

**DRILL PIPE DATA SHEET**  
**DRILL PIPE: 5" IEU by 19.50 lb/ft by Grade S135 by Range 2 (31.5 ft)**  
**TOOL JOINT: 6 5/8" OD by 3 1/2" ID by TSDS50 (135 ksi SMYS)**

DRILL PIPE BODY DIMENSIONAL DATA		
	NEW	PREMIUM (80% RBW)
OD (in)	5.000	4.855
ID, Ref (in)	4.276	4.276
Wall Thickness (in)	0.362	0.290
Cross Sectional Area (in <sup>2</sup> )	5.275	4.154
Polar Section Modulus, J/c (in <sup>3</sup> )	11.415	8.953
Section Modulus, I/c (in <sup>3</sup> )	5.708	4.476

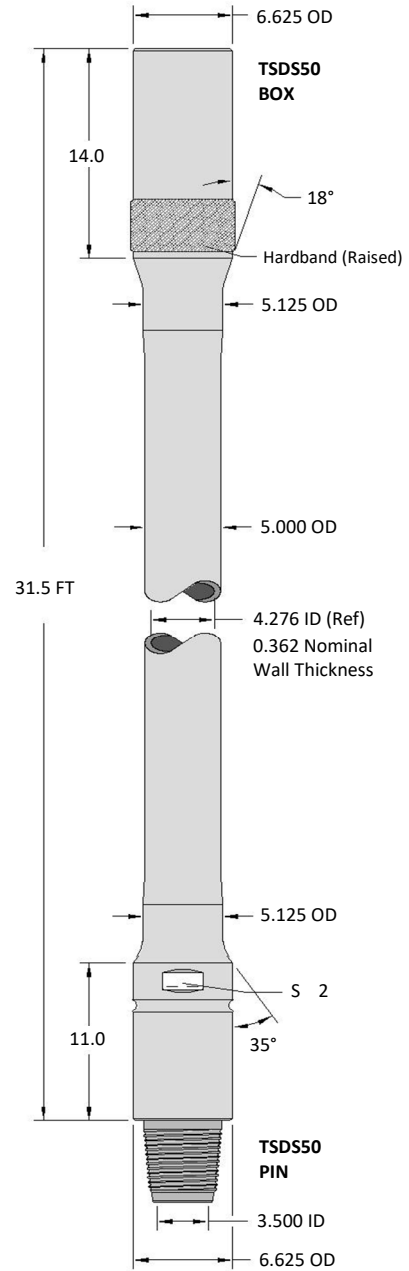
Premium class values based on a minimum wall thickness equal to 80% of New drill pipe body nominal wall thickness, reference API RP 7G-2.

DRILL PIPE BODY PERFORMANCE PROPERTIES		
	NEW	PREMIUM (80% RBW)
Tensile Yield (lb)	712,070	560,764
Torsional Yield (ft-lb)	74,100	58,114
Collapse Pressure (psi)	15,672	10,029
Internal Yield Pressure (psi)	17,105	15,638
Material Yield Strength (psi)	135,000	

Drill pipe body performance properties are based on API RP 7G. Class New drill pipe body data is for reference only and is not intended for drill string design purposes.

TOOL JOINT DATA (New)		
Connection Size	TSDS50	
OD (in)	6.625	
ID (in)	3.500	
Box Tool Joint OD Length (in)	14.0	
Pin Tool Joint OD Length (in)	11.0	
Connection Bevel Diameter (in)	6.063	
Material Yield Strength (psi)	135,000	
<b>Thread Compound Friction Factor</b>	1.0 (a)	1.15 (b)
Recommended Make-Up Torque (ft-lb)	40,700	46,800 (c)
Max Make-Up Torque (ft-lb)	47,400	54,500 (d)
Torsional Yield (ft-lb)	67,800	
Torsional Strength Ratio, TJ/DPB	0.91	
Approximate Tension to Yield Pin at Recommended Make-Up Torque (lb)	1,006,000	
Approximate Tension to Yield Pin at Max Make-Up Torque (lb)	757,000	
Tool Joint Tensile Yield (lb)	1,227,000	
Balanced OD (in)	6.256	

- (a) Make-Up Torque values shown under column 1.0 are based on using a 1.0 friction factor thread compound (0.08 coefficient of friction).
- (b) Make-Up Torque values shown under column 1.15 have been adjusted based on using a 1.15 friction factor thread compound. The make-up torque values are only applicable when using a thread compound rated by the manufacturer to have a 1.15 friction factor.
- (c) Recommended Make-Up Torque is based on 60% of the connection torsional yield, ref. API RP 7G.
- (d) Max Make-Up Torque is based on 70% of the connection torsional yield. It is the maximum make-up torque that can be applied to the connection to prevent downhole make-up, reference IADC Drilling Manual. Never exceed Max Make-Up Torque.



ASSEMBLY DATA (New)							
Weight (Approx.)		Capacity (Approx.)		Displacement Open Ends (Approx.)		Drift Diameter	Assembly Length Shld'r to Shld'r (Approx.)
(lb/Joint)	(lb/ft)	(US gallon/ft)	(BBL/ft)	(US gallon/ft)	(BBL/ft)	(in)	(ft)
772	24.51	0.7016	0.0167	0.3745	0.0089	3.375	31.5

Assembly data based on TSC 95% RBW New drill pipe nominal dimensions and no internal plastic coating. Conversion Factor: 1 BBL= 42 US gallons

**Notes:**

1. All data is calculated based on standard methods. No safety factor applied.
2. Premium Class drill pipe body data is based on a minimum wall thickness equal to 80% of New drill pipe nominal wall thickness, reference API RP 7G-2.
3. Drawing is for reference purposes only, not to scale, and based on New drill pipe nominal dimensions, units of inches unless otherwise indicated.

Tool Joint Make-Up Torque TSDS50 x 3.500" ID (135 ksi SMYS) 1.0 Friction Factor Thread Compound (1)			
Tool Joint OD (in)	Recommended Make-Up Torque (1) (2) (ft-lb)	Max Make-Up Torque (1) (3) (ft-lb)	Torsional Yield Ref. (ft-lb)
6.625	40,700	47,400	67,800
6.250	40,400	47,100	67,400
6.125	36,300	42,300	60,500
6.000	32,300	37,600	53,800
5.969	31,300	36,500	52,100

Combined Torque and Tension to Yield Drill Pipe Body Premium Class (80% RBW) 5" IEU x 19.50 lb/ft x Grade S135 (5)	
Operational Torque (ft-lb)	Drill Pipe Body Max Tension (lb)
0	560,764
1,500	560,500
3,000	560,000
4,500	559,000
6,000	557,700
7,500	556,000
9,000	553,900
10,500	551,500
12,000	548,600
13,500	545,400
15,000	541,700
16,500	537,600
18,000	533,100
19,500	528,200
21,000	522,800
22,500	517,000
24,000	510,700
25,500	503,800
27,000	496,500
28,500	488,600
30,000	480,200
31,500	471,200
33,000	461,500
34,500	451,200
36,000	440,200

Tool Joint Make-Up Torque TSDS50 x 3.500" ID (135 ksi SMYS) 1.15 Friction Factor Thread Compound (4)		
Tool Joint OD (in)	Recommended Make-Up Torque (4) (2) (ft-lb)	Max Make-Up Torque (4) (3) (ft-lb)
6.625	46,800	54,500
6.250	46,500	54,200
6.125	41,700	48,700
6.000	37,100	43,300
5.969	36,000	41,900

Estimated Elevator Hoist Capacity (lb) (6)		
Tool Joint OD (in)	5.250" Dia. Assumed Elev. Bore	5.281" Dia. Assumed Elev. Bore
6.625	1,410,600	1,382,200
5.969	696,600	668,200

Caution: Operational (rotating) torque should never exceed 80% of the connection make-up torque, reference IADC Drilling Manual.

Notes:

- (1) Make-Up Torque values are based on 1.0 friction factor thread compound (0.08 coefficient of friction).
- (2) Recommended Make-Up Torque is based on 60% of the connection torsional yield, ref. API RP 7G.
- (3) Max Make-Up Torque is based on 70% of the connection torsional yield. It is the maximum make-up torque that can be applied to the connection to prevent downhole make-up, reference IADC Drilling Manual. Never exceed Max Make-Up Torque.
- (4) Make-Up Torque values have been adjusted based on using a 1.15 friction factor thread compound. The make-up torque values are only applicable when using a thread compound rated by the manufacturer to have a 1.15 friction factor.
- (5) Premium class drill pipe body based on 80% remaining pipe body wall and other requirements specified in API RP 7G-2. Drill pipe body combined torque and tension based on API RP 7G, no safety factor applied.
- (6) Estimated elevator hoist capacity is for reference only and based on tool joint projected taper area, 110,000 psi SMYS and no safety factor. User is advised to contact their elevator manufacturer for elevator hoist capacity versus tool joint OD.