


Drill Pipe Performance Characteristics Sheet

PTECH Drilling Tubulars, LLC

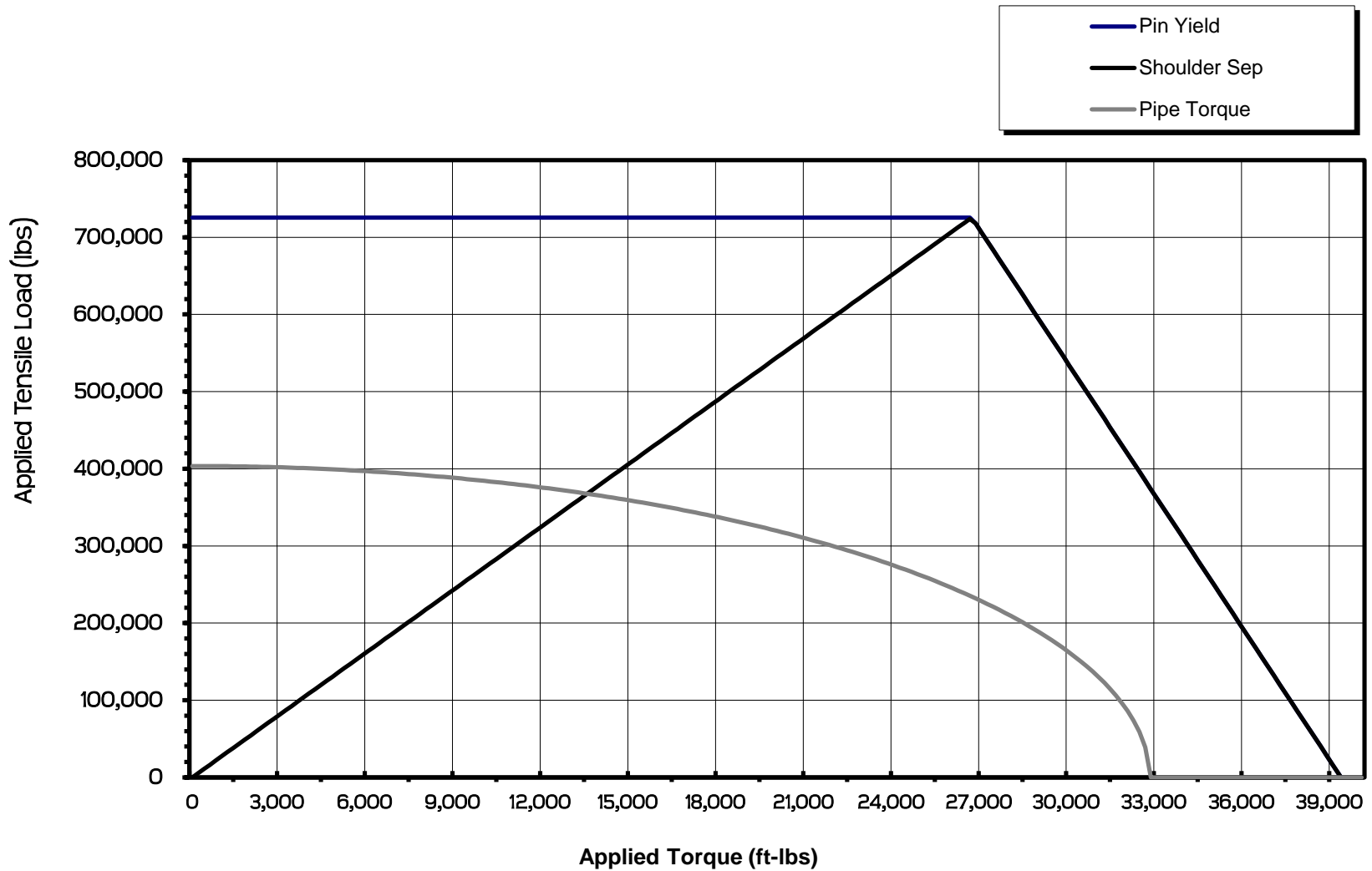
Pipe Size and Weight: 4 14.00 IU
Pipe Grade: S-135
Range: 2
Tool Joint: 4 7/8 X 2 11/16 PTECH39+

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Pipe Body			
	New-API	New-95%RBW	Premium
OD (in)	4.000	4.000	3.868
Wall Thickness (in)	0.330	0.355	0.264
ID (in)	3.340	3.291	3.340
Calculated Plain End weights (lbs/ft)	12.928	13.804	10.157
Note: Premium properties are calculated based on uniform OD and wall thickness.			
Cross sectional area pipe body (in ²)	3.805	4.063	2.989
Cross sectional area OD (in ²)	12.566	12.566	11.751
Cross sectional area ID (in ²)	8.762	8.504	8.762
Section Modulus (in ³)	3.229	3.406	2.523
Polar Section Modulus (in ³)	6.458	6.812	5.046
	New-API	New-95%RBW	Premium
Torsional Strength (ft-lbs)	41,900	44,200	32,800
Tensile Strength (lbs)	513,600	548,400	403,500
80% Torsional Strength (ft-lbs)	33,500	35,400	26,200
Pressure Capacity (psi)	19,491	20,952	17,820
Collapse Capacity (psi)	20,437	21,822	13,832
Tool Joint			
		PTECH39+ OD (in) 4 7/8 ID (in) 2 11/16 Tool Joint with a Material Yield Strength of 135000 psi Pin Tong length (in) 11 Box Tong length (in) 13 1/2 Torsional Strength (ft-lbs) 38,840 Max Recommended Make-up Torque (ft-lbs) 23,300 Min Recommended Make-up Torque (ft-lbs) 18,300 Balance OD (in) 4.888 Tensile Strength (lbs) 732,800 Tool joint/Drill pipe torsional ratio (New pipe) 0.93 Tool joint/Drill pipe torsional ratio (95% New pipe) 0.88 Tool joint/Drill pipe torsional ratio (Prem pipe) 1.18 Min OD for premium class (in) 4.531	
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) 15.50 95% Adjusted weight (lbs/ft) 16.32 Approximate length (ft) 31.59 95% Fluid Displacement (gal/ft) 0.250 API Fluid Displacement (gal/ft) 0.237 Fluid Capacity (gal/ft) 0.437 Drift Size 2.563	* 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) 333.3 BUR (dogleg) deg/100 ft. 17.2		

TORQUE TENSION COMBINED LOAD CURVE

For PTECH39+ 4 7/8 X 2 11/16 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: 4 14.00 S-135 Premium Class.



PTECH39+ 4 7/8 X 2 11/16 TOOL JOINT OD WEAR CURVE

