

DRILL PIPE DATA SHEET
DRILL PIPE: 4" IU by 14.00 lb/ft by Grade S135 by Range 2 (31.5 ft)
TOOL JOINT: 4 7/8" OD by 2 9/16" ID by TSDS38 (135 ksi SMYS)

DRILL PIPE BODY DIMENSIONAL DATA		
	NEW	PREMIUM (80% RBW)
OD (in)	4.000	3.868
ID, Ref (in)	3.340	3.340
Wall Thickness (in)	0.330	0.264
Cross Sectional Area (in ²)	3.805	2.989
Polar Section Modulus, J/c (in ³)	6.458	5.046
Section Modulus, I/c (in ³)	3.229	2.523

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)	513,646	403,527
Torsional Yield (ft-lb)	41,918	32,752
Collapse Pressure (psi)	20,141	13,836
Internal Yield Pressure (psi)	19,491	17,820
Material Yield Strength (psi)	135,000	

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

TOOL JOINT DATA (New)		
Connection Size	TSDS38	
OD (in)	4.875	
ID (in)	2.563	
Box Tool Joint OD Length (in)	14.5	
Pin Tool Joint OD Length (in)	12.0	
Material Yield Strength (psi)	135,000	
Thread Compound Friction Factor	1.0 (a)	1.15 (b)
Recommended Make-Up Torque (ft-lb)	17,500	20,200 (c)
Max Make-Up Torque (ft-lb)	20,400	23,500 (d)
Torsional Yield (ft-lb)	29,200	
Torsional Strength Ratio, TJ/DPB	0.70	
Approximate Tension to Yield Pin at Recommended Make-Up Torque (lb)	549,000	
Approximate Tension to Yield Pin at Max Make-Up Torque (lb)	413,000	
Tool Joint Tensile Yield (lb)	714,100	
Balanced OD (in)	4.781	

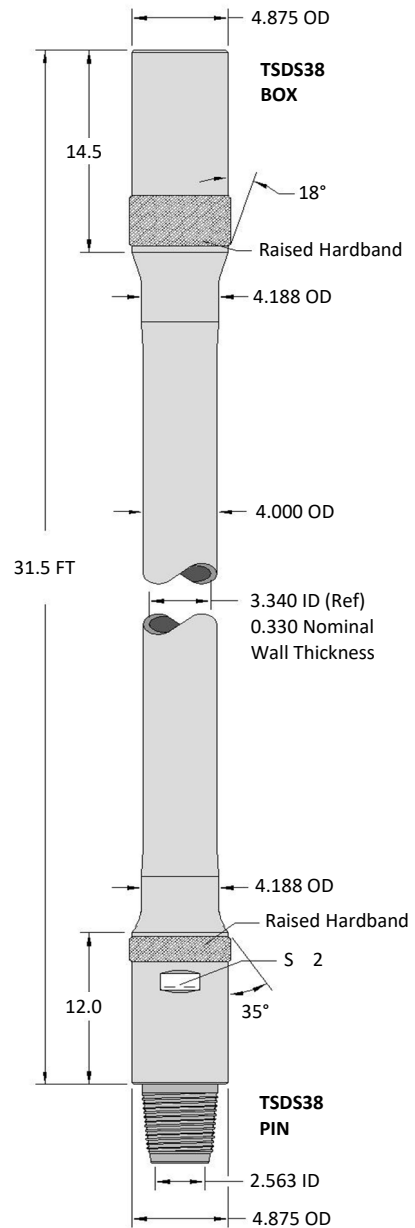
- (a) Make-Up Torque values shown under column 1.0 are based on using a 1.0 friction factor thread compound (0.08 coefficient of friction).
- (b) Make-Up Torque values shown under column 1.15 have been adjusted based on using a 1.15 friction factor thread compound. The make-up torque values are only 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 gal/ft)	(BBL/ft)	(US gal/ft)	(BBL/ft)	(in)	(ft)
525	16.67	0.4228	0.0101	0.2548	0.0061	2.438	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. Specified tool joint OD is smaller than the standard API tool joint for 4" IU drill pipe. User is advised to contact their elevator manufacturer for elevator hoist capacity rating versus tool joint OD.
4. 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 TSDS38 x 2.563" ID (135 ksi SMYS) 1.0 Friction Factor Thread Compound			
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)
4.875	17,500	20,400	29,200
4.750	16,900	19,700	28,200
4.688	15,700	18,200	26,100

(1)

Combined Torque and Tension to Yield Drill Pipe Body Premium Class (80% RBW) 4" IU x 14.00 lb/ft x Grade S135	
Operational Torque (ft-lb)	Drill Pipe Body Max Tension (lb)
0	403,527
1,000	403,300
2,000	402,700
3,000	401,800
4,000	400,500
5,000	398,700
6,000	396,600
7,000	394,200
8,000	391,300
9,000	387,900
10,000	384,200
11,000	380,000
12,000	375,400
13,000	370,300
14,000	364,800
15,000	358,700
16,000	352,100

(5)

Tool Joint Make-Up Torque TSDS38 x 2.563" ID (135 ksi SMYS) 1.15 Friction Factor Thread Compound		
Tool Joint OD (in)	Recommended Make-Up Torque (4) (2) (ft-lb)	Max Make-Up Torque (4) (3) (ft-lb)
4.875	20,200	23,500
4.750	19,400	22,600
4.688	18,000	21,000

(4)

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

Estimated Elevator Hoist Capacity, Ref. (lb)		
Tool Joint OD (in)	4.281" Dia Assumed Elev. Bore	4.313" Dia Assumed Elev. Bore
4.875	469,600	446,400
4.750	365,700	342,500
4.688	314,700	291,500

(6)

* 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 using a 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, ref 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 is based on 80% remaining pipe body wall and other requirements specified in API RP 7G-2. Drill-Pipe Body combined torque and tension is based on API RP 7G, no safety factor applied.
- (6) Estimated elevator hoist capacity is for reference only and is 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 rating versus tool joint OD.

