

Drill Pipe Performance Characteristics Sheet

Patent 9,493,993

TSC Drill Pipe



Pipe Size and Weight: 2 7/8 10.40 EU
 Pipe Grade: S-135
 Range: 2
 Tool Joint: 3 5/8 X 2 PTECH+™28



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| Pipe Body | | |
|--|---|--|
| | New-API | Premium |
| OD (in) | 2.875 | 2.730 |
| Wall Thickness (in) | 0.362 | 0.290 |
| ID (in) | 2.151 | 2.151 |
| Calculated Plain End weights (lbs/ft) | 9.711 | 7.545 |
| Note: Premium properties are calculated based on uniform OD and wall thickness. | | |
| Cross sectional area pipe body (in ²) | 2.858 | 2.220 |
| Cross sectional area OD (in ²) | 6.492 | 5.854 |
| Cross sectional area ID (in ²) | 3.634 | 3.634 |
| Section Modulus (in ³) | 1.602 | 1.228 |
| Polar Section Modulus (in ³) | 3.204 | 2.456 |
| | New-API | Premium |
| Torsional Strength (ft-lbs) | 20,800 | 15,900 |
| Tensile Strength (lbs) | 385,800 | 299,800 |
| 80% Torsional Strength (ft-lbs) | 16,600 | 12,700 |
| Pressure Capacity (psi) | 29,747 | 27,197 |
| Collapse Capacity (psi) | 29,716 | 25,602 |
| Tool Joint | | |
| PTECH+™28 | | |
| | OD (in) | 3 5/8 |
| | ID (in) | 2 |
| Tool Joint with a Material Yield Strength of 135000 psi | | |
| | Pin Tong length (in) | 10 |
| | Box Tong length (in) | 13 |
| | Friction Factor | 1.0 1.15 |
| | Torsional Strength (ft-lbs) | 14,460 11,600 |
| | Severe Service Recommended Make-up Torque (ft-lbs) [70%] | 10,100 8,700 |
| | Standard Service Recommended Make-up Torque (ft-lbs) [60%] | 8,700 7,800 |
| | Min Recommended Make-up Torque (ft-lbs) | 7,800 9,000 |
| | Balance OD (in) | 3.602 |
| | Tensile Strength (lbs) | 352,600 |
| | Tool joint/Drill pipe torsional ratio (New pipe) | 0.70 |
| | Tool joint/Drill pipe torsional ratio (95% New pipe) | 0.67 |
| | Tool joint/Drill pipe torsional ratio (Prem pipe) | 0.91 |
| | Min OD for premium class (in) | 3.516 |
| Minimum make-up is based on shoulder separation caused by bending. | | |
| Drill Pipe Assembly with PTECH+ Tool Joint | | Drill Pipe Bend Radius |
| API Adjusted weight (lbs/ft) | 10.93 | * These calculations are based on new pipe with nominal wall |
| 95% Adjusted weight (lbs/ft) | 11.51 | |
| Approximate length (ft) | 32.00 | Based on Bending Stress (psi) at Pipe OD 15,000 |
| 95% Fluid Displacement (gal/ft) | 0.176 | Radius of Curvature (R) (ft.) (@ OD of pipe) 239.6 |
| API Fluid Displacement (gal/ft) | 0.167 | |
| Fluid Capacity (gal/ft) | 0.182 | BUR (dogleg) deg/100 ft. 23.9 |
| Drift Size | 1.875 | |

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