

| Pipe        |              |       |             | METRIC                          |                       |           |               |        |
|-------------|--------------|-------|-------------|---------------------------------|-----------------------|-----------|---------------|--------|
|             |              |       |             | NEW                             | API PREMIUM           |           |               |        |
| Pipe size   | <i>in</i>    | 2.375 | <i>mm</i>   | 60.3                            | OD                    | <i>mm</i> | <b>60.3</b>   | 57.5   |
| Pipe weight | <i>lb/ft</i> | 6.65  | <i>kg/m</i> | 9.90                            | Thickness             | <i>mm</i> | <b>7.1</b>    | 5.7    |
| Upset Type  |              | EU    |             | X-Sec Area                      | <i>cm<sup>2</sup></i> |           | <b>11.9</b>   | 9.3    |
| Tube grade  |              | S135  |             | Section Modulus                 | <i>cm<sup>3</sup></i> |           | <b>14.2</b>   | 10.9   |
| Range       |              | 2     |             | Polar Section Modulus           | <i>cm<sup>3</sup></i> |           | <b>28.4</b>   | 21.9   |
| Tube Yield  | <i>MPa</i>   | 931   |             | Tensile Yield                   | <i>kdaN</i>           |           | <b>111</b>    | 86     |
| ID          | <i>mm</i>    | 46.1  |             | Torsional Yield                 | <i>N-m</i>            |           | <b>15,300</b> | 11,800 |
|             |              |       |             | 80% Torsional Yield             | <i>N-m</i>            |           | <b>12,200</b> | 9,400  |
|             |              |       |             | Internal Pressure Yield         | <i>MPa</i>            |           | <b>192.4</b>  | 175.8  |
|             |              |       |             | Collapse Yield                  | <i>MPa</i>            |           | <b>193.7</b>  | 166.2  |
|             |              |       |             | D/t                             |                       |           | <b>8.48</b>   | 10.10  |
|             |              |       |             | Connection/Tube Torsional Ratio |                       |           | <b>0.577</b>  |        |

| Tool Joint              |            |        |  | METRIC                    |             |  |              |  |
|-------------------------|------------|--------|--|---------------------------|-------------|--|--------------|--|
|                         |            |        |  | NEW                       |             |  |              |  |
| Connection Type         |            | CTP 23 |  | OD                        | <i>mm</i>   |  | <b>73.0</b>  |  |
| Material Yield Strength | <i>MPa</i> | 896    |  | Tensile Yield Strength    | <i>kdaN</i> |  | <b>103</b>   |  |
| OD                      | <i>mm</i>  | 73.0   |  | Torsional Yield Strength  | <i>N-m</i>  |  | <b>8,800</b> |  |
| ID                      | <i>mm</i>  | 38.1   |  | Recommended Makeup Torque | <i>N-m</i>  |  | <b>5,300</b> |  |
| Pin Shoulder Angle      | <i>deg</i> | 18     |  |                           |             |  |              |  |
| Pin Tool Joint Length   | <i>mm</i>  | 356    |  |                           |             |  |              |  |
| Box Tool Joint Length   | <i>mm</i>  | 356    |  |                           |             |  |              |  |

| Drill Pipe Assembly |  |  |  | METRIC                   |             |  |              |  |
|---------------------|--|--|--|--------------------------|-------------|--|--------------|--|
|                     |  |  |  | Shoulder-Shoulder Length | <i>m</i>    |  | <b>9.60</b>  |  |
|                     |  |  |  | Adjusted Weight          | <i>kg/m</i> |  | <b>10.51</b> |  |
|                     |  |  |  | Closed End Displacement  | <i>L/m</i>  |  | <b>2.96</b>  |  |
|                     |  |  |  | Open End Displacement    | <i>L/m</i>  |  | <b>1.34</b>  |  |
|                     |  |  |  | Fluid Capacity           | <i>L/m</i>  |  | <b>1.62</b>  |  |
|                     |  |  |  | Drift Size               | <i>mm</i>   |  | <b>34.9</b>  |  |

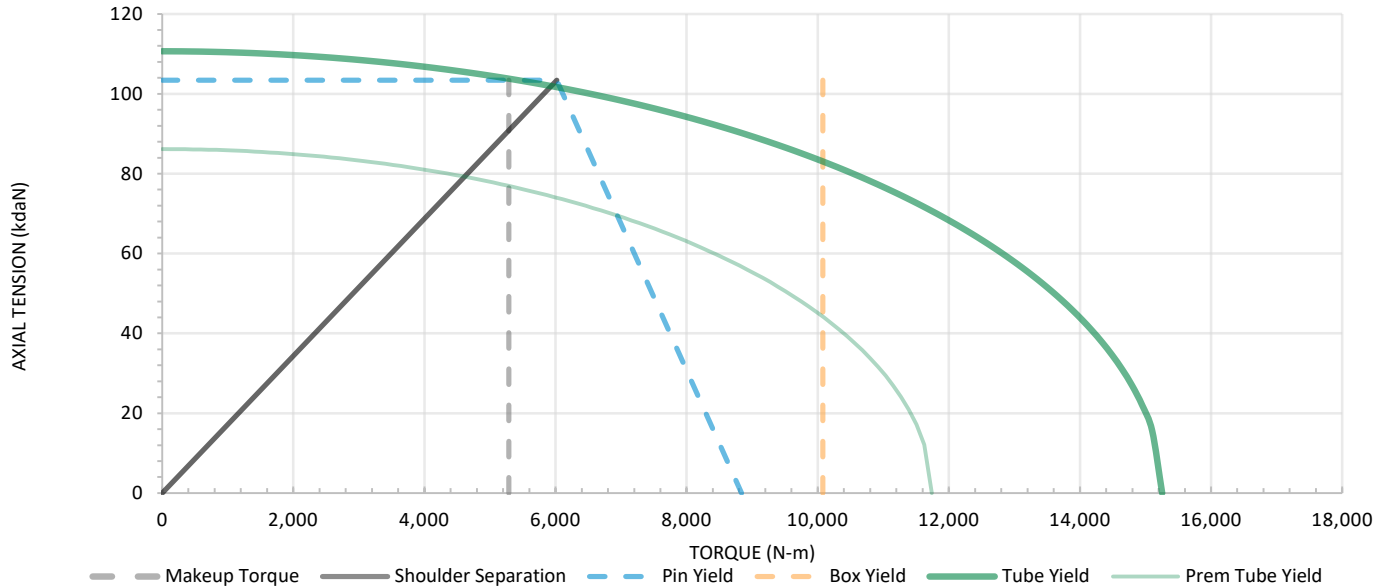
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Calculations are based on uniform wall thickness and outside diameter – no safety factor has been applied. The information provided for inspection classes is based on uniform wear and is not intended to recommend or confirm operational limits of any used product. It is recommended that drilling torque not exceed 80% of the makeup torque, however it is the responsibility of the end user to determine the acceptable use of the end product including appropriate performance ratings and safety factors where applicable. All connection torque calculations have been performed using a thread compound friction factor of 1.0. Complete Tubular Products does not endorse any specific thread compound and waives all responsibility in determining appropriate makeup torque values for any specific drilling circumstance. Modifying makeup torque values for any reason shall be done at the end users discretion and risk.

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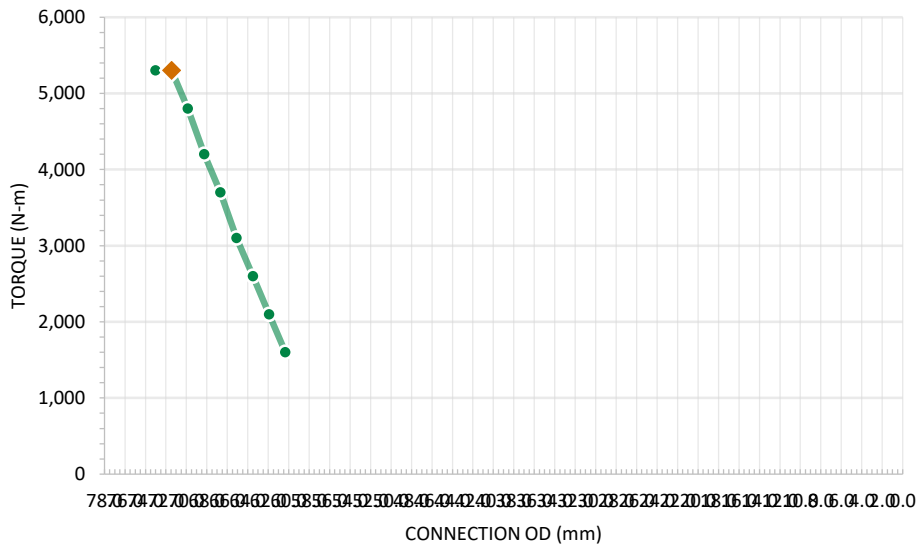
### Makeup Torque Then Tension Chart

METRIC



### Connection Wear Chart

METRIC



| CONNECTION OD (mm) | MAKEUP TORQUE (N-m) |
|--------------------|---------------------|
| 73.0               | 5,300               |
| 71.4               | 5,300               |
| 69.9               | 4,800               |
| 68.3               | 4,200               |
| 66.7               | 3,700               |
| 65.1               | 3,100               |
| 63.5               | 2,600               |
| 61.9               | 2,100               |
| 60.3               | 1,600               |
| MIN REC OD (mm)    | MAKEUP TORQUE (N-m) |
| 71.4               | 5,300               |

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