TOE TAPPER™

Trican’s Toe Tapper™ is a unique coiled tubing friction reduction tool. The tool generates a negative pressure pulse that stimulates the coiled tubing and reduces frictional drag. The negative pressure pulse that is generated by the fluid flow causes a fluid hammer effect, which breaks the friction between the coiled tubing and casing and creates hydraulic pull forces. The reduced friction decreases the effects of helical buckling, which can lead to a coiled tubing lock-up situation.

The tool’s unique capability of producing a low frequency means that the tool provides a more effective friction reduction through a pressure pulse that has more time to act on the coiled tubing. As a result of this decreased friction, far greater well depths can be reached.

**Features**

- Power section can be tuned to change pressure pulse frequency.
- Valving system can be tuned to increase/decrease pressure pulse magnitude.
- Can be used with a variety of fluids including N₂.
- Changing the nozzle bypass allows the tool to be overpumped by as much as 50%.

**Benefits**

- Fluid hammer effect produces hydraulic pull, improving weight transfer.
- Low frequency enables the high amplitude pressure pulse time to act on the coiled tubing effectively.
- Reduces friction caused by helical buckling.
- Improved milling times.
- Extended reach in long horizontal well sections.

**Applications**

- Extended reach applications for well intervention procedures such as milling and stimulation operations.
<table>
<thead>
<tr>
<th>Tool Size</th>
<th>MUL</th>
<th>Weight</th>
<th>Flow Rate¹</th>
<th>Temperature</th>
<th>Operating Frequency</th>
<th>Differential Pressure</th>
<th>Tensile Strength</th>
<th>Torsional Strength</th>
<th>Threads</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm (in.)</td>
<td>m (in.)</td>
<td>kg (lb)</td>
<td>m³/min (gpm)</td>
<td>°C (°F)</td>
<td>Hz</td>
<td>kPa (psi)</td>
<td>kN (lbf)</td>
<td>Nm (ft-lb)</td>
<td>mm (in.)</td>
</tr>
<tr>
<td>73 (2.875)</td>
<td>1.47 (58)</td>
<td>48 (105)</td>
<td>0.27-0.50 (70-130)</td>
<td>150</td>
<td>5-8</td>
<td>2,750-5,515 (400-800)</td>
<td>347 (78,000)</td>
<td>4,745 (3,500)</td>
<td>60.3 PAC</td>
</tr>
</tbody>
</table>

¹High flow tool available