

Drill Pipe Performance Characteristics Sheet



Patent: 9,885,214

Pipe Size and Weight: 5 1/2 HWDP

Pipe Grade:

Range: 2

Tool Joint: 6 5/8 X 3 1/2 PTECH55+

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Pipe Body		
	New-API	Premium
OD (in)	5.500	5.100
Wall Thickness (in)	1.000	0.800
ID (in)	3.500	3.500
Calculated Plain End weights (lbs/ft)	48.038	36.722
Note: Premium properties are calculated based on uniform OD and wall thickness.		
Cross sectional area pipe body (in ²)	14.137	10.807
Cross sectional area OD (in ²)	23.758	20.428
Cross sectional area ID (in ²)	9.621	9.621
Section Modulus (in ³)	13.655	10.134
Polar Section Modulus (in ³)	27.310	20.269
	New-API	Premium
Torsional Strength (ft-lbs)	72,200	53,600
Tensile Strength (lbs)	777,500	594,400
80% Torsional Strength (ft-lbs)	57,800	42,900
Pressure Capacity (psi)	17,500	16,000
Collapse Capacity (psi)	16,364	14,548

Tool Joint		
PTECH55+		
	OD (in)	6 5/8
	ID (in)	3 1/2
Tool Joint with a Material Yield Strength of 130000 psi		
	Pin Tong length (in)	24
	Box Tong length (in)	27
	Friction Factor	1.0 1.15
	Torsional Strength (ft-lbs)	84,500 97,200
	Severe Service Recommended Make-up Torque (ft-lbs)[70%]	59,100 68,000
	Standard Service Recommended Make-up Torque (ft-lbs)[60%]	50,700 58,300
	Min Recommended Make-up Torque (ft-lbs)	39,900 45,900
	Balance OD (in)	7.031
	Tensile Strength (lbs)	1,698,500
	Tool joint/Drill pipe torsional ratio (New pipe)	1.17
	Tool joint/Drill pipe torsional ratio (95% New pipe)	
	Tool joint/Drill pipe torsional ratio (Prem pipe)	
	Min OD for premium class (in)	5.938

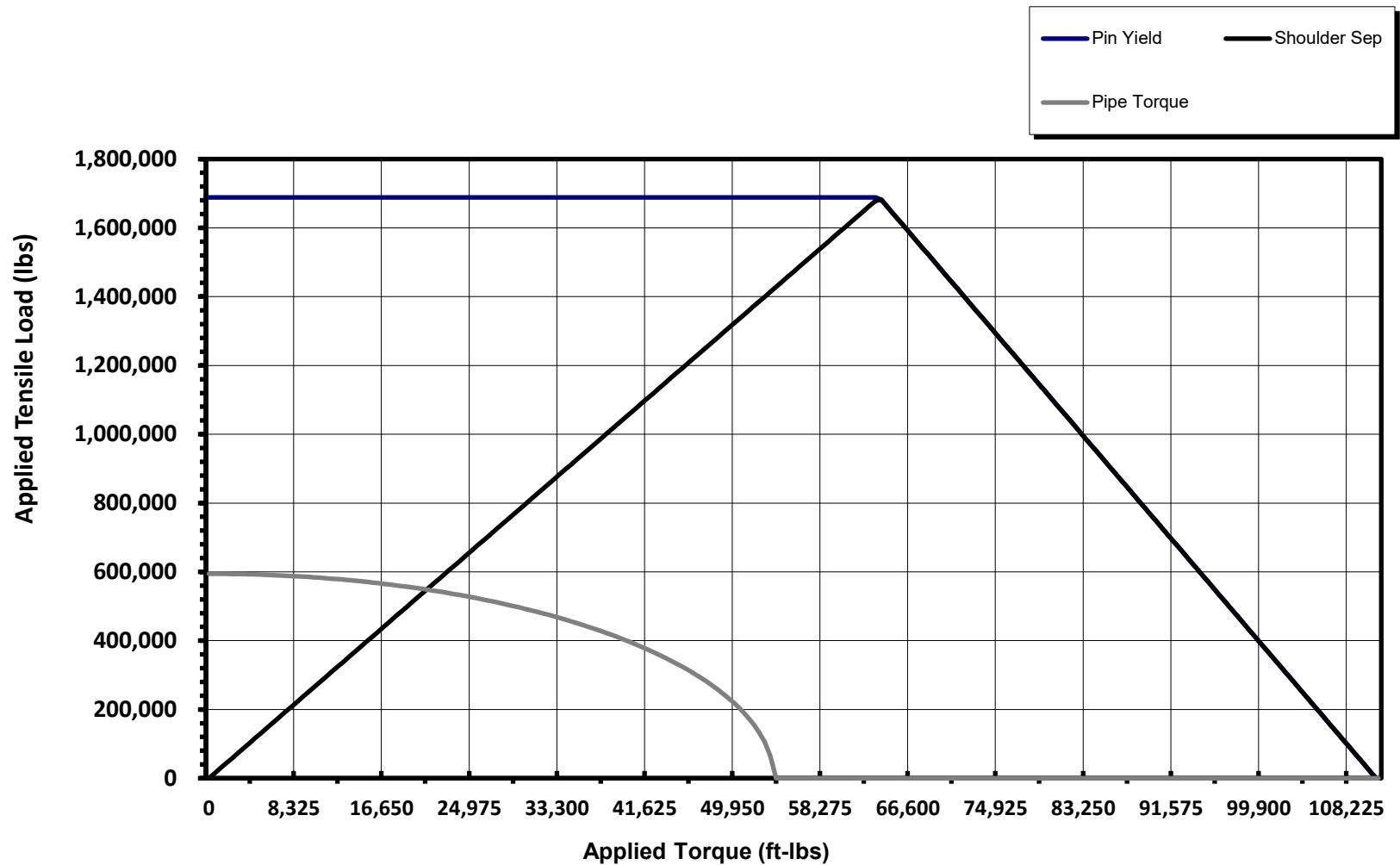
Minimum make-up is based on shoulder separation caused by bending.

Drill Pipe Assembly with PTECH55+ Tool Joint		Drill Pipe Bend Radius	
API Adjusted weight (lbs/ft)	53.49	* These calculations are based on new pipe with nominal wall	
Approximate length (ft)	31.00	Based on Bending Stress (psi) at Pipe OD	15,000
API Fluid Displacement (gal/ft)	0.818	Radius of Curvature (R) (ft.) (@ OD of pipe)	458.3
Fluid Capacity (gal/ft)	0.499	BUR (dogleg) deg/100 ft.	12.5
Drift Size	3.375		

This Performance Sheet was generated by Nels Wickander.

TORQUE TENSION COMBINED LOAD CURVE

For PTECH55+ 6-5/8 X 3-1/2 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: 5.5 HWDP Premium Class.



PTECH55+ 6 5/8 X 3 1/2 HWDP TOOL JOINT OD WEAR CURVE

