# Drill Pipe Performance Sheet

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Grant Prideco | NOV Wellbore Technologies

## Pipe Body Specification

| | | |
|---|---|---|
| Pipe Body OD | in | 4.0 |
| Pipe Body Wall Thickness - Nominal Weight | | 0.330 in - 14 lb/ft |
| Pipe Body Grade | | S135 |
| Drill Pipe Length | | Range 2 |
| - Max | ft | 32.0 |
| - Min | ft | 30.0 |
| Type of Upset | | IU |
| Max Upset OD | in | 4.188 |

Tong Length includes hardbanding if applicable

## Pipe Body Performance

| | | Nominal | API Premium 80% Inspection Class |
|---|---|---|---|
| Burst Pressure * | psi | 19,490 | 17,800 |
| Collapse Pressure * | psi | 20,140 | 13,830 |
| Slip Crushing Capacity * | lbs | 386,300 | 306,400 |
| - Assumed Slip Length | in | | 16.5 |
| - Assumed Transverse Load Factor (K) | | | 4.2 |
| Adjusted Weight ** | lbs/ft | | 16.56 |
| Fluid Displacement ** | US gal/ft | | 0.25 |
| | Bbls/ft | | 0.006 |
| Fluid Capacity ** | US gal/ft | | 0.43 |
| | Bbls/ft | | 0.0101 |

* With no axial load or bending in string

Note: Oil field barrel equivalent to 42 US gal

** Best estimate with coating

Note: Nominal burst calculated at 87.5% RBW per API

## Tool Joint Specification

| | | |
|---|---|---|
| Connection Type and Size | | XT™ 39 |
| Benchmark | | GPmark™ |
| SmoothEdge™ Height per side | in | 0.09375 |
| Tool Joint SMYS | psi | 120,000 |
| Connection OD | in | 4.875 |
| Connection ID | in | 2.688 |
| Pin Tong Length | in | 12.0 |
| Box Tong Length | in | 17.0 |
| Thread Compound Friction Factor (FF) | | 1.0 |

## Tool Joint Performance

| | | |
|---|---|---|
| **Max Make-Up Torque (Recommended)** | ft-lbs | **21,200** |
| **Min Make-Up Torque** | ft-lbs | **17,700** |
| Min TJ OD (API Premium) | in | 4.653 |
| Min TJ OD for Counterbore | in | 4.653 |
| Drift Size | in | 2.563 |

The maximum make-up torque should be applied when possible.

To maximize connection operational tensile, a MUT (T4) = 18,100 should be applied.

## Advisories and Warnings for Drill Pipe

**Advisories:**

**Warnings:**

The Technical information contained herein, including the product performance sheet and other attached documents, is for reference only and should not be consider as a recommendation. The user is fully responsible for the accuracy and suitability of use of the technical information. NOV Grant Prideco cannot assume responsibility for the results obtained through the use of this material. No expressed or implied warranty is intended. Drill pipe assembly properties are calculated based on uniform OD and wall thickness. No safety factor is applied. The information provided for various inspection classes and for various wear conditions (remaining body wall) is for information only and does not represent or imply acceptable operating limits. It is the responsibility of the customer and the end user to determine the appropriate performance ratings, acceptable use of the product, maintain safe operating practices, and to apply a prudent safety factor suitable for the application. For API connections that have different pin and box IDs, tool joint ID refers to the pin ID. Per Chapter B, Section 4 VII of the drilling manual, it is recommended that drilling torque should not exceed 80% of MUT.

All references to any internal standards or specifications are per the current edition/revision at the point of manufacturing, unless otherwise stated. All references to any external standards or specifications are per the current edition/revision at the original purchase order (P.O.) date, unless otherwise stated.

## Combined Loading for Drill Pipe

Connection: XT™ 39 4.875" x 2.688" (120 KSI SMYS ) Friction Factor: 1.0
Pipe: 4.0" OD 0.330" Wall Thickness S135 80% Inspection Class

| At Max MUT (21200 ft-lbs ) | | At Min MUT (17700 ft-lbs ) | |
|---|---|---|---|
| **Operational Torque(ft-lbs)** | **Assembly Max Tension(lbs)** | **Operational Torque(ft-lbs)** | **Assembly Max Tension(lbs)** |
| 0 | 403500 | 0 | 403500 |
| 1000 | 403300 | 800 | 403400 |
| 1900 | 402800 | 1500 | 403100 |
| 2900 | 401900 | 2300 | 402500 |
| 3800 | 400800 | 3000 | 401800 |
| 4800 | 399200 | 3800 | 400800 |
| 5800 | 397100 | 4600 | 399500 |
| 6700 | 395000 | 5300 | 398200 |
| 7700 | 392200 | 6100 | 396500 |
| 8600 | 389400 | 6900 | 394500 |
| 9600 | 385800 | 7600 | 392500 |
| 10600 | 381800 | 8400 | 390000 |
| 11500 | 377800 | 9100 | 387600 |
| 12500 | 373000 | 9900 | 384700 |
| 13400 | 368200 | 10700 | 381400 |
| 14400 | 362400 | 11400 | 378300 |
| 15400 | 356100 | 12200 | 374500 |
| 16300 | 350000 | 13000 | 370400 |
| 17300 | 342600 | 13700 | 366500 |
| 18200 | 335500 | 14500 | 361800 |

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## Connection Wear Table

Connection: XT™ 39 4.875" x 2.688" (120 KSI SMYS ) Friction Factor: 1.0

| Tool Joint OD (in) | Max MUT(ft-lbs) | Min MUT(ft-lbs) |
|---|---|---|
| 4.875 | 21200 | 17700 |
| 4.855 | 20800 | 17300 |
| 4.835 | 20400 | 17000 |
| 4.814 | 20000 | 16700 |
| 4.794 | 19600 | 16400 |
| 4.774 | 19300 | 16100 |
| 4.754 | 18900 | 15800 |
| 4.734 | 18500 | 15400 |
| 4.714 | 18200 | 15100 |
| 4.693 | 17800 | 14800 |
| 4.673 | 17400 | 14500 |
| 4.653 | 17100 | 14200 |

## Elevator Capacity

Elevator Bore Diameter: 4.28175" Elevator SMYS: 110,100 psi Box Taper Angle: 18 deg
Connection: XT™ 39 4.0" 0.330" wall IU S135

| Tool Joint OD (in.) | Elevator Hoist Capacity (lbs) | |
|---|---|---|
| | **No Wear** | **1/32" Wear Factor** |
| 5.0625 | 630900 | 607600 |
| 5.025 | 598200 | 574900 |
| 4.988 | 566100 | 542900 |
| 4.951 | 534300 | 511100 |
| 4.914 | 502800 | 479500 |
| 4.876 | 470600 | 447400 |
| 4.839 | 439500 | 416300 |
| 4.802 | 408700 | 385400 |
| 4.765 | 378000 | 354800 |
| 4.727 | 346900 | 323600 |
| 4.69 | 316700 | 293500 |
| 4.653 | 286800 | 263600 |

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