

PRODUCT PERFORMANCE SHEET
NEW HEAVY WEIGHT DRILL PIPE, WELDED
4-1/2" OD by 2-3/4" ID by 31.0' OAL (55 ksi SMYS)
TOOL JOINT: 6-1/4" OD by 2-7/8" ID by TSDS46 with 3.000" ID Bevel (135 ksi SMYS)

TUBE DATA (NEW)	
OD, Tube (in)	4.500
ID, Tube (in)	2.750
Nominal Wall Thickness, Tube (in)	0.875
Center Upset OD (in)	5.000
Elevator Upset OD (in)	4.625
Cross Sectional Area, Tube (in ²)	9.965
Polar Section Modulus, Tube, J/c (in ³)	15.397
Section Modulus, Tube, I/c (in ³)	7.698

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

TUBE PERFORMANCE PROPERTIES (NEW)	
Tensile Yield (lb)	548,060
Torsional Yield (ft-lb)	40,710
Collapse Pressure (psi)	17,230
Internal Yield Pressure (psi)	18,710
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	TSDS46 (See Note 3)	
OD (in)	6.250	
ID (in)	2.875	
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)	37,800	43,500 (c)
Max Make-Up Torque (ft-lb)	44,100	50,700 (d)
Torsional Yield (ft-lb)	63,000	
Approximate Tension to Yield Pin at Recommended Make-Up Torque (lb)	1,005,000	
Approximate Tension to Yield Pin at Max Make-Up Torque (lb)	754,000	
Tool Joint Tensile Yield (lb)	1,237,500	
Balanced OD (in)	5.927	

(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.

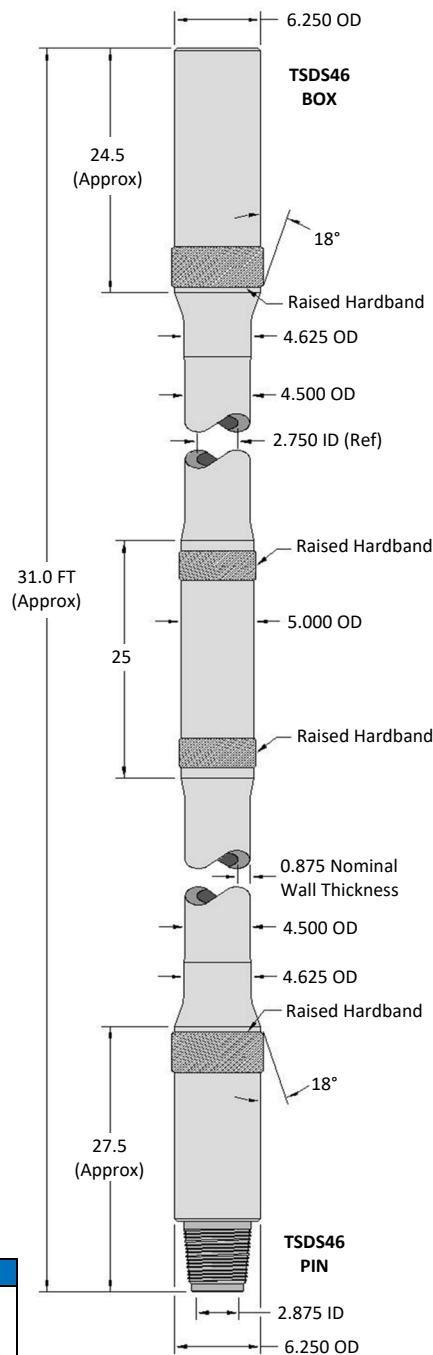
(d) Max Make-Up Torque is based on 70% of the connection torsional yield. It is the maximum make-up torque that can be applied to the connection to prevent downhole make-up, reference IADC Drilling Manual. Never exceed Max Make-Up Torque.

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)
1,273	41.44	0.3125	0.0074	0.6332	0.0151	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.
- Box and pin connection machined with a 3.000" ID bevel on the secondary shoulder (box internal shoulder and pin nose face).



Tool Joint Make-Up Torque TSDS46 (3.000" ID Bevel) by 2.875" 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)
6.250	37,800	44,100	63,000
6.000	37,800	44,100	63,000
5.875	36,300	42,200	60,400
5.750	32,600	38,000	54,400

Tool Joint Make-Up Torque TSDS46 (3.000" ID Bevel) by 2.875" 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)
6.250	43,500	50,700
6.000	43,500	50,700
5.875	41,700	48,600
5.750	37,500	43,700

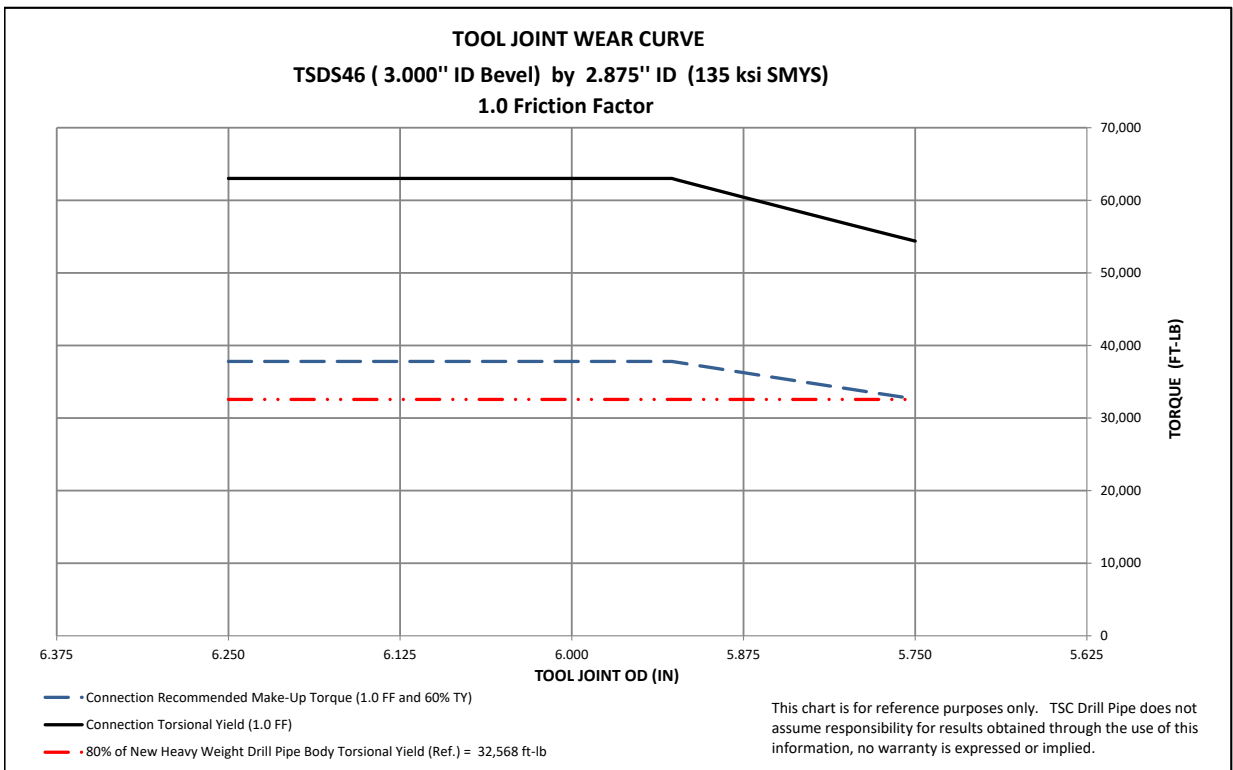
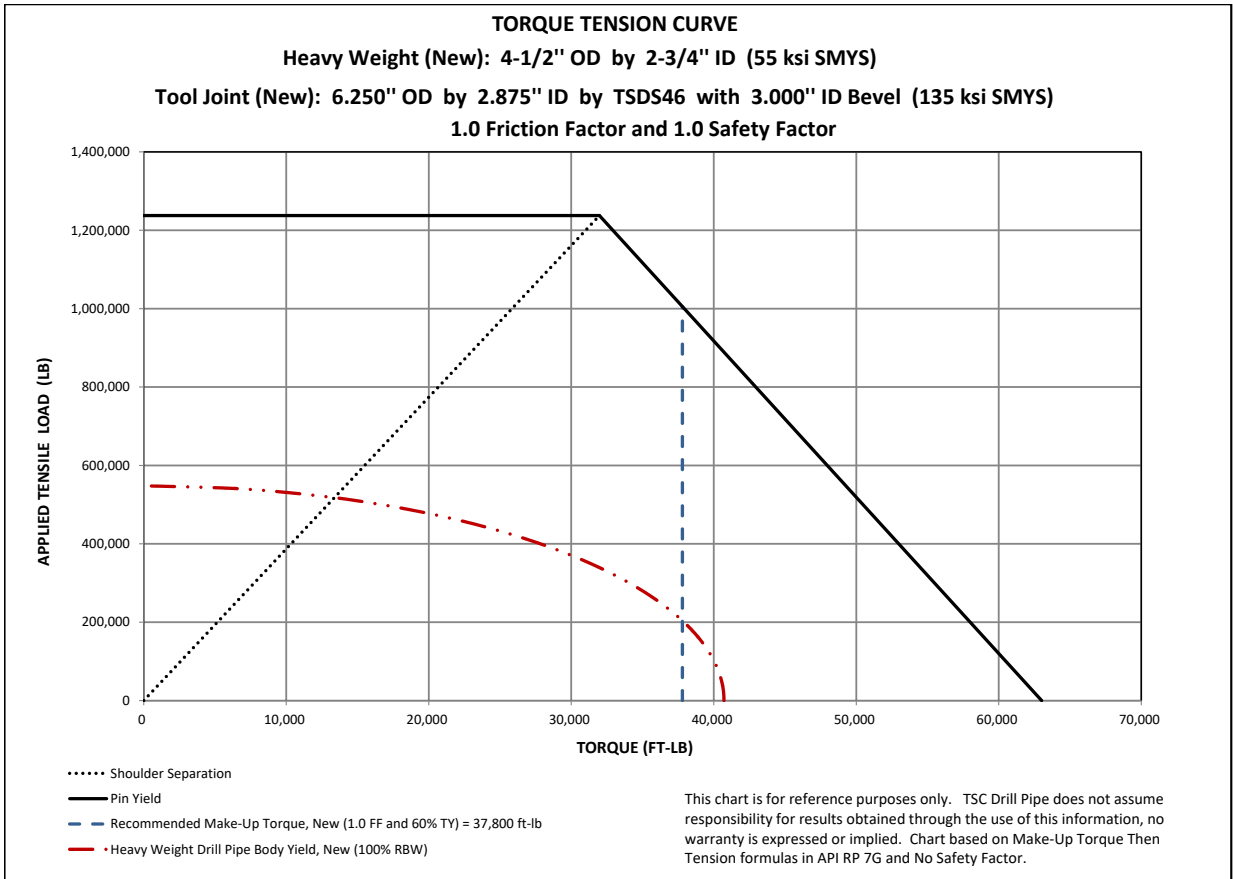
Estimated Elevator Hoist Capacity (lb) (6)	
Tool Joint OD (in)	4.781" Dia. Assumed Elev. Bore
6.250	1,399,700
5.750	881,400

Combined Torque and Tension to Yield Tube Body (100% RBW) New Heavy Weight Drill Pipe 4.500" OD by 2.750" ID by 55 ksi SMYS (5)	
Operational Torque (ft-lb)	Tube Body Max Tension (lb)
0	548,060
1,500	547,600
3,000	546,500
4,500	544,700
6,000	542,000
7,500	538,600
9,000	534,500
10,500	529,500
12,000	523,700
13,500	517,000
15,000	509,500
16,500	501,000
18,000	491,600
19,500	481,100
21,000	469,500
22,500	456,700
24,000	442,700
25,500	427,200
27,000	410,200
28,500	391,400
30,000	370,500
31,500	347,200

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.



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 for application of appropriate safety factor.