

## New Tool Joints and New Drill Pipe

| Pipe                             |   | Tool Joint |  |            |            |                           |                           | Pipe                     | Tool Joint               | Pipe                                | Tool Joint                          |                    |
|----------------------------------|---|------------|--|------------|------------|---------------------------|---------------------------|--------------------------|--------------------------|-------------------------------------|-------------------------------------|--------------------|
| API Label 1<br>(Pipe OD)<br>(in) | API Label 2<br>(Nominal Weight)<br>(lbs/ft) | Grade      | Connection<br>Size and Style<br>RSC Type | OD<br>(mm) | ID<br>(mm) | Make-Up<br>Torque<br>(Nm) | Drift<br>Diameter<br>(mm) | Tensile<br>Yield<br>(kg) | Tensile<br>Yield<br>(kg) | Torsional<br>Yield Strength<br>(Nm) | Torsional<br>Yield Strength<br>(Nm) | Torsional<br>Ratio |
| 2 7/8                            | 6.85  | E          | NC 31                                    | 104,78     | 53,98      | 9 591                     | 50,80                     | 61 644                   | 202 801                  | 10 959                              | 15 985                              | 1.46               |
|                                  |   | X          | NC 31                                    | 104,78     | 50,80      | 10 704                    | 47,63                     | 78 083                   | 224 846                  | 13 881                              | 17 840                              | 1.29               |
|                                  |   | G          | NC 31                                    | 104,78     | 50,80      | 10 704                    | 47,63                     | 86 302                   | 224 846                  | 15 342                              | 17 840                              | 1.16               |
|                                  |   | S          | NC 31                                    | 104,78     | 41,28      | 11 542                    | 38,10                     | 110 960                  | 282 951                  | 19 726                              | 19 236                              | b                  |
|                                  | 10.40                                       | E          | NC 31                                    | 111,13     | 53,98      | 9 591                     | 50,80                     | 97 225                   | 202 801                  | 15 665                              | 15 985                              | 1.02               |
|                                  |   | X          | NC 31                                    | 111,13     | 50,80      | 10 704                    | 47,63                     | 123 152                  | 224 846                  | 19 842                              | 17 840                              | 0.90               |
|                                  |   | G          | NC 31                                    | 111,13     | 50,80      | 10 704                    | 47,63                     | 136 115                  | 224 846                  | 21 932                              | 17 840                              | 0.81               |
|                                  |   | S          | NC 31                                    | 111,13     | 41,28      | 13 675                    | 38,10                     | 175 005                  | 282 951                  | 28 198                              | 22 790                              | 0.81               |

**b - Torsional yield values shown in yellow indicate the connection is box weak in torsion.**

The torsional yield strength is based on a shear strength of 57.7% of the minimum yield strength and nominal wall thickness.

TSDS Values based on 930,8 MPa Material Yield Strength. API NC Values based on 827,4 MPa Material Yield Strength.

Pin tensile yield values are based on tensile loading conditions only, and do not include the combined effect of torsional and tensile loading.