

DRILL PIPE DATA SHEET
DRILL PIPE: 3 1/2" EU by 13.30 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)	3.500	3.353
ID, Ref (in)	2.764	2.764
Wall Thickness (in)	0.368	0.294
Cross Sectional Area (in ²)	3.621	2.829
Polar Section Modulus, J/c (in ³)	5.144	3.982
Section Modulus, I/c (in ³)	2.572	1.991

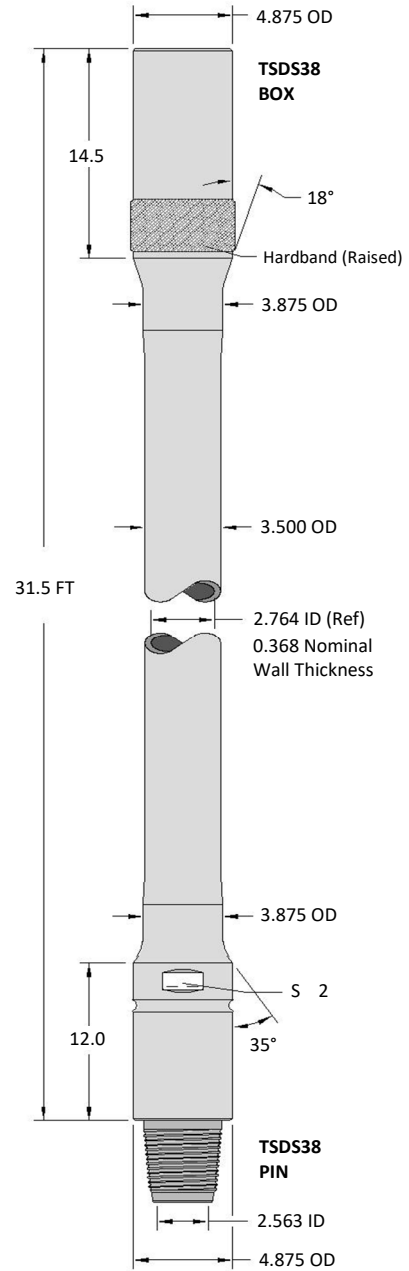
Premium class values based on a minimum wall thickness equal to 80% of New drill pipe body nominal wall thickness, reference API RP 7G-2.

DRILL PIPE BODY PERFORMANCE PROPERTIES		
	NEW	PREMIUM (80% RBW)
Tensile Yield (lb)	488,825	381,870
Torsional Yield (ft-lb)	33,392	25,850
Collapse Pressure (psi)	25,404	21,626
Internal Yield Pressure (psi)	24,840	22,711
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	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	
Connection Bevel Diameter (in)	4.578	
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	0.87	
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 gallon/ft)	(BBL/ft)	(US gallon/ft)	(BBL/ft)	(in)	(ft)
499	15.85	0.2956	0.0070	0.2422	0.0058	2.438	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:
- All data is calculated based on standard methods. No safety factor applied.
 - 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.
 - Drawing is for reference purposes only, not to scale, and based on New drill pipe nominal dimensions, units of inches unless otherwise indicated.
 - Caution: Approximate tension to yield pin at Max Make-Up Torque is less than New drill pipe body tensile yield.

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
4.625	14,500	16,800	24,100
4.594	13,900	16,100	23,100

(1)

Combined Torque and Tension to Yield Drill Pipe Body Premium Class (80% RBW) 3 1/2" EU x 13.30 lb/ft x Grade S135	
Operational Torque (ft-lb)	Drill Pipe Body Max Tension (lb)
0	381,870
1,000	381,500
2,000	380,700
3,000	379,200
4,000	377,200
5,000	374,600
6,000	371,400
7,000	367,600
8,000	363,100
9,000	357,900
10,000	352,100
11,000	345,500
12,000	338,200
13,000	330,000
14,000	321,000
15,000	311,000
16,000	299,900

(5)

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

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
4.625	16,600	19,400
4.594	16,000	18,600

(4)

Estimated Elevator Hoist Capacity (lb)		
Tool Joint OD (in)	3.969" Dia. Assumed Elev. Bore	4.000" Dia. Assumed Elev. Bore
4.875	692,400	670,900
4.594	462,300	440,800

(6)

Notes:

- Make-Up Torque values are based on 1.0 friction factor thread compound (0.08 coefficient of friction).
- Recommended Make-Up Torque is based on 60% of the connection torsional yield, ref. API RP 7G.
- 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.
- 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.
- 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.
- 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.

