

PRODUCT PERFORMANCE SHEET
NEW HEAVY WEIGHT DRILL PIPE, WELDED
4" OD by 2-9/16" ID by 31.0' OAL (55 ksi SMYS)
TOOL JOINT: 5-1/4" OD by 2-9/16" ID by TSDS40 (135 ksi SMYS)

TUBE DATA (NEW)	
OD, Tube (in)	4.000
ID, Tube (in)	2.563
Nominal Wall Thickness, Tube (in)	0.719
Center Upset OD (in)	4.500
Elevator Upset OD (in)	4.125
Cross Sectional Area, Tube (in ²)	7.409
Polar Section Modulus, Tube, J/c (in ³)	10.450
Section Modulus, Tube, I/c (in ³)	5.225

Above data based on New Heavy Weight drill pipe nominal dimensions.

TUBE PERFORMANCE PROPERTIES (NEW)	
Tensile Yield (lb)	407,500
Torsional Yield (ft-lb)	27,630
Collapse Pressure (psi)	16,200
Internal Yield Pressure (psi)	17,290
Material Yield Strength (psi)	55,000

Above data based on New Heavy Weight pipe body nominal dimensions (100% RBW) and no safety factor. Internal yield pressure based on 87.5% of New Heavy Weight pipe body nominal wall thickness.

TOOL JOINT DATA (NEW)		
Connection Size	TSDS40	
OD (in)	5.250	
ID (in)	2.563	
Box Tool Joint OAL, Ref. (in)	27.0	
Pin Tool Joint OAL, Ref. (in)	30.0	
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	
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.

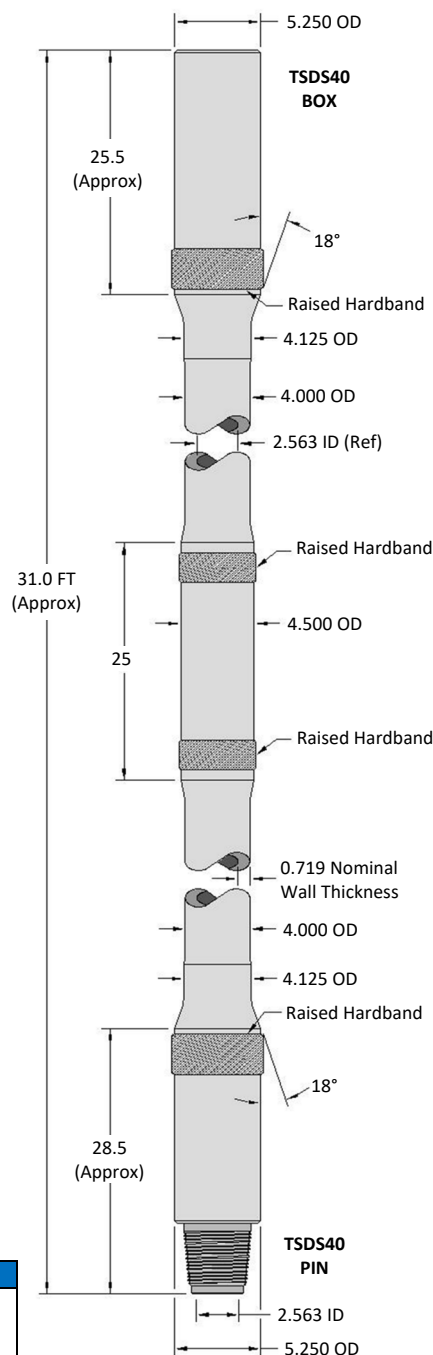
(d) Max Make-Up Torque is based on 70% of the connection torsional yield. It is the maximum make-up torque that can be applied to the connection to prevent downhole make-up, reference IADC Drilling Manual. Never exceed Max Make-Up Torque.

ASSEMBLY DATA (NEW)						
Weight (Approx.)		Capacity (Approx.)		Displacement Open Ends (Approx.)		Overall Length (Approx.)
(lb/joint)	(lb/ft)	(US Gal/ft)	(BBL/ft)	(US Gal/ft)	(BBL/ft)	(ft)
931	30.32	0.2682	0.0064	0.4633	0.0110	2.313
						31.0

Assembly data based on New Heavy Weight drill pipe nominal dimensions and no internal plastic coating.
 Conversion Factor: 1 BBL = 42 US Gallons

Notes:

- All data is based on New Heavy Weight drill pipe nominal dimensions and no safety factor.
- Drawing is for reference only, not to scale, and based on New Heavy Weight drill pipe nominal dimensions, units of inches unless otherwise indicated.



Tool Joint Make-Up Torque TSDS40 by 2.563" 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)
5.250	24,800	28,800	41,300
5.125	23,000	26,800	38,300
5.031	20,900	24,300	34,800

Tool Joint Make-Up Torque TSDS40 by 2.563" 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)
5.250	28,500	33,200
5.125	26,400	30,800
5.031	24,000	28,000

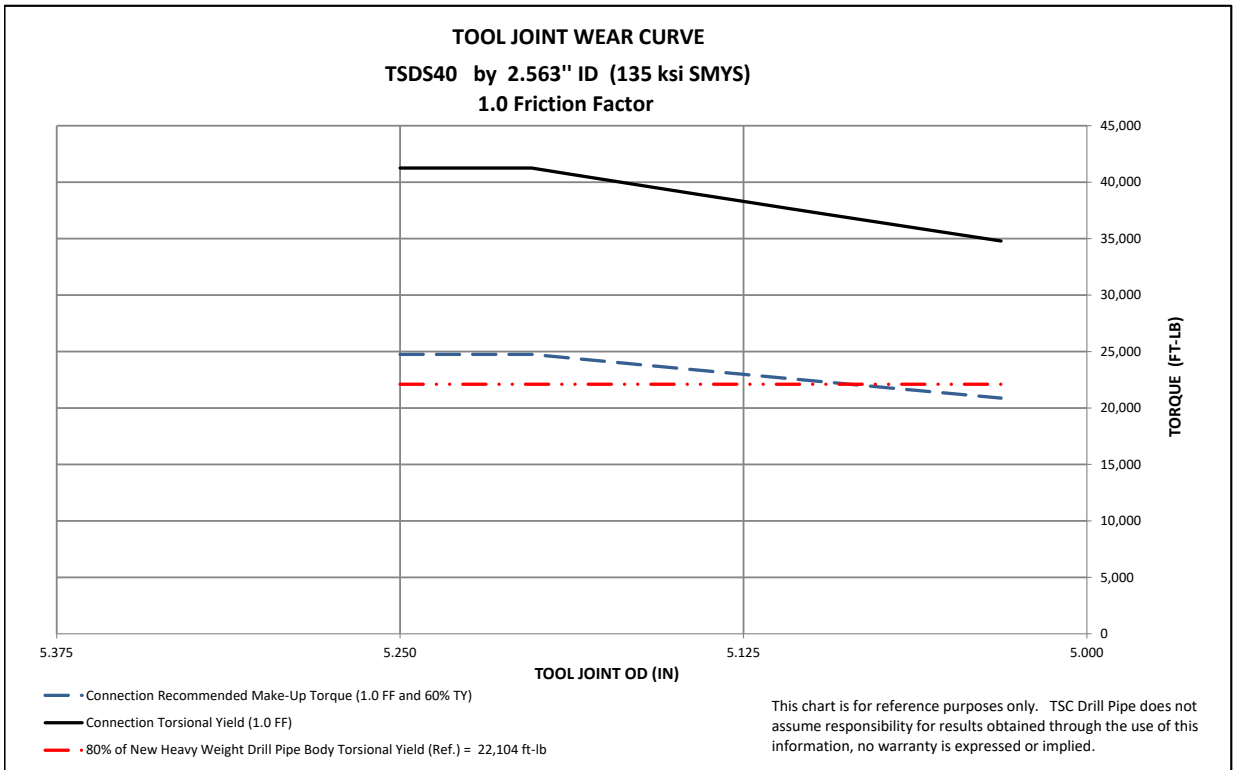
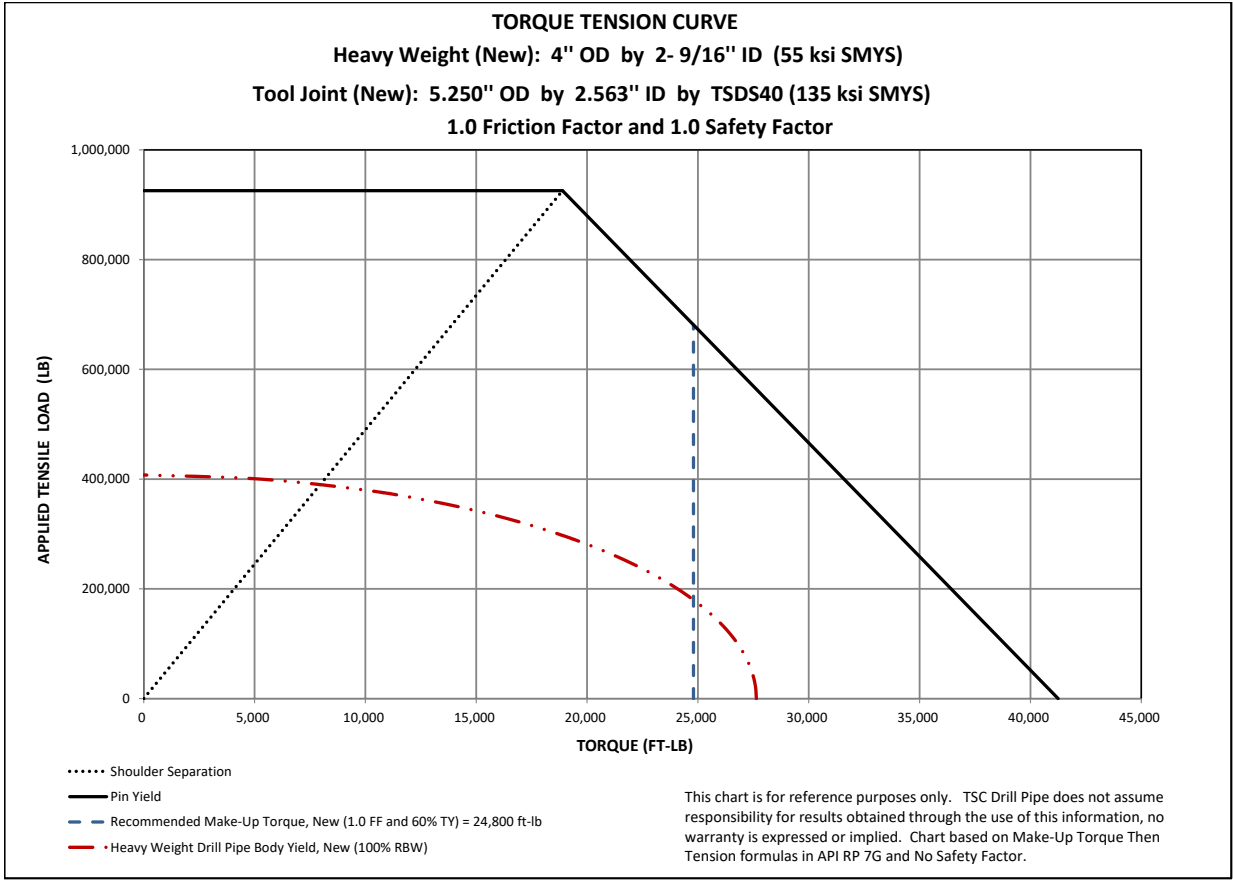
Estimated Elevator Hoist Capacity (lb) (6)	
Tool Joint OD (in)	4.281" Dia. Assumed Elev. Bore
5.250	797,700
5.031	603,400

Combined Torque and Tension to Yield Tube Body (100% RBW) New Heavy Weight Drill Pipe 4.000" OD by 2.563" ID by 55 ksi SMYS (5)	
Operational Torque (ft-lb)	Tube Body Max Tension (lb)
0	407,500
1,000	407,200
2,000	406,400
3,000	405,000
4,000	403,200
5,000	400,700
6,000	397,700
7,000	394,200
8,000	390,000
9,000	385,200
10,000	379,800
11,000	373,800
12,000	367,000
13,000	359,500
14,000	351,300
15,000	342,200
16,000	332,200
17,000	321,200
18,000	309,200
19,000	295,900
20,000	281,200

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 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.
- (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) Tube Body combined torque and tension data is based on New Heavy Weight drill pipe nominal dimensions (100% RBW) and no safety factor.
- (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.



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