

DRILL PIPE DATA SHEET
DRILL PIPE: 5 1/2" IEU by 21.90 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)	5.500	5.356
ID, Ref (in)	4.778	4.778
Wall Thickness (in)	0.361	0.289
Cross Sectional Area (in ²)	5.828	4.597
Polar Section Modulus, J/c (in ³)	14.062	11.054
Section Modulus, I/c (in ³)	7.031	5.527

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

DRILL PIPE BODY PERFORMANCE PROPERTIES		
	NEW	PREMIUM (80% RBW)
Tensile Yield (lb)	786,809	620,604
Torsional Yield (ft-lb)	91,278	71,754
Collapse Pressure (psi)	12,679	7,496
Internal Yield Pressure (psi)	15,507	14,177
Material Yield Strength (psi)	135,000	

Drill pipe body performance properties are based on API RP 7G. Class New drill pipe 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	
Material Yield Strength (psi)	135,000	
Thread Compound Friction Factor	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	0.74	
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	

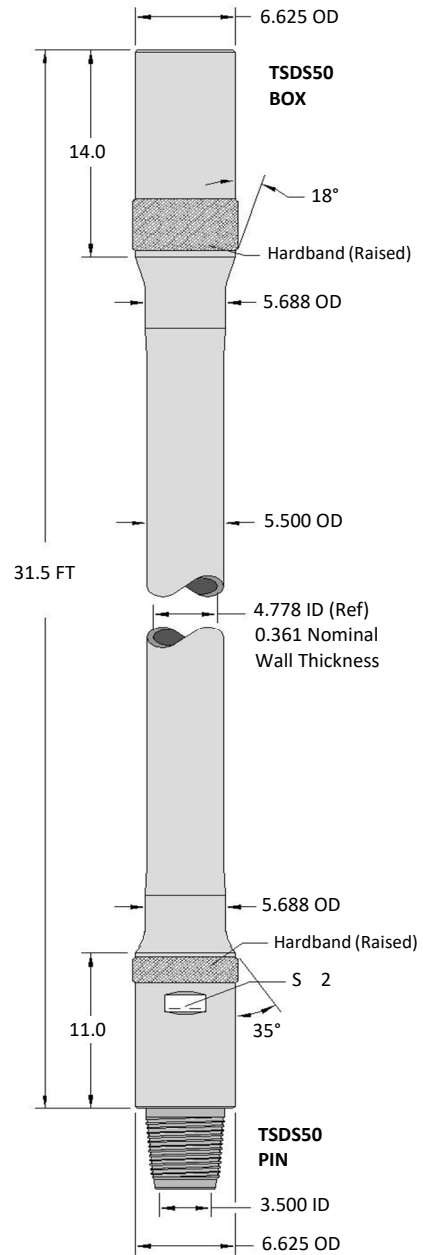
- a. Make-Up Torque values shown under column 1.0 are based on using a 1.0 friction factor thread compound (0.08 coefficient of friction), ref API RP 7G.
- b. Make-Up Torque values shown under column 1.15 have been adjusted based on using a 1.15 friction factor thread compound. The make-up torque values 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 gal/ft)	(BBL/ft)	(US gal/ft)	(BBL/ft)	(in)	(ft)
829	26.33	0.8730	0.0208	0.4023	0.0096	3.375	31.5

Assembly data based on New TSC 95% RBW 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 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.
4. Specified tool joint OD is smaller than the standard API tool joint for 5-1/2" IEU drill pipe. User is advised to contact their elevator manufacturer for elevator hoist capacity rating versus tool joint OD.



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
6.375	40,700	47,400	67,800
6.250	40,400	47,100	67,400

Combined Torque and Tension to Yield Drill Pipe Body Premium Class (80% RBW) 5 1/2" IEU x 21.90 lb/ft x Grade S135 (5)	
Operational Torque (ft-lb)	Drill-Pipe Body Max Tension (lb)
0	620,604
1,500	620,400
3,000	620,000
4,500	619,300
6,000	618,400
7,500	617,200
9,000	615,700
10,500	613,900
12,000	611,800
13,500	609,500
15,000	606,800
16,500	603,900
18,000	600,700
19,500	597,200
21,000	593,400
22,500	589,300
24,000	584,800
25,500	580,000
27,000	574,900
28,500	569,500
30,000	563,700
31,500	557,600
33,000	551,000
34,500	544,100
36,000	536,800

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
6.375	46,800	54,500
6.250	46,500	54,200

Estimated Elevator Hoist Capacity (lb) (6)		
Tool Joint OD (in)	5.813" Dia. Assumed Elev. Bore	5.844" Dia. Assumed Elev. Bore
6.625	873,000	841,500
6.375	592,200	560,800
6.250	455,900	424,400

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

* Estimated elevator hoist capacity is less than premium class (80% RBW) drill pipe body tensile yield capacity.

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.

