



Premium Connections

voestalpine Tubulars GmbH & Co KG

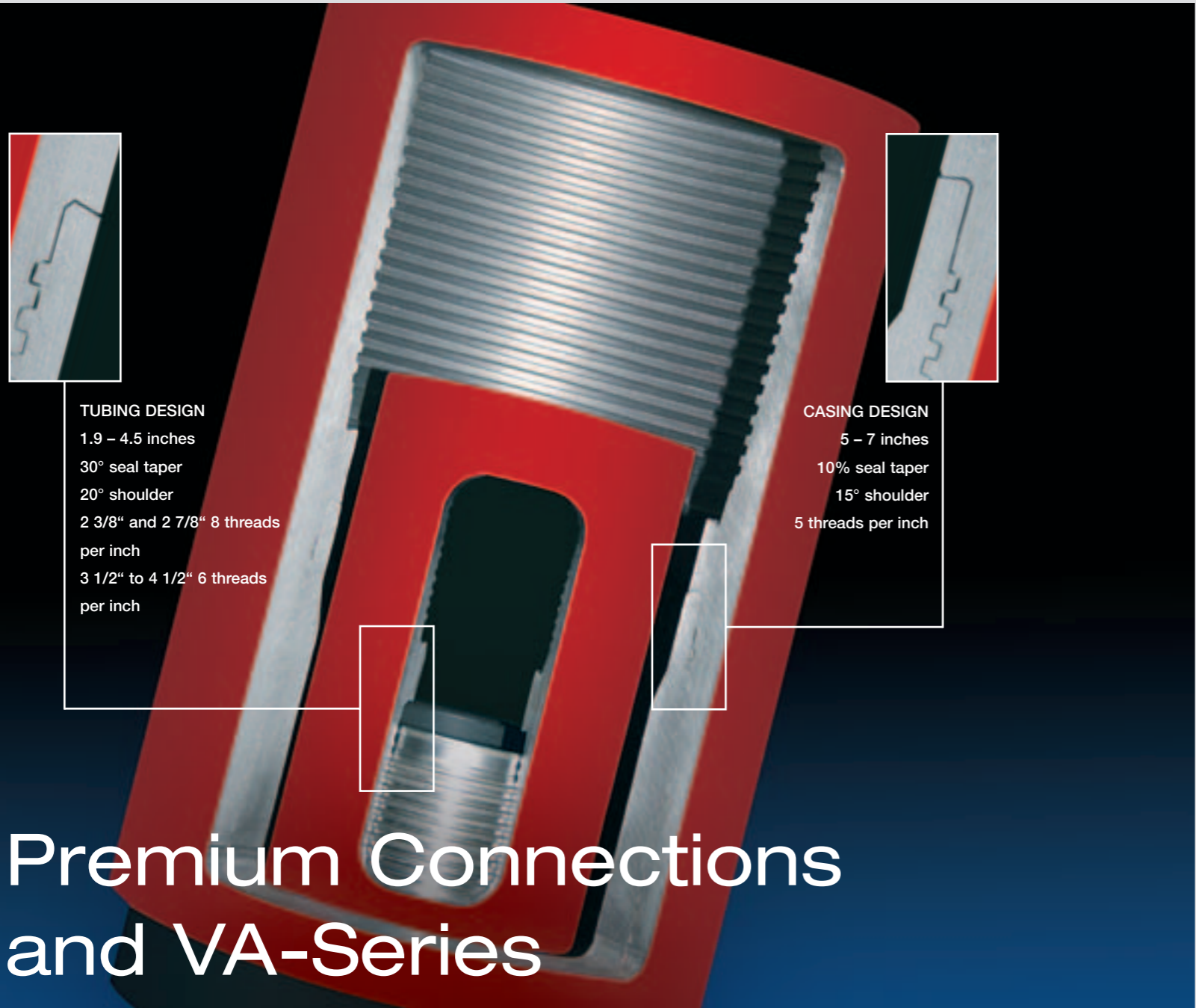
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2nd Edition, printed August 2006

voestalpine Tubulars
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voestalpine
ONE STEP AHEAD.



Premium Connections and VA-Series

TUBING DESIGN

1.9 – 4.5 inches
30° seal taper
20° shoulder
2 3/8" and 2 7/8" 8 threads
per inch
3 1/2" to 4 1/2" 6 threads
per inch

CASING DESIGN

5 – 7 inches
10% seal taper
15° shoulder
5 threads per inch



METAL TO METAL SEAL

The high contact pressure in the seal area is reinforced by the internal shoulder and ensures gas tightness at tensile loads up to the joint tensile strength.

ROBUST INTERNAL SHOULDER

The internal shoulder reinforces the contact pressure in the seal area and is acting as a positive make-up stop.

IMPROVED BUTTRESS

The tapered buttress thread ensures a high stress performance and allows easy make-up even under severe conditions.

SMOOTH INTERNAL PROFILE

The flush internal profile minimizes turbulence. It also provides good conditions for internal plastic coating.

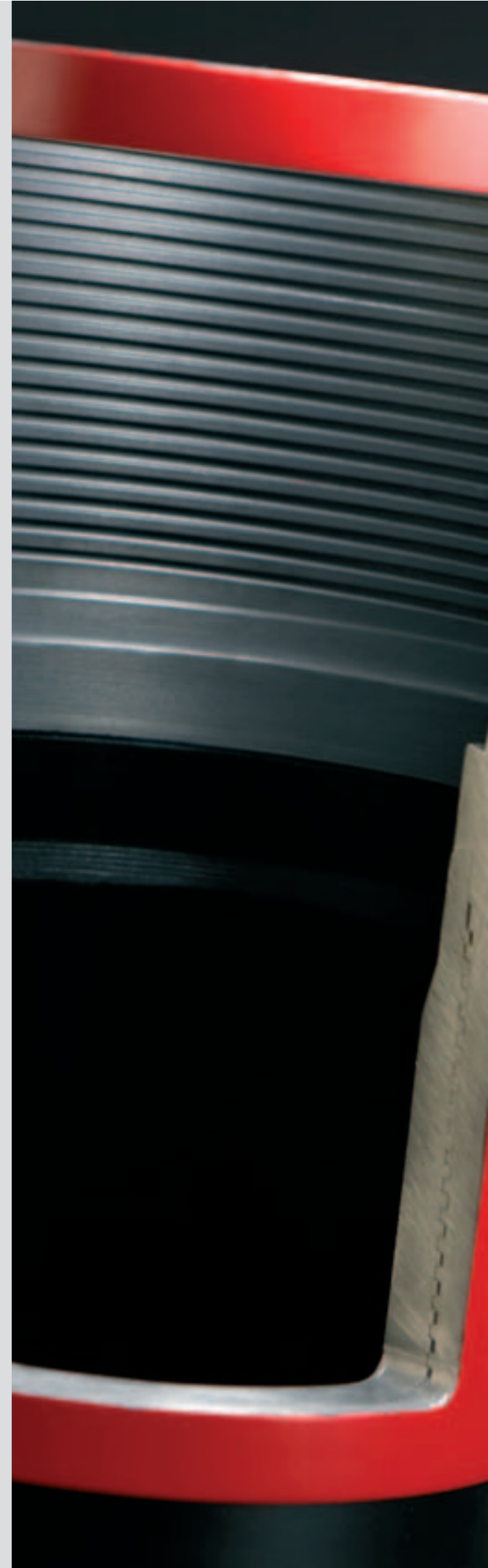
| VA SERIES | | | | | | |
|------------------------------|----------|--------------|---------------|--------------|-------------------|-------------------------|
| MINIMUM YIELD STRENGTH (psi) | API 5 CT | SOUR SERVICE | HIGH COLLAPSE | CO2 SERVICE | DEEP WELL SERVICE | LOW TEMPERATURE SERVICE |
| 40,000 | H 40 | | | | | |
| 55,000 | J 55 | | | | | VA-LT-55 |
| | K 55 | | VA-HC-55 | VA-FP-55-1Cr | | |
| 65,000 | M 65 | | | | | |
| 70,000 | | | | VA-FP-70-1Cr | | |
| 75,000 | | VA-SS-75 | | | | |
| 80,000 | N 80 | | | VA-FP-80-1Cr | | |
| | L 80 | VA-SS-80 | VA-HC-80 | | | VA-LT-80 |
| 90,000 | C 90 | VA-SS-90 | VA-HC-90 | | | |
| 95,000 | C 95 | | VA-HC-95 | | | VA-LT-95 |
| | T 95 | VA-SS-95 | | | | |
| 110,000 | P 110 | VA-SS-110 | VA-HC-110 | | | VA-LT-110 |
| 125,000 | Q 125 | | VA-HC-125 | | VA-D-125 | |
| 130,000 | | | VA-HC-130 | | VA-D-130 | |
| 140,000 | | | VA-HC-140 | | VA-D-140 | |
| 150,000 | | | | | VA-D-150 | |

DIMENSIONS

| PIPE OUTSIDE DIAMETER | NOMINAL WEIGHT | | WALL | | INSIDE | | DRIFT | | COUPLING | | OUTSIDE DIAMETER COUPLING | | | | VOLUME (REGULAR) | | | | LENGTH | |
|--------------------------|----------------|-------|-----------|-------|----------|--------|----------|--------|----------|--------|---------------------------|--------|-------------|--------|------------------|-----------|------------|-----------|--------------|-------|
| | T & C | | THICKNESS | | DIAMETER | | DIAMETER | | LENGTH | | REGULAR | | ALTERNATIVE | | DISPLACEMENT | | PRODUCTION | | MAKE UP LOSS | |
| | inch/mm | lb/ft | kg/m | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm | us gal/ft | lit/m | us gal/ft | lit/m | inch |
| 1.9" 48.26 | 2.75 | 4.11 | 0.145 | 3.68 | 1.610 | 40.89 | 1.516 | 38.51 | 4.016 | 102.00 | 2.201 | 55.90 | 2.374 | 60.30 | 0.148 | 1.84 | 0.106 | 1.31 | 1.732 | 44.0 |
| | 3.65 | 5.47 | 0.200 | 5.08 | 1.500 | 38.10 | 1.406 | 35.72 | 4.016 | 102.00 | 2.217 | 56.30 | 2.374 | 60.30 | 0.148 | 1.84 | 0.092 | 1.14 | 1.732 | 44.0 |
| 2 3/8" 60.32 | 4.60 | 6.69 | 0.190 | 4.83 | 1.995 | 50.67 | 1.901 | 48.29 | 5.000 | 127.00 | 2.697 | 68.50 | 2.874 | 73.01 | 0.231 | 2.87 | 0.162 | 2.02 | 2.205 | 56.0 |
| | 5.10 | 7.57 | 0.218 | 5.54 | 1.939 | 49.25 | 1.845 | 46.87 | 5.000 | 127.00 | 2.697 | 68.50 | 2.874 | 73.01 | 0.231 | 2.87 | 0.153 | 1.91 | 2.205 | 56.0 |
| | 5.80 | 8.67 | 0.254 | 6.45 | 1.867 | 47.43 | 1.774 | 45.05 | 5.000 | 127.00 | 2.776 | 70.50 | 2.874 | 73.01 | 0.231 | 2.87 | 0.142 | 1.77 | 2.205 | 56.0 |
| 2 7/8" 73.02 | 6.40 | 9.29 | 0.217 | 5.51 | 2.441 | 62.01 | 2.348 | 59.63 | 5.630 | 143.00 | 3.197 | 81.20 | 3.500 | 88.90 | 0.338 | 4.20 | 0.243 | 3.02 | 2.520 | 64.0 |
| | 7.80 | 11.57 | 0.276 | 7.01 | 2.323 | 59.01 | 2.230 | 56.63 | 5.630 | 143.00 | 3.327 | 84.50 | 3.500 | 88.90 | 0.339 | 4.21 | 0.220 | 2.73 | 2.520 | 64.0 |
| | 8.60 | 12.74 | 0.308 | 7.82 | 2.259 | 57.39 | 2.166 | 55.01 | 5.630 | 143.00 | 3.327 | 84.50 | 3.500 | 88.90 | 0.339 | 4.21 | 0.208 | 2.59 | 2.520 | 64.0 |
| 3 1/2" 88.90 | 9.20 | 13.29 | 0.254 | 6.45 | 2.992 | 76.00 | 2.867 | 72.82 | 6.575 | 167.00 | 3.862 | 98.10 | 4.252 | 108.00 | 0.502 | 6.23 | 0.365 | 4.54 | 3.000 | 76.2 |
| | 10.20 | 14.97 | 0.289 | 7.34 | 2.922 | 74.22 | 2.797 | 71.04 | 6.575 | 167.00 | 3.917 | 99.50 | 4.252 | 108.00 | 0.502 | 6.23 | 0.348 | 4.33 | 3.000 | 76.2 |
| | 12.70 | 18.90 | 0.375 | 9.52 | 2.750 | 69.86 | 2.625 | 66.68 | 6.575 | 167.00 | 4.035 | 102.50 | 4.252 | 108.00 | 0.503 | 6.24 | 0.309 | 3.83 | 3.000 | 76.2 |
| | 13.70 | 20.62 | 0.413 | 10.50 | 2.673 | 67.90 | 2.548 | 64.72 | 6.575 | 167.00 | 4.138 | 105.10 | 4.252 | 108.00 | 0.503 | 6.25 | 0.292 | 3.62 | 3.000 | 76.2 |
| 4" 101.60 | 9.50 | 13.82 | 0.226 | 5.74 | 3.548 | 90.12 | 3.423 | 86.94 | 7.126 | 181.00 | 4.390 | 111.50 | 4.748 | 120.60 | 0.655 | 8.14 | 0.514 | 6.38 | 3.272 | 83.1 |
| | 10.70 | 15.86 | 0.262 | 6.65 | 3.476 | 88.30 | 3.351 | 85.12 | 7.126 | 181.00 | 4.390 | 111.50 | 4.748 | 120.60 | 0.655 | 8.14 | 0.493 | 6.12 | 3.272 | 83.1 |
| | 13.20 | 19.63 | 0.330 | 8.38 | 3.340 | 84.84 | 3.215 | 81.66 | 7.126 | 181.00 | 4.500 | 114.30 | 4.748 | 120.60 | 0.656 | 8.15 | 0.455 | 5.65 | 3.272 | 83.1 |
| | 15.50 | 22.14 | 0.390 | 9.90 | 3.126 | 79.40 | 2.941 | 77.14 | 7.126 | 181.00 | 4.611 | 117.60 | 4.748 | 120.60 | 0.656 | 8.15 | 0.416 | 5.17 | 3.272 | 83.1 |
| 4 1/2" 114.30 | 10.50 | 15.51 | 0.224 | 5.69 | 4.052 | 102.92 | 3.927 | 99.74 | 7.913 | 201.00 | 4.862 | 123.50 | 5.201 | 132.10 | 0.829 | 10.30 | 0.670 | 8.32 | 3.665 | 93.1 |
| | 11.60 | 17.18 | 0.250 | 6.35 | 4.000 | 101.60 | 3.875 | 98.42 | 7.913 | 201.00 | 4.862 | 123.50 | 5.201 | 132.10 | 0.829 | 10.30 | 0.653 | 8.11 | 3.665 | 93.1 |
| | 12.60 | 18.50 | 0.271 | 6.88 | 3.958 | 100.54 | 3.833 | 97.36 | 7.913 | 201.00 | 4.862 | 123.50 | 5.201 | 132.10 | 0.829 | 10.30 | 0.639 | 7.94 | 3.665 | 93.1 |
| | 13.50 | 19.78 | 0.290 | 7.37 | 3.920 | 99.56 | 3.794 | 96.38 | 7.913 | 201.00 | 4.961 | 126.00 | 5.201 | 132.10 | 0.830 | 10.31 | 0.627 | 7.79 | 3.665 | 93.1 |
| | 15.20 | 22.67 | 0.337 | 8.56 | 3.826 | 97.18 | 3.701 | 94.00 | 7.913 | 201.00 | 4.961 | 126.00 | 5.201 | 132.10 | 0.830 | 10.31 | 0.597 | 7.42 | 3.665 | 93.1 |
| | 18.90 | 28.31 | 0.430 | 10.92 | 3.640 | 92.46 | 3.515 | 89.28 | 7.913 | 201.00 | 5.106 | 129.70 | 5.252 | 133.40 | 0.831 | 10.32 | 0.571 | 7.09 | 3.665 | 93.1 |
| 5" 127.00 | 13.00 | 19.67 | 0.253 | 6.43 | 4.494 | 114.14 | 4.369 | 110.96 | 9.173 | 233.00 | 5.563 | 141.30 | - | - | 1.026 | 12.74 | 0.824 | 10.23 | 4.252 | 108.0 |
| | 15.00 | 22.71 | 0.296 | 7.52 | 4.408 | 111.96 | 4.283 | 108.78 | 9.173 | 233.00 | 5.563 | 141.30 | - | - | 1.026 | 12.74 | 0.793 | 9.85 | 4.252 | 108.0 |
| | 18.00 | 27.25 | 0.362 | 9.19 | 4.276 | 108.62 | 4.151 | 105.44 | 9.173 | 233.00 | 5.563 | 141.30 | - | - | 1.026 | 12.74 | 0.746 | 9.27 | 4.252 | 108.0 |
| | 21.40 | 32.30 | 0.437 | 11.10 | 4.125 | 104.78 | 4.000 | 101.60 | 9.173 | 233.00 | 5.563 | 141.30 | - | - | 1.026 | 12.74 | 0.694 | 8.62 | 4.252 | 108.0 |
| | 23.20 | 34.94 | 0.478 | 12.14 | 4.044 | 102.72 | 3.919 | 99.54 | 9.173 | 233.00 | 5.563 | 141.30 | - | - | 1.026 | 12.74 | 0.667 | 8.29 | 4.252 | 108.0 |
| | 24.10 | 36.35 | 0.500 | 12.70 | 4.000 | 101.60 | 3.875 | 98.42 | 9.173 | 233.00 | 5.563 | 141.30 | - | - | 1.026 | 12.74 | 0.653 | 8.11 | 4.252 | 108.0 |
| 5 1/2" 139.70 | 15.50 | 23.45 | 0.275 | 6.98 | 4.950 | 125.74 | 4.825 | 122.56 | 9.331 | 237.00 | 6.051 | 153.70 | - | - | 1.240 | 15.40 | 1.000 | 12.42 | 4.331 | 110.0 |
| | 17.00 | 25.73 | 0.304 | 7.72 | 4.892 | 124.26 | 4.767 | 121.08 | 9.331 | 237.00 | 6.051 | 153.70 | - | - | 1.240 | 15.40 | 0.976 | 12.13 | 4.331 | 110.0 |
| | 20.00 | 30.12 | 0.361 | 9.17 | 4.778 | 121.36 | 4.653 | 118.18 | 9.331 | 237.00 | 6.051 | 153.70 | - | - | 1.240 | 15.40 | 0.931 | 11.57 | 4.331 | 110.0 |
| | 23.00 | 34.17 | 0.415 | 10.54 | 4.670 | 118.62 | 4.545 | 115.44 | 9.331 | 237.00 | 6.051 | 153.70 | - | - | 1.240 | 15.40 | 0.890 | 11.05 | 4.331 | 110.0 |
| | 26.00 | 38.65 | 0.476 | 12.09 | 4.548 | 115.52 | 4.423 | 112.34 | 9.331 | 237.00 | 6.051 | 153.70 | - | - | 1.240 | 15.40 | 0.844 | 10.48 | 4.331 | 110.0 |
| 5 3/4" 146.05 | 16.40 | 24.95 | 0.276 | 7.00 | 5.199 | 132.05 | 5.074 | 128.87 | 9.659 | 245.35 | 6.535 | 166.00 | - | - | 1.359 | 16.87 | 1.103 | 13.70 | 4.409 | 112.0 |
| | 17.90 | 27.21 | 0.303 | 7.70 | 5.144 | 130.65 | 5.019 | 127.47 | 9.659 | 245.35 | 6.535 | 166.00 | - | - | 1.359 | 16.87 | 1.079 | 13.41 | 4.409 | 112.0 |
| | 19.70 | 29.78 | 0.335 | 8.50 | 5.081 | 129.05 | 4.956 | 125.87 | 9.659 | 245.35 | 6.535 | 166.00 | - | - | 1.359 | 16.87 | 1.053 | 13.08 | 4.409 | 112.0 |
| | 20.40 | 31.40 | 0.354 | 9.00 | 5.039 | 128.00 | 4.914 | 124.82 | 9.659 | 245.35 | 6.535 | 166.00 | - | - | 1.358 | 16.87 | 1.036 | 12.87 | 4.409 | 112.0 |
| 6 5/8" 168.28 | 20.00 | 30.11 | 0.288 | 7.32 | 6.050 | 153.66 | 5.924 | 150.48 | 9.724 | 247.00 | 7.390 | 187.70 | - | - | 1.802 | 22.38 | 1.493 | 18.54 | 4.528 | 115.0 |
| | 24.00 | 36.19 | 0.352 | 8.94 | 5.922 | 150.42 | 5.797 | 147.24 | 9.724 | 247.00 | 7.390 | 187.70 | - | - | 1.802 | 22.38 | 1.431 | 17.77 | 4.528 | 115.0 |
| | 28.00 | 42.24 | 0.417 | 10.59 | 5.792 | 147.12 | 5.667 | 143.94 | 9.724 | 247.00 | 7.390 | 187.70 | - | - | 1.802 | 22.38 | 1.369 | 17.00 | 4.528 | 115.0 |
| | 32.00 | 47.52 | 0.475 | 12.06 | 5.676 | 144.18 | 5.551 | 141.00 | 9.724 | 247.00 | 7.390 | 187.70 | - | - | 1.802 | 22.38 | 1.315 | 16.33 | 4.528 | 115.0 |
| 7" 177.80 | 23.00 | 34.68 | 0.317 | 8.05 | 6.366 | 161.70 | 6.241 | 158.52 | 10.118 | 257.00 | 7.657 | 194.50 | - | - | 2.009 | 24.95 | 1.654 | 20.54 | 4.724 | 120.0 |
| | 26.00 | 39.20 | 0.362 | 9.19 | 6.276 | 159.42 | 6.151 | 156.24 | 10.118 | 257.00 | 7.657 | 194.50 | - | - | 2.009 | 24.95 | 1.607 | 19.96 | 4.724 | 120.0 |
| | 29.00 | 43.77 | 0.408 | 10.36 | 6.184 | 157.08 | 6.059 | 153.90 | 10.118 | 257.00 | 7.657 | 194.50 | - | - | 2.009 | 24.95 | 1.560 | 19.38 | 4.724 | 120.0 |
| | 32.00 | 48.19 | 0.453 | 11.51 | 6.094 | 154.78 | 5.969 | 151.60 | 10.118 | 257.00 | 7.657 | 194.50 | - | - | 2.009 | 24.95 | 1.515 | 18.82 | 4.724 | 120.0 |
| | 35.00 | 52.51 | 0.498 | 12.65 | 6.004 | 152.50 | 5.879 | 149.32 | 10.118 | 257.00 | 7.657 | 194.50 | - | - | 2.009 | 24.95 | 1.471 | 18.27 | 4.724 | 120.0 |
| | 38.00 | 56.50 | 0.540 | 13.72 | 5.920 | 150.36 | 5.794 | 147.18 | 10.118 | 257.00 | 7.657 | 194.50 | - | - | 2.009 | 24.95 | 1.430 | 17.76 | 4.724 | 120.0 |

All VAGT® accessories are available on request. The shown values are based on T & C pipe lengths of L = 10.0m (32.81ft). Special clearance couplings and 20° beveled couplings have a lower load on coupling face. Special clearance couplings with reduced outside diameters on request. Couplings with alternative outside diameters for casing on request. 20° beveled couplings on request (standard chamfer of 45°).

Blanking dimensions for accessories are available as a download on our web page www.vatubulars.com



PERFORMANCE PROPERTIES TUBING (METRIC-UNITS)

| PIPE OUTSIDE DIAMETER | NOMI- NAL WEIGHT | WALL THICK- NESS | GRADE 55 | | | | GRADE 65 | | | | GRADE 70 | | | | GRADE 75 | | | | GRADE 80 | | | |
|--------------------------|------------------------|------------------------|-----------|-----------|------|------|-----------|-----------|------|-----------|-----------|------|-----------|-----------|-----------|-----------|------|------|-----------|-----------|------|------|
| | | | Pi | Pc | Sy | L | Pi | Pc | Sy | L | Pi | Pc | Sy | L | Pi | Pc | Sy | L | Pi | Pc | Sy | L |
| inch/mm | lb/ft | mm | bar | | kN | | bar | | kN | | bar | | kN | | bar | | kN | | bar | | kN | |
| 1.9" 48.26 | 2.75 | 3.68 | 506 | 533 | 195 | 180 | 598 | 631 | 231 | 213 | 645 | 680 | 249 | 229 | 690 | 728 | 267 | 246 | 737 | 778 | 285 | 263 |
| | 3.65 | 5.08 | 698 | 714 | 261 | 194 | 825 | 844 | 308 | 229 | 890 | 910 | 333 | 247 | 952 | 974 | 356 | 265 | 1017 | 1040 | 380 | 282 |
| 2 3/8" 60.32 | 4.60 | 4.83 | 531 | 558 | 319 | 242 | 628 | 660 | 377 | 286 | 677 | 710 | 407 | 308 | 724 | 761 | 435 | 330 | 773 | 811 | 465 | 353 |
| | 5.10 | 5.54 | 609 | 632 | 354 | 242 | 720 | 747 | 419 | 286 | 776 | 805 | 451 | 308 | 831 | 862 | 483 | 330 | 887 | 920 | 515 | 353 |
| higher coupling grade | (5.10) | (5.54) | grade: 80 | 361 | 353 | 353 | grade: 80 | 427 | 353 | grade: 80 | 461 | 353 | grade: 80 | 414 | grade: 95 | 493 | 418 | 418 | grade: 95 | 526 | 418 | 418 |
| 2 7/8" 73.02 | 5.80 | 6.45 | 709 | 724 | 414 | 325 | 838 | 856 | 489 | 384 | 904 | 922 | 527 | 414 | 967 | 988 | 564 | 443 | 1033 | 1054 | 603 | 473 |
| | 6.40 | 5.51 | 500 | 529 | 443 | 289 | 592 | 625 | 524 | 342 | 638 | 673 | 565 | 368 | 683 | 722 | 604 | 396 | 729 | 770 | 645 | 421 |
| | 7.80 | 7.01 | 637 | 658 | 551 | 452 | 753 | 778 | 651 | 534 | 811 | 839 | 702 | 576 | 868 | 898 | 752 | 616 | 927 | 957 | 803 | 658 |
| 3 1/2" 88.90 | 8.60 | 7.82 | 710 | 725 | 607 | 452 | 840 | 857 | 718 | 534 | 905 | 933 | 774 | 576 | 969 | 989 | 828 | 616 | 1034 | 1055 | 884 | 658 |
| | 9.20 | 6.45 | 481 | 510 | 633 | 406 | 569 | 603 | 748 | 480 | 613 | 650 | 807 | 517 | 656 | 690 | 864 | 554 | 701 | 727 | 922 | 591 |
| | 10.20 | 7.34 | 548 | 575 | 713 | 488 | 647 | 679 | 843 | 577 | 698 | 731 | 908 | 622 | 747 | 783 | 972 | 666 | 798 | 836 | 1038 | 711 |
| | 12.70 | 9.52 | 710 | 726 | 899 | 669 | 840 | 857 | 1063 | 791 | 905 | 923 | 1144 | 852 | 969 | 989 | 1226 | 912 | 1034 | 1055 | 1308 | 974 |
| | higher coupling grade | (12.70) | (9.52) | grade: 80 | 900 | 900 | 900 | grade: 80 | 1064 | 974 | grade: 80 | 1147 | 974 | grade: 80 | 1147 | grade: 95 | 1227 | 1156 | 1156 | grade: 95 | 1311 | 1156 |
| 4" 101.60 | 13.70 | 10.50 | 783 | 789 | 980 | 829 | 926 | 933 | 1159 | 980 | 998 | 1004 | 1249 | 1057 | 1069 | 1076 | 1337 | 1131 | 1141 | 1148 | 1428 | 1208 |
| | 14.70 | 11.43 | 853 | 850 | 1013 | 829 | 1008 | 1004 | 1198 | 980 | 1087 | 1081 | 1290 | 1057 | 1163 | 1159 | 1382 | 1131 | 1242 | 1236 | 1474 | 1208 |
| | 9.50 | 5.74 | 375 | 352 | 656 | 498 | 443 | 396 | 775 | 588 | 478 | 416 | 835 | 633 | 512 | 436 | 894 | 679 | 546 | 454 | 954 | 724 |
| 4 1/2" 114.30 | 10.70 | 6.65 | 434 | 454 | 752 | 497 | 513 | 517 | 889 | 588 | 553 | 547 | 958 | 634 | 592 | 577 | 1025 | 678 | 632 | 606 | 1095 | 724 |
| | 13.20 | 8.38 | 547 | 573 | 930 | 685 | 646 | 678 | 1099 | 810 | 697 | 731 | 1185 | 878 | 746 | 782 | 1269 | 935 | 797 | 835 | 1354 | 998 |
| | 10.50 | 5.69 | 330 | 276 | 736 | 517 | 390 | 305 | 870 | 612 | 421 | 317 | 938 | 659 | 450 | 330 | 1004 | 706 | 481 | 341 | 1072 | 753 |
| higher coupling grade | 11.60 | 6.35 | 368 | 342 | 816 | 517 | 436 | 383 | 965 | 612 | 470 | 402 | 1040 | 659 | 503 | 421 | 1113 | 706 | 537 | 438 | 1189 | 753 |
| | 12.60 | 6.88 | 399 | 395 | 880 | 517 | 472 | 446 | 1040 | 612 | 509 | 471 | 1121 | 659 | 545 | 495 | 1200 | 706 | 581 | 517 | 1282 | 753 |
| | 13.50 | 7.37 | 428 | 443 | 938 | 703 | 506 | 504 | 1109 | 831 | 545 | 533 | 1196 | 896 | 583 | 561 | 1280 | 959 | 623 | 589 | 1367 | 1024 |
| | 15.20 | 8.56 | 497 | 525 | 1069 | 703 | 587 | 621 | 1264 | 831 | 633 | 669 | 1361 | 896 | 678 | 717 | 1458 | 959 | 723 | 764 | 1556 | 1024 |
| | higher coupling grade | (15.20) | (8.56) | grade: 80 | 1078 | 1024 | 1024 | grade: 80 | 1274 | 1024 | grade: 80 | 1373 | 1024 | grade: 80 | 1373 | grade: 95 | 1470 | 1215 | 1215 | grade: 95 | 1570 | 1215 |
| 4" 101.60 | 17.00 | 9.65 | 560 | 586 | 1202 | 985 | 662 | 693 | 1421 | 1164 | 714 | 746 | 1532 | 1255 | 764 | 800 | 1640 | 1343 | 816 | 853 | 1751 | 1434 |
| | 18.90 | 10.92 | 634 | 655 | 1274 | 985 | 749 | 775 | 1506 | 1164 | 808 | 834 | 1622 | 1255 | 864 | 894 | 1738 | 1343 | 923 | 953 | 1853 | 1434 |
| | 9.50 | 5.74 | 375 | 352 | 656 | 498 | 443 | 396 | 775 | 588 | 478 | 416 | 835 | 633 | 512 | 436 | 894 | 679 | 546 | 454 | 954 | 724 |
| higher coupling grade | 10.70 | 6.65 | 434 | 454 | 752 | 497 | 513 | 517 | 889 | 588 | 553 | 547 | 958 | 634 | 592 | 577 | 1025 | 678 | 632 | 606 | 1095 | 724 |
| | 13.20 | 8.38 | 547 | 573 | 930 | 685 | 646 | 678 | 1099 | 810 | 697 | 731 | 1185 | 878 | 746 | 782 | 1269 | 935 | 797 | 835 | 1354 | 998 |
| | 10.50 | 5.69 | 330 | 276 | 736 | 517 | 390 | 305 | 870 | 612 | 421 | 317 | 938 | 659 | 450 | 330 | 1004 | 706 | 481 | 341 | 1072 | 753 |
| | 11.60 | 6.35 | 368 | 342 | 816 | 517 | 436 | 383 | 965 | 612 | 470 | 402 | 1040 | 659 | 503 | 421 | 1113 | 706 | 537 | 438 | 1189 | 753 |
| | 12.60 | 6.88 | 399 | 395 | 880 | 517 | 472 | 446 | 1040 | 612 | 509 | 471 | 1121 | 659 | 545 | 495 | 1200 | 706 | 581 | 517 | 1282 | 753 |
| 4 1/2" 114.30 | 13.50 | 7.37 | 428 | 443 | 938 | 703 | 506 | 504 | 1109 | 831 | 545 | 533 | 1196 | 896 | 583 | 561 | 1280 | 959 | 623 | 589 | 1367 | 1024 |
| | 15.20 | 8.56 | 497 | 525 | 1069 | 703 | 587 | 621 | 1264 | 831 | 633 | 669 | 1361 | 896 | 678 | 717 | 1458 | 959 | 723 | 764 | 1556 | 1024 |
| | higher coupling grade | (15.20) | (8.56) | grade: 80 | 1078 | 1024 | 1024 | grade: 80 | 1274 | 1024 | grade: 80 | 1373 | 1024 | grade: 80 | 1373 | grade: 95 | 1470 | 1215 | 1215 | grade: 95 | 1570 | 1215 |
| higher coupling grade | 17.00 | 9.65 | 560 | 586 | 1202 | 985 | 662 | 693 | 1421 | 1164 | 714 | 746 | 1532 | 1255 | 764 | 800 | 1640 | 1343 | 816 | 853 | 1751 | 1434 |
| | 18.90 | 10.92 | 634 | 655 | 1274 | 985 | 749 | 775 | 1506 | 1164 | 808 | 834 | 1622 | 1255 | 864 | 894 | 1738 | 1343 | 923 | 953 | 1853 | 1434 |
| | 9.50 | 5.74 | 375 | 352 | 656 | 498 | 443 | 396 | 775 | 588 | 478 | 416 | 835 | 633 | 512 | 436 | 894 | 679 | 546 | 454 | 954 | 724 |
| | 10.70 | 6.65 | 434 | 454 | 752 | 497 | 513 | 517 | 889 | 588 | 553 | 547 | 958 | 634 | 592 | 577 | 1025 | 678 | 632 | 606 | 1095 | 724 |
| | 13.20 | 8.38 | 547 | 573 | 930 | 685 | 646 | 678 | 1099 | 810 | 697 | 731 | 1185 | 878 | 746 | 782 | 1269 | 935 | 797 | 835 | 1354 | 998 |
| higher coupling grade | 10.50 | 5.69 | 330 | 276 | 736 | 517 | 390 | 305 | 870 | 612 | 421 | 317 | 938 | 659 | 450 | 330 | 1004 | 706 | 481 | 341 | 1072 | 753 |
| | 11.60 | 6.35 | 368 | 342 | 816 | 517 | 436 | 383 | 965 | 612 | 470 | 402 | 1040 | 659 | 503 | 421 | 1113 | 706 | 537 | 438 | 1189 | 753 |
| | 12.60 | 6.88 | 399 | 395 | 880 | 517 | 472 | 446 | 1040 | 612 | 509 | 471 | 1121 | 659 | 545 | 495 | 1200 | 706 | 581 | 517 | 1282 | 753 |
| | 13.50 | 7.37 | 428 | 443 | 938 | 703 | 506 | 504 | 1109 | 831 | 545 | 533 | 1196 | 896 | 583 | 561 | 1280 | 959 | 623 | 589 | 1367 | 1024 |
| | 15.20 | 8.56 | 497 | 525 | 1069 | 703 | 587 | 621 | 1264 | 831 | 633 | 669 | 1361 | 896 | 678 | 717 | 1458 | 959 | 723 | 764 | 1556 | 1024 |
| 4 1/2" 114.30 | 17.00 | 9.65 | 560 | 586 | 1202 | 985 | 662 | 693 | 1421 | 1164 | 714 | 746 | 1532 | 1255 | 764 | 800 | 1640 | 1343 | 816 | 853 | 1751 | 1434 |
| | 18.90 | 10.92 | 634 | 655 | 1274 | 985 | 749 | 775 | 1506 | 1164 | 808 | 834 | 1622 | 1255 | 864 | 894 | 1738 | 1343 | 923 | 953 | 1853 | 1434 |
| | 9.50 | 5.74 | 375 | 352 | 656 | 498 | 443 | 396 | 775 | 588 | 478 | 416 | 835 | 633 | 512 | 436 | 894 | 679 | 546 | 454 | 954 | 724 |
| higher coupling grade | 10.70 | 6.65 | 434 | 454 | 752 | 497 | 513 | 517 | 889 | 588 | 553 | 547 | 958 | 634 | 592 | 577 | 1025 | 678 | 632 | 606 | 1095 | 724 |
| | 13.20 | 8.38 | 547 | 573 | 930 | 685 | 646 | 678 | 1099 | 810 | 697 | 731 | 1185 | 878 | 746 | 782 | 1269 | 935 | 797 | 835 | 1354 | 998 |
| | 10.50 | 5.69 | 330 | 276 | 736 | 517 | 390 | 305 | 870 | 612 | 421 | 317 | 938 | 659 | 450 | 330 | 1004 | 706 | 481 | 341 | 1072 | 753 |
| | 11.60 | 6.35 | 368 | 342 | 816 | 517 | 436 | 383 | 965 | 612 | 470 | 402 | 1040 | 659 | 503 | 421 | 1113 | 706 | 537 | 438 | 1189 | 753 |
| | 12.60 | 6.88 | 399 | 395 | 880 | 517 | 472 | 446 | 1040 | 612 | 509 | 471 | 1121 | 659 | 545 | 495 | 1200 | 706 | 581 | 517 | 1282 | 753 |
| 4 1/2" 114.30 | 13.50 | 7.37 | 428 | 443 | 938 | 703 | 506 | 504 | 1109 | 831 | 545 | 533 | 1196 | 896 | 583 | 561 | 1280 | 959 | 623 | 589 | 1367 | 1024 |
| | 15.20 | 8.56 | 497 | 525 | 1069 | 703 | 587 | 621 | | | | | | | | | | | | | | |

PERFORMANCE PROPERTIES CASING (METRIC-UNITS)

| PIPE OUTSIDE DIAMETER | NOMI- NAL WEIGHT | WALL THICK- NESS | GRADE 55 | | | | hi.gr.: 80 | | | | GRADE 65 | | | | hi.gr.: 80 | | | | GRADE 70 | | | | hi.gr.: 80 | | | | GRADE 75 | | | | hi.gr.: 95 | | | | GRADE 80 | | | | hi.gr.: 95 | | | |
|--------------------------|------------------------|------------------------|----------|------|------|------|------------|------|------|------|----------|------|------|------|-------------|------|------|------|----------|------|------|------|-------------|------|--------|------|-----------|------|------|------|-------------|------|-----|----|-----------|---|------|-----|-------------|--|--|--|
| | | | Pi | Pc | Sy | L | Sy h | L h | Pi | Pc | Sy | L | Sy h | L h | Pi | Pc | Sy | L | Sy h | L h | Pi | Pc | Sy | L | Sy h | L h | Pi | Pc | Sy | L | Sy h | L h | Pi | Pc | Sy | L | Sy h | L h | | | | |
| | | | bar | | kN | | kN | | bar | | kN | | kN | | bar | | kN | | kN | | bar | | kN | | kN | | bar | | kN | | kN | | bar | | kN | | kN | | | | | |
| inch/mm | lb/ft | mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5" 127.00 | 13.00 | 6.43 | 336 | 286 | 923 | 901 | 923 | 923 | 397 | 316 | 1091 | 1065 | 1091 | 1091 | 428 | 330 | 1176 | 1148 | 1176 | 1176 | 458 | 343 | 1259 | 1228 | 1259 | 1259 | 489 | 354 | 1344 | 1312 | 1344 | 1344 | | | | | | | | | | |
| | 15.00 | 7.52 | 393 | 383 | 1070 | 901 | 1070 | 1070 | 464 | 433 | 1265 | 1065 | 1265 | 1265 | 500 | 456 | 1363 | 1148 | 1363 | 1312 | 536 | 478 | 1459 | 1228 | 1459 | 1459 | 572 | 500 | 1558 | 1312 | 1558 | 1556 | | | | | | | | | | |
| | 18.00 | 9.19 | 480 | 509 | 1289 | 901 | 1289 | 1289 | 567 | 602 | 1524 | 1065 | 1524 | 1524 | 612 | 648 | 1643 | 1148 | 1643 | 1312 | 655 | 687 | 1758 | 1228 | 1758 | 1556 | 699 | 724 | 1878 | 1312 | 1878 | 1556 | | | | | | | | | | |
| | 21.40 | 11.10 | 580 | 605 | 1360 | 901 | 1533 | 1312 | 686 | 715 | 1607 | 1065 | 1812 | 1312 | 739 | 770 | 1730 | 1148 | 1954 | 1312 | 791 | 825 | 1854 | 1228 | 2091 | 1556 | 845 | 880 | 1878 | 1312 | 2233 | 1556 | | | | | | | | | | |
| | 23.20 | 12.14 | 634 | 656 | 1360 | 901 | 1660 | 1312 | 749 | 775 | 1607 | 1065 | 1963 | 1312 | 808 | 834 | 1730 | 1148 | 1978 | 1312 | 865 | 894 | 1854 | 1228 | 2265 | 1556 | 923 | 954 | 1978 | 1312 | 2348 | 1556 | | | | | | | | | | |
| | 24.10 | 12.70 | 663 | 683 | 1360 | 901 | 1728 | 1312 | 784 | 807 | 1607 | 1065 | 1978 | 1312 | 845 | 869 | 1730 | 1148 | 1978 | 1312 | 905 | 931 | 1854 | 1228 | 2348 | 1556 | 966 | 993 | 1978 | 1312 | 2348 | 1556 | | | | | | | | | | |
| 5 1/2" 139.70 | 15.50 | 6.98 | 331 | 279 | 1103 | 957 | 1103 | 1103 | 392 | 308 | 1304 | 1132 | 1304 | 1304 | 422 | 321 | 1406 | 1220 | 1406 | 1394 | 452 | 333 | 1505 | 1306 | 1505 | 1505 | 483 | 344 | 1607 | 1394 | 1607 | 1607 | | | | | | | | | | |
| | 17.00 | 7.72 | 367 | 339 | 1213 | 957 | 1213 | 1213 | 433 | 379 | 1434 | 1132 | 1434 | 1394 | 467 | 398 | 1546 | 1220 | 1546 | 1394 | 500 | 416 | 1655 | 1306 | 1655 | 1655 | 534 | 434 | 1767 | 1394 | 1767 | 1655 | | | | | | | | | | |
| | 20.00 | 9.17 | 435 | 456 | 1425 | 957 | 1425 | 1394 | 515 | 520 | 1685 | 1132 | 1685 | 1394 | 555 | 550 | 1816 | 1220 | 1816 | 1394 | 594 | 580 | 1944 | 1306 | 1944 | 1655 | 634 | 609 | 2076 | 1394 | 2076 | 1655 | | | | | | | | | | |
| | 23.00 | 10.54 | 500 | 529 | 1472 | 957 | 1621 | 1394 | 592 | 625 | 1740 | 1132 | 1916 | 1394 | 638 | 673 | 1873 | 1220 | 2066 | 1394 | 683 | 722 | 2007 | 1306 | 2211 | 1655 | 729 | 770 | 2141 | 1394 | 2361 | 1655 | | | | | | | | | | |
| | 26.00 | 12.09 | 574 | 600 | 1472 | 957 | 1837 | 1394 | 678 | 709 | 1740 | 1132 | 2141 | 1394 | 732 | 763 | 1873 | 1220 | 2141 | 1394 | 783 | 818 | 2007 | 1306 | 2506 | 1655 | 836 | 872 | 2141 | 1394 | 2542 | 1655 | | | | | | | | | | |
| 5 3/4" 146.05 | 16.40 | 7.00 | 318 | 256 | 1159 | 1159 | 1159 | 1159 | 376 | 281 | 1370 | 1370 | 1370 | 1370 | 405 | 291 | 1477 | 1477 | 1477 | 1477 | 434 | 302 | 1581 | 1581 | 1581 | 1581 | 463 | 310 | 1688 | 1688 | 1688 | 1688 | | | | | | | | | | |
| | 17.90 | 7.70 | 350 | 309 | 1268 | 1268 | 1268 | 1268 | 413 | 345 | 1499 | 1499 | 1499 | 1499 | 446 | 360 | 1616 | 1616 | 1616 | 1616 | 477 | 376 | 1730 | 1730 | 1730 | 1730 | 509 | 390 | 1847 | 1847 | 1847 | 1847 | | | | | | | | | | |
| | 19.70 | 8.50 | 386 | 373 | 1392 | 1392 | 1392 | 1392 | 456 | 420 | 1646 | 1646 | 1646 | 1646 | 492 | 442 | 1774 | 1774 | 1774 | 1774 | 527 | 464 | 1899 | 1899 | 1899 | 1899 | 562 | 484 | 2028 | 2028 | 2028 | 2028 | | | | | | | | | | |
| | 20.40 | 9.00 | 409 | 410 | 1470 | 1470 | 1470 | 1470 | 484 | 465 | 1737 | 1737 | 1737 | 1737 | 521 | 491 | 1870 | 1870 | 1870 | 1870 | 558 | 517 | 2004 | 2004 | 2004 | 2004 | 595 | 541 | 2138 | 2138 | 2138 | 2138 | | | | | | | | | | |
| 6 5/8" 168.28 | 20.00 | 7.32 | 288 | 205 | 1403 | 1403 | 1403 | 1403 | 341 | 220 | 1658 | 1658 | 1658 | 1658 | 368 | 225 | 1788 | 1788 | 1788 | 1788 | 394 | 231 | 1914 | 1914 | 1914 | 1914 | 420 | 240 | 2043 | 2043 | 2043 | 2043 | | | | | | | | | | |
| | 24.00 | 8.94 | 352 | 314 | 1696 | 1696 | 1696 | 1696 | 416 | 350 | 2005 | 2005 | 2005 | 2005 | 449 | 367 | 2162 | 2162 | 2162 | 2162 | 481 | 383 | 2314 | 2314 | 2314 | 2314 | 513 | 397 | 2471 | 2471 | 2471 | 2471 | | | | | | | | | | |
| | 28.00 | 10.59 | 417 | 426 | 1989 | 1739 | 1989 | 1989 | 493 | 483 | 2351 | 2055 | 2351 | 2351 | 532 | 510 | 2534 | 2216 | 2534 | 2532 | 569 | 538 | 2713 | 2372 | 2713 | 2713 | 608 | 564 | 2896 | 2532 | 2896 | 2896 | | | | | | | | | | |
| | 32.00 | 12.06 | 475 | 505 | 2244 | 1739 | 2244 | 2244 | 562 | 597 | 2652 | 2055 | 2652 | 2532 | 606 | 639 | 2859 | 2216 | 2859 | 2532 | 648 | 676 | 3060 | 2372 | 3060 | 3005 | 692 | 712 | 3268 | 2532 | 3268 | 3005 | | | | | | | | | | |
| 7" 177.80 | 23.00 | 8.05 | 300 | 225 | 1627 | 1514 | 1627 | 1627 | 355 | 244 | 1923 | 1789 | 1923 | 1923 | 383 | 252 | 2073 | 1929 | 2073 | 2073 | 410 | 259 | 2219 | 2065 | 2219 | 2219 | 437 | 264 | 2370 | 2205 | 2370 | 2370 | | | | | | | | | | |
| | 26.00 | 9.19 | 343 | 298 | 1845 | 1514 | 1845 | 1845 | 405 | 331 | 2181 | 1789 | 2181 | 2181 | 437 | 346 | 2351 | 1929 | 2351 | 2205 | 468 | 360 | 2517 | 2065 | 2517 | 2517 | 499 | 373 | 2687 | 2205 | 2687 | 2616 | | | | | | | | | | |
| | 29.00 | 10.36 | 386 | 373 | 2065 | 1514 | 2065 | 2065 | 457 | 420 | 2441 | 1789 | 2441 | 2205 | 493 | 442 | 2632 | 1929 | 2632 | 2205 | 527 | 464 | 2817 | 2065 | 2817 | 2616 | 563 | 485 | 3008 | 2205 | 3008 | 2616 | | | | | | | | | | |
| | 32.00 | 11.51 | 429 | 446 | 2234 | 1514 | 2279 | 2205 | 508 | 507 | 2640 | 1789 | 2694 | 2205 | 547 | 536 | 2843 | 1929 | 2904 | 2205 | 586 | 566 | 3047 | 2065 | 3109 | 2616 | 625 | 594 | 3250 | 2205 | 3319 | 2616 | | | | | | | | | | |
| | 35.00 | 12.65 | 472 | 501 | 2234 | 1514 | 2487 | 2205 | 558 | 592 | 2640 | 1789 | 2940 | 2205 | 601 | 631 | 2843 | 1929 | 3170 | 2205 | 644 | 667 | 3047 | 2065 | 3393 | 2616 | 687 | 702 | 3250 | 2205 | 3623 | 2616 | | | | | | | | | | |
| | 38.00 | 13.72 | 512 | 540 | 2234 | 1514 | 2680 | 2205 | 605 | 638 | 2640 | 1789 | 3168 | 2205 | 652 | 687 | 2843 | 1929 | 3250 | 2205 | 698 | 736 | 3047 | 2065 | 3656 | 2616 | 745 | 785 | 3250 | 2205 | 3859 | 2616 | | | | | | | | | | |
| 5" 127.00 | | | GRADE 85 | | | | hi.gr.: 95 | | | | GRADE 90 | | | | hi.gr.: 110 | | | | GRADE 95 | | | | hi.gr.: 110 | | | | GRADE 110 | | | | hi.gr.: 125 | | | | GRADE 125 | | | | hi.gr.: 150 | | | |
| | 13.00 | 6.43 | 519 | 365 | 1427 | 1392 | 1427 | 1427 | 550 | 374 | 1512 | 1476 | 1512 | 1512 | 580 | 383 | 1595 | 1556 | 1595 | 1595 | 672 | 403 | 1846 | 1801 | 1846 | 1846 | 764 | 414 | 2099 | 2048 | 2099 | 2099 | | | | | | | | | | |
| | 15.00 | 7.52 | 607 | 521 | 1654 | 1392 | 1654 | 1556 | 643 | 540 | 1753 | 1476 | 1753 | 1753 | 679 | 559 | 1849 | 1556 | 1845 | 1801 | 785 | 610 | 2140 | 1801 | 2140 | 2048 | 893 | 654 | 2433 | 2048 | 2433 | 2433 | | | | | | | | | | |
| | 18.00 | 9.19 | 742 | 759 | 1993 | 1392 | 1993 | 1556 | 786 | 794 | 2112 | 1476 | 2112 | 1801 | 829 | 829 | 2228 | 1556 | 2228 | 1801 | 960 | 929 | 2578 | 1801 | 2578 | 2048 | 1092 | 1022 | 2932 | 2048 | 2932 | 2458 | | | | | | | | | | |
| | 21.40 | 11.10 | 897 | 935 | 2101 | 1392 | 2348 | 1556 | 951 | 990 | 2225 | 1476 | 2512 | 1801 | 1003 | 1045 | 2348 | 1556 | 2649 | 1801 | 1160 | 1210 | 2719 | 1801 | 3066 | 2048 | 1320 | 1375 | 3090 | 2048 | 3487 | 2458 | | | | | | | | | | |
| 23.20 | 12.14 | 980 | 1013 | 2101 | 1392 | 2348 | 1556 | 1039 | 1073 | 2225 | 1476 | 2719 | 1801 | 1096 | 1133 | 2348 | 1556 | 2719 | 1801 | 1268 | 1312 | 2719 | 1801 | 3090 | 2048 | 1442 | 1490 | 3090 | 2048 | 3708 | 2458 | | | | | | | | | | | |
| 24.10 | 12.70 | 1026 | 1055 | 2101 | 1392 | 2348 | 1556 | 1087 | 1117 | 2225 | 1476 | 2719 | 1801 | 1146 | 1179 | 2348 | 1556 | 2719 | 1801 | 1327 | 1365 | 2719 | 1801 | 3090 | 2048 | 1509 | 1551 | 3090 | 2048 | 3708 | 2458 | | | | | | | | | | | |
| 5 1/2" 139.70 | 15.50 | 6.98 | 512 | 354 | 1705 | 1480 | 1705 | 1655 | 543 | 363 | 1807 | 1569 | 1807 | 1807 | 573 | 371 | 1906 | 1655 | 1906 | 1906 | 663 | 388 | 2206 | 1915 | 2206 | 2177 | 754 | 406 | 2509 | 2177 | 2509 | 2509 | | | | | | | | | | |
| | 17.00 | 7.72 | 567 | 450 | 1876 | 1480 | 1876 | 1655 | 601 | 464 | 1988 | 1569 | 1988 | 1915 | 633 | 479 | 2097 | 1655 | 2097 | 1915 | 733 | 516 | 2426 | 1915 | 2426 | 2177 | 834 | 544 | 2759 | 2177 | 2759 | 2612 | | | | | | | | | | |
| | 20.00 | 9.17 | 673 | 637 | 2204 | 1480 | 2204 | 1655 | 713 | 664 | 2335 | 1569 | 2335 | 1915 | 752 | 691 | 2463 | 1655 | 2463 | 1915 | 871 | 766 | 2850 | 1915 | 2850 | 2177 | 990 | 833 | 3241 | 2177 | 3241 | 2612 | | | | | | | | | | |
| | 23.00 | 10.54 | 774 | 815 | 2275 | 1480 | 2506 | 1655 | 820 | 853 | 2409 | 1569 | 2656 | 1915 | 865 | 892 | 2542 | 1655 | 2801 | 1915 | 1001 | 1003 | 2944 | 1915 | 3242 | 2177 | 1138 | 1107 | 3345 | 2177 | 3687 | 2612 | | | | | | | | | | |
| | 26.00 | 12.09 | 887 | 926 | 2275 | 1480 | 2542 | 1655 | 941 | 981 | 2409 | 1569 | 2944 | 1915 | 992 | 1036 | 2542 | 1655 | 2944 | 1915 | 1148 | 1199 | 2944 | 1915 | 3345 | 2177 | 1305 | 1363 | 3345 | 2177 | 4014 | 2612 | | | | | | | | | | |
| 5 3/4" 146.05 | 16.40 | 7.00 | 492 | 318 | 1792 | 1792 | 1792 | 1792 | 521 | 324 | 1899 | 1899 | 1899 | 1899 | 549 | 330 | 2003 | 2003 | 2003 | 2003 | 636 | 349 | 2318 | 2318 | 2318 | 2318 | 723 | 370 | 2636 | 2636 | 2636 | 2636 | | | | | | | | | | |
| | 17.90 | 7.70 | 541 | 403 | 1961 | 1961 | 1961 | 1961 | 573 | 415 | 2078 | 2078 | 2078 | 2078 | 604 | 426 | 2192 | 2192 | 2192 | 2192 | 699 | 454 | 2537 | 2537 | 2537 | 2537 | 795 | 472 | 2885 | 2885 | 2885 | 2885 | | | | | | | | | | |
| | 19.70 | 8.50 | 597 | 504 | 2152 | 2152 | 2152 | 2152 | 632 | 522 | 2281 | 2281 | 2281 | 2281 | 667 | 540 | 2406 | 2406 | 2406 | 2406 | 772 | 588 | 2784 | 2784 | 2784</ | | | | | | | | | | | | | | | | | |

PERFORMANCE PROPERTIES TUBING (US CUSTOMARY-UNITS)

| PIPE OUTSIDE DIAMETER | NOMI-NAL WEIGHT | WALL THICK-NESS | GRADE 55 | | | | GRADE 65 | | | | GRADE 70 | | | | GRADE 75 | | | | GRADE 80 | | | |
|-----------------------|-----------------|-----------------|----------|-------|---------|-------|----------|-------|---------|-------|----------|-------|---------|-------|-----------|-------|---------|-------|----------|-------|---------|-----|
| | | | Pi | Pc | Sy | L | Pi | Pc | Sy | L | Pi | Pc | Sy | L | Pi | Pc | Sy | L | Pi | Pc | Sy | L |
| | | | psi | | 1000*lb | | psi | | 1000*lb | | psi | | 1000*lb | | psi | | 1000*lb | | psi | | 1000*lb | |
| inch/mm | lb/ft | inch | | | | | | | | | | | | | | | | | | | | |
| 1.9" | 2.75 | 0.145 | 7335 | 7744 | 44 | 41 | 8670 | 9153 | 52 | 48 | 9348 | 9868 | 56 | 52 | 10006 | 10563 | 60 | 55 | 10683 | 11278 | 64 | 59 |
| 48.26 | 3.65 | 0.200 | 10125 | 10354 | 59 | 43 | 11969 | 12239 | 69 | 51 | 12904 | 13195 | 75 | 55 | 13812 | 14124 | 80 | 59 | 14747 | 15080 | 85 | 63 |
| 2 3/8" | 4.60 | 0.190 | 7701 | 8093 | 72 | 54 | 9103 | 9572 | 85 | 64 | 9814 | 10297 | 91 | 69 | 10505 | 11037 | 98 | 74 | 11216 | 11762 | 105 | 79 |
| 60.32 | 5.10 | 0.218 | 8833 | 9166 | 80 | 54 | 10441 | 10834 | 94 | 64 | 11257 | 11675 | 101 | 69 | 12050 | 12502 | 109 | 74 | 12865 | 13343 | 116 | 79 |
| higher coupling grade | (5.10) | (0.218) | grade: | 80 | 81 | 79 | grade: | 80 | 96 | 79 | grade: | 80 | 104 | 79 | grade: | 95 | 111 | 94 | grade: | 95 | 118 | 94 |
| 5.80 | 0.254 | 10284 | 10500 | 93 | 73 | 12156 | 12415 | 110 | 86 | 13106 | 13372 | 119 | 93 | 14029 | 14329 | 127 | 100 | 14979 | 15286 | 135 | 106 | |
| 2 7/8" | 6.40 | 0.217 | 7258 | 7672 | 100 | 65 | 8579 | 9065 | 118 | 77 | 9249 | 9761 | 127 | 83 | 9900 | 10471 | 136 | 89 | 10570 | 11168 | 145 | 95 |
| 73.02 | 7.80 | 0.276 | 9233 | 9543 | 124 | 102 | 10914 | 11284 | 146 | 120 | 11767 | 12168 | 158 | 129 | 12595 | 13024 | 169 | 139 | 13448 | 13880 | 180 | 148 |
| 8.60 | 0.308 | 10300 | 10515 | 136 | 102 | 12176 | 12429 | 161 | 120 | 13127 | 13532 | 174 | 129 | 14051 | 14344 | 186 | 139 | 15002 | 15301 | 199 | 148 | |
| 3 1/2" | 9.20 | 0.254 | 6979 | 7397 | 142 | 91 | 8250 | 8745 | 168 | 108 | 8894 | 9427 | 181 | 116 | 9520 | 10007 | 194 | 125 | 10165 | 10544 | 207 | 133 |
| 88.90 | 10.20 | 0.289 | 7942 | 8339 | 160 | 110 | 9388 | 9848 | 189 | 130 | 10122 | 10602 | 204 | 140 | 10834 | 11356 | 219 | 150 | 11567 | 12125 | 233 | 160 |
| higher coupling grade | (12.70) | (0.375) | grade: | 80 | 202 | 202 | grade: | 80 | 239 | 219 | grade: | 80 | 258 | 219 | grade: | 95 | 276 | 260 | grade: | 95 | 295 | 260 |
| 13.70 | 0.413 | 11361 | 11443 | 220 | 186 | 13430 | 13532 | 260 | 220 | 14479 | 14561 | 281 | 238 | 15498 | 15606 | 301 | 254 | 16547 | 16650 | 321 | 272 | |
| 14.70 | 0.450 | 12368 | 12328 | 228 | 186 | 14619 | 14561 | 269 | 220 | 15761 | 15678 | 290 | 238 | 16871 | 16809 | 311 | 254 | 18013 | 17926 | 331 | 272 | |
| 4" | 9.50 | 0.226 | 5435 | 5105 | 147 | 112 | 6431 | 5743 | 174 | 132 | 6926 | 6033 | 187 | 142 | 7420 | 6323 | 201 | 152 | 7915 | 6584 | 214 | 163 |
| 101.60 | 10.70 | 0.262 | 6296 | 6586 | 169 | 112 | 7442 | 7501 | 199 | 132 | 8024 | 7939 | 215 | 142 | 8588 | 8371 | 230 | 152 | 9170 | 8789 | 246 | 163 |
| 13.20 | 0.330 | 7934 | 8319 | 209 | 154 | 9378 | 9834 | 247 | 182 | 10111 | 10602 | 266 | 197 | 10823 | 11349 | 285 | 210 | 11555 | 12117 | 304 | 224 | |
| 4 1/2" | 10.50 | 0.224 | 4789 | 4003 | 165 | 116 | 5660 | 4423 | 196 | 137 | 6103 | 4598 | 211 | 148 | 6532 | 4786 | 226 | 159 | 6974 | 4946 | 241 | 169 |
| 114.30 | 11.60 | 0.250 | 5344 | 4960 | 183 | 116 | 6317 | 5555 | 217 | 137 | 6810 | 5830 | 234 | 148 | 7290 | 6106 | 250 | 159 | 7783 | 6352 | 267 | 169 |
| 12.60 | 0.271 | 5790 | 5729 | 198 | 116 | 6844 | 6468 | 234 | 137 | 7379 | 6831 | 252 | 148 | 7898 | 7179 | 270 | 159 | 8433 | 7498 | 288 | 169 | |
| 13.50 | 0.290 | 6202 | 6425 | 211 | 158 | 7332 | 7310 | 249 | 187 | 7904 | 7730 | 269 | 201 | 8461 | 8136 | 288 | 216 | 9034 | 8542 | 307 | 230 | |
| 15.20 | 0.337 | 7204 | 7614 | 240 | 158 | 8515 | 9007 | 284 | 187 | 9181 | 9703 | 306 | 201 | 9827 | 10399 | 328 | 216 | 10492 | 11080 | 350 | 230 | |
| higher coupling grade | (15.20) | (0.337) | grade: | 80 | 242 | 230 | grade: | 80 | 286 | 230 | grade: | 80 | 309 | 230 | grade: | 95 | 330 | 273 | grade: | 95 | 353 | 273 |
| 17.00 | 0.380 | 8121 | 8499 | 270 | 221 | 9600 | 10051 | 320 | 262 | 10350 | 10819 | 344 | 282 | 11078 | 11603 | 369 | 302 | 11828 | 12371 | 394 | 322 | |
| 18.90 | 0.430 | 9190 | 9500 | 286 | 221 | 10863 | 11240 | 339 | 262 | 11712 | 12096 | 365 | 282 | 12536 | 12966 | 391 | 302 | 13385 | 13822 | 417 | 322 | |
| | | | GRADE 85 | | | | GRADE 90 | | | | GRADE 95 | | | | GRADE 110 | | | | | | | |
| 1.9" | 2.75 | 0.145 | 11341 | 11973 | 68 | 63 | 12019 | 12688 | 72 | 66 | 12677 | 13383 | 76 | 70 | 14670 | 15487 | 88 | 81 | | | | |
| 48.26 | 3.65 | 0.200 | 15656 | 16009 | 90 | 67 | 16591 | 16965 | 96 | 71 | 17499 | 17894 | 101 | 75 | 20251 | 20708 | 117 | 87 | | | | |
| 2 3/8" | 4.60 | 0.190 | 11907 | 12502 | 111 | 84 | 12619 | 13241 | 118 | 89 | 13309 | 13981 | 124 | 94 | 15402 | 16128 | 144 | 109 | | | | |
| 60.32 | 5.10 | 0.218 | 13658 | 14170 | 123 | 84 | 14473 | 15011 | 130 | 89 | 15266 | 15838 | 138 | 94 | 17666 | 18347 | 159 | 109 | | | | |
| higher coupling grade | (5.10) | (0.218) | grade: | 95 | 126 | 94 | grade: | 110 | 133 | 109 | grade: | 110 | 140 | 109 | grade: | 125 | 162 | 124 | | | | |
| 5.80 | 0.254 | 15901 | 16229 | 144 | 113 | 16851 | 17186 | 152 | 120 | 17773 | 18144 | 161 | 126 | 20568 | 21015 | 186 | 146 | | | | | |
| 2 7/8" | 6.40 | 0.217 | 11222 | 11820 | 154 | 100 | 11892 | 12386 | 163 | 106 | 12543 | 12937 | 172 | 112 | 14515 | 14547 | 199 | 130 | | | | |
| 73.02 | 7.80 | 0.276 | 14276 | 14750 | 192 | 157 | 15129 | 15620 | 203 | 166 | 15957 | 16490 | 214 | 176 | 18467 | 19068 | 248 | 203 | | | | |
| 8.60 | 0.308 | 15926 | 16258 | 211 | 157 | 16877 | 17215 | 224 | 166 | 17801 | 18173 | 236 | 176 | 20601 | 21044 | 273 | 203 | | | | | |
| 3 1/2" | 9.20 | 0.254 | 10791 | 11051 | 220 | 141 | 11435 | 11574 | 233 | 150 | 12062 | 12081 | 246 | 158 | 13958 | 13532 | 285 | 183 | | | | |
| 88.90 | 10.20 | 0.289 | 12280 | 12879 | 248 | 170 | 13013 | 13633 | 263 | 180 | 13726 | 14387 | 277 | 190 | 15884 | 16664 | 320 | 220 | | | | |
| higher coupling grade | (12.70) | (0.375) | grade: | 95 | 313 | 260 | grade: | 110 | 331 | 301 | grade: | 110 | 350 | 301 | grade: | 125 | 405 | 342 | | | | |
| 13.70 | 0.413 | 17567 | 17694 | 341 | 288 | 18616 | 18738 | 361 | 306 | 19635 | 19768 | 381 | 322 | 22723 | 22901 | 441 | 373 | | | | | |
| 14.70 | 0.450 | 19123 | 19043 | 352 | 288 | 20265 | 20174 | 373 | 306 | 21374 | 21291 | 394 | 322 | 24735 | 24656 | 456 | 373 | | | | | |
| 4" | 9.50 | 0.226 | 8410 | 6846 | 228 | 173 | 8905 | 7078 | 241 | 183 | 9399 | 7310 | 254 | 193 | 10883 | 7904 | 295 | 223 | | | | |
| 101.60 | 10.70 | 0.262 | 9735 | 9194 | 261 | 173 | 10316 | 9581 | 276 | 183 | 10881 | 9962 | 292 | 193 | 12592 | 11041 | 337 | 223 | | | | |
| 13.20 | 0.330 | 12267 | 12863 | 323 | 238 | 13000 | 13632 | 342 | 252 | 13712 | 14378 | 361 | 266 | 15868 | 16639 | 417 | 307 | | | | | |
| 4 1/2" | 10.50 | 0.224 | 7404 | 5076 | 256 | 180 | 7846 | 5192 | 271 | 191 | 8276 | 5308 | 286 | 201 | 9577 | 5555 | 331 | 233 | | | | |
| 114.30 | 11.60 | 0.250 | 8263 | 6599 | 284 | 180 | 8756 | 6817 | 301 | 191 | 9236 | 7020 | 317 | 201 | 10688 | 7585 | 367 | 233 | | | | |
| 12.60 | 0.271 | 8952 | 7817 | 306 | 180 | 9487 | 8122 | 324 | 191 | 10007 | 8412 | 342 | 201 | 11580 | 9210 | 396 | 233 | | | | | |
| 13.50 | 0.290 | 9590 | 8934 | 326 | 244 | 10163 | 9297 | 346 | 259 | 10719 | 9659 | 365 | 273 | 12405 | 10689 | 422 | 316 | | | | | |
| 15.20 | 0.337 | 11139 | 11675 | 372 | 244 | 11804 | 12212 | 393 | 259 | 12450 | 12763 | 415 | 273 | 14408 | 14344 | 481 | 316 | | | | | |
| higher coupling grade | (15.20) | (0.337) | grade: | 95 | 375 | 273 | grade: | 110 | 397 | 316 | grade: | 110 | 419 | 316 | grade: | 125 | 485 | 359 | | | | |
| 17.00 | 0.380 | 12557 | 13140 | 418 | 342 | 13307 | 13923 | 443 | 363 | 14035 | 14692 | 467 | 383 | 16243 | 17012 | 541 | 443 | | | | | |
| 18.90 | 0.430 | 14209 | 14692 | 443 | 342 | 15058 | 15562 | 469 | 363 | 15883 | 16418 | 495 | 383 | 18380 | 19014 | 573 | 443 | | | | | |

Performance properties for other grades and for special clearance couplings on request.

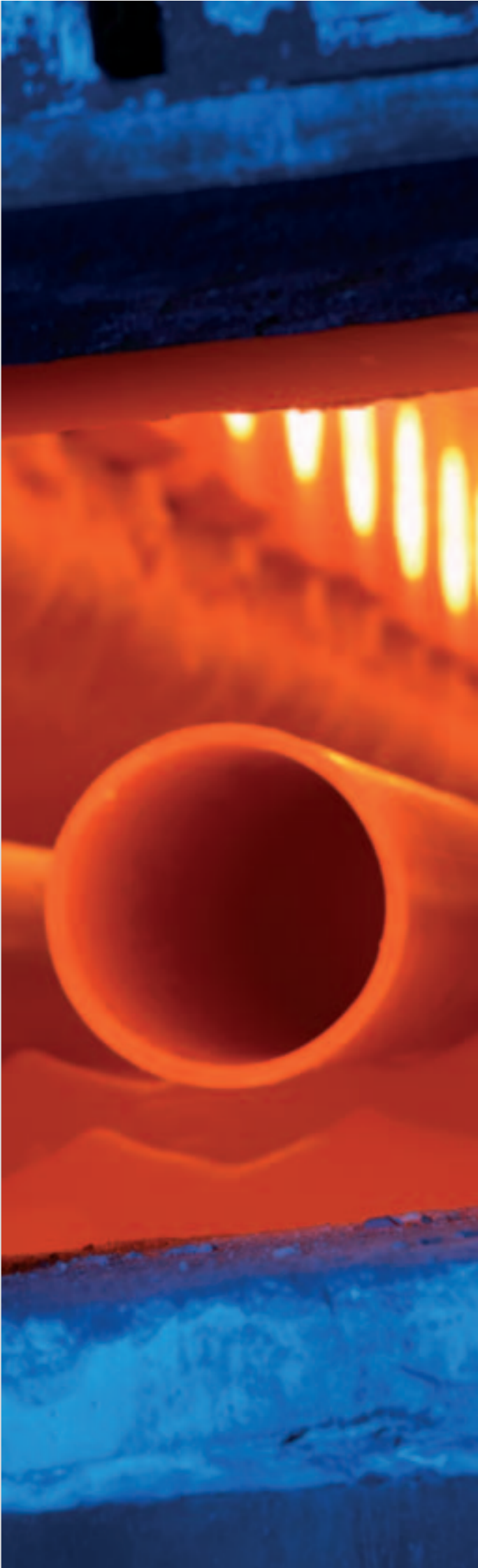
Pi ... internal yield pressure

Pc ... collapse resistance (VA-HC-grades on request)

Sy ... yield strength (pipe or coupling)

L ... max. load on coupling face (on alternative coupling L is higher or equal to Sy)

Other grades on request



PERFORMANCE PROPERTIES CASING

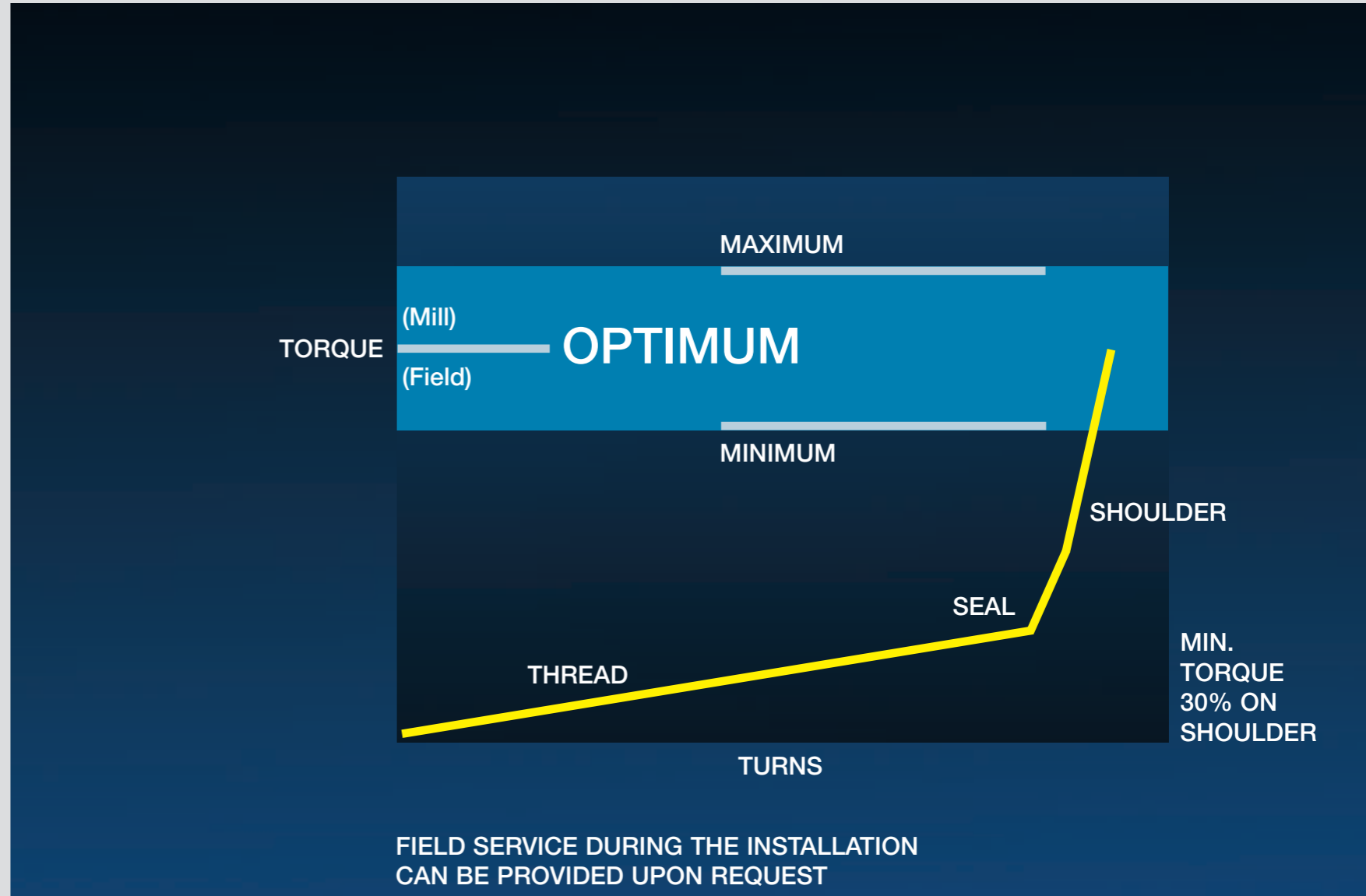
(US CUSTOMARY-UNITS)

| PIPE OUTSIDE DIAMETER | NOMI- NAL WEIGHT | WALL THICK- NESS | GRADE 55 | | | | hi.gr.: 80 | | | | GRADE 65 | | | | hi.gr.: 80 | | | | GRADE 70 | | | | hi.gr.: 80 | | | | GRADE 75 | | | | hi.gr.: 95 | | | | GRADE 80 | | | | hi.gr.: 95 | | | |
|--------------------------|------------------------|------------------------|----------|-------|---------|-----|------------|-------|-------|-------|----------|-----|---------|-------|-------------|-------|---------|-----|----------|-------|-------|-------|-------------|-----|---------|-------|-----------|-------|---------|-----|-------------|-----|-----|----|-----------|---|---------|-----|-------------|--|--|--|
| | | | Pi | Pc | Sy | L | Sy h | L h | Pi | Pc | Sy | L | Sy h | L h | Pi | Pc | Sy | L | Sy h | L h | Pi | Pc | Sy | L | Sy h | L h | Pi | Pc | Sy | L | Sy h | L h | Pi | Pc | Sy | L | Sy h | L h | | | | |
| | | | psi | | 1000*lb | | 1000*lb | | psi | | 1000*lb | | 1000*lb | | psi | | 1000*lb | | 1000*lb | | psi | | 1000*lb | | 1000*lb | | psi | | 1000*lb | | 1000*lb | | psi | | 1000*lb | | 1000*lb | | | | | |
| inch/mm | lb/ft | inch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5" 127.00 | 13.00 | 0.253 | 4870 | 4148 | 208 | 202 | 208 | 208 | 5757 | 4583 | 245 | 239 | 245 | 245 | 6207 | 4786 | 264 | 258 | 264 | 264 | 6644 | 4975 | 283 | 276 | 283 | 283 | 7093 | 5134 | 302 | 295 | 302 | 302 | | | | | | | | | | |
| | 15.00 | 0.296 | 5696 | 5555 | 241 | 202 | 241 | 241 | 6733 | 6280 | 284 | 239 | 284 | 284 | 7259 | 6613 | 306 | 258 | 306 | 295 | 7770 | 6933 | 328 | 276 | 328 | 328 | 8296 | 7252 | 350 | 295 | 350 | 350 | | | | | | | | | | |
| | 18.00 | 0.362 | 6961 | 7382 | 290 | 202 | 290 | 290 | 8228 | 8713 | 343 | 239 | 343 | 295 | 8871 | 9398 | 369 | 258 | 369 | 295 | 9495 | 9964 | 395 | 276 | 395 | 350 | 10138 | 10500 | 422 | 295 | 422 | 350 | | | | | | | | | | |
| | 21.40 | 0.437 | 8415 | 8774 | 306 | 202 | 345 | 295 | 9947 | 10370 | 361 | 239 | 407 | 295 | 10724 | 11168 | 389 | 258 | 439 | 295 | 11479 | 11965 | 417 | 276 | 470 | 350 | 12256 | 12763 | 445 | 295 | 502 | 350 | | | | | | | | | | |
| | 23.20 | 0.478 | 9195 | 9514 | 306 | 202 | 373 | 295 | 10869 | 11240 | 361 | 239 | 441 | 295 | 11718 | 12096 | 389 | 258 | 445 | 295 | 12543 | 12966 | 417 | 276 | 509 | 350 | 13392 | 13836 | 445 | 295 | 528 | 350 | | | | | | | | | | |
| | 24.10 | 0.500 | 9619 | 9906 | 306 | 202 | 389 | 295 | 11371 | 11704 | 361 | 239 | 445 | 295 | 12259 | 12603 | 389 | 258 | 445 | 295 | 13122 | 13503 | 417 | 276 | 528 | 350 | 14010 | 14402 | 445 | 295 | 528 | 350 | | | | | | | | | | |
| 5 1/2" 139.70 | 15.50 | 0.275 | 4806 | 4046 | 248 | 215 | 248 | 248 | 5681 | 4467 | 293 | 254 | 293 | 293 | 6125 | 4656 | 316 | 274 | 316 | 313 | 6556 | 4830 | 338 | 294 | 338 | 338 | 7000 | 4989 | 361 | 313 | 361 | 361 | | | | | | | | | | |
| | 17.00 | 0.304 | 5316 | 4917 | 273 | 215 | 273 | 273 | 6284 | 5497 | 322 | 254 | 322 | 313 | 6774 | 5772 | 348 | 274 | 348 | 313 | 7251 | 6033 | 372 | 294 | 372 | 372 | 7742 | 6294 | 397 | 313 | 397 | 372 | | | | | | | | | | |
| | 20.00 | 0.361 | 6314 | 6613 | 320 | 215 | 320 | 313 | 7464 | 7542 | 379 | 254 | 379 | 313 | 8047 | 7977 | 408 | 274 | 408 | 313 | 8613 | 8412 | 437 | 294 | 437 | 372 | 9196 | 8832 | 467 | 313 | 467 | 372 | | | | | | | | | | |
| | 23.00 | 0.415 | 7258 | 7672 | 331 | 215 | 364 | 313 | 8579 | 9065 | 391 | 254 | 431 | 313 | 9249 | 9761 | 421 | 274 | 464 | 313 | 9900 | 10471 | 451 | 294 | 497 | 372 | 10570 | 11168 | 481 | 313 | 531 | 372 | | | | | | | | | | |
| | 26.00 | 0.476 | 8325 | 8702 | 331 | 215 | 413 | 313 | 9840 | 10283 | 391 | 254 | 481 | 313 | 10609 | 11066 | 421 | 274 | 481 | 313 | 11356 | 11864 | 451 | 294 | 563 | 372 | 12125 | 12647 | 481 | 313 | 572 | 372 | | | | | | | | | | |
| 5 3/4" 146.05 | 16.40 | 0.276 | 4610 | 3713 | 261 | 261 | 261 | 261 | 5450 | 4075 | 308 | 308 | 308 | 308 | 5876 | 4220 | 332 | 332 | 332 | 332 | 6289 | 4380 | 355 | 355 | 355 | 355 | 6715 | 4496 | 379 | 379 | 379 | 379 | | | | | | | | | | |
| | 17.90 | 0.303 | 5071 | 4482 | 285 | 285 | 285 | 285 | 5995 | 5004 | 337 | 337 | 337 | 337 | 6463 | 5221 | 363 | 363 | 363 | 363 | 6918 | 5453 | 389 | 389 | 389 | 389 | 7386 | 5656 | 415 | 415 | 415 | 415 | | | | | | | | | | |
| | 19.70 | 0.335 | 5598 | 5410 | 313 | 313 | 313 | 313 | 6618 | 6091 | 370 | 370 | 370 | 370 | 7135 | 6410 | 399 | 399 | 399 | 399 | 7637 | 6730 | 427 | 427 | 427 | 427 | 8154 | 7020 | 456 | 456 | 456 | 456 | | | | | | | | | | |
| | 20.40 | 0.354 | 5932 | 5946 | 330 | 330 | 330 | 330 | 7020 | 6744 | 390 | 390 | 390 | 390 | 7556 | 7121 | 420 | 420 | 420 | 420 | 8093 | 7498 | 450 | 450 | 450 | 450 | 8629 | 7846 | 480 | 480 | 480 | 480 | | | | | | | | | | |
| 6 5/8" 168.28 | 20.00 | 0.288 | 4184 | 2973 | 315 | 315 | 315 | 315 | 4945 | 3191 | 373 | 373 | 373 | 373 | 5332 | 3263 | 402 | 402 | 402 | 402 | 5707 | 3350 | 430 | 430 | 430 | 430 | 6094 | 3481 | 459 | 459 | 459 | 459 | | | | | | | | | | |
| | 24.00 | 0.352 | 5110 | 4554 | 381 | 381 | 381 | 381 | 6040 | 5076 | 451 | 451 | 451 | 451 | 6512 | 5323 | 486 | 486 | 486 | 486 | 6970 | 5555 | 520 | 520 | 520 | 520 | 7442 | 5758 | 555 | 555 | 555 | 555 | | | | | | | | | | |
| | 28.00 | 0.417 | 6053 | 6178 | 447 | 391 | 447 | 447 | 7155 | 7005 | 528 | 462 | 528 | 528 | 7714 | 7397 | 570 | 498 | 570 | 569 | 8257 | 7803 | 610 | 533 | 610 | 610 | 8816 | 8180 | 651 | 569 | 651 | 651 | | | | | | | | | | |
| | 32.00 | 0.475 | 6893 | 7324 | 504 | 391 | 504 | 504 | 8148 | 8658 | 596 | 462 | 596 | 569 | 8784 | 9268 | 643 | 498 | 643 | 569 | 9403 | 9804 | 688 | 533 | 688 | 676 | 10039 | 10326 | 735 | 569 | 735 | 676 | | | | | | | | | | |
| 7" 177.80 | 23.00 | 0.317 | 4355 | 3263 | 366 | 340 | 366 | 366 | 5148 | 3539 | 432 | 402 | 432 | 432 | 5550 | 3655 | 466 | 434 | 466 | 466 | 5941 | 3756 | 499 | 464 | 499 | 499 | 6343 | 3829 | 533 | 496 | 533 | 533 | | | | | | | | | | |
| | 26.00 | 0.362 | 4972 | 4322 | 415 | 340 | 415 | 415 | 5877 | 4801 | 490 | 402 | 490 | 490 | 6336 | 5018 | 529 | 434 | 529 | 496 | 6782 | 5221 | 566 | 464 | 566 | 566 | 7241 | 5410 | 604 | 496 | 604 | 588 | | | | | | | | | | |
| | 29.00 | 0.408 | 5605 | 5410 | 464 | 340 | 464 | 464 | 6625 | 6091 | 549 | 402 | 549 | 496 | 7143 | 6410 | 592 | 434 | 592 | 496 | 7646 | 6730 | 633 | 464 | 633 | 588 | 8163 | 7034 | 676 | 496 | 676 | 588 | | | | | | | | | | |
| | 32.00 | 0.453 | 6227 | 6468 | 502 | 340 | 512 | 496 | 7361 | 7353 | 594 | 402 | 606 | 496 | 7936 | 7774 | 639 | 434 | 653 | 496 | 8495 | 8209 | 685 | 464 | 699 | 588 | 9070 | 8615 | 731 | 496 | 746 | 588 | | | | | | | | | | |
| | 35.00 | 0.498 | 6844 | 7266 | 502 | 340 | 559 | 496 | 8090 | 8586 | 594 | 402 | 661 | 496 | 8722 | 9152 | 639 | 434 | 713 | 496 | 9336 | 9674 | 685 | 464 | 763 | 588 | 9968 | 10181 | 731 | 496 | 814 | 588 | | | | | | | | | | |
| | 38.00 | 0.540 | 7423 | 7832 | 502 | 340 | 603 | 496 | 8774 | 9253 | 594 | 402 | 712 | 496 | 9460 | 9964 | 639 | 434 | 731 | 496 | 10126 | 10674 | 685 | 464 | 822 | 588 | 10811 | 11385 | 731 | 496 | 868 | 588 | | | | | | | | | | |
| 5" 127.00 | | | GRADE 85 | | | | hi.gr.: 95 | | | | GRADE 90 | | | | hi.gr.: 110 | | | | GRADE 95 | | | | hi.gr.: 110 | | | | GRADE 110 | | | | hi.gr.: 125 | | | | GRADE 125 | | | | hi.gr.: 150 | | | |
| | 13.00 | 0.253 | 7530 | 5294 | 321 | 313 | 321 | 321 | 9800 | 5424 | 340 | 332 | 340 | 340 | 8417 | 5555 | 359 | 350 | 359 | 359 | 9740 | 5845 | 415 | 405 | 415 | 415 | 11077 | 6004 | 472 | 460 | 472 | 472 | | | | | | | | | | |
| | 15.00 | 0.296 | 8807 | 7556 | 372 | 313 | 372 | 350 | 9333 | 7832 | 394 | 332 | 394 | 394 | 9844 | 8107 | 416 | 350 | 416 | 405 | 11392 | 8847 | 481 | 405 | 481 | 460 | 12955 | 9485 | 547 | 460 | 547 | 547 | | | | | | | | | | |
| | 18.00 | 0.362 | 10763 | 11008 | 448 | 313 | 448 | 350 | 11405 | 11516 | 475 | 332 | 475 | 405 | 12030 | 12023 | 501 | 350 | 501 | 405 | 13921 | 13474 | 580 | 405 | 580 | 460 | 15832 | 14822 | 659 | 460 | 659 | 552 | | | | | | | | | | |
| | 21.40 | 0.437 | 13011 | 13561 | 472 | 313 | 528 | 350 | 13788 | 14358 | 500 | 332 | 565 | 405 | 14543 | 15156 | 528 | 350 | 596 | 405 | 16830 | 17549 | 611 | 405 | 689 | 460 | 19139 | 19942 | 695 | 460 | 784 | 552 | | | | | | | | | | |
| | 23.20 | 0.478 | 14217 | 14692 | 472 | 313 | 528 | 350 | 15066 | 15562 | 500 | 332 | 611 | 405 | 15891 | 16432 | 528 | 350 | 611 | 405 | 18390 | 19028 | 611 | 405 | 695 | 460 | 20913 | 21610 | 695 | 460 | 834 | 552 | | | | | | | | | | |
| 24.10 | 0.500 | 14873 | 15301 | 472 | 313 | 528 | 350 | 15761 | 16200 | 500 | 332 | 611 | 405 | 16624 | 17099 | 528 | 350 | 611 | 405 | 19239 | 19797 | 611 | 405 | 695 | 460 | 21878 | 22495 | 695 | 460 | 834 | 552 | | | | | | | | | | | |
| 5 1/2" 139.70 | 15.50 | 0.275 | 7431 | 5134 | 383 | 333 | 383 | 372 | 7875 | 5265 | 406 | 353 | 406 | 406 | 8306 | 5381 | 429 | 372 | 429 | 429 | 9612 | 5627 | 496 | 430 | 496 | 489 | 10931 | 5888 | 564 | 489 | 564 | 564 | | | | | | | | | | |
| | 17.00 | 0.304 | 8219 | 6526 | 422 | 333 | 422 | 372 | 8710 | 6730 | 447 | 353 | 447 | 430 | 9187 | 6947 | 471 | 372 | 471 | 430 | 10631 | 7484 | 545 | 430 | 545 | 489 | 12090 | 7890 | 620 | 489 | 620 | 587 | | | | | | | | | | |
| | 20.00 | 0.361 | 9763 | 9239 | 495 | 333 | 495 | 372 | 10346 | 9630 | 525 | 353 | 525 | 430 | 10912 | 10022 | 554 | 372 | 554 | 430 | 12628 | 11109 | 641 | 430 | 641 | 489 | 14361 | 12081 | 729 | 489 | 729 | 587 | | | | | | | | | | |
| | 23.00 | 0.415 | 11221 | 11820 | 511 | 333 | 563 | 372 | 11892 | 12371 | 541 | 353 | 597 | 430 | 12543 | 12937 | 572 | 372 | 630 | 430 | 14515 | 14547 | 662 | 430 | 729 | 489 | 16507 | 16055 | 752 | 489 | 829 | 587 | | | | | | | | | | |
| | 26.00 | 0.476 | 12872 | 13430 | 511 | 333 | 572 | 372 | 13640 | 14228 | 541 | 353 | 662 | 430 | 14387 | 15025 | 572 | 372 | 662 | 430 | 16650 | 17389 | 662 | 430 | 752 | 489 | 18934 | 19768 | 752 | 489 | 902 | 587 | | | | | | | | | | |
| 5 3/4" 146.05 | 16.40 | 0.276 | 7128 | 4612 | 403 | 403 | 403 | 403 | 7554 | 4699 | 427 | 427 | 427 | 427 | 7968 | 4786 | 450 | 450 | 450 | 450 | 9221 | 5062 | 521 | 521 | 521 | 521 | 10486 | 5366 | 593 | 593 | 593 | 593 | | | | | | | | | | |
| | 17.90 | 0.303 | 7841 | 5845 | 441 | 441 | 441 | 441 | 8310 | 6019 | 467 | 467 | 467 | 467 | 8765 | 6178 | 493 | 493 | 493 | 493 | 10143 | 6584 | 570 | 570 | 570 | 570 | 11535 | 6846 | 649 | 649 | 649 | 649 | | | | | | | | | | |
| | 19.70 | 0.335 | 8656 | 7310 | 484 | 484 | 484 | 484 | 9173 | 7571 | 513 | 513 | 513 | 513 | 9675 | 7832 | 541 | 541 | 541 | 541 | 11197 | 8528 | 626 | 626 | 626 | 626 | 12733 | 9094 | 712 | 712 | 712 | 712 | | | | | | | | | | |
| | 20.40 | 0.354 | 9166 | 8194 | 510 | 510 | 510 | 510 | 9717 | 8513 | 540 | 540 | 540 | 540 | 10254 | 8832 | 570 | 570 | | | | | | | | | | | | | | | | | | | | | | | | |

MAKE UP TORQUES

| | | RECOMMENDED OPTIMUM MAKE-UP TORQUES FOR REGULAR COUPLINGS | | | | | | | | | |
|-----------------------|----------------|---|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|
| PIPE OUTSIDE DIAMETER | NOMINAL WEIGHT | GRADE 55 | GRADE 65 | GRADE 70 | GRADE 75 | GRADE 80 | GRADE 85 | GRADE 90 | GRADE 95 | GRADE 110 | GRADE 125 |
| inch/mm | lb/ft | lbft (1 lbft = 1.3558 Nm) | | | | | | | | | |
| 1.9" 48.26 | 2.75 | 560 | 610 | 630 | 650 | 670 | 700 | 720 | 740 | 800 | 870 |
| | 3.65 | 710 | 760 | 780 | 810 | 830 | 860 | 880 | 910 | 990 | 1060 |
| 2 3/8" 60.32 | 4.60 | 1180 | 1270 | 1320 | 1360 | 1410 | 1450 | 1500 | 1540 | 1680 | 1810 |
| | 5.10 | 1260 | 1350 | 1390 | 1440 | 1480 | 1530 | 1570 | 1620 | 1760 | 1890 |
| | 5.80 | 1510 | 1620 | 1670 | 1730 | 1780 | 1840 | 1890 | 1950 | 2110 | 2270 |
| 2 7/8" 73.02 | 6.40 | 1770 | 1900 | 1970 | 2040 | 2100 | 2170 | 2240 | 2300 | 2500 | 2700 |
| | 7.80 | 2240 | 2390 | 2470 | 2550 | 2630 | 2700 | 2780 | 2860 | 3090 | 3320 |
| | 8.60 | 2330 | 2490 | 2560 | 2640 | 2720 | 2790 | 2870 | 2950 | 3180 | 3410 |
| 3 1/2" 88.90 | 9.20 | 2320 | 2520 | 2620 | 2720 | 2820 | 2920 | 3020 | 3120 | 3420 | 3720 |
| | 10.20 | 2600 | 2820 | 2930 | 3030 | 3140 | 3250 | 3360 | 3460 | 3790 | 4110 |
| | 12.70 | 3170 | 3410 | 3540 | 3660 | 3780 | 3900 | 4020 | 4140 | 4510 | 4870 |
| | 13.70 | 3720 | 4010 | 4160 | 4300 | 4450 | 4600 | 4750 | 4890 | 5340 | 5770 |
| | 14.70 | 4140 | 4490 | 4670 | 4840 | 5020 | 5190 | 5370 | 5540 | 6050 | 6600 |
| 4" 101.60 | 9.50 | 2110 | 2320 | 2430 | 2540 | 2650 | 2750 | 2860 | 2960 | 3290 | 3610 |
| | 10.70 | 2540 | 2820 | 2950 | 3090 | 3230 | 3360 | 3500 | 3630 | 4050 | 4450 |
| | 13.20 | 2870 | 3150 | 3290 | 3420 | 3560 | 3700 | 3840 | 3980 | 4400 | 4810 |
| 4 1/2" 114.30 | 10.50 | 3210 | 3480 | 3620 | 3750 | 3890 | 4030 | 4170 | 4300 | 4720 | 5120 |
| | 11.60 | 3590 | 3910 | 4070 | 4230 | 4390 | 4550 | 4710 | 4870 | 5350 | 5830 |
| | 12.60 | 3670 | 3990 | 4160 | 4310 | 4480 | 4630 | 4800 | 4950 | 5440 | 5910 |
| | 13.50 | 4210 | 4570 | 4760 | 4930 | 5120 | 5300 | 5480 | 5660 | 6210 | 6740 |
| | 15.20 | 4410 | 4770 | 4950 | 5130 | 5310 | 5490 | 5680 | 5860 | 6410 | 6940 |
| | 17.00 | 4930 | 5290 | 5470 | 5650 | 5840 | 6010 | 6200 | 6380 | 6930 | 7460 |
| | 18.90 | 5130 | 5490 | 5680 | 5860 | 6040 | 6220 | 6400 | 6580 | 7130 | 7670 |
| 5" 127.00 | 13.00 | 3980 | 4310 | 4470 | 4630 | 4800 | 4960 | 5130 | 5290 | 5780 | 6260 |
| | 15.00 | 4520 | 4900 | 5090 | 5280 | 5480 | 5670 | 5860 | 6050 | 6630 | 7200 |
| | 18.00 | 5060 | 5490 | 5710 | 5920 | 6140 | 6350 | 6570 | 6780 | 7440 | 8070 |
| | 21.40 | 5900 | 6440 | 6710 | 6980 | 7250 | 7510 | 7780 | 8050 | 8870 | 9660 |
| | 23.20 | 6020 | 6560 | 6830 | 7100 | 7370 | 7630 | 7900 | 8170 | 8980 | 9780 |
| | 24.10 | 6080 | 6620 | 6890 | 7160 | 7430 | 7690 | 7960 | 8230 | 9040 | 9840 |
| | 26.00 | 6340 | 6940 | 7240 | 7530 | 7830 | 8120 | 8420 | 8720 | 9620 | 10500 |
| 5 1/2" 139.70 | 15.50 | 4800 | 5250 | 5480 | 5700 | 5930 | 6150 | 6380 | 6600 | 7290 | 7950 |
| | 17.00 | 5420 | 5950 | 6220 | 6490 | 6760 | 7030 | 7300 | 7560 | 8380 | 9170 |
| | 20.00 | 5970 | 6560 | 6860 | 7150 | 7460 | 7750 | 8050 | 8340 | 9240 | 10120 |
| | 23.00 | 6160 | 6750 | 7050 | 7350 | 7620 | 7940 | 8240 | 8530 | 9440 | 10310 |
| | 26.00 | 6340 | 6940 | 7240 | 7530 | 7830 | 8120 | 8420 | 8720 | 9620 | 10500 |
| 5 3/4" 146.05 | 16.40 | 5820 | 6310 | 6560 | 6810 | 7060 | 7300 | 7550 | 7790 | 8540 | 9270 |
| | 17.90 | 6460 | 7040 | 7340 | 7620 | 7920 | 8210 | 8500 | 8790 | 9670 | 10530 |
| | 19.70 | 6870 | 7490 | 7810 | 8120 | 8430 | 8740 | 9060 | 9370 | 10320 | 11240 |
| | 20.40 | 6990 | 7680 | 8020 | 8360 | 8710 | 9050 | 9400 | 9730 | 10780 | 11800 |
| 6 5/8" 168.28 | 20.00 | 6570 | 7250 | 7590 | 7920 | 8270 | 8600 | 8940 | 9270 | 10300 | 11300 |
| | 24.00 | 8210 | 9110 | 9570 | 10010 | 10310 | 10500 | 10690 | 10890 | 11470 | 12020 |
| | 28.00 | 8540 | 9450 | 9900 | 10250 | 10450 | 10650 | 10860 | 11040 | 11650 | 12220 |
| | 32.00 | 8800 | 9700 | 10160 | 10510 | 10700 | 10890 | 11070 | 11260 | 11830 | 12380 |
| 7" 177.80 | 23.00 | 7760 | 8620 | 9060 | 9490 | 9870 | 10300 | 10730 | 11000 | 11730 | 12260 |
| | 26.00 | 8510 | 9470 | 9960 | 10250 | 10550 | 10850 | 11140 | 11390 | 11940 | 12500 |
| | 29.00 | 8720 | 9680 | 10170 | 10460 | 10750 | 11040 | 11330 | 11580 | 12130 | 12680 |
| | 32.00 | 8910 | 9870 | 10360 | 10650 | 10940 | 11220 | 11510 | 11750 | 12310 | 12830 |
| | 35.00 | 9070 | 10040 | 10520 | 10860 | 11210 | 11380 | 11630 | 11870 | 12390 | 12900 |
| | 38.00 | 9210 | 10180 | 10610 | 11140 | 11380 | 11510 | 11750 | 11920 | 12480 | 12980 |

Recommended make-up torques using a thread compound with a friction factor of 1.0
 Maximum torque: optimum + 15%. Minimum torque: optimum - 10%
 Recommended torques for regular and alternative couplings are identical.
 Recommended torques for special clearance couplings on request.
 Higher coupling grades: use recommended torques for the pipe grades.
 Special clearance couplings and 20° beveled couplings have a lower load on coupling face.



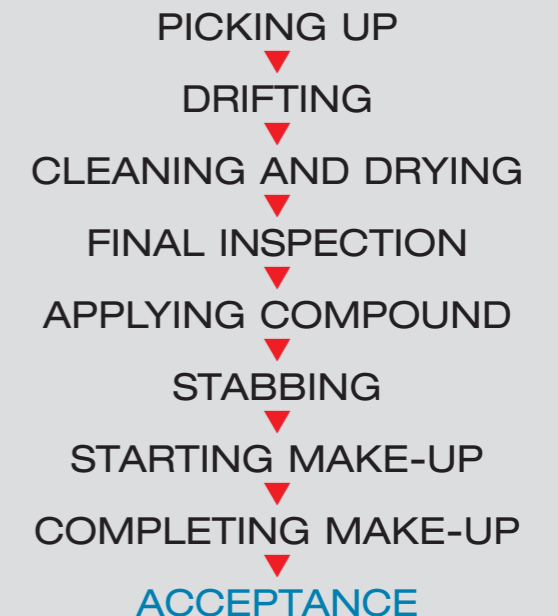
RUNNING PROCEDURE

Before applying thread compound and after final cleaning and drying inspect the seal area and shoulder visually (run with a finger over these areas). Repair is only permissible in the thread area. The compound should be applied on pin and box to obtain a thin uniform film including the seal area.

For stabbing use a stabbing guide and start make-up by hand before using the make-up tong. Once a torque increase is noted change to low gear (5 to 10 rpm) up to the final torque.

The triangle stamp should be used for equipment set-up check only.

A more detailed running procedure is available as a download on our web page www.vatubulars.com



MAKE UP TORQUES

| | | RECOMMENDED OPTIMUM MAKE-UP TORQUES FOR REGULAR COUPLINGS | | | | | | | | | |
|-----------------------|----------------|---|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|
| PIPE OUTSIDE DIAMETER | NOMINAL WEIGHT | GRADE 55 | GRADE 65 | GRADE 70 | GRADE 75 | GRADE 80 | GRADE 85 | GRADE 90 | GRADE 95 | GRADE 110 | GRADE 125 |
| inch/mm | lb/ft | lbf (1 lbf = 4.448 N/m) | | | | | | | | | |
| 1.9' 48.26 | 2.75 | 560 | 610 | 630 | 650 | 670 | 700 | 720 | 740 | 800 | 870 |
| | 3.65 | 710 | 760 | 780 | 810 | 830 | 860 | 890 | 910 | 990 | 1060 |
| 2 3/8' 60.32 | 4.60 | 1180 | 1270 | 1320 | 1380 | 1410 | 1450 | 1500 | 1540 | 1680 | 1810 |
| | 5.10 | 1260 | 1350 | 1390 | 1440 | 1480 | 1530 | 1570 | 1620 | 1760 | 1890 |
| | 5.80 | 1510 | 1620 | 1670 | 1730 | 1780 | 1840 | 1890 | 1950 | 2110 | 2270 |
| 2 7/8' 73.02 | 6.40 | 1770 | 1900 | 1970 | 2040 | 2100 | 2170 | 2240 | 2300 | 2500 | 2700 |
| | 7.80 | 2240 | 2390 | 2470 | 2550 | 2630 | 2700 | 2780 | 2860 | 3090 | 3320 |
| | 8.60 | 2330 | 2490 | 2560 | 2640 | 2720 | 2790 | 2870 | 2950 | 3180 | 3410 |
| 3 1/2' 88.90 | 9.20 | 2320 | 2520 | 2620 | 2720 | 2820 | 2920 | 3020 | 3120 | 3420 | 3720 |
| | 10.20 | 2600 | 2820 | 2930 | 3030 | 3140 | 3250 | 3360 | 3460 | 3790 | 4110 |
| | 12.70 | 3170 | 3410 | 3540 | 3680 | 3780 | 3900 | 4020 | 4140 | 4510 | 4870 |
| | 13.70 | 3720 | 4010 | 4160 | 4300 | 4450 | 4600 | 4750 | 4890 | 5340 | 5770 |
| | 14.70 | 4140 | 4490 | 4670 | 4840 | 5020 | 5190 | 5370 | 5540 | 6050 | 6600 |
| 4' 101.60 | 9.50 | 2110 | 2320 | 2430 | 2540 | 2650 | 2750 | 2860 | 2960 | 3290 | 3610 |
| | 10.70 | 2540 | 2820 | 2950 | 3090 | 3230 | 3360 | 3500 | 3630 | 4050 | 4450 |
| | 13.20 | 2870 | 3150 | 3290 | 3420 | 3560 | 3700 | 3840 | 3980 | 4400 | 4810 |
| 4 1/2' 114.30 | 10.50 | 3210 | 3480 | 3620 | 3750 | 3890 | 4030 | 4170 | 4300 | 4720 | 5120 |
| | 11.60 | 3590 | 3910 | 4070 | 4230 | 4390 | 4550 | 4710 | 4870 | 5350 | 5830 |
| | 12.60 | 3670 | 3990 | 4160 | 4310 | 4480 | 4630 | 4800 | 4950 | 5440 | 5910 |
| | 13.50 | 4210 | 4570 | 4760 | 4930 | 5120 | 5300 | 5480 | 5660 | 6210 | 6740 |
| | 15.20 | 4410 | 4770 | 4950 | 5130 | 5310 | 5490 | 5680 | 5860 | 6410 | 6940 |
| | 17.00 | 4930 | 5290 | 5470 | 5650 | 5840 | 6010 | 6200 | 6380 | 6930 | 7460 |
| | 18.90 | 5130 | 5490 | 5680 | 5860 | 6040 | 6220 | 6400 | 6580 | 7130 | 7670 |
| 5' 127.00 | 13.00 | 3980 | 4310 | 4470 | 4630 | 4800 | 4960 | 5130 | 5290 | 5780 | 6260 |
| | 15.00 | 4520 | 4900 | 5090 | 5280 | 5480 | 5670 | 5860 | 6050 | 6630 | 7200 |
| | 18.00 | 5060 | 5490 | 5710 | 5920 | 6140 | 6350 | 6570 | 6780 | 7440 | 8070 |
| | 21.40 | 5800 | 6440 | 6710 | 6980 | 7250 | 7510 | 7780 | 8050 | 8870 | 9660 |
| | 23.20 | 6020 | 6660 | 6890 | 7100 | 7370 | 7630 | 7900 | 8170 | 8980 | 9780 |
| | 24.10 | 6080 | 6620 | 6890 | 7160 | 7430 | 7690 | 7960 | 8230 | 9040 | 9840 |
| 5 1/2' 139.70 | 15.50 | 4800 | 5250 | 5480 | 5700 | 5930 | 6150 | 6380 | 6600 | 7290 | 7950 |
| | 17.00 | 5420 | 5950 | 6220 | 6490 | 6760 | 7030 | 7300 | 7560 | 8380 | 9170 |
| | 20.00 | 5970 | 6560 | 6860 | 7150 | 7460 | 7750 | 8050 | 8340 | 9240 | 10120 |
| | 23.00 | 6160 | 6750 | 7050 | 7350 | 7620 | 7940 | 8240 | 8530 | 9440 | 10310 |
| | 26.00 | 6340 | 6940 | 7240 | 7530 | 7830 | 8120 | 8420 | 8720 | 9620 | 10500 |
| 5 3/4' 146.05 | 16.40 | 5820 | 6310 | 6560 | 6810 | 7060 | 7300 | 7550 | 7790 | 8540 | 9270 |
| | 17.90 | 6460 | 7040 | 7340 | 7620 | 7920 | 8210 | 8500 | 8790 | 9670 | 10530 |
| | 19.70 | 6870 | 7490 | 7810 | 8120 | 8430 | 8740 | 9060 | 9370 | 10320 | 11240 |
| | 20.40 | 6990 | 7680 | 8020 | 8360 | 8710 | 9050 | 9400 | 9730 | 10780 | 11800 |
| 6 5/8' 168.28 | 20.00 | 6570 | 7250 | 7590 | 7920 | 8270 | 8600 | 8940 | 9270 | 10300 | 11300 |
| | 24.00 | 8210 | 9110 | 9570 | 10010 | 10310 | 10500 | 10690 | 10890 | 11470 | 12020 |
| | 28.00 | 8540 | 9450 | 9900 | 10250 | 10450 | 10650 | 10860 | 11040 | 11650 | 12220 |
| | 32.00 | 8800 | 9700 | 10160 | 10510 | 10700 | 10890 | 11070 | 11260 | 11930 | 12380 |
| 7' 177.80 | 23.00 | 7760 | 8620 | 9060 | 9490 | 9870 | 10300 | 10730 | 11000 | 11730 | 12260 |
| | 26.00 | 8510 | 9470 | 9960 | 10250 | 10550 | 10850 | 11140 | 11390 | 11940 | 12500 |
| | 29.00 | 8720 | 9680 | 10170 | 10460 | 10750 | 11040 | 11330 | 11580 | 12130 | 12680 |
| | 32.00 | 8910 | 9870 | 10360 | 10650 | 10940 | 11220 | 11510 | 11750 | 12310 | 12830 |
| | 35.00 | 9070 | 10040 | 10520 | 10860 | 11210 | 11390 | 11630 | 11870 | 12390 | 12900 |
| | 38.00 | 9210 | 10180 | 10610 | 11140 | 11390 | 11510 | 11750 | 11920 | 12480 | 12980 |

Recommended make-up torques using a thread compound with a friction factor of 1.0
 Maximum torque: optimum + 15%. Minimum torque: optimum - 10%
 Recommended torques for regular and alternative couplings are identical.
 Recommended torques for special clearance couplings on request.
 Higher coupling grades: use recommended torques for the pipe grades.
 Special clearance couplings and 20° beveled couplings have a lower load on coupling face.