

THIS TECHNICAL INFORMATION IS FOR REFERENCE ONLY

Drill Pipe Performance Characteristics Sheet

PTECH Drilling Tubulars, LLC

Pipe Size and Weight: 3 1/2 13.30 EU

Pipe Grade: S-135

Range: 2

Tool Joint: 4 5/16 X 2 11/16 PTECH35+

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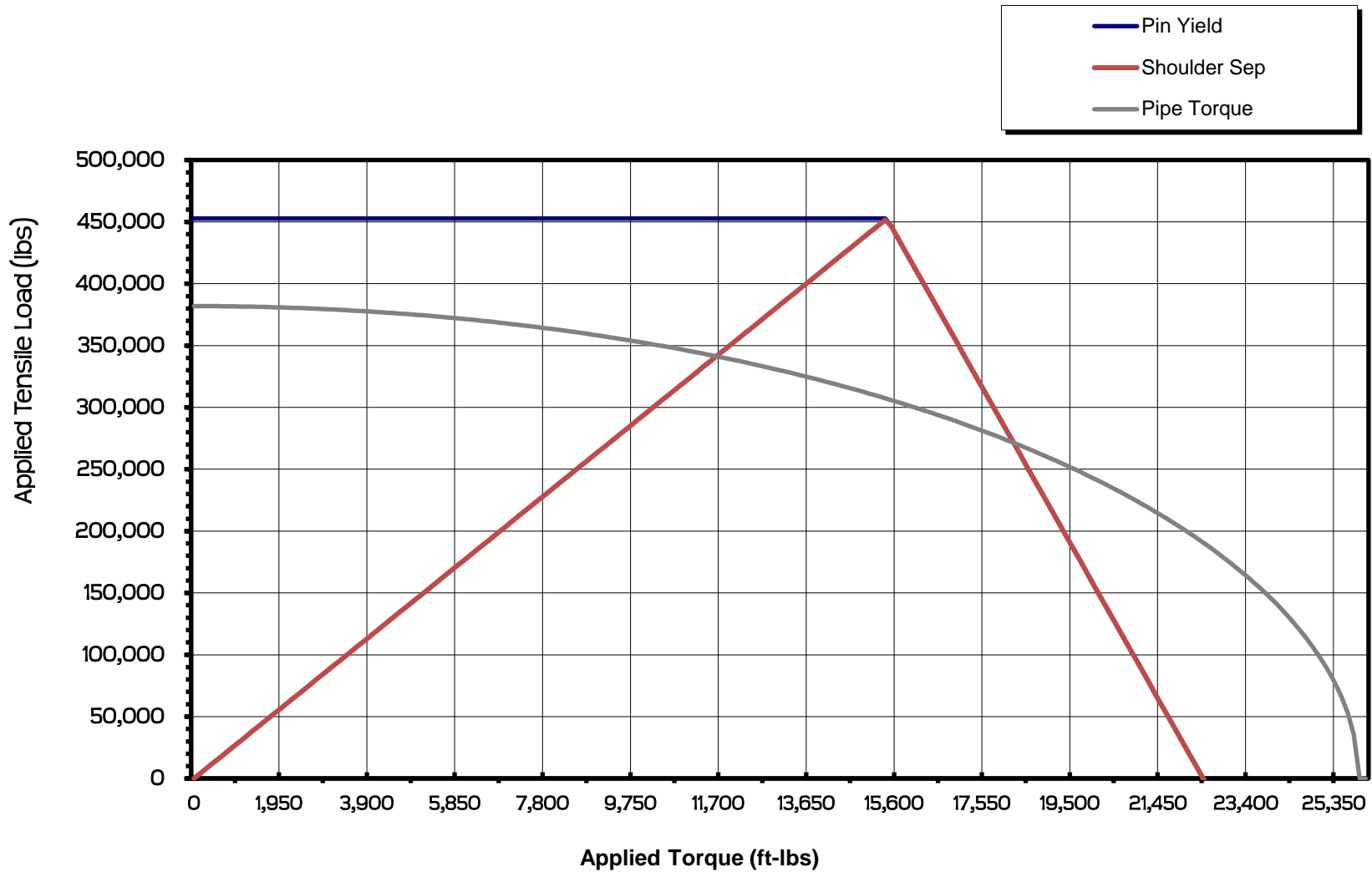
Revision 0

Pipe Body				
		New-API	New-95%RBW	Premium
OD (in)		3.500	3.500	3.353
Wall Thickness (in)		0.368	0.396	0.294
ID (in)		2.764	2.709	2.764
Calculated Plain End weights (lbs/ft)		12.304	13.110	9.612
Note: Premium properties are calculated based on uniform OD and wall thickness.				
Cross sectional area pipe body (in ²)		3.621	3.858	2.829
Cross sectional area OD (in ²)		9.621	9.621	8.829
Cross sectional area ID (in ²)		6.000	5.763	6.000
Section Modulus (in ³)		2.572	2.699	1.991
Polar Section Modulus (in ³)		5.144	5.398	3.982
		New-API	New-95%RBW	Premium
Torsional Strength (ft-lbs)		33,400	35,000	25,900
Tensile Strength (lbs)		488,800	520,900	381,900
80% Torsional Strength (ft-lbs)		26,700	28,000	20,700
Pressure Capacity (psi)		24,840	26,703	22,711
Collapse Capacity (psi)		25,404	27,068	21,626
Tool Joint				
		PTECH35+		
		OD (in)	4.313	
		ID (in)	2.688	
Tool Joint with a Material Yield Strength of 135000 psi				
		Pin Tong length (in)	8	
		Box Tong length (in)	12	
		Torsional Strength (ft-lbs)	22,390	
		Recommended Make-up Torque (ft-lbs)	13,400	
		Min Recommended Make-up Torque (ft-lbs)	10,300	
		Balance OD (in)	4.298	
		Tensile Strength (lbs)	459,200	
		Tool joint/Drill pipe torsional ratio (New pipe)	0.67	
		Tool joint/Drill pipe torsional ratio (95% New pipe)	0.64	
		Tool joint/Drill pipe torsional ratio (Prem pipe)	0.86	
		Min OD for premium class (in)	4.250	
Drill Pipe Assembly with PTECH+ Tool Joint		Drill Pipe Bend Radius		
API Adjusted weight (lbs/ft)	13.61	* These calculations are based on new pipe with nominal wall		
95% Adjusted weight (lbs/ft)	14.38	Based on Bending Stress (psi) at Pipe OD	15,000	
Approximate length (ft)	32.00	Radius of Curvature (R) (ft.) (@ OD of pipe)	291.7	
95% Fluid Displacement (gal/ft)	0.220	BUR (dogleg) deg/100 ft.	19.6	
API Fluid Displacement (gal/ft)	0.208			
Fluid Capacity (gal/ft)	0.305			
Drift Size	2.563			

This Performance Sheet was generated by Nels Wickander.

TORQUE TENSION COMBINED LOAD CURVE

For PTECH35+ 4 5/16 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: 3.5 13.30 S-135 Premium Class.



PTECH35+ 4 5/16 X 2 11/16 TOOL JOINT OD WEAR CURVE

