

FOR REFERENCE ONLY

DRILL PIPE DATA SHEET

DRILL PIPE: 4 1/2" IEU by 16.60 lb/ft by Grade S by Range 3 (45 ft)  
TOOL JOINT: 5 1/4" OD by 2 13/16" ID by TSDS™42 (135 ksi SMYS)

| DRILL PIPE BODY DIMENSIONAL DATA              |                   |                      |
|-----------------------------------------------|-------------------|----------------------|
|                                               | NEW<br>(100% RBW) | PREMIUM<br>(80% RBW) |
| OD (in)                                       | 4.500             | 4.365                |
| ID, Ref (in)                                  | 3.826             | 3.826                |
| Wall Thickness (in)                           | 0.337             | 0.270                |
| Cross Sectional Area (in <sup>2</sup> )       | 4.407             | 3.469                |
| Polar Section Modulus, J/c (in <sup>3</sup> ) | 8.543             | 6.694                |
| Section Modulus, I/c (in <sup>3</sup> )       | 4.271             | 3.347                |

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

| DRILL PIPE BODY PERFORMANCE PROPERTIES |                   |                      |
|----------------------------------------|-------------------|----------------------|
|                                        | NEW<br>(100% RBW) | PREMIUM<br>(80% RBW) |
| Tensile Yield (lb)                     | 595,004           | 468,297              |
| Torsional Yield (ft-lb)                | 55,453            | 43,450               |
| Collapse Pressure (psi)                | 16,773            | 10,964               |
| Internal Yield Pressure (psi)          | 17,693            | 16,176               |
| 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                                                     | TSDS™42 |          |
| OD (in)                                                             | 5.250   |          |
| ID (in)                                                             | 2.813   |          |
| Box Tool Joint OD Length (in)                                       | 14.0    |          |
| Pin Tool Joint OD Length (in)                                       | 11.0    |          |
| Connection Bevel Diameter (in)                                      | 5.125   |          |
| Material Yield Strength (psi)                                       | 135,000 |          |
| Thread Compound Friction Factor                                     | 1.0 (a) | 1.15 (b) |
| Recommended Make-Up Torque (ft-lb)                                  | 25,300  | 29,100   |
| Max Make-Up Torque (ft-lb)                                          | 29,500  | 33,900   |
| Torsional Yield (ft-lb)                                             | 42,200  |          |
| Torsional Strength Ratio, TJ/DPB                                    | 0.76    |          |
| Approximate Tension to Yield Pin at Recommended Make-Up Torque (lb) | 626,000 |          |
| Approximate Tension to Yield Pin at Max Make-Up Torque (lb)         | 478,000 |          |
| Tool Joint Tensile Yield (lb)                                       | 903,400 |          |
| Balanced OD (in)                                                    | 5.274   |          |

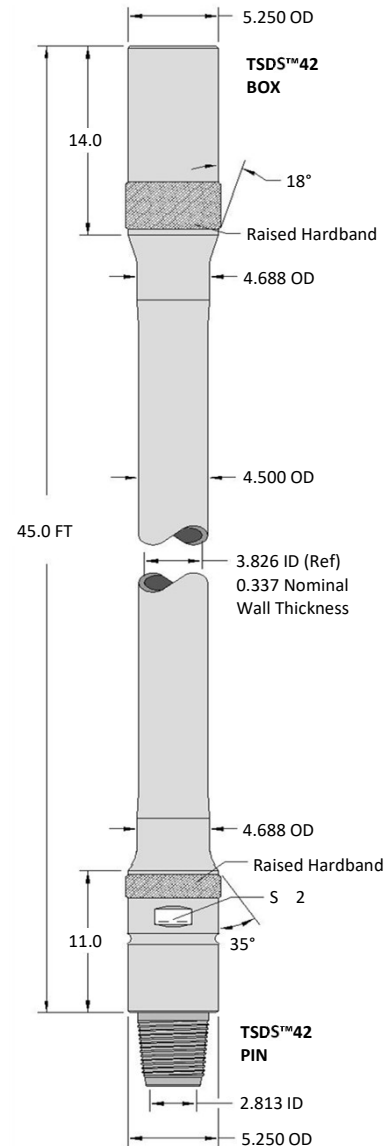
(a) Make-Up torque values shown under column 1.0 are based on using a 1.0 friction factor thread compound (0.08 coefficient of friction).

(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 the Max Make-Up Torque value.

(e) Torsional strength ratio is less than 0.80.



| ASSEMBLY DATA (New)         |       |                                |        |                                              |        |                     |                                                 |
|-----------------------------|-------|--------------------------------|--------|----------------------------------------------|--------|---------------------|-------------------------------------------------|
| Weight (Approx.) (lb/joint) |       | Capacity (Approx.) (US gal/ft) |        | Displacement Open Ends (Approx.) (US gal/ft) |        | Drift Diameter (in) | Assembly Length Shld'r to Shld'r (Approx.) (ft) |
| 820                         | 18.21 | 0.5636                         | 0.0134 | 0.2783                                       | 0.0066 | 2.688               | 45.0                                            |

Assembly data based on New TSC 95% RBW drill pipe nominal dimensions and no internal plastic coating. Conversion Factor: 1 BBL = 42 US Gallons  
For internal plastic coated drill pipe, above drift diameter shall be reduced by the amount specified by the plastic coating applicator.

Notes:

- All data is calculated based on standard methods. No safety factor applied.
- Premium Class drill pipe data is based on a minimum wall thickness equal to 80% of New drill pipe nominal wall thickness, reference API RP7G.
- Drawing is for reference purposes only, not to scale, and based on New drill pipe nominal dimensions, units of inches unless otherwise indicated.
- Specified tool joint OD is smaller than the standard API tool joint for 4-1/2 IEU drill pipe. User is advised to contact their elevator manufacturer for elevator hoist capacity rating versus tool joint OD.

The technical information contained herein is for reference purposes only and is not a recommendation. 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. TSC Drill Pipe reserves the right to amend or update the data sheet at any time without notification. Email sales@drillpipe.com or visit drillpipe.com for the latest data sheets.

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