

Pipe Size:	4.750 in	Grade:	S135	Range:	3
Pipe Weight:	18.11 lb/ft	Upset:	IEU	Connection:	450 DUO

### Pipe

		NEW	API PREMIUM
Pipe size	<i>in</i> 4.750	OD <i>in</i> <b>4.750</b>	4.610
Pipe weight	<i>lb/ft</i> 18.11	Thickness <i>in</i> <b>0.350</b>	0.280
Upset Type	IEU	X-Sec Area <i>in<sup>2</sup></i> <b>4.838</b>	3.809
Tube grade	S135	Section Modulus <i>in<sup>3</sup></i> <b>4.961</b>	3.889
Range	3	Polar Section Modulus <i>in<sup>3</sup></i> <b>9.922</b>	7.778
Tube Yield	<i>ksi</i> 135	Tensile Yield <i>lbs</i> <b>653,000</b>	514,000
ID	<i>in</i> 4.050	Torsional Yield <i>ft-lbs</i> <b>64,400</b>	50,500
		80% Torsional Yield <i>ft-lbs</i> <b>51,500</b>	40,400
		Internal Pressure Yield <i>psi</i> <b>17,400</b>	15,900
		Collapse Yield <i>psi</i> <b>16,200</b>	10,500
		D/t <b>13.57</b>	16.46
		Connection/Tube Torsional Ratio <b>0.942</b>	

### Tool Joint

		NEW
Connection Type	450 DUO	OD <i>in</i> <b>5.625</b>
Material Yield Strength	<i>ksi</i> 130	Tensile Yield Strength <i>lbs</i> <b>1,062,400</b>
OD	<i>in</i> 5.625	Torsional Yield Strength <i>ft-lbs</i> <b>60,700</b>
ID	<i>in</i> 2.875	Recommended Makeup Torque <i>ft-lbs</i> <b>36,400</b>
Pin Shoulder Angle	<i>deg</i> 18	Maximum Makeup Torque <i>ft-lbs</i> <b>39,400</b>
Pin Tool Joint Length	<i>in</i> 14.0	
Box Tool Joint Length	<i>in</i> 14.0	

### Drill Pipe Assembly

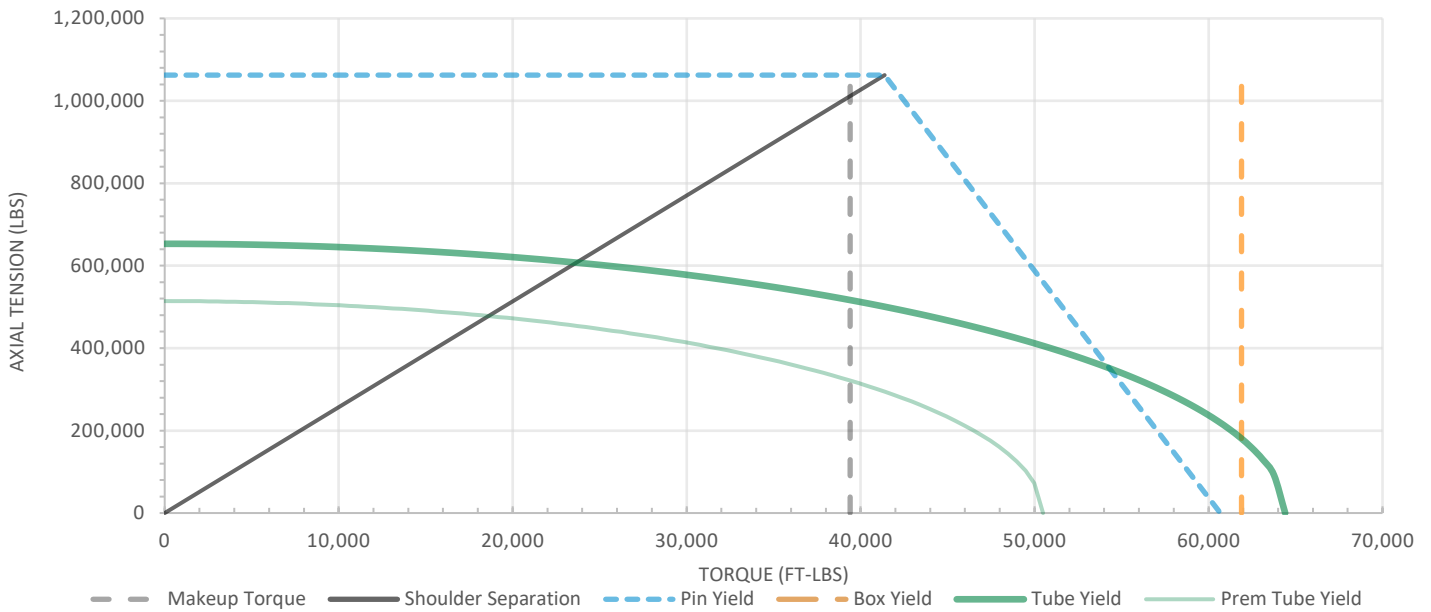
Shoulder-Shoulder Length	<i>ft</i> <b>43.50</b>	
Adjusted Weight	<i>lbs/ft</i> <b>19.63</b>	
Closed End Displacement	<i>gal/ft</i> <b>0.942</b>	<i>bbl/ft</i> 0.0224
Open End Displacement	<i>gal/ft</i> <b>0.300</b>	<i>bbl/ft</i> 0.0071
Fluid Capacity	<i>gal/ft</i> <b>0.642</b>	<i>bbl/ft</i> 0.0153
Drift Size	<i>in</i> <b>2.75</b>	

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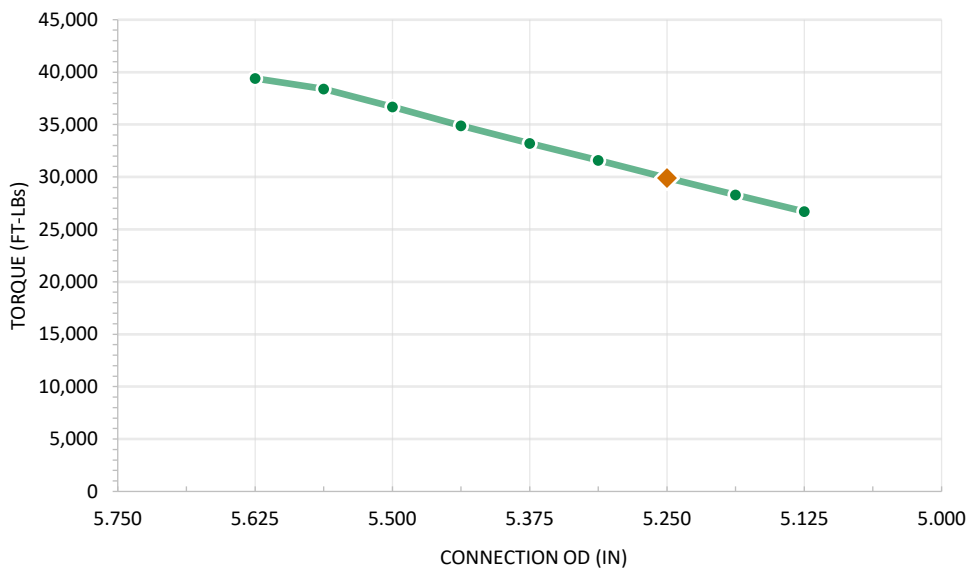
Calculations are based on uniform wall thickness and outside diameter – no safety factor has been applied. The information provided for inspection classes is based on uniform wear and is not intended to recommend or confirm operational limits of any used product. It is recommended that drilling torque 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 Tubular Products 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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### Makeup Torque Then Tension Chart



### Connection Wear Chart



CONNECTION OD (in)	MAXIMUM MAKEUP TORQUE (ft-lbs)
5.625	39,400
5.563	38,400
5.500	36,700
5.438	34,900
5.375	33,200
5.313	31,600
5.250	29,900
5.188	28,300
5.125	26,700
<b>MIN REC OD (in)</b>	<b>29,900</b>
5.250	29,900

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