

# Drill Pipe Performance Characteristics Sheet



**Pipe Size & Weight:** 3-1/2 13.30# IEU  
**Pipe Grade:** S-135  
**Range:** 1  
**Tool Joint Dimensions:** 4-1/8" OD x 1-3/4" ID  
**Connection:** NC31 DS or 2-7/8 IF

THIS TECHNICAL INFORMATION IS FOR REFERENCE ONLY

Pipe Body Information		
	<u>New-API</u>	<u>Premium</u>
OD (in)	3.500	3.353
Wall Thickness (in)	.368	.294
ID (in)	2.764	2.764
Calculated Plain End weights (lbs./ft)	12.304	9.612
<i>* Note: Premium Properties are calculated based on uniform OD and wall thickness.</i>		
	<u>New-API</u>	<u>Premium</u>
Cross Sectional area pipe body (in <sup>2</sup> )	3.621	2.829
Cross Sectional area OD (in <sup>2</sup> )	9.621	8.829
Cross Sectional area ID (in <sup>2</sup> )	6.000	6.000
Section Modulus (in <sup>2</sup> )	2.572	1.991
Polar Section Modulus (in <sup>2</sup> )	5.144	3.982
	<u>New-API</u>	<u>Premium</u>
Torsional Strength (ft-lbs.)	33,400	25,900
Tensile Strength (lbs.)	488,800	381,900
80% Torsional Strength (ft-lbs.)	26,700	20,700
Pressure Capacity (psi)	24,840	22,711
Collapse Capacity (psi)	25,404	21,626
Tool Joint Information		
<b>NC31 DS</b>		
OD (in)	4-1/8"	
ID (in)	1-3/4"	
<i>* Tool Joint with a Material Yield Strength of 120,000 psi</i>		
Pin Tong length (in)	9"	
Box Tong length (in)	11"	
<b>Torsional Strength (ft-lbs.)</b>	<b>21,400</b>	
<b>Max Recommended Make-up Torque (ft-lbs.)</b>	<b>12,900</b>	
<b>Min Recommended Make-up Torque (ft-lbs.)</b>	<b>10,100</b>	
Balance OD (in)	4.235	
<b>Tensile Strength (lbs.)</b>	<b>584,100</b>	
Tool Joint / Drill Pipe torsional ratio (New Pipe)	0.64	
Tool Joint / Drill Pipe torsional ratio (Premium Pipe)	0.83	
Min OD for Premium Class (in)	4.203	
Drill Pipe Assembly w/ NC31 DS Tool Joint		Drill Pipe Bend Radius
API Adjusted Weight (lbs./ft.)	15.33	<i>* These calculations are based on new pipe with nominal wall</i>
Approximate Length (ft.)	20.07	
API Fluid Displacement (gal./ft.)	0.234	Based on Bending Stress (psi) at Pipe OD 15,000
Fluid Capacity (gal./ft.)	0.286	Radius of Curvature ® (ft.) (@ OD of pipe) 291.7
Drift Size (in)	1.625	BUR (dogleg) deg/100 ft. 19.6