

## Drill Pipe Performance Characteristics Sheet

**PTECH Drilling Tubulars, LLC**

**Pipe Size and Weight:** 5 44.80 EU

**Pipe Grade:** HWDP

**Range:** 2

**Patent Pending**

**Tool Joint:** 5 7/8 X 3 PTECH47+

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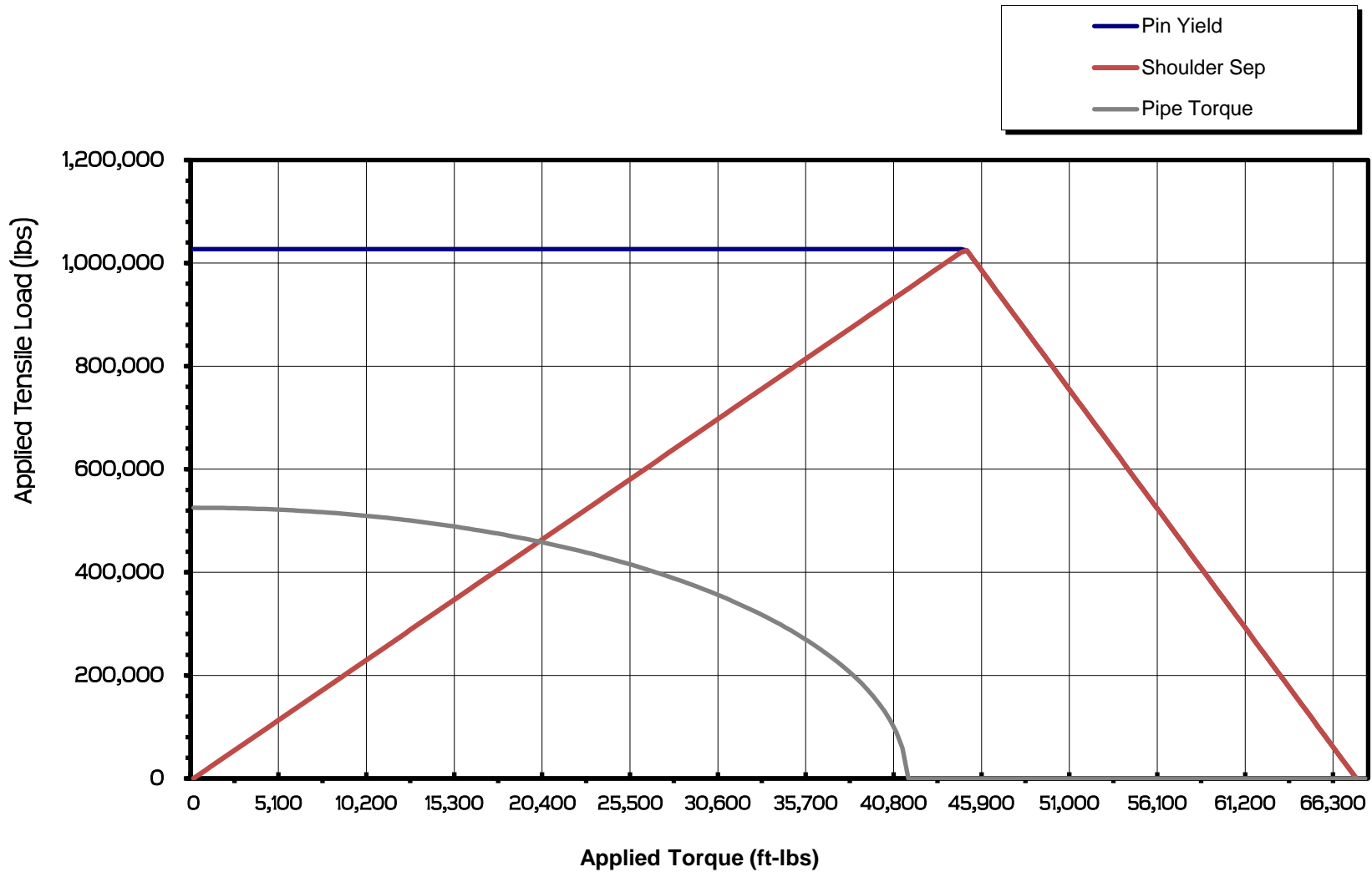
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Revision 0

Pipe Body																				
	<b>New-API</b>	<b>Premium</b>																		
OD (in)	5.000	4.600																		
Wall Thickness (in)	1.000	0.800																		
ID (in)	3.000	3.000																		
Calculated Plain End weights (lbs/ft)	42.700	32.452																		
<b>Note: Premium properties are calculated based on uniform OD and wall thickness.</b>																				
Cross sectional area pipe body (in <sup>2</sup> )	12.566	9.550																		
Cross sectional area OD (in <sup>2</sup> )	19.635	16.619																		
Cross sectional area ID (in <sup>2</sup> )	7.069	7.069																		
Section Modulus (in <sup>3</sup> )	10.681	7.827																		
Polar Section Modulus (in <sup>3</sup> )	21.363	15.654																		
<table style="width: 100%; border: none;"> <thead> <tr> <td style="width: 40%;"></td> <td style="text-align: center; width: 30%;"><b>New-API</b></td> <td style="text-align: center; width: 30%;"><b>Premium</b></td> </tr> </thead> <tbody> <tr> <td style="text-align: right;">Torsional Strength (ft-lbs)</td> <td style="text-align: center;">56,500</td> <td style="text-align: center;">41,400</td> </tr> <tr> <td style="text-align: right;">Tensile Strength (lbs)</td> <td style="text-align: center;">691,200</td> <td style="text-align: center;">525,300</td> </tr> <tr> <td style="text-align: right;">80% Torsional Strength (ft-lbs)</td> <td style="text-align: center;">45,200</td> <td style="text-align: center;">33,100</td> </tr> <tr> <td style="text-align: right;">Pressure Capacity (psi)</td> <td style="text-align: center;">19,250</td> <td style="text-align: center;">17,600</td> </tr> <tr> <td style="text-align: right;">Collapse Capacity (psi)</td> <td style="text-align: center;">17,600</td> <td style="text-align: center;">15,803</td> </tr> </tbody> </table>				<b>New-API</b>	<b>Premium</b>	Torsional Strength (ft-lbs)	56,500	41,400	Tensile Strength (lbs)	691,200	525,300	80% Torsional Strength (ft-lbs)	45,200	33,100	Pressure Capacity (psi)	19,250	17,600	Collapse Capacity (psi)	17,600	15,803
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Tool Joint																				
	<b>PTECH47+</b>  OD (in) 5 7/8 ID (in) 3  <b>Tool Joint with a Material Yield Strength of 110000 psi</b>  Pin Tong length (in) 13 Box Tong length (in) 15  <b>Torsional Strength (ft-lbs) 60,800</b> <b>Recommended Make-up Torque (ft-lbs) 36,500</b> <b>Min Recommended Make-up Torque (ft-lbs) 30,400</b>  Balance OD (in) 6.035 <b>Tensile Strength (lbs) 1,034,300</b> Tool joint/Drill pipe torsional ratio (New pipe) 1.08 Tool joint/Drill pipe torsional ratio (95% New pipe) #DIV/0! Tool joint/Drill pipe torsional ratio (Prem pipe) 1.47 Min OD for premium class (in) 5.594																			
Drill Pipe Assembly with PTECH+ Tool Joint	Drill Pipe Bend Radius																			
API Adjusted weight (lbs/ft) 44.80  Approximate length (ft) 31.50  API Fluid Displacement (gal/ft) 0.685 Fluid Capacity (gal/ft) 0.365  Drift Size 2.875	* 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 Tool Joint with a Material Strength of 110000 psi, using a Coefficient of Friction factor of 0.08 and a Safety Factor of 1.0. On Pipe: 5 44.80 HWDP Premium Class.



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

