


Drill Pipe Performance Characteristics Sheet

PTECH Drilling Tubulars, LLC

Pipe Size and Weight: 4 1/2 0.00 0
Pipe Grade: HWDP
Range: 2
Tool Joint: 5 5/16 X 2 7/8 PTECH43+

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Pipe Body		
	New-API	Premium
OD (in)	4.500	4.150
Wall Thickness (in)	0.875	0.700
ID (in)	2.750	2.750
Calculated Plain End weights (lbs/ft)	33.860	25.780
Note: Premium properties are calculated based on uniform OD and wall thickness.		
Cross sectional area pipe body (in ²)	9.965	7.587
Cross sectional area OD (in ²)	15.904	13.527
Cross sectional area ID (in ²)	5.940	5.940
Section Modulus (in ³)	7.698	5.664
Polar Section Modulus (in ³)	15.397	11.328
	New-API	Premium
Torsional Strength (ft-lbs)	40,700	30,000
Tensile Strength (lbs)	548,100	417,300
80% Torsional Strength (ft-lbs)	32,600	24,000
Pressure Capacity (psi)	18,715	17,111
Collapse Capacity (psi)	17,230	15,425

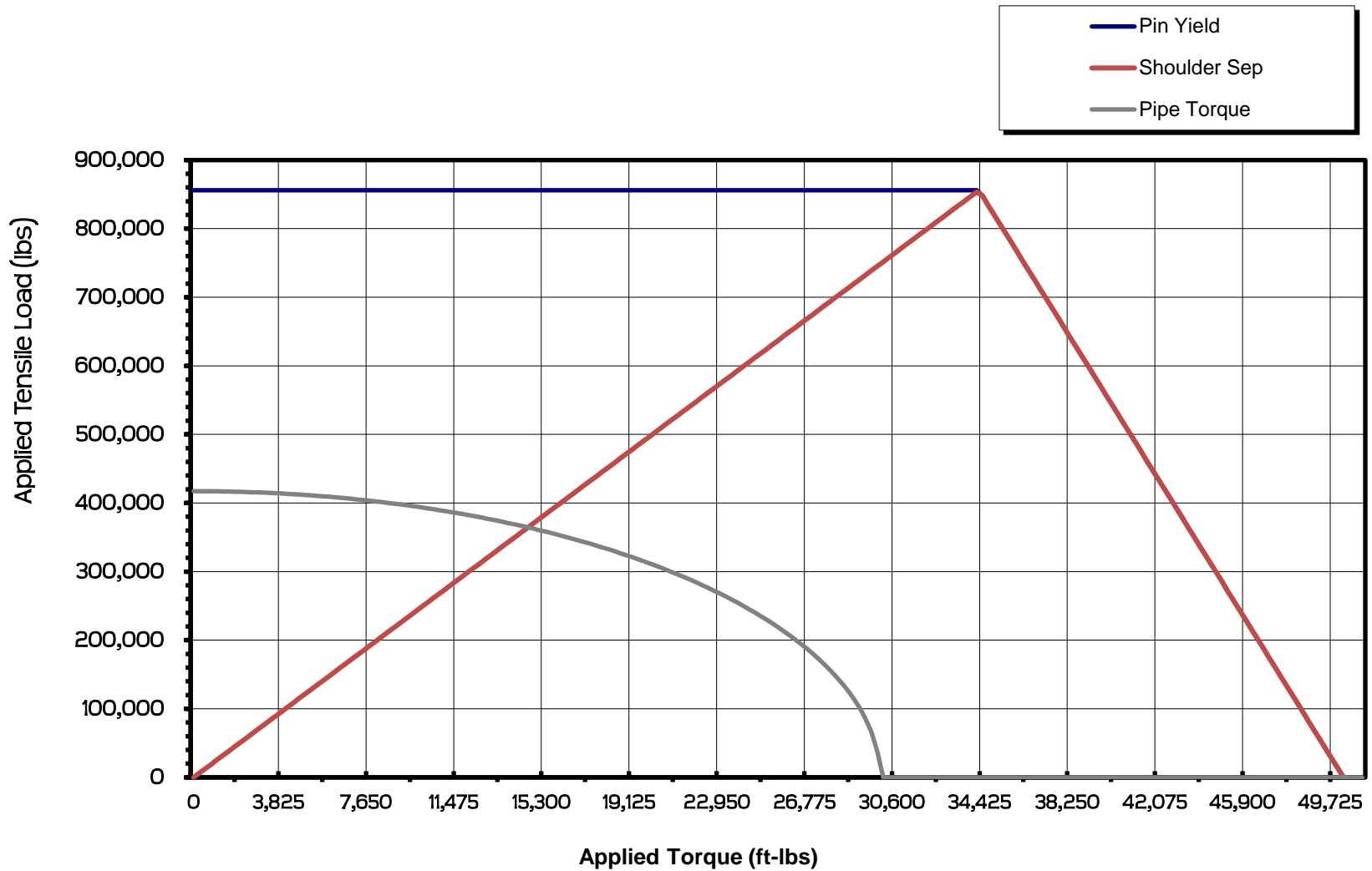
Tool Joint		
		PTECH43+
	OD (in)	5 5/16
	ID (in)	2 7/8
Tool Joint with a Material Yield Strength of 130000 psi		
	Pin Tong length (in)	27
	Box Tong length (in)	30
	Torsional Strength (ft-lbs)	49,850
	Max Recommended Make-up Torque (ft-lbs)	29,900
	Min Recommended Make-up Torque (ft-lbs)	23,500
	Balance OD (in)	5.320
	Tensile Strength (lbs)	863,600
	Tool joint/Drill pipe torsional ratio (New pipe)	1.22
	Tool joint/Drill pipe torsional ratio (Prem pipe)	1.66
	Min OD for premium class (in)	4.687

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)	37.37	* These calculations are based on new pipe with nominal wall	
Approximate length (ft)	31.0	Based on Bending Stress (psi) at Pipe OD	6,291
95% Fluid Displacement (gal/ft)	0.135	Radius of Curvature (R) (ft.) (@ OD of pipe)	894.1
API Fluid Displacement (gal/ft)	0.572		
Fluid Capacity (gal/ft)	0.305	BUR (dogleg) deg/100 ft.	6.4
Drift Size	2.625		

TORQUE TENSION COMBINED LOAD CURVE

For PTECH43+ 5 5/16 X 2 7/8 Tool Joint with a Material Strength of 130000 psi, using a Coefficient of Friction factor of 0.08 and a Safety Factor of 1.0. On Pipe: 4.5 0.00 HWDP Premium Class.



PTECH43+ 5 5/16 X 2 7/8 TOOL JOINT OD WEAR CURVE

