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Drill Pipe Performance Characteristics Sheet

TSC Drill Pipe



Patent: 9,885,214
Pipe Size and Weight: 5 1/2 24.70 IEU
Pipe Grade: S-135
Range: 2
Tool Joint: 6 5/8 X 4 1/4 PTECH+™55



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Pipe Body

| | New-API | Premium |
|--|----------------|----------------|
| OD (in) | 5.500 | 5.334 |
| Wall Thickness (in) | 0.415 | 0.332 |
| ID (in) | 4.670 | 4.670 |
| Calculated Plain End weights (lbs/ft) | 22.527 | 17.728 |
| Note: Premium properties are calculated based on uniform OD and wall thickness. | | |
| Cross sectional area pipe body (in ²) | 6.630 | 5.217 |
| Cross sectional area OD (in ²) | 23.758 | 22.346 |
| Cross sectional area ID (in ²) | 17.129 | 17.129 |
| Section Modulus (in ³) | 7.844 | 6.145 |
| Polar Section Modulus (in ³) | 15.688 | 12.290 |
| | New-API | Premium |
| Torsional Strength (ft-lbs) | 101,800 | 79,800 |
| Tensile Strength (lbs) | 895,000 | 704,300 |
| 80% Torsional Strength (ft-lbs) | 81,400 | 63,800 |
| Pressure Capacity (psi) | 17,826 | 16,298 |
| Collapse Capacity (psi) | 18,836 | 11,172 |

Tool Joint

| PTECH+™ | | PTECH+™55 | |
|--|--|---|---------------------------|
| | | OD (in) | 6 5/8 |
| | | ID (in) | 4 1/4 |
| Tool Joint with a Material Yield Strength of 135000 psi | | | |
| | | Pin Tong length (in) | 13 |
| | | Box Tong length (in) | 15 |
| | | Friction Factor | 1.00 1.15 |
| | | Torsional Strength (ft-lbs) | 86,400 69,600 |
| | | Severe Service Recommended Make-up Torque (ft-lbs) [70%] | 60,500 59,600 |
| | | Standard Service Recommended Make-up Torque (ft-lbs) [60%] | 51,800 46,900 |
| | | Min Recommended Make-up Torque (ft-lbs) | 40,800 46,900 |
| | | Balance OD (in) | 6.605 |
| | | Tensile Strength (lbs) | 1,147,500 |
| | | Tool joint/Drill pipe torsional ratio (New pipe) | 0.85 |
| | | Tool joint/Drill pipe torsional ratio (Prem pipe) | 1.08 |
| | | Min OD for premium class (in) | 6.236 |

Minimum make-up is based on shoulder separation caused by bending.

| Drill Pipe Assembly with PTECH+™55 Tool Joint | | Drill Pipe Bend Radius | |
|--|-------|--|--------|
| API Adjusted weight (lbs/ft) | 26.69 | * These calculations are based on new pipe with nominal wall | |
| Approximate length (ft) | 32.00 | Based on Bending Stress (psi) at Pipe OD | 15,000 |
| API Fluid Displacement (gal/ft) | 0.408 | Radius of Curvature (R) (ft.) (@ OD of pipe) | 458.3 |
| Fluid Capacity (gal/ft) | 0.868 | BUR (dogleg) deg/100 ft. | 12.5 |
| Drift Size | 4.125 | | |