## Drill Pipe Performance Characteristics Sheet

**PTECH Canada**

Mat Rolifes - Operation Manager/Sales  |  780.231.3287  |  Mat@Ptechcanada.com

**PTECHCanada.com** | Canadian Patent #2,768,455 | Conroe, TX 936.231.1241

Pipe Size and weight: 5 44.80 EU  
Pipe Grade: HWDP  
Range: 2  
Tool Joint: 5 7/8 X 3 PTECH47+

### Pipe Body

<table>
<thead>
<tr>
<th>OD (in)</th>
<th>Wall Thickness (in)</th>
<th>ID (in)</th>
<th>Calculated Plain End weights (lbs/ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.000</td>
<td>1.000</td>
<td>3.000</td>
<td>42.700</td>
</tr>
</tbody>
</table>

**Note:** Premium properties are calculated based on uniform OD and wall thickness.

- Cross sectional area ID (in²): New-API 7.069, Premium 7.069
- Section Modulus (in³): New-API 10.681, Premium 7.827

<table>
<thead>
<tr>
<th>Torsional Strength (ft-lbs)</th>
<th>New-API</th>
<th>Premium</th>
</tr>
</thead>
<tbody>
<tr>
<td>56,500</td>
<td>691,200</td>
<td>19,250</td>
</tr>
</tbody>
</table>

- Tensile Strength (lbs): New-API 691,200, Premium 525,300
- 80% Torsional Strength (ft-lbs): New-API 45,200, Premium 33,100
- Pressure Capacity (psi): New-API 19,250, Premium 17,600
- Collapse Capacity (psi): New-API 17,600, Premium 15,803

### Tool Joint

#### PTECH47+

- OD (In) 5 7/8
- ID (In) 3

**Tool Joint with a Material Yield Strength of 110000 psi**

- Pin Tong length (in) 13
- Box Tong length (in) 15

<table>
<thead>
<tr>
<th>Torsional Strength (ft-lbs)</th>
<th>New-API</th>
<th>Premium</th>
</tr>
</thead>
<tbody>
<tr>
<td>60,800</td>
<td>50,000</td>
<td>16,000</td>
</tr>
</tbody>
</table>

- Recommended Make-up Torque (ft-lbs): New-API 36,500, Premium 30,400
- Min Recommended Make-up Torque (ft-lbs): New-API 30,400
- Balance OD (in) 6.035
- Tensile Strength (lbs): New-API 1,034,300, Premium 594

- Tool joint/Drill pipe torsional ratio (New pipe) 1.08
- Tool joint/Drill pipe torsional ratio (95% New pipe) #DIV/0!
- Tool joint/Drill pipe torsional ratio (Prem pipe) 1.47
- Min OD for premium class (in) 5.594

### Drill Pipe Assembly with PTECH+ Tool Joint

- API Adjusted weight (lbs/ft) 44.80
- Approximate length (ft) 31.50
- API Fluid Displacement (gal/ft) 0.685
- Fluid Capacity (gal/ft) 0.365
- Drift Size 2.875

*These calculations are based on new pipe with nominal wall*

Based on Bending Stress (psi) at Pipe OD 15,000

Radius of Curvature (R) (ft.) (@ OD of pipe) 416.7

**BUR (dogleg) deg/100 ft.** 13.8

This Performance Sheet was generated by Nels Wickander.

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This technical data is for reference only.

PTECH Drilling Tubulars, LLC.

Applied Torque (ft-lbs)

Pipe Yield
Shoulder Sep
Pin Yield

Applied Tensile Load (lbs)

For PTECH47-5 7/8 x 3 tool joint with a material strength of 10000 psi using a coefficient of friction factor of 0.15 and a safety factor of 1.0. On Pipe: 54.80 HWP premium class.

Torque Tension Combined Load Curve