

Pipe

					NEW	API PREMIUM
Pipe size	in	4.500	OD	in	4.500	4.328
Pipe weight	lb/ft	20.00	Thickness	in	0.430	0.344
Upset Type		IEU	X-Sec Area	in ²	5.498	4.306
Tube grade		S135	Section Modulus	in ³	5.116	3.9769
Range		2	Polar Section Modulus	in ³	10.232	7.9538
Tube Yield	ksi	135	Tensile Yield	lbs	742,000	581,000
ID	in	3.640	Torsional Yield	ft-lbs	66,400	51,600
			80% Torsional Yield	ft-lbs	53,100	41,280
			Internal Pressure Yield	psi	22,600	20,600
			Collapse Yield	psi	23,300	18,800
			D/t		10.47	12.58
			Connection/Tube Torsional Ratio		0.732	

Tool Joint

					NEW	REC MIN OD
Connection Type		400 DUO	OD	in	5.250	4.813
Material Yield Strength	ksi	130	Tensile Yield Strength	lbs	918,900	918,900
OD	in	5.250	Torsional Yield Strength	ft-lbs	48,600	32,700
ID	in	2.688	Recommended Makeup Torque	ft-lbs	29,200	19,600
Pin Shoulder Angle	deg	18	Maximum Makeup Torque	ft-lbs	31,600	21,300
Pin Tool Joint Length	in	14.0				
Box Tool Joint Length	in	14.0				

Drill Pipe Assembly

Shoulder-Shoulder Length	ft	31.5		
Adjusted Weight	lbs/ft	22.10		
Closed End Displacement	gal/ft	0.851	bbl/ft	0.0203
Open End Displacement	gal/ft	0.338	bbl/ft	0.0080
Fluid Capacity	gal/ft	0.513	bbl/ft	0.0122
Drift Size	in	2.563		

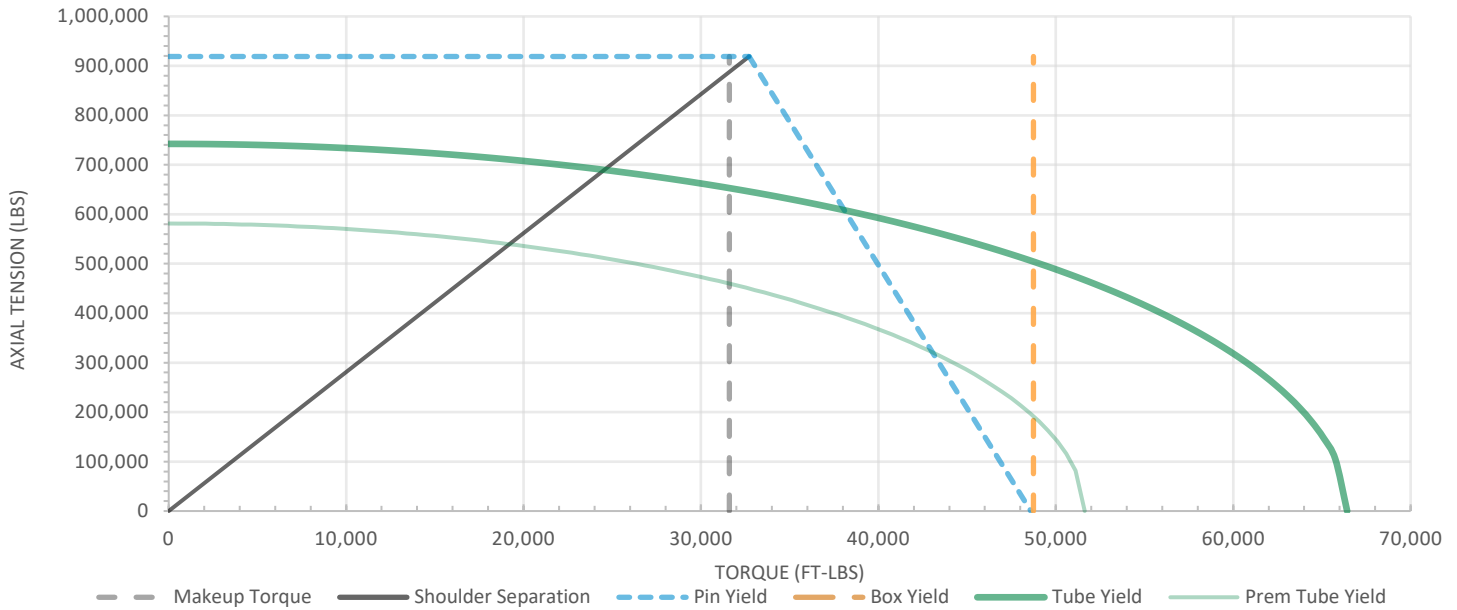
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Calculations are based on uniform wall thickness and outside diameter – no safety factor has been applied. The information provided for inspection classes is based on uniform wear and is not intended to recommend or confirm operational limits of any used product. It is recommended that drilling torque not exceed 80% of the makeup torque, however it is the responsibility of the end user to determine the acceptable use of the end product including appropriate performance ratings and safety factors where applicable. All connection torque calculations have been performed using a thread compound friction factor of 1.0. Complete Group does not endorse any specific thread compound and waives all responsibility in determining appropriate makeup torque values for any specific drilling circumstance. Modifying makeup torque values for any reason shall be done at the end users discretion and risk.

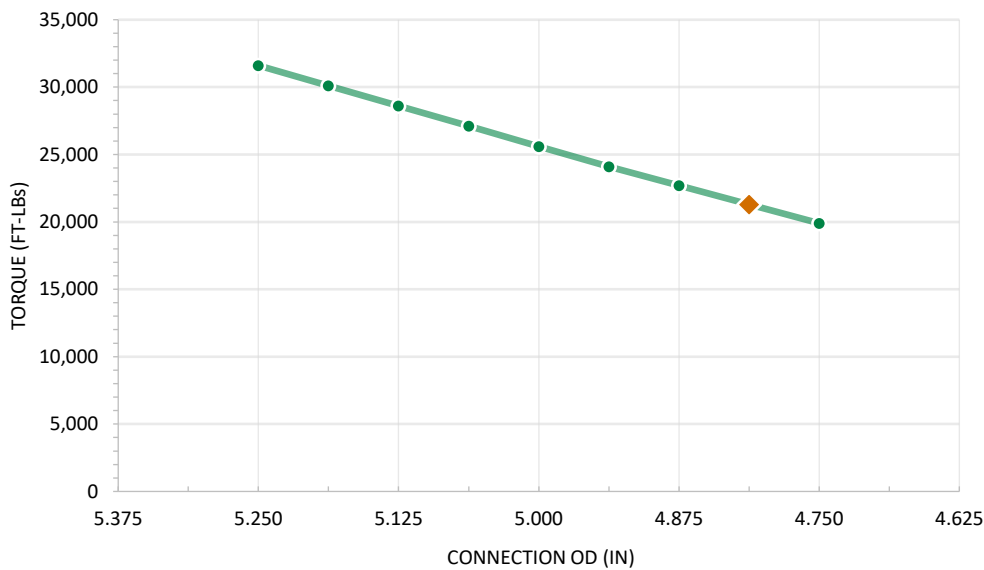
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Pipe Size: 4.500 in Grade: S135 Range: 2
 Pipe Weight: 20.00 lb/ft Upset: IEU Connection: 400 DUO

Makeup Torque Then Tension Chart



Connection Wear Chart



CONNECTION OD (in)	MAXIMUM MAKEUP TORQUE (ft-lbs)
5.250	31,600
5.188	30,100
5.125	28,600
5.063	27,100
5.000	25,600
4.938	24,100
4.875	22,700
4.813	21,300
4.750	19,900
MIN REC OD (in)	
4.813	21,300

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