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Drill Pipe Performance Characteristics Sheet

TSC Drill Pipe



Patent: 9,885,214

Pipe Size and Weight: 4 1/2 16.60 IEU

Pipe Grade: S-135

Range: 3

Tool Joint: 5 1/4 X 3 PTECH+™43



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Pipe Body		
	New-API	Premium
OD (in)	4.500	4.365
Wall Thickness (in)	0.337	0.270
ID (in)	3.826	3.826
Calculated Plain End weights (lbs/ft)	14.976	11.787
Note: Premium properties are calculated based on uniform OD and wall thickness.		
Cross sectional area pipe body (in ²)	4.407	3.469
Cross sectional area OD (in ²)	15.904	14.966
Cross sectional area ID (in ²)	11.497	11.497
Section Modulus (in ³)	4.271	3.347
Polar Section Modulus (in ³)	8.543	6.694
	New-API	Premium
Torsional Strength (ft-lbs)	55,500	43,500
Tensile Strength (lbs)	595,000	468,300
80% Torsional Strength (ft-lbs)	44,400	34,800
Pressure Capacity (psi)	17,693	16,176
Collapse Capacity (psi)	18,706	10,959

Tool Joint			
PTECH+™43			
OD (in)	5 1/4		
ID (in)	3		
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 Yield Strength (ft-lbs)	48,450		
Severe Service Recommended Make-up Torque (ft-lbs) [70%]	33,900	39,000	
Standard Service Recommended Make-up Torque (ft-lbs) [60%]	29,100	33,500	
Min Recommended Make-up Torque (ft-lbs)	22,900	26,300	
Balance OD (in)	5.251		
Tensile Strength (lbs)	819,000		
Tool joint/Drill pipe torsional ratio (New pipe)	0.87		
Tool joint/Drill pipe torsional ratio (Prem pipe)	1.11		
Min Tool Joint OD for premium class (in)	4.971		
Min Tool Joint OD/Drill pipe torsional ratio (Prem pipe)	0.86		

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)	25.647	17.23	* These calculations are based on new pipe with nominal wall	
Approximate length (ft)	13.697	44.94	Based on Bending Stress (psi) at Pipe OD	15,000
API Fluid Displacement (gal/ft)	0.00327	0.264	Radius of Curvature (R) (ft.) (@ OD of pipe)	375.0
Fluid Capacity (gal/ft)	0.00719	0.579	BUR (dogleg) deg/100 ft.	15.3
Drift Size	73.03	2.875		

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