FOR REFERENCE ONLY

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 11/16'' ID by TSC39 (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

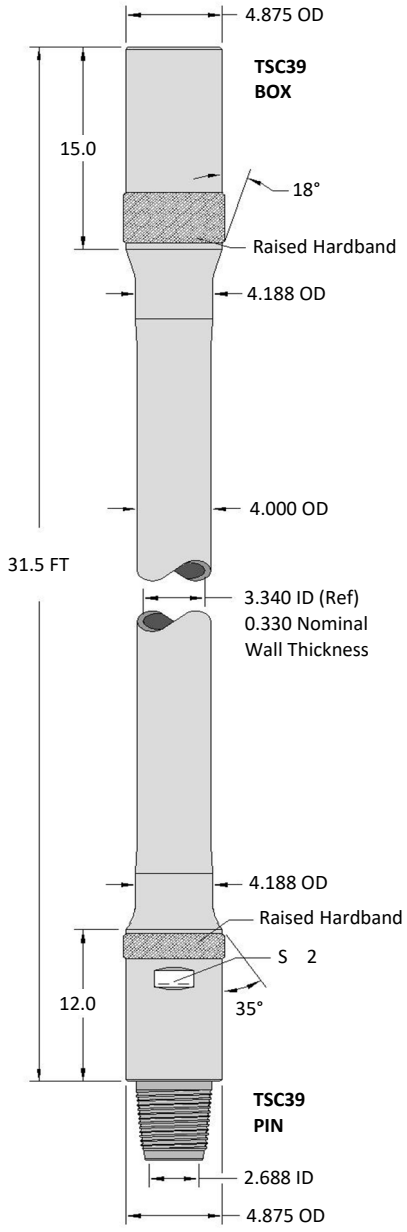
Premium class values based on a minimum wall thickness equal to 80% of New drill pipe body nominal wall thickness, reference API RP 7G-2.

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	TSC39		
OD (in)	4.875		
ID (in)	2.688		
Box Tool Joint OD Length (in)	15.0		
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)	23,800	27,400	(c)
Max Make-Up Torque (ft-lb)	27,800	31,900	(d)
Torsional Yield (ft-lb)	39,700		
Torsional Strength Ratio, TJ/DPB	0.95		
Approximate Tension to Yield Pin at Recommended Make-Up Torque (lb)	564,000		
Approximate Tension to Yield Pin at Max Make-Up Torque (lb)	436,000		
Tool Joint Tensile Yield (lb)	745,000		
Balanced OD (in)	4.926		

(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)
521	16.52	0.4255	0.0101	0.2525	0.0060	2.563	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.

FOR REFERENCE ONLY

TSC Drill Pipe
A Division of Texas Steel Conversion, Inc.

Tool Joint Make-Up Torque TSC39 x 2.688'' 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)
4.875	23,800	27,800	39,700
4.813	22,500	26,200	37,500
4.750	21,200	24,700	35,300
4.688	19,900	23,200	33,200
4.656	19,300	22,400	32,100

Tool Joint Make-Up Torque TSC39 x 2.688'' 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)	
4.875	27,400	31,900	
4.813	25,900	30,100	
4.750	24,400	28,400	
4.688	22,900	26,700	
4.656	22,200	25,800	

	Estimated Elevator Hoist Capacity, Ref. (lb)		(6)
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	*
4.656	289,500	266,300	*

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

Combined Torque and Tension to Yield Drill Pipe Body Premium Class (80% RBW) 4'' IU x 14.00 lb/ft x Grade S135		(5)
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	

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 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.

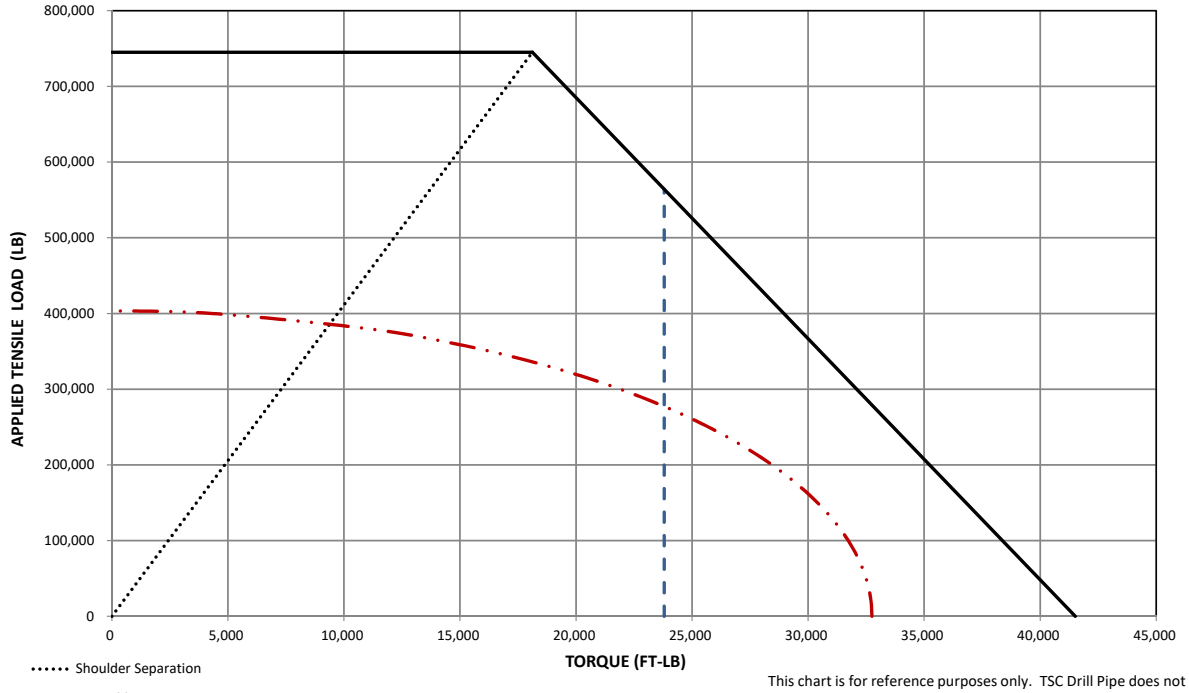
(5) Premium class drill pipe is based on 80% remaining pipe body wall and other requirements specified in API RP 7G-2. Drill-Pipe Body combined torque and tension is based on API RP 7G, no safety factor applied.

(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.

FOR REFERENCE ONLY

TORQUE-TENSION CURVE

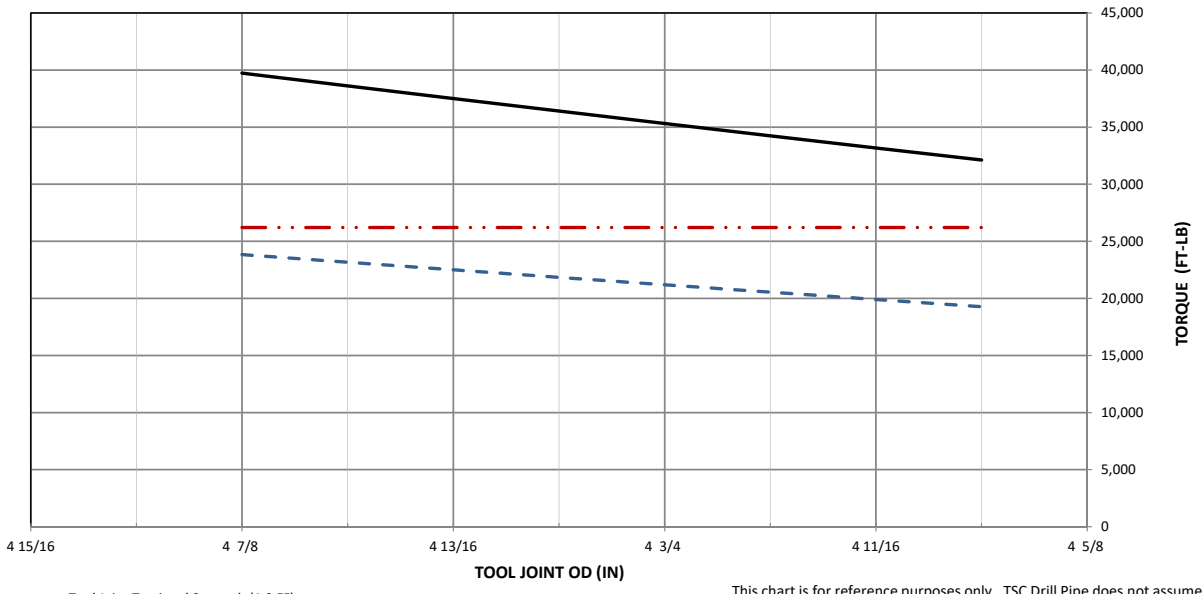
Drill-Pipe Body: 4'' IU by 14.00 lb/ft by Grade S135 by Premium Class (80% RBW)
Tool Joint (New): 4-7/8'' OD by 2-11/16'' ID by TSC39 (135 ksi SMYS)
1.0 Friction Factor and 1.0 Safety Factor



This chart is for reference purposes only. TSC Drill Pipe does not assume responsibility for results obtained through the use of this information, no warranty is expressed or implied. Chart based on Make-Up Torque Then Tension formulas in API RP 7G, No Safety Factor, and 0.08 coefficient of friction (1.0 Friction Factor).

TOOL JOINT WEAR CURVE

TSC39 Connection, 2-11/16'' ID (135 ksi SMYS)
1.0 Friction Factor



This chart is for reference purposes only. TSC Drill Pipe does not assume responsibility for results obtained through the use of this information, no warranty is expressed or implied. Connection torsional properties based on 0.08 coefficient of friction (1.0 Friction Factor).