

Drill Pipe Performance Characteristics Sheet

PTECH Drilling Tubulars, LLC

Pat. 9,943,993

Pipe Size and Weight: 2 3/8 6.65 EU

Pipe Grade: S-135

Range: 2

Tool Joint: 3 1/16 X 1 1/2 PTECH23+

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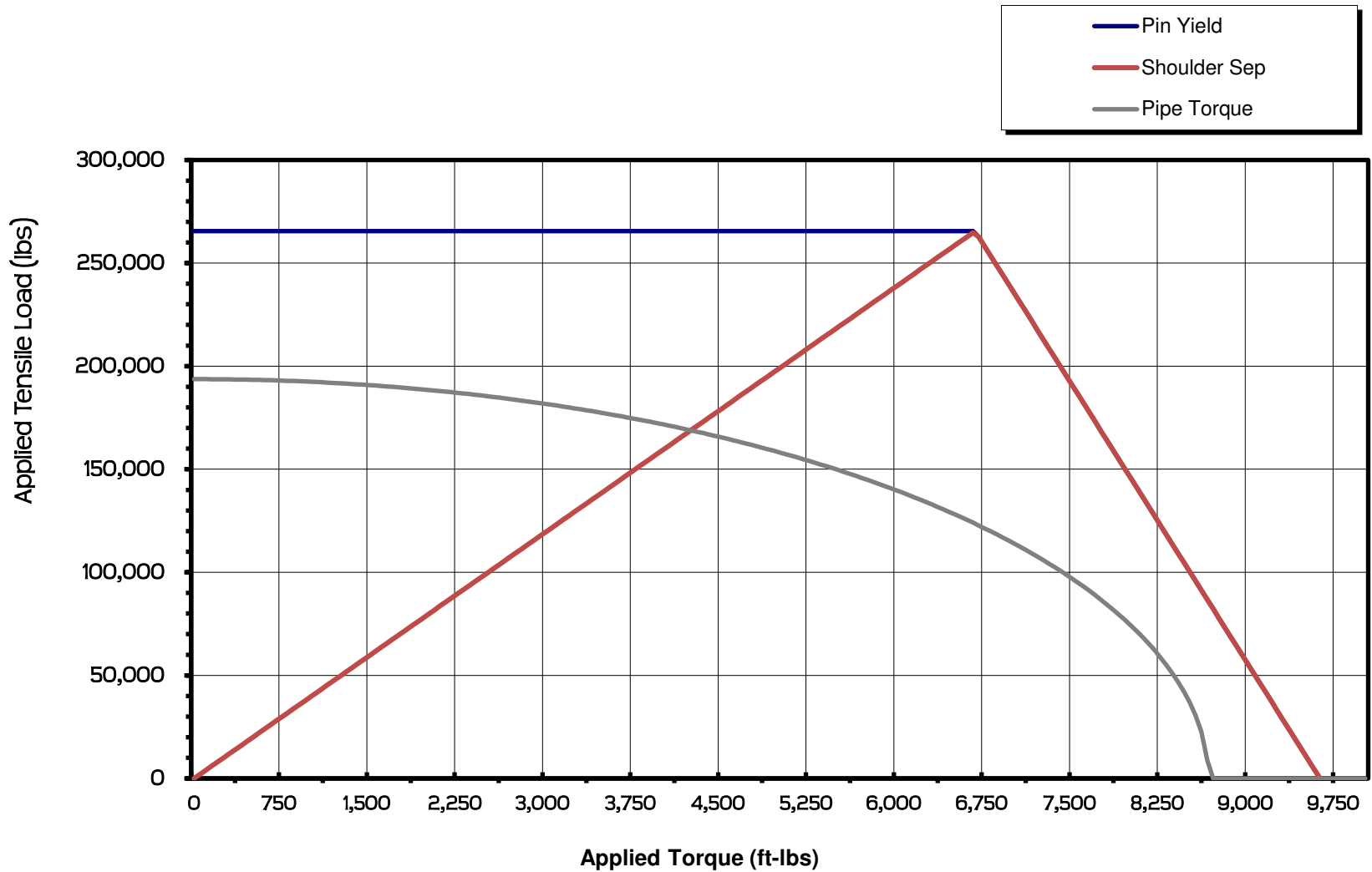
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Revision 1

Pipe Body			
	New-API	New-95%RBW	Premium
OD (in)	2.375	2.375	2.263
Wall Thickness (in)	0.280	0.301	0.224
ID (in)	1.815	1.773	1.815
Calculated Plain End weights (lbs/ft)	6.262	6.664	4.876
Note: Premium properties are calculated based on uniform OD and wall thickness.			
Cross sectional area pipe body (in ²)	1.843	1.961	1.435
Cross sectional area OD (in ²)	4.430	4.430	4.022
Cross sectional area ID (in ²)	2.587	2.469	2.587
Section Modulus (in ³)	0.867	0.907	0.667
Polar Section Modulus (in ³)	1.733	1.813	1.334
	New-API	New-95%RBW	Premium
Torsional Strength (ft-lbs)	11,300	11,800	8,700
Tensile Strength (lbs)	248,800	264,800	193,700
80% Torsional Strength (ft-lbs)	9,000	9,400	7,000
Pressure Capacity (psi)	27,853	29,942	25,465
Collapse Capacity (psi)	28,079	29,882	24,080
Tool Joint			
		PTECH23+	
		OD (in)	3 1/16
		ID (in)	1 1/2
Tool Joint with a Material Yield Strength of 135000 psi			
		Pin Tong length (in)	10
		Box Tong length (in)	13
		Torsional Strength (ft-lbs)	9,610
		Recommended Make-up Torque (ft-lbs)	5,800
		Min Recommended Make-up Torque (ft-lbs)	5,200
		Balance OD (in)	3.041
		Tensile Strength (lbs)	269,700
		Tool joint/Drill pipe torsional ratio (New pipe)	0.85
		Tool joint/Drill pipe torsional ratio (95% New pipe)	0.81
		Tool joint/Drill pipe torsional ratio (Prem pipe)	1.10
		Min OD for premium class (in)	2.813
Drill Pipe Assembly with PTECH+ Tool Joint		Drill Pipe Bend Radius	
		* These calculations are based on new pipe with nominal wall	
API Adjusted weight (lbs/ft)	7.26	Based on Bending Stress (psi) at Pipe OD	15,000
95% Adjusted weight (lbs/ft)	7.63		
Approximate length (ft)	32.00	Radius of Curvature (R) (ft.) (@ OD of pipe)	197.9
95% Fluid Displacement (gal/ft)	0.117		
API Fluid Displacement (gal/ft)	0.111		
Fluid Capacity (gal/ft)	0.128	BUR (dogleg) deg/100 ft.	29.0
Drift Size	1.375		

TORQUE TENSION COMBINED LOAD CURVE

For PTECH23+ 3 1/16 X 1 1/2 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: 2.375 6.65 S-135 Premium Class.



PTECH23+ 3 1/16 X 1 1/2 TOOL JOINT OD WEAR CURVE

