The Pressure-Balanced 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 helps ensure long life with little maintenance.
- Rig time can be reduced.
- Jar can be recocked rapidly.
- Jar time delay is adjustable.
- Pressure-Balanced design prevents premature activation due to applied internal pressure.

**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 enables the metering 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.
**Pressure-Balanced Jar Technical Specifications**

<table>
<thead>
<tr>
<th>Nominal Tool Size in.</th>
<th>OD in. (cm)</th>
<th>ID in. (cm)</th>
<th>Thread Connections</th>
<th>Service Temperature °F (°C)</th>
<th>Makeup Length in. (cm)</th>
<th>Stroke Length in. (cm)</th>
<th>Maximum Pull to Trip* lb (kg)</th>
<th>Maximum Pull** lb (kg)</th>
<th>Tensile Rating† lb (kg)</th>
<th>Working Pressure‡ psi (bar)</th>
<th>Absolute Pressure§ psi (bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>5.02 (12.74)</td>
<td>2.265 (5.75)</td>
<td>3 7/8 CAS</td>
<td>400 (204)</td>
<td>139 (353)</td>
<td>10 (25.40)</td>
<td>50,000 (22.680)</td>
<td>150,000 (68.039)</td>
<td>212,000 (96.161)</td>
<td>15,000 (1034)</td>
<td>25,000 (1724)</td>
</tr>
<tr>
<td>7</td>
<td>7.38 (18.75)</td>
<td>3.515 (8.93)</td>
<td>5 1/4 CAS</td>
<td>400 (204)</td>
<td>155 (394)</td>
<td>10 (25.40)</td>
<td>50,000 (22.680)</td>
<td>150,000 (68.039)</td>
<td>495,000 (224.528)</td>
<td>15,000 (1034)</td>
<td>20,000 (1379)</td>
</tr>
</tbody>
</table>

* 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.

** 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.

† 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.

‡ Pressure rating is defined as the differential pressure at the tool. (Differential pressure is the difference in pressure between the casing annulus and the tool ID.)

§ Absolute pressure is hydrostatic pressure plus applied pressure.

Meets NACE MR0175 requirements (>175°F (79°C)).

These ratings are guidelines only. For more information, consult your local Halliburton representative.

For more information on the Pressure-Balanced Jar, contact your local Halliburton representative or email us at welltesting@halliburton.com.