

DRILL PIPE DATA SHEET
DRILL PIPE: 4" IU by 14.00 lb/ft by Grade S135 by Range 2 (31.5 ft)
TOOL JOINT: 5 1/4" OD by 2 9/16" ID by TSDS40 (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

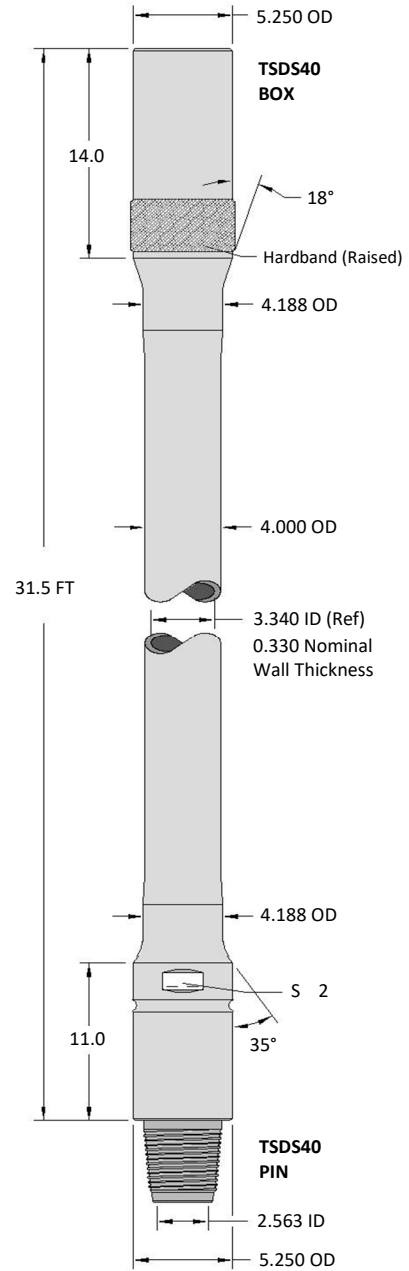
Premium class values based on a minimum wall thickness equal to 80% of New drill pipe body nominal wall thickness, reference API RP 7G-2.

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. 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	TSDS40	
OD (in)	5.250	
ID (in)	2.563	
Box Tool Joint OD Length (in)	14.0	
Pin Tool Joint OD Length (in)	11.0	
Connection Bevel Diameter (in)	5.016	
Material Yield Strength (psi)	135,000	
Thread Compound Friction Factor	1.0 (a)	1.15 (b)
Recommended Make-Up Torque (ft-lb)	24,800	28,500 (c)
Max Make-Up Torque (ft-lb)	28,800	33,200 (d)
Torsional Yield (ft-lb)	41,300	
Torsional Strength Ratio, TJ/DPB	0.98	
Approximate Tension to Yield Pin at Recommended Make-Up Torque (lb)	681,000	
Approximate Tension to Yield Pin at Max Make-Up Torque (lb)	515,000	
Tool Joint Tensile Yield (lb)	925,700	
Balanced OD (in)	5.202	

- (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)
545	17.30	0.4231	0.0101	0.2644	0.0063	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:

- 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 TSDS40 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)
5.250	24,800	28,800	41,300
5.125	23,000	26,800	38,300
5.000	20,200	23,500	33,600
4.875	17,500	20,400	29,200

(1)

Tool Joint Make-Up Torque TSDS40 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)
5.250	28,500	33,200
5.125	26,400	30,800
5.000	23,200	27,000
4.875	20,100	23,400

(4)

Estimated Elevator Hoist Capacity (lb)		
Tool Joint OD (in)	4.281" Dia. Assumed Elev. Bore	4.313" Dia. Assumed Elev. Bore
5.250	797,700	774,500
4.875	469,600	446,400

(6)

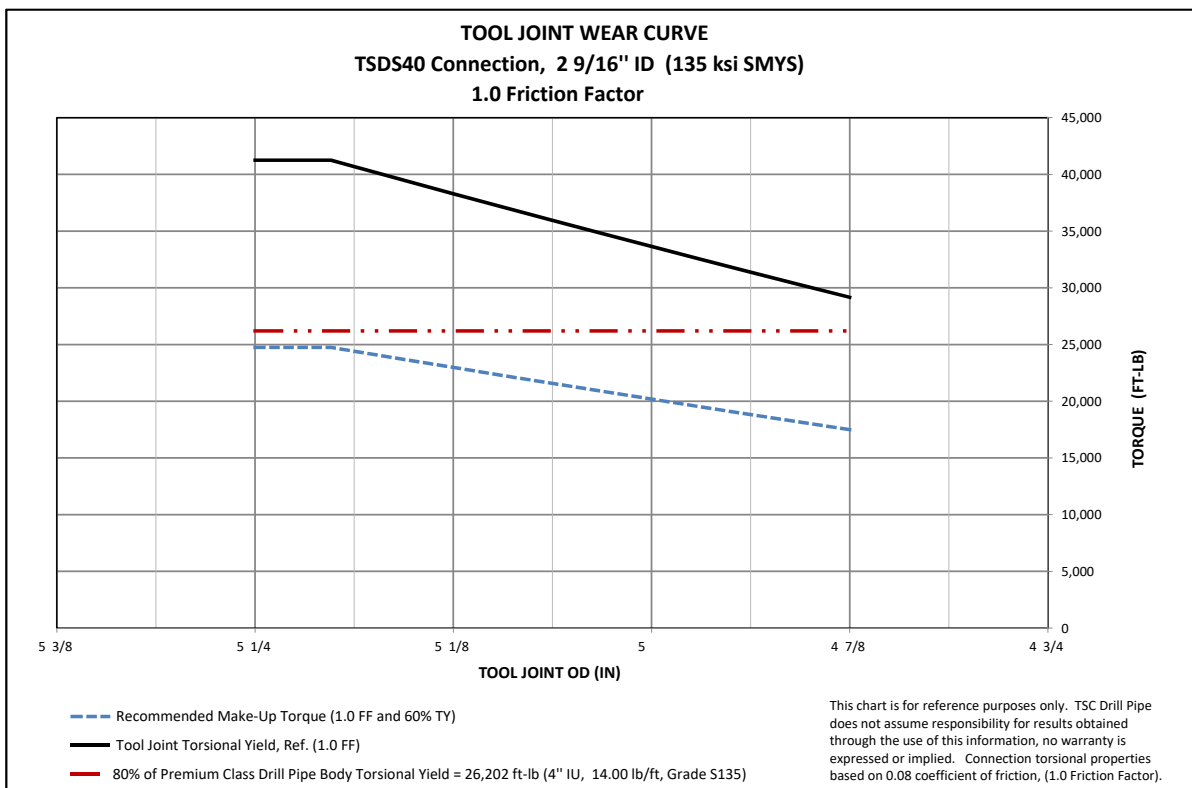
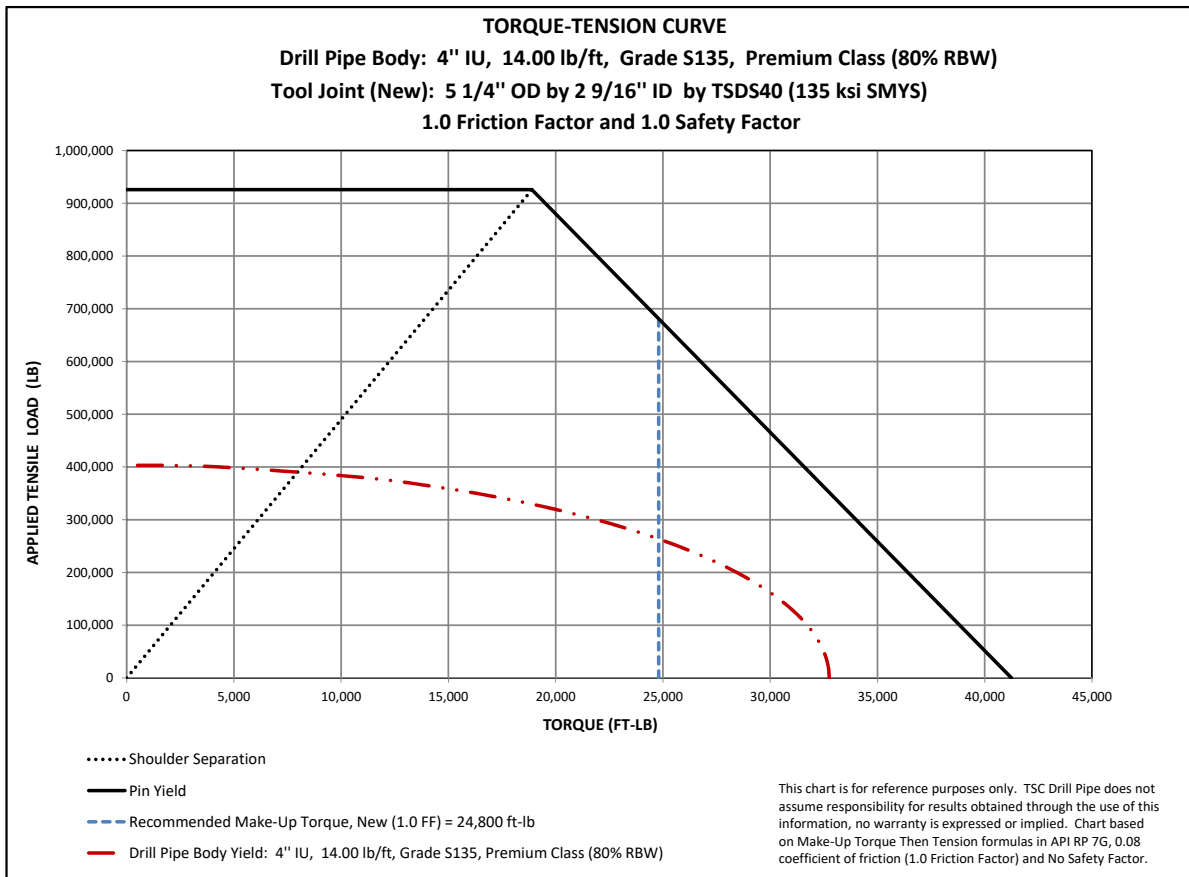
Combined Torque and Tension to Yield Drill Pipe Body Premium Class (80% RBW) 4" IU x 14.00 lb/ft x Grade S135	
Operational Torque (ft-lb)	Drill Pipe Body Max Tension (lb)
0	403,527
1,000	403,300
2,000	402,700
3,000	401,800
4,000	400,500
5,000	398,700
6,000	396,600
7,000	394,200
8,000	391,300
9,000	387,900
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
17,000	344,900
18,000	337,100
19,000	328,600
20,000	319,500
21,000	309,600
22,000	298,900

(5)

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

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.



The technical information contained herein is for reference purposes only. TSC Drill Pipe does not assume responsibility for results obtained through the use of the technical information, no warranty is expressed or implied. User is fully responsible for the accuracy and suitability of use of the technical information and application of appropriate safety factor.