

**Drill Pipe Performance Characteristics Sheet**

Patents 9,493,993

TSC Drill Pipe

9,885,214



Pipe Size and Weight: 2 3/8 5.80 EU  
 Pipe Grade: S-135  
 Range: 2  
 Tool Joint: 3 1/16 X 1.805 PTECH+™24



110 Cypress Station Drive  
 Suite 160  
 Houston, TX 77090  
 Phone: (832) 230-8228  
 Fax: (281) 741-9914

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**Pipe Body**

	New-API	Premium
OD (in)	2.375	2.273
Wall Thickness (in)	0.254	0.203
ID (in)	1.867	1.867
Calculated Plain End weights (lbs/ft)	5.751	4.491
<b>Note: Premium properties are calculated based on uniform OD and wall thickness.</b>		
Cross sectional area pipe body (in <sup>2</sup> )	1.692	1.322
Cross sectional area OD (in <sup>2</sup> )	4.430	4.059
Cross sectional area ID (in <sup>2</sup> )	2.738	2.738
Section Modulus (in <sup>3</sup> )	0.813	0.629
Polar Section Modulus (in <sup>3</sup> )	1.626	1.258
<b>Strength Properties</b>		
	New-API	Premium
Torsional Strength (ft-lbs)	10,600	8,200
Tensile Strength (lbs)	228,500	178,400
80% Torsional Strength (ft-lbs)	8,500	6,600
Pressure Capacity (psi)	25,266	23,101
Collapse Capacity (psi)	25,788	21,976

**Tool Joint**



**PTECH+™24**

OD (in) 3 1/16  
 ID (in) 1.805

Tool Joint with a Material Yield Strength of 135000 psi

Pin Tong length (in) 7  
 Box Tong length (in) 10

Friction Factor 1.0 1.15

	1.0	1.15
Torsional Yield Strength (ft-lbs)	7,850	
Severe Service Recommended Make-up Torque (ft-lbs) [70%]	5,500	6,300
Standard Service Recommended Make-up Torque (ft-lbs) [60%]	4,700	5,400
Min Recommended Make-up Torque (ft-lbs)	3,900	4,500

Balance OD (in) 3.009  
**Tensile Strength (lbs) 217,600**  
 Tool joint/Drill pipe torsional ratio (New pipe) 0.74  
 Tool joint/Drill pipe torsional ratio (95% New pipe) 0.71  
 Tool joint/Drill pipe torsional ratio (Prem pipe) 0.96  
 Min OD for premium class (in) 2.984

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)	6.42	* These calculations are based on new pipe with nominal wall	
95% Adjusted weight (lbs/ft)	6.78	Based on Bending Stress (psi) at Pipe OD	15,000
Approximate length (ft)	32.00	Radius of Curvature ( R ) (ft.) (@ OD of pipe)	197.9
95% Fluid Displacement (gal/ft)	0.104	BUR (dogleg) deg/100 ft.	29.0
API Fluid Displacement (gal/ft)	0.098		
Fluid Capacity (gal/ft)	0.139		
Drift Size	1.711		

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