

## New Tool Joints and New Drill Pipe

Pipe		Tool Joint					Pipe	Tool Joint	Pipe	Tool Joint		
API Label 1 (Pipe OD) (in)	API Label 2 (Nominal Weight) (lbs/ft)	Grade	Connection Size and Style RSC Type	OD (in)	ID (in)	Make-Up Torque (ft-lbs)	Drift Diameter (in)	Tensile Yield (lbs)	Tensile Yield (lbs)	Torsional Yield Strength (ft-lbs)	Torsional Yield Strength (ft-lbs)	Torsional Ratio
4 1/2	16.60	E	NC 46	6 1/4	3 1/4	19,937	3.125	330,558	901,100	30,807	33,228	1.08
		X	NC 46	6 1/4	3	23,399	2.875	418,707	1,048,400	39,022	38,998	1.00
		X	TSDS 46	6 1/4	3	35,960	2.875	418,707	1,179,400	39,022	59,930	1.54
		G	NC 46	6 1/4	3	23,399	2.875	462,781	1,048,400	43,130	38,998	0.90
		G	TSDS 46	6 1/4	3	35,960	2.875	462,781	1,179,400	43,130	59,930	1.39
		S	NC 46	6 1/4	2 3/4	26,615	2.625	595,004	1,183,900	55,453	44,359	0.80
		S	TSDS 46	6 1/4	2 3/4	42,260	2.625	595,004	1,331,800	55,453	70,430	1.27
	20.00	E	NC 46	6 1/4	3 1/4	19,937	3.125	412,358	901,100	36,901	33,228	0.90
		X	NC 46	6 1/4	3	23,399	2.875	522,320	1,048,400	46,741	38,998	0.83
		X	TSDS 46	6 1/4	3	35,960	2.875	522,320	1,179,400	46,741	59,930	1.28
		G	NC 46	6 1/4	3	23,399	2.875	577,301	1,048,400	51,661	38,998	0.75
		G	TSDS 46	6 1/4	3	35,960	2.875	577,301	1,179,400	51,661	59,930	1.16
		S	NC 46	6 1/4	2 3/4	26,615	2.625	742,244	1,183,900	66,421	44,359	0.67
		S	TSDS 46	6 1/4	2 3/4	42,260	2.625	742,244	1,331,800	66,421	70,430	1.06
	22.82	E	NC 46	6 1/4	3 1/4	19,937	3.125	471,239	901,100	40,912	33,228	0.81
		X	NC 46	6 1/4	3	23,399	2.875	596,903	1,048,400	51,821	38,998	0.75
		X	TSDS 46	6 1/4	3	35,960	2.875	596,903	1,179,400	51,821	59,930	1.16
		G	NC 46	6 1/4	3	23,399	2.875	659,734	1,048,400	57,276	38,998	0.68
		G	TSDS 46	6 1/4	3	35,960	2.875	659,734	1,179,400	57,276	59,930	1.05
		S	NC 46	6 1/4	2 3/4	26,615	2.625	848,230	1,183,900	73,641	44,359	0.60
		S	TSDS 46	6 1/4	2 3/4	42,260	2.625	848,230	1,331,800	73,641	70,430	0.96

b - Torsional yield values shown in yellow indicate the connection is box weak in torsion.

The torsional yield strength is based on a shear strength of 57.7% of the minimum yield strength and nominal wall thickness.

TSDS Values based on 135Ksi Material Yield Strength. API NC Values based on 120Ksi Material Yield Strength.

Pin tensile yield values are based on tensile loading conditions only, and do not include the combined effect of torsional and tensile loading.