Big John® Hydraulic Jar

HELPS REMOVE STUCK TOOLSTRINGS

OVERVIEW
The BIG JOHN® hydraulic jar is included as part of a toolstring to help remove stuck tools. The jar helps free a stuck tool or toolstring by resisting a pull on the workstring. When the workstring is stretched by the pull, tension in the jar is released and an upward impact is delivered to the stuck tool.

FEATURES AND BENEFITS
» Design of the hydraulic system ensures long life with little maintenance.
» Rig time is reduced.
» Jar can be recocked rapidly.
» Jar time delay is adjustable.
» Amount of pull to trip the jar can be varied within the limits of the time-delay system.

OPERATION
The temporary resistance that powers the jar is provided by a hydraulic time-delay system. Resistance is released when the metering sleeve inside the jar moves into a bypass section of the outer case. This action allows the special hydraulic oil to bypass rapidly.

The time delay required to release the temporary resistance varies in relation to the weight of the pull. For example, a light pull requires more time for release than a hard pull. When tools below the jar are stuck, a steady pull applied to the jar creates an upward impact blow to the string. The jar can be recocked when the string is set down.
## Equipment Specifications

<table>
<thead>
<tr>
<th>Nominal Tool Size in.</th>
<th>Outer Diameter in. (cm)</th>
<th>Inner Diameter in. (cm)</th>
<th>Makeup Length in. (cm)</th>
<th>End Connections</th>
<th>Differential Pressure¹ psi (bar)</th>
<th>Tensile Rating² lb (kg)</th>
<th>Service Temperature °F (°C)</th>
<th>H₂S Service³</th>
<th>Stroke Length⁴ in. (cm)</th>
<th>Maximum Pull to Trip⁵ lb (kg)</th>
<th>Maximum Pull⁶ lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>3.03 (7.70)</td>
<td>1.00 (2.54)</td>
<td>57.98 (147.3)</td>
<td>2 1/4 CAS</td>
<td>15,000 (1034)</td>
<td>120,000 (54,400)</td>
<td>400 (204)</td>
<td>SG</td>
<td>4.43 (11.25)</td>
<td>16,000 (6800)</td>
<td>91,000 (41,300)</td>
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<tr>
<td>3 5/8</td>
<td>3.63 (9.22)</td>
<td>1.87 (4.75)</td>
<td>58.73 (149.2)</td>
<td>2 3/8 API-EU</td>
<td>10,000 (689)</td>
<td>135,000 (81,200)</td>
<td>300 (149)</td>
<td>STD</td>
<td>10.0 (25.40)</td>
<td>25,000 (11,300)</td>
<td>109,000 (49,400)</td>
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<tr>
<td>3 7/8</td>
<td>3.90 (9.91)</td>
<td>1.25 (3.18)</td>
<td>60.00 (152.4)</td>
<td>3 1/8-8 UN</td>
<td>10,000 (689)</td>
<td>190,000 (86,200)</td>
<td>300 (149)</td>
<td>SG175</td>
<td>10.0 (25.40)</td>
<td>60,000 (27,200)</td>
<td>111,000 (50,300)</td>
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<td>5</td>
<td>5.03 (12.78)</td>
<td>2.30 (5.84)</td>
<td>62.62 (159.1)</td>
<td>3 7/8 CAS</td>
<td>10,000 (689)</td>
<td>226,000 (102,500)</td>
<td>300 (149)</td>
<td>SG175</td>
<td>10.0 (25.40)</td>
<td>50,000 (22,700)</td>
<td>150,000 (68,000)</td>
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<tr>
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<td>2.30 (5.84)</td>
<td>62.98 (160.0)</td>
<td>3 7/8 CAS</td>
<td>10,000 (689)</td>
<td>231,000 (104,800)</td>
<td>300 (149)</td>
<td>SG</td>
<td>10.0 (25.40)</td>
<td>50,000 (22,700)</td>
<td>134,000 (60,800)</td>
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<tr>
<td>5</td>
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<td>1.75 (4.45)</td>
<td>63.60 (161.5)</td>
<td>3 1/2 API FULL HOLE</td>
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<td>302,000 (137,000)</td>
<td>300 (149)</td>
<td>STD</td>
<td>10.0 (25.40)</td>
<td>60,000 (27,200)</td>
<td>177,000 (80,300)</td>
</tr>
</tbody>
</table>

Notes:
1 Differential pressure is the difference in pressure between the casing annulus and the tool ID.
2 The values of tensile, burst, and collapse strength are calculated with new tool conditions, Lame’s formulas with Von-Mises Distortion Energy Theory for burst and collapse strength, and stress area calculations for tensile strength.
4 Add 10.00 in. (25.40 cm) for extended length for all jars except 3.00 in. For the 3.00 in. jar add 4.43 in. (11.25 cm).
5 Maximum pull to trip is the pull placed on the jar to trip. Exceeding this pull might cause the metering case to burst or the impact mandrel to part.
6 Maximum pull is the pull that can be placed on the jar immediately after the jar trips, which may be applied repeatedly without any damage. Any pull greater than this will fatigue the impact mandrel if done repeatedly.

*These ratings are guidelines only. Refer to the equipment data book for individual equipment specifications.

For more information, contact your local Halliburton representative or visit us on the web at www.halliburton.com

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