

## Drill Pipe Performance Characteristics Sheet



**Pipe Size and Weight:** 5 19.50 IEU  
**Pipe Grade:** S-135  
**Range:** 2  
**Tool Joint:** 5 7/8 X 3 3/8 PTECH47+

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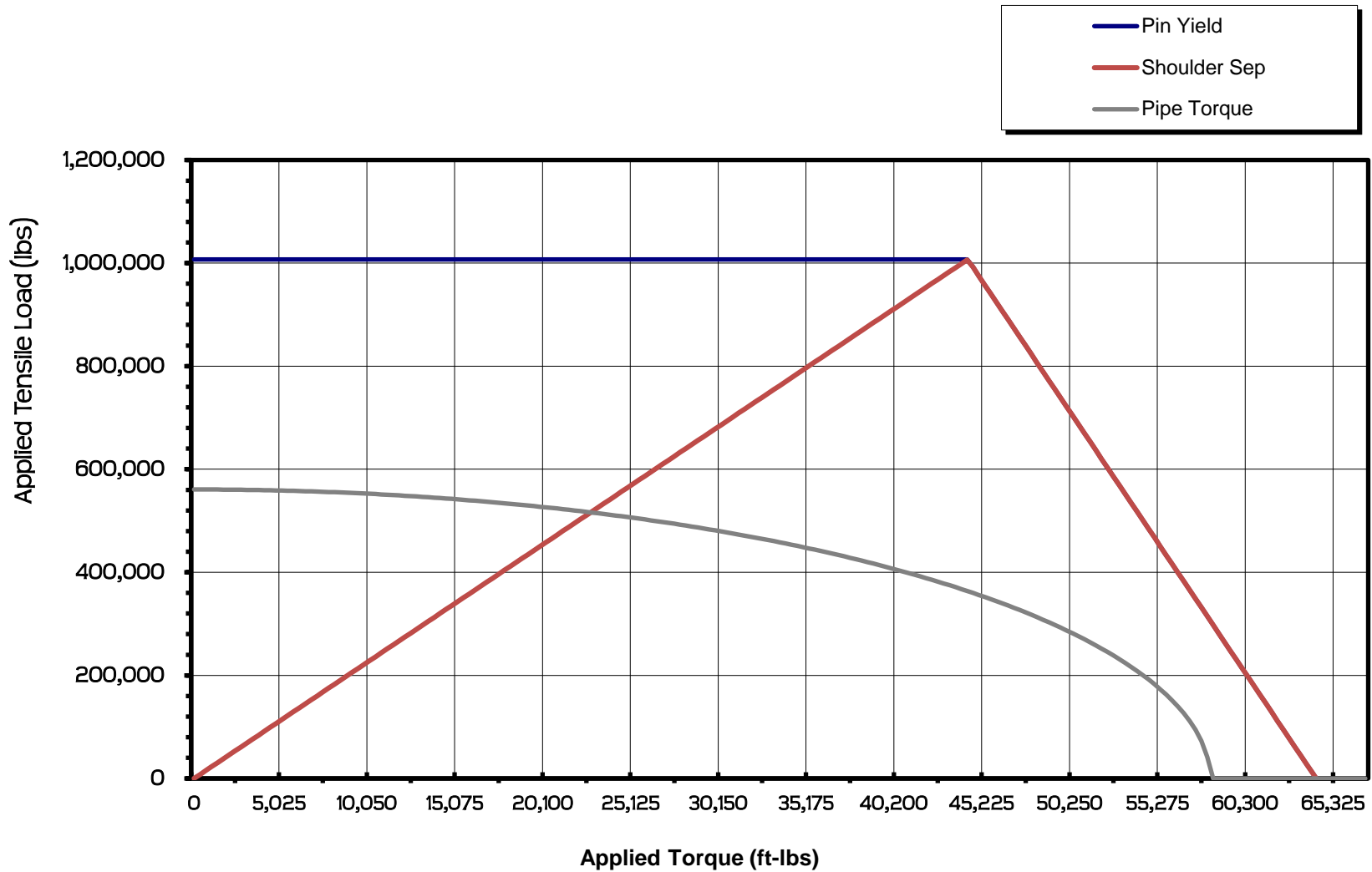
**Patent Pending**

Revision 3

Pipe Body			
	<b>New-API</b>	<b>New-95%RBW</b>	<b>Premium</b>
OD (in)	5.000	5.000	4.855
Wall Thickness (in)	0.362	0.389	0.290
ID (in)	4.276	4.222	4.276
Calculated Plain End weights (lbs/ft)	17.923	19.154	14.114
<b>Note: Premium properties are calculated based on uniform OD and wall thickness.</b>			
Cross sectional area pipe body (in <sup>2</sup> )	5.275	5.637	4.154
Cross sectional area OD (in <sup>2</sup> )	19.635	19.635	18.514
Cross sectional area ID (in <sup>2</sup> )	14.360	13.998	14.360
Section Modulus (in <sup>3</sup> )	5.708	6.035	4.476
Polar Section Modulus (in <sup>3</sup> )	11.415	12.070	8.953
	<b>New-API</b>	<b>New-95%RBW</b>	<b>Premium</b>
Torsional Strength (ft-lbs)	74,100	78,300	58,100
Tensile Strength (lbs)	712,100	761,000	560,800
80% Torsional Strength (ft-lbs)	59,300	62,600	46,500
Pressure Capacity (psi)	17,105	18,387	15,638
Collapse Capacity (psi)	18,133	19,379	10,024
Tool Joint			
<b>PTECH+</b> CONNECTION		<b>PTECH47+</b>	
	OD (in)	<b>5 7/8</b>	
	ID (in)	<b>3 3/8</b>	
<b>Tool Joint with a Material Yield Strength of 135000 psi</b>			
	Pin Tong length (in)	<b>13</b>	
	Box Tong length (in)	<b>15</b>	
	<b>Torsional Strength (ft-lbs)</b>	<b>64,190</b>	
	<b>Recommended Make-up Torque (ft-lbs)</b>	<b>38,500</b>	
	<b>Min Recommended Make-up Torque (ft-lbs)</b>	<b>34,700</b>	
	Balance OD (in)	5.834	
	<b>Tensile Strength (lbs)</b>	<b>1,015,900</b>	
	Tool joint/Drill pipe torsional ratio (New pipe)	0.87	
	Tool joint/Drill pipe torsional ratio (95% New pipe)	0.82	
	Tool joint/Drill pipe torsional ratio (Prem pipe)	1.10	
	Min OD for premium class (in)	5.594	
Drill Pipe Assembly with PTECH+ Tool Joint	Drill Pipe Bend Radius		
API Adjusted weight (lbs/ft) 21.81 95% Adjusted weight (lbs/ft) 22.95 Approximate length (ft) 32.00  95% Fluid Displacement (gal/ft) 0.351 API Fluid Displacement (gal/ft) 0.334 Fluid Capacity (gal/ft) 0.716  Drift Size 3.250	* These calculations are based on new pipe with nominal wall  Based on Bending Stress (psi) at Pipe OD 15,000  Radius of Curvature ( R ) (ft.) (@ OD of pipe) 416.7  BUR (dogleg) deg/100 ft. 13.8		

# TORQUE TENSION COMBINED LOAD CURVE

For PTECH47+ 5 7/8 X 3 3/8 Tool Joint with a Material Strength of 135000 psi, using a Coefficient of Friction factor of 0.08 and a Safety Factor of 1.0. On Pipe: 5 19.50 S-135 Premium Class.



### PTECH47+ 5 7/8 X 3 3/8 TOOL JOINT OD WEAR CURVE

