | 0.250  | 6.35   | 63.41  | 94.45  | 28.76                     | 380   | 470   | 440   | 550     | 790   | 860   | 980   | 1050 |
|                  |       |        |                |        | 0.281  | 7.14   | 71.18  | 106.02 | 32.29                     | 420   | 530   | 490   | 610     | 890   | 970   | 1100  | 1180 |
|                  |       |        | 0.312          |        | 7.92   | 78.93  | 117.57 | 35.80  | 470                       | 580   | 550   | 680   | 980     | 1080  | 1220  | 1310  |      |
|                  |       |        | 0.344          |        | 8.74   | 86.91  | 129.45 | 39.42  | 520                       | 640   | 600   | 750   | 1080    | 1190  | 1340  | 1440  |      |
|                  |       |        | 20             | 0.375  | 9.52   | 94.62  | 140.94 | 42.92  | 560                       | 700   | 660   | 820   | 1180    | 1290  | 1460  | 1580  |      |
|                  |       |        |                | 0.406  | 10.31  | 102.31 | 152.39 | 46.41  | .....                     | ..... | ..... | ..... | 1280    | 1400  | 1580  | 1710  |      |
|                  |       |        |                | 0.438  | 11.13  | 110.22 | 164.17 | 50.00  | 660                       | 820   | 770   | 960   | 1380    | 1510  | 1710  | 1840  |      |
|                  |       |        |                | 0.469  | 11.91  | 117.86 | 175.55 | 53.46  | .....                     | ..... | ..... | ..... | 1480    | 1620  | 1830  | 1970  |      |
|                  |       |        | 30             | 0.500  | 12.70  | 125.49 | 186.92 | 56.92  | 750                       | 940   | 880   | 1090  | 1580    | 1720  | 1950  | 2100  |      |
|                  |       |        |                | 0.562  | 14.27  | 140.68 | 209.54 | 63.81  | 840                       | 1050  | 980   | 1230  | 1770    | 1940  | 2190  | 2300  |      |
|                  |       |        |                | 0.625  | 15.88  | 156.03 | 232.41 | 70.78  | 940                       | 1170  | 1090  | 1370  | 1970    | 2160  | 2300  | 2300  |      |
|                  |       |        |                | 0.688  | 17.48  | 171.29 | 255.14 | 77.70  | 1030                      | 1290  | 1200  | 1500  | 2170    | 2300  | 2300  | 2300  |      |
|                  |       |        | 40             | 0.750  | 19.05  | 186.23 | 277.39 | 84.47  | 1120                      | 1410  | 1310  | 1640  | 2300    | 2300  | 2300  | 2300  |      |
|                  |       |        |                | 0.812  | 20.62  | 201.09 | 299.52 | 91.21  | 1220                      | 1520  | 1420  | 1780  | 2300    | 2300  | 2300  | 2300  |      |
|                  |       |        |                | 0.875  | 22.22  | 216.10 | 321.88 | 98.02  | 1310                      | 1640  | 1530  | 1910  | 2300    | 2300  | 2300  | 2300  |      |
|                  |       |        |                | 0.938  | 23.83  | 231.03 | 344.12 | 104.80 | 1410                      | 1760  | 1640  | 2050  | 2300    | 2300  | 2300  | 2300  |      |
|                  |       |        | 100            | 1.000  | 25.40  | 245.64 | 365.88 | 111.42 | 1500                      | 1880  | 1750  | 2190  | 2300    | 2300  | 2300  | 2300  |      |
|                  |       |        |                | 1.062  | 26.97  | 260.12 | 387.52 | 118.01 | 1590                      | 1990  | 1860  | 2300  | 2300    | 2300  | 2300  | 2300  |      |
|                  |       |        |                | 1.125  | 28.58  | 274.84 | 409.37 | 124.65 | 1690                      | 2110  | 1970  | 2300  | 2300    | 2300  | 2300  | 2300  |      |
|                  |       |        |                | 1.187  | 30.15  | 289.20 | 430.76 | 131.18 | 1780                      | 2230  | 2080  | 2300  | .....   | ..... | ..... | ..... |      |
|                  |       |        |                | 1.188  | 30.18  | 289.44 | .....  | .....  | .....                     | ..... | ..... | ..... | 2300    | 2300  | 2300  | 2300  |      |
| 1.250            | 31.75 | 303.71 |                | 452.38 | 137.76 | 1880   | 2300   | 2190   | 2300                      | 2300  | 2300  | 2300  | 2300    |       |       |       |      |
| 1.312            | 33.32 | 317.91 |                | 473.53 | 144.20 | 1970   | 2300   | 2300   | 2300                      | 2300  | 2300  | 2300  | 2300    |       |       |       |      |
| 1.375            | 34.92 | 332.25 |                | 494.89 | 150.71 | 2060   | 2300   | 2300   | 2300                      | 2300  | 2300  | 2300  | 2300    |       |       |       |      |
| 1.437            | 36.50 | 346.28 |                | 515.78 | 157.07 | 2160   | 2300   | 2300   | 2300                      | ..... | ..... | ..... | .....   |       |       |       |      |
| 1.438            | 36.53 | 346.50 |                | .....  | .....  | .....  | .....  | .....  | .....                     | 2300  | 2330  | 2300  | 2300    |       |       |       |      |
| 1.500            | 38.10 | 360.45 |                | 536.89 | 163.50 | 2250   | 2300   | 2300   | 2300                      | 2300  | 2300  | 2300  | 2300    |       |       |       |      |
| 1.562            | 39.67 | 374.31 |                | 557.53 | 169.79 | 2300   | 2300   | 2300   | 2300                      | 2300  | 2300  | 2300  | 2300    |       |       |       |      |
| 26               | 26    | 660.4  | 10             | 0.250  | 6.36   | 68.75  | 102.40 | 31.19  | 350                       | 430   | 400   | 500   | 730     | 800   | 900   | 970   |      |
|                  |       |        |                | 0.281  | 7.14   | 77.18  | 114.96 | 35.01  | 390                       | 490   | 450   | 570   | 820     | 890   | 1010  | 1090  |      |
|                  |       |        |                | 0.312  | 7.92   | 85.60  | 127.50 | 38.83  | 430                       | 540   | 500   | 630   | 910     | 990   | 1120  | 1210  |      |
|                  |       |        |                | 0.344  | 8.74   | 94.26  | 140.40 | 42.76  | 480                       | 600   | 560   | 690   | 1000    | 1100  | 1240  | 1330  |      |
|                  |       |        |                | 0.375  | 9.52   | 102.63 | 152.87 | 46.55  | 520                       | 650   | 610   | 760   | 1090    | 1190  | 1350  | 1450  |      |
|                  |       |        |                | 0.406  | 10.31  | 110.98 | 165.30 | 50.34  | .....                     | ..... | ..... | ..... | 1180    | 1290  | 1460  | 1570  |      |
|                  |       |        | 20             | 0.438  | 11.13  | 119.57 | 178.10 | 54.24  | 610                       | 760   | 710   | 880   | 1270    | 1390  | 1580  | 1700  |      |
|                  |       |        |                | 0.469  | 11.91  | 127.88 | 190.48 | 58.01  | .....                     | ..... | ..... | ..... | 1360    | 1490  | 1690  | 1820  |      |
|                  |       |        |                | 0.500  | 12.70  | 136.17 | 202.83 | 61.77  | 690                       | 870   | 810   | 1010  | 1450    | 1590  | 1800  | 1940  |      |
|                  |       |        |                | 0.562  | 14.27  | 152.68 | 227.42 | 69.26  | 780                       | 970   | 910   | 1130  | 1630    | 1790  | 2000  | 2000  |      |
|                  |       |        |                | 0.625  | 15.88  | 169.38 | 252.29 | 76.83  | 870                       | 1080  | 1010  | 1260  | 1820    | 1990  | 2000  | 2000  |      |
|                  |       |        |                | 0.688  | 17.48  | 185.99 | 277.03 | 84.37  | 950                       | 1190  | 1110  | 1390  | 2000    | 2000  | 2000  | 2000  |      |
|                  |       |        |                | 0.750  | 19.05  | 202.25 | 301.25 | 91.74  | 1040                      | 1300  | 1210  | 1510  | 2000    | 2000  | 2000  | 2000  |      |
|                  |       |        |                | 0.812  | 20.62  | 218.43 | 325.35 | 99.08  | 1120                      | 1410  | 1310  | 1640  | 2000    | 2000  | 2000  | 2000  |      |
|                  |       |        |                | 0.875  | 22.22  | 234.79 | 349.72 | 106.50 | 1210                      | 1510  | 1410  | 1770  | 2000    | 2000  | 2000  | 2000  |      |
|                  |       |        |                | 0.938  | 23.83  | 251.07 | 373.97 | 113.89 | 1300                      | 1620  | 1520  | 1890  | 2000    | 2000  | 2000  | 2000  |      |
|                  |       |        |                | 1.000  | 25.40  | 267.00 | 397.70 | 121.11 | 1380                      | 1730  | 1620  | 2000  | 2000    | 2000  | 2000  | 2000  |      |
| 28               | 28    | 711.2  | 10             | 0.250  | 6.35   | 74.09  | 110.36 | 33.61  | 320                       | 400   | 370   | 470   | 680     | 740   | 840   | 900   |      |
|                  |       |        |                | 0.281  | 7.14   | 83.19  | 123.91 | 37.73  | 360                       | 450   | 420   | 530   | 760     | 830   | 940   | 1010  |      |
|                  |       |        |                | 0.312  | 7.92   | 92.26  | 137.42 | 41.85  | 400                       | 500   | 470   | 580   | 840     | 920   | 1040  | 1120  |      |

# API Pipes (Continued)

| Size             |       |       |                |        |        | Weight |        |        | Hydrostatic Test Pressure |       |       |       |         |      |      |      |
|------------------|-------|-------|----------------|--------|--------|--------|--------|--------|---------------------------|-------|-------|-------|---------|------|------|------|
| Outside Diameter |       |       | Wall Thickness |        |        | lb/ft  | kg/m   | kg/ft  | API 5L                    |       |       |       | API 5LX |      |      |      |
|                  |       |       |                |        |        |        |        |        | A                         |       | B     |       | X42     | X46  | X52  | X56  |
| Nominal Size     | in    | mm    | Sch No         | in     | mm     |        |        |        | Std.                      | Alt.  | Std.  | Alt.  |         |      |      |      |
| 28               | 28    | 711.2 | 20             | 0.344  | 8.74   | 101.61 | 151.35 | 46.09  | .....                     | ..... | ..... | ..... | 930     | 1020 | 1150 | 1240 |
|                  |       |       |                | 0.375  | 9.52   | 110.64 | 164.80 | 50.19  | 480                       | 600   | 560   | 700   | 1010    | 1110 | 1250 | 1350 |
|                  |       |       |                | 0.406  | 10.31  | 119.65 | 178.22 | 54.27  | .....                     | ..... | ..... | ..... | 1100    | 1200 | 1360 | 1450 |
|                  |       |       |                | 0.438  | 11.13  | 128.93 | 192.04 | 58.48  | 560                       | 700   | 660   | 820   | 1180    | 1300 | 1460 | 1580 |
|                  |       |       |                | 0.469  | 11.91  | 137.90 | 205.40 | 62.55  | .....                     | ..... | ..... | ..... | 1270    | 1390 | 1570 | 1690 |
|                  |       |       |                | 0.500  | 12.70  | 146.85 | 218.73 | 66.61  | 640                       | 800   | 750   | 940   | 1350    | 1480 | 1670 | 1800 |
|                  |       |       | 30             | 0.562  | 14.27  | 164.69 | 245.31 | 74.70  | 720                       | 900   | 840   | 1050  | 1520    | 1660 | 1880 | 2020 |
|                  |       |       |                | 0.625  | 15.88  | 182.73 | 272.18 | 82.89  | 800                       | 1000  | 940   | 1170  | 1690    | 1850 | 2090 | 2250 |
|                  |       |       |                | 0.688  | 17.48  | 200.68 | 298.91 | 91.03  | 880                       | 1100  | 1030  | 1290  | 1860    | 2030 | 2300 | 2480 |
|                  |       |       |                | 0.750  | 19.05  | 218.27 | 325.11 | 99.01  | 960                       | 1210  | 1120  | 1410  | 2020    | 2220 | 2510 | 2700 |
|                  |       |       |                | 0.812  | 20.62  | 235.78 | 351.19 | 106.95 | 1040                      | 1300  | 1220  | 1520  | 2190    | 2400 | 2710 | 2920 |
|                  |       |       |                | 0.875  | 22.22  | 253.58 | 377.56 | 114.98 | 1120                      | 1410  | 1310  | 1640  | 2360    | 2590 | 2920 | 3000 |
|                  |       |       |                | 0.938  | 23.83  | 271.10 | 403.80 | 122.97 | 1210                      | 1510  | 1410  | 1760  | 2530    | 2770 | 3000 | 3000 |
|                  |       |       |                | 1.000  | 25.40  | 288.36 | 429.51 | 130.80 | 1290                      | 1610  | 1500  | 1880  | 2700    | 2960 | 3000 | 3000 |
| 30               | 30    | 762.0 | 10             | 0.250  | 6.35   | 79.43  | 118.31 | 36.03  | 300                       | 370   | 350   | 440   | 630     | 690  | 780  | 840  |
|                  |       |       |                | 0.281  | 7.14   | 89.19  | 132.85 | 40.46  | 340                       | 420   | 390   | 490   | 710     | 780  | 880  | 940  |
|                  |       |       |                | 0.312  | 7.92   | 98.93  | 147.36 | 44.87  | 370                       | 470   | 440   | 550   | 790     | 860  | 970  | 1050 |
|                  |       |       |                | 0.344  | 8.74   | 108.95 | 162.28 | 49.42  | .....                     | ..... | ..... | ..... | 870     | 950  | 1070 | 1160 |
|                  |       |       |                | 0.375  | 9.52   | 118.65 | 176.73 | 53.82  | 450                       | 560   | 520   | 660   | 940     | 1040 | 1170 | 1260 |
|                  |       |       |                | 0.406  | 10.31  | 128.32 | 191.13 | 58.21  | .....                     | ..... | ..... | ..... | 1020    | 1120 | 1270 | 1360 |
|                  |       |       | 20             | 0.438  | 11.13  | 138.29 | 205.98 | 62.73  | 530                       | 660   | 610   | 770   | 1100    | 1210 | 1370 | 1470 |
|                  |       |       |                | 0.469  | 11.91  | 147.92 | 220.33 | 67.10  | .....                     | ..... | ..... | ..... | 1180    | 1290 | 1460 | 1580 |
|                  |       |       |                | 0.500  | 12.70  | 157.53 | 234.64 | 71.46  | 600                       | 750   | 700   | 880   | 1260    | 1380 | 1560 | 1680 |
|                  |       |       |                | 0.562  | 14.27  | 176.69 | 263.18 | 80.15  | 670                       | 840   | 790   | 980   | 1420    | 1550 | 1750 | 1890 |
|                  |       | 30    | 0.625          | 15.88  | 196.08 | 292.06 | 88.94  | 750    | 940                       | 880   | 1090  | 1580  | 1720    | 1950 | 2100 |      |
|                  |       |       | 0.688          | 17.48  | 215.38 | 320.81 | 97.70  | 830    | 1030                      | 960   | 1200  | 1730  | 1900    | 2150 | 2310 |      |
|                  |       |       | 0.750          | 19.05  | 234.29 | 348.97 | 106.27 | 900    | 1120                      | 1060  | 1310  | 1890  | 2070    | 2340 | 2520 |      |
|                  |       |       | 0.812          | 20.62  | 253.12 | 377.02 | 114.82 | 970    | 1220                      | 1140  | 1420  | 2050  | 2240    | 2530 | 2730 |      |
|                  |       |       | 0.875          | 22.22  | 272.17 | 405.40 | 123.46 | 1050   | 1310                      | 1220  | 1530  | 2200  | 2420    | 2730 | 2940 |      |
|                  |       |       | 0.938          | 23.83  | 291.14 | 433.65 | 132.06 | 1130   | 1410                      | 1310  | 1640  | 2360  | 2590    | 2930 | 3000 |      |
|                  |       |       | 1.000          | 25.40  | 309.72 | 461.33 | 140.49 | 1200   | 1500                      | 1400  | 1750  | 2520  | 2760    | 3000 | 3000 |      |
|                  |       |       | 1.062          | 26.97  | 328.22 | 488.88 | 148.88 | 1270   | 1590                      | 1490  | 1860  | 2680  | 2930    | 3000 | 3000 |      |
|                  |       |       | 1.125          | 28.58  | 346.93 | 516.75 | 157.37 | 1350   | 1690                      | 1580  | 1970  | 2840  | 3000    | 3000 | 3000 |      |
|                  |       |       | 1.188          | 30.18  | 365.56 | 544.60 | 165.82 | 1430   | 1780                      | 1660  | 2080  | 2990  | 3000    | 3000 | 3000 |      |
|                  |       |       | 1.250          | 31.75  | 383.81 | 571.68 | 174.10 | 1500   | 1880                      | 1750  | 2190  | 3000  | 3000    | 3000 | 3000 |      |
| 32               | 32    | 812.8 | 10             | 0.250  | 6.35   | 84.77  | 126.26 | 38.45  | 280                       | 350   | 330   | 410   | 590     | 650  | 730  | 790  |
|                  |       |       |                | 0.281  | 7.14   | 95.19  | 141.79 | 43.18  | 320                       | 400   | 370   | 460   | 660     | 730  | 820  | 890  |
|                  |       |       |                | 0.312  | 7.92   | 105.59 | 157.28 | 47.90  | 350                       | 440   | 410   | 510   | 740     | 810  | 910  | 980  |
|                  |       |       |                | 0.344  | 8.74   | 116.30 | 173.23 | 52.75  | .....                     | ..... | ..... | ..... | 810     | 890  | 1010 | 1080 |
|                  |       |       |                | 0.375  | 9.52   | 126.66 | 188.66 | 57.45  | 420                       | 530   | 490   | 620   | 890     | 970  | 1100 | 1180 |
|                  |       |       |                | 0.406  | 10.31  | 136.99 | 204.05 | 62.14  | .....                     | ..... | ..... | ..... | 960     | 1050 | 1190 | 1280 |
|                  |       |       |                | 0.438  | 11.13  | 147.64 | 219.91 | 66.97  | 490                       | 620   | 570   | 720   | 1030    | 1130 | 1280 | 1380 |
|                  |       |       |                | 0.469  | 11.91  | 157.94 | 235.25 | 71.64  | .....                     | ..... | ..... | ..... | 1110    | 1210 | 1370 | 1480 |
|                  |       |       |                | 0.500  | 12.70  | 168.21 | 250.55 | 76.30  | 560                       | 700   | 660   | 820   | 1180    | 1290 | 1460 | 1580 |
|                  |       |       |                | 0.562  | 14.27  | 188.70 | 281.07 | 85.58  | 530                       | 790   | 740   | 920   | 1330    | 1450 | 1640 | 1770 |
|                  |       |       | 20             | 0.625  | 15.88  | 209.43 | 311.95 | 95.00  | 700                       | 880   | 820   | 1030  | 1480    | 1620 | 1830 | 1970 |
|                  |       |       |                | 0.688  | 17.48  | 230.08 | 342.70 | 104.36 | 770                       | 970   | 900   | 1130  | 1630    | 1780 | 2010 | 2170 |
|                  |       |       |                | 0.750  | 19.05  | 250.31 | 372.84 | 113.54 | 840                       | 1050  | 980   | 1230  | 1770    | 1940 | 2190 | 2360 |
|                  |       |       |                | 0.812  | 20.62  | 270.47 | 402.87 | 122.69 | 910                       | 1140  | 1070  | 1330  | 1920    | 2100 | 2380 | 2560 |
|                  |       |       |                | 0.875  | 22.22  | 290.86 | 433.24 | 131.93 | 980                       | 1230  | 1150  | 1440  | 2070    | 2260 | 2560 | 2760 |
|                  |       |       |                | 0.938  | 23.83  | 311.17 | 463.49 | 141.15 | 1060                      | 1320  | 1230  | 1540  | 2220    | 2430 | 2740 | 2950 |
|                  |       |       |                | 1.000  | 25.40  | 331.08 | 493.14 | 150.18 | 1120                      | 1410  | 1310  | 1640  | 2360    | 2590 | 2920 | 3000 |
|                  |       |       |                | 1.062  | 26.97  | 350.90 | 522.74 | 159.17 | 1190                      | 1490  | 1390  | 1740  | 2510    | 2750 | 3000 | 3000 |
| 30               | 1.125 | 28.58 | 370.96         | 552.54 | 168.27 | 1270   | 1580   | 1480   | 1850                      | 2660  | 2910  | 3000  | 3000    |      |      |      |
|                  | 1.188 | 30.18 | 390.94         | 582.31 | 177.33 | 1340   | 1670   | 1560   | 1950                      | 2810  | 3000  | 3000  | 3000    |      |      |      |
|                  | 1.250 | 31.75 | 410.51         | 611.45 | 186.21 | 1410   | 1760   | 1640   | 2050                      | 2950  | 3000  | 3000  | 3000    |      |      |      |
|                  | 34    | 34    | 863.6          | 10     | 0.250  | 6.35   | 90.11  | 134.22 | 40.87                     | 260   | 330   | 310   | 390     | 560  | 610  | 690  |
| 0.281            |       |       |                |        | 7.14   | 101.19 | 150.72 | 45.90  | 300                       | 370   | 350   | 430   | 620     | 680  | 770  | 830  |
| 0.312            |       |       |                |        | 7.92   | 112.25 | 167.20 | 50.92  | 330                       | 410   | 390   | 480   | 690     | 760  | 860  | 920  |
| 0.344            |       |       |                |        | 8.74   | 123.65 | 184.18 | 56.09  | .....                     | ..... | ..... | ..... | 760     | 840  | 950  | 1020 |
| 0.375            |       |       |                |        | 9.52   | 134.67 | 200.59 | 61.09  | 400                       | 500   | 460   | 580   | 830     | 910  | 1030 | 1110 |
| 0.406            |       |       |                |        | 10.31  | 145.67 | 216.98 | 66.08  | .....                     | ..... | ..... | ..... | 900     | 990  | 1120 | 1200 |
| 0.438            |       |       |                |        | 11.13  | 157.00 | 233.85 | 71.22  | 460                       | 580   | 540   | 680   | 970     | 1070 | 1210 | 1300 |
| 0.469            |       |       |                |        | 11.91  | 167.95 | 250.16 | 76.18  | .....                     | ..... | ..... | ..... | 1040    | 1140 | 1290 | 1390 |
| 0.500            |       |       |                |        | 12.70  | 178.89 | 266.46 | 81.14  | 530                       | 660   | 620   | 770   | 1110    | 1220 | 1380 | 1480 |
| 0.562            |       |       |                |        | 14.27  | 200.70 | 298.94 | 91.04  | 600                       | 740   | 690   | 870   | 1250    | 1370 | 1550 | 1670 |
| 20               |       |       |                | 0.625  | 15.88  | 222.78 | 331.83 | 101.05 | 660                       | 830   | 770   | 970   | 1390    | 1520 | 1720 | 1850 |
|                  |       |       |                | 0.688  | 17.48  | 244.77 | 364.58 | 111.03 | 730                       | 910   | 850   | 1060  | 1530    | 1680 | 1890 | 2040 |
|                  |       |       |                | 0.750  | 19.05  | 266.32 | 396.70 | 120.81 | 790                       | 990   | 930   | 1160  | 1670    | 1830 | 2060 | 2220 |
|                  |       |       |                | 0.812  | 20.62  | 287.81 | 428.69 | 130.55 | 860                       | 1070  | 1000  | 1250  | 1810    | 1980 | 2240 | 2410 |

# API Pipes (Continued)

| Size             |       |        |                |       |        | Weight |        |        | Hydrostatic Test Pressure |        |       |       |         |      |      |      |      |      |
|------------------|-------|--------|----------------|-------|--------|--------|--------|--------|---------------------------|--------|-------|-------|---------|------|------|------|------|------|
| Outside Diameter |       |        | Wall Thickness |       |        | lb/ft  | kg/m   | kg/ft  | API 5L                    |        |       |       | API 5LX |      |      |      |      |      |
|                  |       |        |                |       |        |        |        |        | A                         |        | B     |       | X42     | X46  | X52  | X56  |      |      |
| Nominal Size     | in    | mm     | Sch No         | in    | mm     |        |        |        | Std.                      | Alt.   | Std.  | Alt.  |         |      |      |      |      |      |
| 34               | 34    | 863.6  |                | 0.875 | 22.22  | 309.55 | 461.07 | 140.41 | 930                       | 1160   | 1080  | 1350  | 1950    | 2130 | 2410 | 2590 |      |      |
|                  |       |        |                | 0.938 | 23.83  | 331.21 | 493.34 | 150.24 | 990                       | 1240   | 1160  | 1450  | 2090    | 2280 | 2580 | 2780 |      |      |
|                  |       |        |                | 1.000 | 25.40  | 352.44 | 524.96 | 162.13 | 1060                      | 1320   | 1240  | 1540  | 2220    | 2440 | 2750 | 2960 |      |      |
|                  |       |        |                | 1.062 | 26.97  | 373.59 | 556.46 | 169.46 | 1120                      | 1410   | 1310  | 1650  | 2360    | 2590 | 2920 | 3000 |      |      |
|                  |       |        |                | 1.125 | 28.58  | 394.99 | 588.34 | 179.17 | 1190                      | 1490   | 1390  | 1740  | 2500    | 2740 | 3000 | 3000 |      |      |
|                  |       |        |                | 1.188 | 30.18  | 416.31 | 620.09 | 188.84 | 1260                      | 1570   | 1470  | 1830  | 2640    | 2890 | 3000 | 3000 |      |      |
|                  |       |        |                | 1.250 | 31.75  | 437.21 | 651.22 | 198.32 | 1320                      | 1650   | 1540  | 1930  | 2780    | 3000 | 3000 | 3000 |      |      |
| 36               | 36    | 914.4  | 10             |       | 0.250  | 6.35   | 95.45  | 142.17 | 43.30                     | 250    | 310   | 290   | 360     | 520  | 580  | 650  | 700  |      |
|                  |       |        |                |       | 0.281  | 7.14   | 107.20 | 159.67 | 48.63                     | 280    | 350   | 330   | 410     | 590  | 650  | 730  | 790  |      |
|                  |       |        |                |       | 0.312  | 7.92   | 118.92 | 177.13 | 53.94                     | 310    | 390   | 360   | 450     | 660  | 720  | 810  | 870  |      |
|                  |       |        |                |       | 0.344  | 8.74   | 131.00 | 195.12 | 59.42                     | .....  | ..... | ..... | .....   | 720  | 790  | 890  | 960  |      |
|                  |       |        |                |       | 0.375  | 9.52   | 142.68 | 212.52 | 64.72                     | 380    | 470   | 440   | 550     | 790  | 860  | 980  | 1050 |      |
|                  |       |        |                |       | 0.406  | 10.31  | 154.34 | 229.89 | 70.01                     | .....  | ..... | ..... | .....   | 850  | 930  | 1060 | 1140 |      |
|                  |       |        |                |       | 0.438  | 11.13  | 166.35 | 247.78 | 75.46                     | 440    | 550   | 510   | 640     | 920  | 1010 | 1140 | 1230 |      |
|                  |       |        |                |       | 0.469  | 11.91  | 177.97 | 265.09 | 80.73                     | .....  | ..... | ..... | .....   | 980  | 1080 | 1220 | 1310 |      |
|                  |       |        | 20             |       | 0.500  | 12.70  | 189.57 | 282.36 | 85.99                     | 500    | 620   | 580   | 730     | 1050 | 1150 | 1300 | 1400 |      |
|                  |       |        |                |       | 0.562  | 14.27  | 212.70 | 316.82 | 96.48                     | 560    | 700   | 660   | 820     | 1180 | 1290 | 1460 | 1570 |      |
|                  |       |        |                | 30    |        | 0.625  | 15.88  | 236.12 | 351.72                    | 107.11 | 620   | 780   | 730     | 910  | 1310 | 1440 | 1620 | 1750 |
|                  |       |        |                |       |        | 0.688  | 17.48  | 259.42 | 386.48                    | 117.70 | 690   | 860   | 800     | 1000 | 1440 | 1580 | 1790 | 1930 |
|                  |       |        |                |       | 0.750  | 19.05  | 282.35 | 420.56 | 128.07                    | 750    | 940   | 880   | 1090    | 1580 | 1720 | 1950 | 2100 |      |
|                  |       |        |                |       | 0.812  | 20.62  | 305.16 | 454.54 | 138.42                    | 810    | 1020  | 950   | 1180    | 1710 | 1870 | 2110 | 2270 |      |
|                  |       |        |                |       | 0.875  | 22.22  | 328.24 | 488.91 | 148.89                    | 880    | 1090  | 1020  | 1280    | 1840 | 2010 | 2280 | 2450 |      |
|                  |       |        |                |       | 0.938  | 23.83  | 351.25 | 523.19 | 159.33                    | 940    | 1170  | 1090  | 1370    | 1970 | 2160 | 2440 | 2630 |      |
|                  |       |        |                |       | 1.000  | 25.40  | 373.80 | 556.78 | 169.56                    | 1000   | 1250  | 1170  | 1460    | 2100 | 2300 | 2600 | 2800 |      |
|                  |       |        |                |       | 1.062  | 26.97  | 396.27 | 590.24 | 179.75                    | 1060   | 1330  | 1240  | 1550    | 2230 | 2440 | 2760 | 2970 |      |
|                  |       |        | 40             |       | 1.125  | 28.68  | 419.02 | 624.13 | 190.07                    | 1130   | 1410  | 1310  | 1640    | 2360 | 2590 | 2930 | 3000 |      |
|                  |       |        |                |       | 1.188  | 30.18  | 441.69 | 657.90 | 200.35                    | 1190   | 1480  | 1390  | 1730    | 2490 | 2730 | 3000 | 3000 |      |
|                  |       |        |                |       | 1.250  | 31.75  | 463.91 | 690.99 | 210.43                    | 1250   | 1560  | 1460  | 1820    | 2630 | 2870 | 3000 | 3000 |      |
|                  |       |        |                |       |        |        |        |        |                           |        |       |       |         |      |      |      |      |      |
|                  |       |        |                |       | 0.312  | 7.92   | 125.58 | 187.05 | 56.96                     | 300    | 370   | 340   | 430     | 620  | 680  | 770  | 830  |      |
|                  |       |        |                |       | 0.344  | 8.74   | 138.35 | 206.07 | 62.76                     | 330    | 410   | 380   | 480     | 680  | 750  | 850  | 910  |      |
|                  |       |        |                |       | 0.375  | 9.52   | 150.69 | 224.45 | 68.35                     | 360    | 440   | 410   | 520     | 750  | 820  | 920  | 990  |      |
|                  |       |        |                |       | 0.406  | 10.31  | 163.01 | 242.80 | 73.94                     | 380    | 480   | 450   | 560     | 810  | 880  | 1000 | 1080 |      |
| 38               | 38    | 965.2  |                | 0.438 | 11.13  | 175.71 | 261.72 | 79.70  | 410                       | 520    | 480   | 610   | 870     | 950  | 1080 | 1160 |      |      |
|                  |       |        |                | 0.469 | 11.91  | 187.99 | 280.01 | 85.27  | 440                       | 560    | 520   | 650   | 930     | 1020 | 1160 | 1240 |      |      |
|                  |       |        |                | 0.500 | 12.70  | 200.25 | 298.27 | 90.83  | 470                       | 590    | 550   | 690   | 990     | 1090 | 1230 | 1330 |      |      |
|                  |       |        |                | 0.562 | 14.27  | 224.71 | 334.71 | 101.93 | 530                       | 670    | 620   | 780   | 1120    | 1220 | 1380 | 1490 |      |      |
|                  |       |        |                | 0.625 | 15.88  | 249.48 | 371.60 | 113.16 | 590                       | 740    | 690   | 860   | 1240    | 1360 | 1540 | 1560 |      |      |
|                  |       |        |                | 0.688 | 17.48  | 274.16 | 408.36 | 124.36 | 650                       | 810    | 760   | 950   | 1370    | 1500 | 1690 | 1830 |      |      |
|                  |       |        |                | 0.750 | 19.05  | 298.37 | 444.42 | 135.34 | 710                       | 890    | 830   | 1040  | 1490    | 1630 | 1850 | 1990 |      |      |
|                  |       |        |                | 0.812 | 20.62  | 322.50 | 480.36 | 146.29 | 770                       | 960    | 900   | 1120  | 1620    | 1770 | 2000 | 2150 |      |      |
|                  |       |        |                | 0.875 | 22.22  | 346.93 | 516.75 | 157.37 | 830                       | 1040   | 970   | 1210  | 1740    | 1910 | 2160 | 2320 |      |      |
|                  |       |        |                | 0.938 | 23.83  | 371.28 | 553.02 | 168.41 | 890                       | 1110   | 1040  | 1300  | 1870    | 2040 | 2310 | 2490 |      |      |
|                  |       |        |                | 1.000 | 25.40  | 395.16 | 588.59 | 179.24 | 950                       | 1180   | 1110  | 1380  | 1990    | 2180 | 2460 | 2650 |      |      |
|                  |       |        |                | 1.062 | 26.97  | 418.96 | 624.04 | 190.04 | 1010                      | 1260   | 1170  | 1470  | 2110    | 2310 | 2620 | 2820 |      |      |
|                  |       |        |                | 1.125 | 28.58  | 443.05 | 659.92 | 200.97 | 1070                      | 1330   | 1240  | 1550  | 2240    | 2450 | 2770 | 2980 |      |      |
|                  |       |        |                | 1.188 | 30.18  | 467.06 | 695.69 | 211.86 | 1130                      | 1410   | 1310  | 1640  | 2360    | 2590 | 2930 | 3000 |      |      |
|                  |       |        |                | 1.250 | 31.75  | 490.61 | 730.76 | 222.54 | 1180                      | 1480   | 1380  | 1730  | 2490    | 2720 | 3000 | 3000 |      |      |
|                  |       |        |                |       |        |        |        |        |                           |        |       |       |         |      |      |      |      |      |
|                  |       |        | 40             | 40    | 1016.0 |        | 0.312  | 7.92   | 132.25                    | 196.99 | 59.99 | 280   | 350     | 330  | 410  | 590  | 650  | 730  |
|                  | 0.344 | 8.74   |                |       |        | 145.69 | 217.01 | 66.08  | 310                       | 390    | 360   | 450   | 650     | 710  | 800  | 870  |      |      |
|                  | 0.375 | 9.52   |                |       |        | 158.70 | 236.38 | 71.99  | 340                       | 420    | 390   | 490   | 710     | 780  | 880  | 940  |      |      |
|                  | 0.406 | 10.31  |                |       |        | 171.68 | 255.72 | 77.87  | 370                       | 460    | 430   | 530   | 770     | 840  | 950  | 1020 |      |      |
|                  | 0.438 | 11.13  |                |       |        | 185.06 | 275.65 | 83.94  | 390                       | 490    | 460   | 570   | 830     | 910  | 1020 | 1100 |      |      |
|                  | 0.469 | 11.91  |                |       |        | 198.01 | 294.94 | 89.82  | 420                       | 530    | 490   | 620   | 890     | 970  | 1100 | 1180 |      |      |
|                  | 0.500 | 12.70  |                |       |        | 210.93 | 314.18 | 95.68  | 450                       | 560    | 520   | 660   | 940     | 1040 | 1170 | 1260 |      |      |
|                  | 0.562 | 14.27  |                |       |        | 236.71 | 352.58 | 107.37 | 510                       | 630    | 590   | 740   | 1060    | 1160 | 1320 | 1420 |      |      |
|                  | 0.625 | 15.88  |                |       |        | 262.83 | 391.49 | 119.22 | 560                       | 700    | 660   | 820   | 1180    | 1290 | 1460 | 1580 |      |      |
|                  | 0.688 | 17.48  |                |       |        | 288.86 | 430.25 | 131.03 | 620                       | 770    | 720   | 900   | 1300    | 1420 | 1610 | 1730 |      |      |
|                  | 0.750 | 19.05  |                |       |        | 314.39 | 468.28 | 142.61 | 680                       | 840    | 790   | 980   | 1420    | 1550 | 1760 | 1890 |      |      |
|                  | 0.812 | 20.62  |                |       |        | 339.84 | 506.19 | 154.15 | 730                       | 910    | 850   | 1070  | 1530    | 1680 | 1900 | 2050 |      |      |
|                  | 0.875 | 22.22  |                |       |        | 365.62 | 544.59 | 165.85 | 790                       | 980    | 920   | 1150  | 1650    | 1810 | 2050 | 2200 |      |      |
|                  | 0.938 | 23.83  |                |       |        | 391.32 | 582.87 | 177.50 | 840                       | 1060   | 980   | 1230  | 1770    | 1940 | 2190 | 2360 |      |      |
|                  | 1.000 | 25.40  |                |       |        | 416.52 | 620.41 | 188.93 | 900                       | 1120   | 1050  | 1310  | 1890    | 2070 | 2340 | 2520 |      |      |
|                  | 1.062 | 26.97  |                |       |        | 441.64 | 657.82 | 200.33 | 960                       | 1190   | 1120  | 1390  | 2010    | 2200 | 2490 | 2680 |      |      |
|                  | 1.125 | 28.58  |                |       |        | 467.08 | 695.72 | 211.87 | 1010                      | 1270   | 1180  | 1480  | 2130    | 2330 | 2630 | 2830 |      |      |
| 42               | 42    | 1066.8 |                | 1.188 | 30.18  | 492.44 | 733.49 | 223.37 | 1070                      | 1340   | 1250  | 1560  | 2250    | 2460 | 2780 | 2990 |      |      |
|                  |       |        |                | 1.250 | 31.75  | 517.31 | 770.53 | 234.65 | 1130                      | 1410   | 1310  | 1640  | 2360    | 2590 | 2930 | 3000 |      |      |
|                  |       |        |                |       |        |        |        |        |                           |        |       |       |         |      |      |      |      |      |
| 42               | 42    | 1066.8 |                | 0.344 | 8.74   | 153.04 | 227.95 | 69.42  | 290                       | 370    | 340   | 430   | 620     | 680  | 770  | 830  |      |      |
|                  |       |        |                | 0.375 | 9.52   | 166.71 | 248.31 | 75.62  | 320                       | 400    | 380   | 470   | 680     | 740  | 840  | 900  |      |      |
|                  |       |        |                | 0.406 | 10.31  | 180.35 | 268.63 | 81.81  | 350                       | 430    | 410   | 510   | 730     | 800  | 900  | 970  |      |      |
|                  |       |        |                | 0.438 | 11.13  | 194.42 | 289.59 | 88.19  | 380                       | 470    | 440   | 550   | 790     | 860  | 980  | 1060 |      |      |

# API Pipes (Continued)

| Size             |    |        |                |       |       | Weight |        |        | Hydrostatic Test Pressure |      |      |      |         |      |      |      |
|------------------|----|--------|----------------|-------|-------|--------|--------|--------|---------------------------|------|------|------|---------|------|------|------|
| Outside Diameter |    |        | Wall Thickness |       |       | lb/ft  | kg/m   | kg/ft  | API 5L                    |      |      |      | API 5LX |      |      |      |
|                  |    |        |                |       |       |        |        |        | A                         |      | B    |      | X42     | X46  | X52  | X56  |
| Nominal Size     | in | mm     | Sch No         | in    | mm    |        |        |        | Std.                      | Alt. | Std. | Alt. |         |      |      |      |
| 42               | 42 | 1066.8 |                | 0.469 | 11.91 | 208.03 | 309.86 | 94.36  | 400                       | 500  | 470  | 590  | 840     | 920  | 1050 | 1130 |
|                  |    |        |                | 0.500 | 12.70 | 221.61 | 330.09 | 100.52 | 430                       | 540  | 500  | 520  | 900     | 990  | 1110 | 1200 |
|                  |    |        |                | 0.562 | 14.27 | 248.72 | 370.47 | 112.82 | 480                       | 600  | 560  | 700  | 1010    | 1110 | 1250 | 1350 |
|                  |    |        |                | 0.625 | 15.88 | 276.18 | 411.37 | 125.28 | 540                       | 670  | 620  | 780  | 1120    | 1230 | 1390 | 1500 |
|                  |    |        |                | 0.688 | 17.48 | 303.55 | 452.14 | 137.69 | 590                       | 740  | 690  | 860  | 1240    | 1360 | 1530 | 1650 |
|                  |    |        |                | 0.750 | 19.05 | 330.41 | 492.15 | 149.87 | 640                       | 800  | 750  | 940  | 1350    | 1480 | 1670 | 1800 |
|                  |    |        |                | 0.812 | 20.62 | 357.19 | 532.03 | 162.02 | 700                       | 870  | 810  | 1020 | 1460    | 1600 | 1810 | 1950 |
|                  |    |        |                | 0.876 | 22.22 | 384.31 | 572.43 | 174.32 | 750                       | 940  | 880  | 1090 | 1580    | 1720 | 1950 | 2100 |
|                  |    |        |                | 0.938 | 23.83 | 411.35 | 612.71 | 186.59 | 800                       | 1000 | 940  | 1170 | 1690    | 1850 | 2090 | 2250 |
|                  |    |        |                | 1.000 | 25.40 | 437.88 | 652.22 | 198.62 | 860                       | 1070 | 1000 | 1250 | 1800    | 1970 | 2230 | 2400 |
|                  |    |        |                | 1.062 | 26.97 | 464.32 | 691.60 | 210.62 | 910                       | 1140 | 1060 | 1330 | 1910    | 2090 | 2370 | 2550 |
|                  |    |        |                | 1.125 | 28.58 | 491.11 | 731.51 | 222.77 | 960                       | 1210 | 1130 | 1410 | 2030    | 2220 | 2510 | 2700 |
|                  |    |        |                | 1.188 | 30.18 | 517.82 | 771.29 | 234.88 | 1020                      | 1270 | 1190 | 1480 | 2140    | 240  | 2650 | 2850 |
|                  |    |        |                | 1.250 | 31.75 | 544.01 | 810.30 | 246.76 | 1070                      | 1340 | 1250 | 1560 | 2250    | 2460 | 2790 | 3000 |
| 44               | 44 | 1117.6 |                | 0.344 | 8.74  | 160.39 | 238.90 | 72.75  | 280                       | 350  | 330  | 410  | 590     | 650  | 730  | 790  |
|                  |    |        |                | 0.375 | 9.52  | 174.72 | 260.25 | 79.26  | 310                       | 380  | 360  | 450  | 640     | 710  | 800  | 860  |
|                  |    |        |                | 0.406 | 10.31 | 189.03 | 281.56 | 85.74  | 330                       | 420  | 390  | 480  | 700     | 760  | 860  | 930  |
|                  |    |        |                | 0.438 | 11.13 | 203.78 | 303.53 | 92.43  | 360                       | 450  | 420  | 520  | 750     | 820  | 930  | 1000 |
|                  |    |        |                | 0.469 | 11.91 | 218.04 | 324.77 | 98.90  | 380                       | 480  | 450  | 560  | 810     | 880  | 1000 | 1070 |
|                  |    |        |                | 0.500 | 12.70 | 232.29 | 346.00 | 105.37 | 410                       | 510  | 480  | 600  | 860     | 940  | 1060 | 1150 |
|                  |    |        |                | 0.562 | 14.27 | 260.72 | 388.34 | 118.26 | 460                       | 570  | 540  | 670  | 970     | 1060 | 1200 | 1290 |
|                  |    |        |                | 0.625 | 15.88 | 289.53 | 431.25 | 131.33 | 510                       | 640  | 600  | 750  | 1070    | 1180 | 1330 | 1430 |
|                  |    |        |                | 0.688 | 17.48 | 318.25 | 474.03 | 144.36 | 560                       | 700  | 660  | 820  | 1180    | 1290 | 1460 | 1580 |
|                  |    |        |                | 0.750 | 19.05 | 346.43 | 516.01 | 157.14 | 610                       | 770  | 720  | 890  | 1290    | 1410 | 1600 | 1720 |
|                  |    |        |                | 0.812 | 20.62 | 374.53 | 557.86 | 169.89 | 660                       | 830  | 780  | 970  | 1400    | 1530 | 1730 | 1860 |
|                  |    |        |                | 0.875 | 22.22 | 403.00 | 600.27 | 182.80 | 720                       | 890  | 840  | 1040 | 1500    | 1650 | 1860 | 2000 |
|                  |    |        |                | 0.938 | 23.83 | 431.39 | 642.56 | 195.68 | 770                       | 960  | 900  | 1120 | 1610    | 1770 | 2000 | 2150 |
|                  |    |        |                | 1.000 | 25.40 | 459.24 | 684.04 | 208.31 | 820                       | 1020 | 950  | 1190 | 1720    | 1880 | 2130 | 2290 |
|                  |    |        |                | 1.062 | 26.97 | 487.01 | 725.40 | 220.92 | 870                       | 1090 | 1010 | 1270 | 1820    | 2000 | 2260 | 2430 |
|                  |    |        |                | 1.125 | 28.58 | 515.14 | 767.30 | 233.67 | 920                       | 1150 | 1070 | 1340 | 1930    | 2120 | 2390 | 2580 |
|                  |    |        |                | 1.188 | 30.18 | 543.19 | 809.08 | 246.39 | 970                       | 1210 | 1130 | 1420 | 2040    | 2240 | 2530 | 2720 |
|                  |    |        |                | 1.250 | 31.75 | 570.71 | 850.07 | 258.87 | 1020                      | 1280 | 1190 | 1490 | 2150    | 2350 | 2660 | 2860 |
| 46               | 46 | 1168.4 |                | 0.344 | 8.74  | 167.74 | 249.85 | 76.09  | 270                       | 340  | 310  | 390  | 570     | 620  | 700  | 750  |
|                  |    |        |                | 0.375 | 9.52  | 182.73 | 272.18 | 82.89  | 290                       | 370  | 340  | 430  | 630     | 680  | 760  | 820  |
|                  |    |        |                | 0.406 | 10.31 | 197.70 | 294.47 | 89.68  | 320                       | 400  | 370  | 460  | 670     | 730  | 830  | 890  |
|                  |    |        |                | 0.438 | 11.13 | 213.13 | 317.46 | 96.68  | 340                       | 430  | 400  | 500  | 720     | 790  | 890  | 960  |
|                  |    |        |                | 0.469 | 11.91 | 228.06 | 339.70 | 103.45 | 370                       | 460  | 430  | 540  | 770     | 840  | 950  | 1030 |
|                  |    |        |                | 0.500 | 12.70 | 242.97 | 361.90 | 110.21 | 390                       | 490  | 460  | 570  | 820     | 900  | 1020 | 1100 |
|                  |    |        |                | 0.562 | 14.27 | 272.73 | 406.23 | 123.71 | 440                       | 550  | 510  | 640  | 920     | 1010 | 1140 | 1230 |
|                  |    |        |                | 0.625 | 15.88 | 302.88 | 451.14 | 137.39 | 490                       | 610  | 570  | 710  | 1030    | 1120 | 1270 | 1370 |
|                  |    |        |                | 0.688 | 17.48 | 332.95 | 495.93 | 151.03 | 540                       | 670  | 630  | 790  | 1130    | 1240 | 1400 | 1510 |
|                  |    |        |                | 0.750 | 19.05 | 362.45 | 539.87 | 164.41 | 590                       | 730  | 680  | 860  | 1230    | 1350 | 1530 | 1640 |
|                  |    |        |                | 0.812 | 20.62 | 391.88 | 583.71 | 177.76 | 640                       | 790  | 740  | 930  | 1330    | 1460 | 1650 | 1780 |
|                  |    |        |                | 0.875 | 22.22 | 421.69 | 628.11 | 191.28 | 680                       | 860  | 800  | 1000 | 1440    | 1580 | 1780 | 1920 |
|                  |    |        |                | 0.938 | 23.83 | 451.42 | 672.39 | 204.76 | 730                       | 920  | 860  | 1070 | 1540    | 1690 | 1910 | 2060 |
|                  |    |        |                | 1.000 | 25.40 | 480.60 | 715.85 | 218.00 | 780                       | 980  | 910  | 1140 | 1640    | 1800 | 2030 | 2190 |
|                  |    |        |                | 1.062 | 26.97 | 509.69 | 759.18 | 231.20 | 830                       | 1040 | 970  | 1210 | 1750    | 1910 | 2160 | 2330 |
|                  |    |        |                | 1.125 | 28.58 | 539.17 | 803.09 | 244.57 | 880                       | 1100 | 1030 | 1280 | 1850    | 2020 | 2290 | 2470 |
|                  |    |        |                | 1.188 | 30.18 | 568.57 | 846.89 | 257.90 | 930                       | 1160 | 1080 | 1360 | 1950    | 2140 | 2420 | 2600 |
|                  |    |        |                | 1.250 | 31.75 | 597.41 | 889.84 | 270.99 | 980                       | 1220 | 1140 | 1430 | 2050    | 2250 | 2540 | 2740 |
| 48               | 48 | 1219.2 |                | 0.344 | 8.74  | 175.08 | 260.78 | 79.42  | 260                       | 320  | 300  | 380  | 540     | 590  | 670  | 720  |
|                  |    |        |                | 0.375 | 9.52  | 190.74 | 284.11 | 86.52  | 280                       | 350  | 330  | 410  | 590     | 650  | 730  | 790  |
|                  |    |        |                | 0.406 | 10.31 | 206.37 | 307.39 | 93.61  | 300                       | 380  | 360  | 440  | 640     | 700  | 790  | 850  |
|                  |    |        |                | 0.438 | 11.13 | 222.49 | 331.40 | 100.92 | 330                       | 410  | 380  | 480  | 690     | 760  | 850  | 920  |
|                  |    |        |                | 0.469 | 11.91 | 238.08 | 354.62 | 107.99 | 350                       | 440  | 410  | 510  | 740     | 810  | 910  | 980  |
|                  |    |        |                | 0.500 | 12.70 | 254.65 | 377.81 | 115.06 | 380                       | 470  | 440  | 550  | 790     | 860  | 980  | 1050 |
|                  |    |        |                | 0.562 | 14.27 | 284.73 | 424.11 | 129.15 | 420                       | 530  | 490  | 610  | 890     | 970  | 1100 | 1180 |
|                  |    |        |                | 0.625 | 15.88 | 316.23 | 471.02 | 143.44 | 470                       | 590  | 550  | 680  | 980     | 1080 | 1220 | 1310 |
|                  |    |        |                | 0.688 | 17.48 | 347.64 | 517.81 | 157.69 | 520                       | 640  | 600  | 750  | 1080    | 1190 | 1340 | 1440 |
|                  |    |        |                | 0.750 | 19.05 | 378.47 | 563.73 | 171.67 | 560                       | 700  | 660  | 820  | 1180    | 1290 | 1460 | 1580 |
|                  |    |        |                | 0.812 | 20.62 | 409.22 | 609.53 | 185.62 | 610                       | 760  | 710  | 890  | 1280    | 1400 | 1580 | 1710 |
|                  |    |        |                | 0.875 | 22.22 | 440.38 | 655.95 | 199.76 | 660                       | 820  | 770  | 960  | 1380    | 1510 | 1710 | 1840 |
|                  |    |        |                | 0.938 | 23.87 | 471.46 | 702.24 | 213.85 | 700                       | 880  | 820  | 1030 | 1480    | 1620 | 1830 | 1970 |
|                  |    |        |                | 1.000 | 25.40 | 501.96 | 747.67 | 227.69 | 750                       | 940  | 880  | 1090 | 1580    | 1720 | 1950 | 2100 |
|                  |    |        |                | 1.062 | 26.97 | 532.38 | 792.98 | 241.49 | 800                       | 1000 | 930  | 1160 | 1670    | 1830 | 2070 | 2230 |
|                  |    |        |                | 1.125 | 28.58 | 563.20 | 838.89 | 255.47 | 840                       | 1050 | 980  | 1230 | 1770    | 1940 | 2190 | 2360 |
|                  |    |        |                | 1.188 | 30.18 | 593.94 | 884.67 | 269.41 | 890                       | 1110 | 1040 | 1300 | 1870    | 2050 | 2320 | 2490 |
|                  |    |        |                | 1.250 | 31.75 | 624.11 | 929.61 | 283.10 | 940                       | 1170 | 1090 | 1370 | 1970    | 2160 | 2440 | 2620 |

# API Pipes (Continued)

| Size             |    |        |                |       |       | Weight |         |        | Hydrostatic Test Pressure |       |       |       |         |       |       |       |
|------------------|----|--------|----------------|-------|-------|--------|---------|--------|---------------------------|-------|-------|-------|---------|-------|-------|-------|
| Outside Diameter |    |        | Wall Thickness |       |       | lb/ft  | kg/m    | kg/ft  | API 5L                    |       |       |       | API 5LX |       |       |       |
|                  |    |        |                |       |       |        |         |        | A                         |       | B     |       | X42     | X46   | X52   | X56   |
| in               | in | mm     | Sch No         | in    | mm    |        |         |        | Std.                      | Alt.  | Std.  | Alt.  |         |       |       |       |
| 52               | 52 | 1320.8 |                | 0.375 | 9.52  | 206.76 | 307.97  | 93.79  | .....                     | ..... | ..... | ..... | .....   | ..... | ..... | ..... |
|                  |    |        |                | 0.406 | 10.31 | 223.72 | 333.23  | 101.48 | .....                     | ..... | ..... | ..... | .....   | ..... | ..... | ..... |
|                  |    |        |                | 0.438 | 11.13 | 241.20 | 359.27  | 109.41 | 300                       | 380   | 350   | 440   | 640     | 700   | 790   | 850   |
|                  |    |        |                | 0.469 | 11.91 | 258.11 | 384.45  | 117.08 | 320                       | 410   | 380   | 470   | 680     | 750   | 840   | 910   |
|                  |    |        |                | 0.500 | 12.70 | 275.01 | 409.63  | 124.74 | 350                       | 430   | 400   | 500   | 730     | 800   | 900   | 970   |
|                  |    |        |                | 0.562 | 14.27 | 308.74 | 459.87  | 140.04 | 390                       | 490   | 450   | 570   | 820     | 890   | 1010  | 1090  |
|                  |    |        |                | 0.625 | 15.88 | 342.93 | 510.79  | 155.55 | 430                       | 540   | 500   | 630   | 910     | 1000  | 1130  | 1210  |
|                  |    |        |                | 0.688 | 17.48 | 377.03 | 561.69  | 171.02 | 480                       | 600   | 560   | 690   | 1000    | 1100  | 1240  | 1330  |
|                  |    |        |                | 0.750 | 19.05 | 410.51 | 611.45  | 186.21 | 520                       | 650   | 610   | 760   | 1090    | 1190  | 1350  | 1450  |
|                  |    |        |                | 0.812 | 20.62 | 443.91 | 661.20  | 201.36 | 560                       | 700   | 660   | 820   | 1180    | 1290  | 1460  | 1570  |
|                  |    |        |                | 0.875 | 22.22 | 477.76 | 711.62  | 216.71 | 610                       | 760   | 710   | 880   | 1270    | 1390  | 1580  | 1700  |
|                  |    |        |                | 0.938 | 23.83 | 511.53 | 761.92  | 232.03 | 650                       | 810   | 760   | 950   | 1360    | 1490  | 1690  | 1820  |
|                  |    |        |                | 1.000 | 25.40 | 544.68 | 811.30  | 247.07 | 690                       | 870   | 810   | 1010  | 1450    | 1590  | 1800  | 1940  |
|                  |    |        |                | 1.062 | 26.97 | 577.75 | 860.56  | 262.07 | 740                       | 920   | 860   | 1070  | 1540    | 1690  | 1910  | 2060  |
|                  |    |        |                | 1.125 | 28.58 | 611.26 | 910.47  | 277.27 | 780                       | 970   | 910   | 1140  | 1640    | 1790  | 2030  | 2180  |
|                  |    |        |                | 1.188 | 30.18 | 644.69 | 960.27  | 292.43 | 820                       | 1030  | 960   | 1200  | 1730    | 1890  | 2140  | 2300  |
|                  |    |        |                | 1.250 | 31.75 | 677.51 | 1009.15 | 307.32 | 870                       | 1080  | 1010  | 1260  | 1820    | 1990  | 2250  | 2420  |
| 56               | 56 | 1422.4 |                | 0.375 | 9.52  | 222.78 | 340.77  | 101.05 | .....                     | ..... | ..... | ..... | .....   | ..... | ..... | ..... |
|                  |    |        |                | 0.406 | 10.31 | 241.06 | 359.06  | 109.34 | .....                     | ..... | ..... | ..... | .....   | ..... | ..... | ..... |
|                  |    |        |                | 0.438 | 11.13 | 259.91 | 387.14  | 117.90 | 280                       | 350   | 330   | 410   | 590     | 650   | 730   | 790   |
|                  |    |        |                | 0.469 | 11.91 | 278.15 | 414.30  | 126.17 | 300                       | 380   | 350   | 440   | 630     | 690   | 780   | 840   |
|                  |    |        |                | 0.500 | 12.70 | 296.37 | 441.44  | 134.43 | 320                       | 400   | 380   | 470   | 680     | 740   | 840   | 900   |
|                  |    |        |                | 0.562 | 14.27 | 332.75 | 495.63  | 150.94 | 360                       | 450   | 420   | 530   | 760     | 830   | 940   | 1010  |
|                  |    |        |                | 0.625 | 15.88 | 369.63 | 550.56  | 167.66 | 400                       | 500   | 470   | 590   | 840     | 920   | 1040  | 1120  |
|                  |    |        |                | 0.688 | 17.48 | 406.42 | 60.536  | 184.35 | 440                       | 550   | 520   | 650   | 930     | 1020  | 1150  | 1240  |
|                  |    |        |                | 0.750 | 19.05 | 442.55 | 659.18  | 200.74 | 480                       | 600   | 560   | 700   | 1010    | 1110  | 1250  | 1350  |
|                  |    |        |                | 0.812 | 20.62 | 478.60 | 712.87  | 217.09 | 520                       | 650   | 610   | 760   | 1100    | 1200  | 1360  | 1460  |
|                  |    |        |                | 0.875 | 22.22 | 515.14 | 767.30  | 233.67 | 560                       | 700   | 660   | 820   | 1180    | 1290  | 1460  | 1570  |
|                  |    |        |                | 0.938 | 23.83 | 551.60 | 821.61  | 250.21 | 600                       | 750   | 700   | 880   | 1270    | 1390  | 1570  | 1690  |
|                  |    |        |                | 1.000 | 25.40 | 587.40 | 874.93  | 266.44 | 640                       | 800   | 750   | 940   | 1350    | 1480  | 1670  | 1800  |
|                  |    |        |                | 1.062 | 26.97 | 623.12 | 928.14  | 282.65 | 680                       | 850   | 800   | 1000  | 1430    | 1570  | 1780  | 1910  |
|                  |    |        |                | 1.125 | 28.58 | 659.32 | 982.06  | 299.07 | 720                       | 900   | 840   | 1050  | 1520    | 1660  | 1880  | 2020  |
|                  |    |        |                | 1.188 | 30.18 | 695.45 | 1035.87 | 315.46 | 760                       | 950   | 890   | 11110 | 1600    | 1760  | 1990  | 2140  |
|                  |    |        |                | 1.250 | 31.75 | 730.91 | 1088.69 | 331.54 | 800                       | 1000  | 940   | 1170  | 1690    | 1850  | 2090  | 2250  |
| 60               | 60 | 1524.0 |                | 0.375 | 9.52  | 238.80 | 355.69  | 108.32 | .....                     | ..... | ..... | ..... | .....   | ..... | ..... | ..... |
|                  |    |        |                | 0.406 | 10.31 | 258.40 | 384.89  | 117.21 | .....                     | ..... | ..... | ..... | .....   | ..... | ..... | ..... |
|                  |    |        |                | 0.438 | 11.13 | 278.62 | 415.00  | 126.38 | .....                     | ..... | ..... | ..... | .....   | ..... | ..... | ..... |
|                  |    |        |                | 0.469 | 11.91 | 298.19 | 444.15  | 135.26 | .....                     | ..... | ..... | ..... | .....   | ..... | ..... | ..... |
|                  |    |        |                | 0.500 | 12.70 | 317.73 | 473.26  | 144.12 | 300                       | 380   | 350   | 440   | 639     | 690   | 780   | 840   |
|                  |    |        |                | 0.562 | 14.27 | 356.76 | 531.39  | 161.83 | 340                       | 420   | 390   | 490   | 710     | 780   | 880   | 940   |
|                  |    |        |                | 0.625 | 15.88 | 396.33 | 590.33  | 179.78 | 380                       | 470   | 440   | 550   | 790     | 860   | 980   | 1050  |
|                  |    |        |                | 0.688 | 17.48 | 435.71 | 649.14  | 197.68 | 410                       | 520   | 480   | 600   | 870     | 950   | 1070  | 1160  |
|                  |    |        |                | 0.750 | 19.05 | 474.59 | 706.90  | 215.27 | 450                       | 560   | 530   | 660   | 950     | 1030  | 1170  | 1260  |
|                  |    |        |                | 0.812 | 20.62 | 513.29 | 764.55  | 232.83 | 490                       | 610   | 570   | 710   | 1020    | 1120  | 1270  | 1360  |
|                  |    |        |                | 0.875 | 22.22 | 552.52 | 822.98  | 250.62 | 530                       | 660   | 610   | 770   | 1100    | 1210  | 1370  | 1470  |
|                  |    |        |                | 0.938 | 23.83 | 591.67 | 881.29  | 268.38 | 560                       | 700   | 660   | 820   | 1180    | 1290  | 1460  | 1580  |
|                  |    |        |                | 1.000 | 25.40 | 630.12 | 938.56  | 285.82 | 600                       | 750   | 700   | 880   | 1260    | 1380  | 1560  | 1680  |
|                  |    |        |                | 1.062 | 26.97 | 668.48 | 995.70  | 303.22 | 640                       | 800   | 740   | 930   | 1340    | 1470  | 1660  | 1780  |
|                  |    |        |                | 1.125 | 28.58 | 707.38 | 1053.64 | 320.87 | 680                       | 840   | 790   | 980   | 1420    | 1550  | 1760  | 1890  |
|                  |    |        |                | 1.188 | 30.18 | 746.20 | 1111.46 | 338.48 | 710                       | 890   | 830   | 1040  | 1500    | 1650  | 1850  | 2000  |
|                  |    |        |                | 1.250 | 31.75 | 784.31 | 1168.23 | 355.76 | 750                       | 940   | 880   | 1090  | 1580    | 1720  | 1950  | 2100  |
| 64               | 64 | 1625.6 |                | 0.375 | 9.52  | 254.82 | 379.55  | 115.59 | .....                     | ..... | ..... | ..... | .....   | ..... | ..... | ..... |
|                  |    |        |                | 0.406 | 10.31 | 275.75 | 410.73  | 125.08 | .....                     | ..... | ..... | ..... | .....   | ..... | ..... | ..... |
|                  |    |        |                | 0.438 | 11.13 | 297.33 | 442.87  | 134.87 | .....                     | ..... | ..... | ..... | .....   | ..... | ..... | ..... |
|                  |    |        |                | 0.469 | 11.91 | 318.22 | 473.99  | 144.34 | .....                     | ..... | ..... | ..... | .....   | ..... | ..... | ..... |
|                  |    |        |                | 0.500 | 12.70 | 339.09 | 505.07  | 153.81 | 280                       | 350   | 330   | 410   | 590     | 650   | 730   | 790   |
|                  |    |        |                | 0.562 | 14.27 | 380.76 | 567.14  | 172.71 | 320                       | 400   | 370   | 460   | 660     | 730   | 820   | 890   |
|                  |    |        |                | 0.625 | 15.88 | 423.03 | 630.10  | 191.89 | 350                       | 440   | 410   | 510   | 740     | 810   | 910   | 980   |
|                  |    |        |                | 0.688 | 17.48 | 464.21 | 692.93  | 211.02 | 390                       | 480   | 450   | 560   | 810     | 890   | 1010  | 1080  |
|                  |    |        |                | 0.750 | 19.05 | 506.63 | 754.63  | 229.81 | 420                       | 530   | 490   | 620   | 890     | 970   | 1100  | 1180  |
|                  |    |        |                | 0.812 | 20.62 | 547.98 | 816.22  | 248.56 | 460                       | 570   | 530   | 670   | 960     | 1050  | 1190  | 1280  |
|                  |    |        |                | 0.875 | 22.22 | 589.90 | 878.66  | 267.58 | 490                       | 620   | 570   | 720   | 1030    | 1130  | 1280  | 1380  |
|                  |    |        |                | 0.938 | 23.87 | 631.74 | 940.98  | 285.56 | 530                       | 660   | 620   | 770   | 1110    | 1210  | 1370  | 1480  |
|                  |    |        |                | 1.000 | 25.40 | 672.84 | 1002.20 | 305.20 | 560                       | 700   | 660   | 820   | 1180    | 1290  | 1460  | 1570  |
|                  |    |        |                | 1.062 | 26.97 | 713.85 | 1063.28 | 323.80 | 600                       | 750   | 700   | 870   | 1250    | 1370  | 1550  | 1670  |
|                  |    |        |                | 1.125 | 28.58 | 755.44 | 1125.22 | 342.67 | 630                       | 790   | 740   | 920   | 1330    | 1460  | 1650  | 1770  |
|                  |    |        |                | 1.188 | 30.18 | 796.65 | 1187.06 | 361.50 | 670                       | 840   | 780   | 970   | 1400    | 1540  | 1740  | 1870  |
|                  |    |        |                | 1.250 | 31.75 | 837.71 | 124.77  | 379.99 | 700                       | 880   | 820   | 1030  | 1480    | 1620  | 1830  | 1970  |