COMPLETE TUBULAR PRODUCTS

DRILL PIPE PERFORMANCE DATA SHEET

Pipe Size:	**4.500 in**	**Grade:**	**S135**	**Range:**	**2**
Pipe Weight:	**16.60 lb/ft**	**Upset:**	**IEU**	**Connection:**	**430 DUO**

Pipe

					NEW	API PREMIUM
Pipe size	*in*	4.500	OD	*in*	**4.500**	4.365
Pipe weight	*lb/ft*	16.60	Thickness	*in*	**0.337**	0.270
Upset Type		IEU	X-Sec Area	in^2	**4.407**	3.469
Tube grade		S135	Section Modulus	in^3	**4.271**	3.347
Range		2	Polar Section Modulus	in^3	**8.543**	6.694
Tube Yield	*ksi*	135	Tensile Yield	*lbs*	**595,000**	468,000
ID	*in*	3.826	Torsional Yield	*ft-lbs*	**55,500**	43,500
			80% Torsional Yield	*ft-lbs*	**44,400**	34,800
			Internal Pressure Yield	*psi*	**17,700**	16,200
			Collapse Yield	*psi*	**16,800**	11,000
			D/t		**13.35**	16.19
			Connection/Tube Torsional Ratio		**0.781**	

Tool Joint

					NEW
Connection Type		430 DUO	OD	*in*	**5.250**
Material Yield Strength	*ksi*	130	Tensile Yield Strength	*lbs*	**826,800**
OD	*in*	5.250	Torsional Yield Strength	*ft-lbs*	**43,400**
ID	*in*	3.000	Recommended Makeup Torque	*ft-lbs*	**26,000**
Pin Shoulder Angle	*deg*	18	Maximum Makeup Torque	*ft-lbs*	**28,200**
Pin Tool Joint Length	*in*	14.0			
Box Tool Joint Length	*in*	14.0			

Drill Pipe Assembly

Shoulder-Shoulder Length	*ft*	**31.50**		
Adjusted Weight	*lbs/ft*	**18.28**		
Closed End Displacement	*gal/ft*	**0.851**	*bbl/ft*	0.0203
Open End Displacement	*gal/ft*	**0.279**	*bbl/ft*	0.0066
Fluid Capacity	*gal/ft*	**0.571**	*bbl/ft*	0.0136
Drift Size	*in*	**2.875**		

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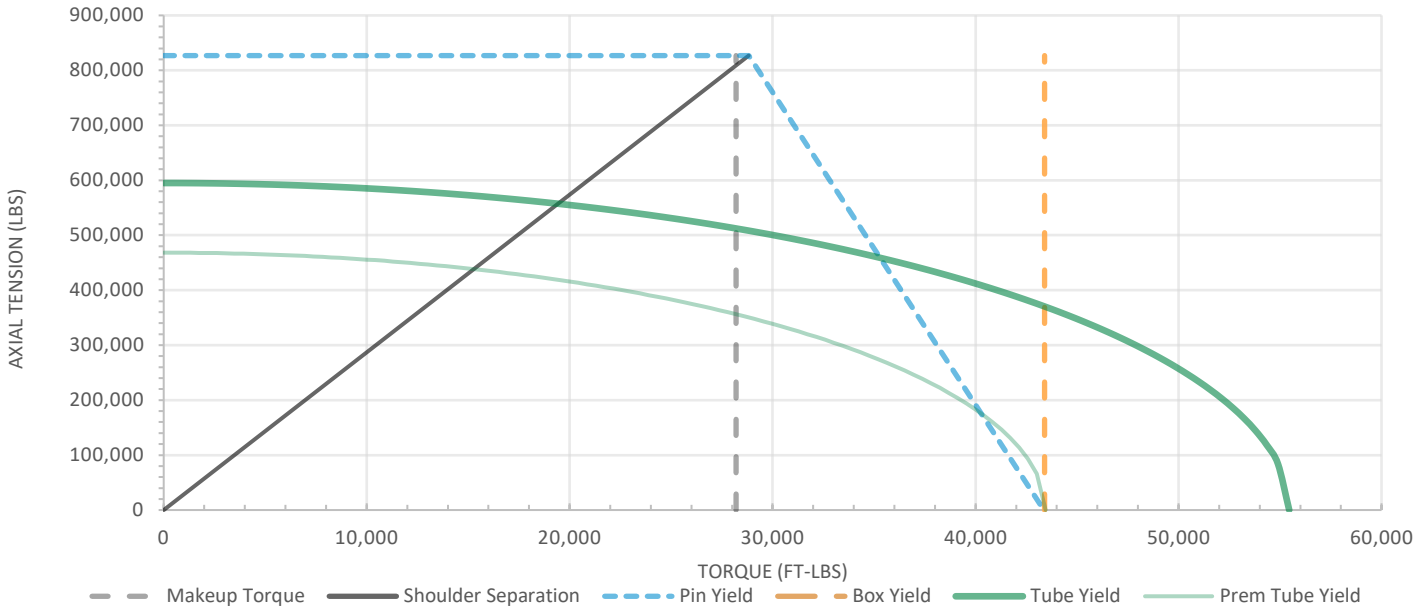
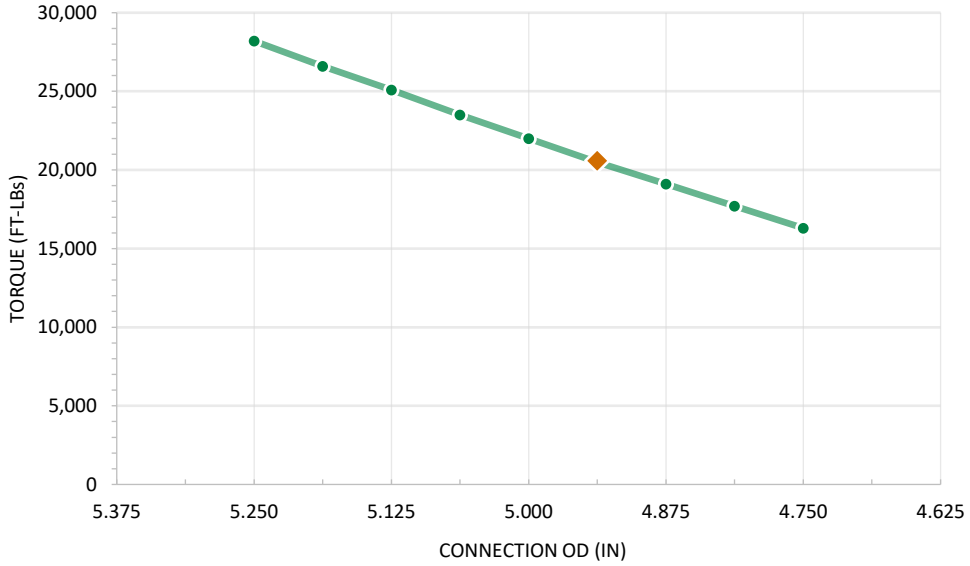
Makeup Torque Then Tension Chart



Connection Wear Chart



CONNECTION OD (in)	MAXIMUM MAKEUP TORQUE (ft-lbs)
5.250	28,200
5.188	26,600
5.125	25,100
5.063	23,500
5.000	22,000
4.938	20,500
4.875	19,100
4.813	17,700
4.750	16,300
MIN REC OD (in)	
4.938	20,600

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