SuperFill™ Big Bore Surge Reduction Equipment
Float Equipment Enables Increased Run-in Speed of Large Bore Casing

Halliburton offers the SuperFill™ Big Bore surge reduction equipment with 17-percent more flow area than comparable float equipment to enable faster run-in speeds in large bore applications while managing surge pressures. The internal auto-fill system allows fluids to flow freely into the casing so that the casing is not pushing fluids into the formation in a manner sometimes referred to as the piston effect.

The mass and momentum of the pipe while running casing in the hole affects fluid volume changes in the well that can cause pressure surges. Inadequately managing surge pressures can lead to a number of costly drilling problems such as formation fracture and lost circulation, fluid influx/kicks, breakdown of the formation at the shoe due to limited kick tolerance, or blowouts. In large bore applications, increased diameter results in greater casing mass, potentially requiring slower run-in speeds to manage surge pressure.

Halliburton's SuperFill Big Bore surge reduction equipment reduces run-in time an average of fifty percent over run-in operations of casing without float equipment and nine-percent over comparable third-party equipment.

An offshore well in West Africa was running an 11-7/8-in. liner string set inside of 13-3/8-in. casing. The liner hanger was to be set at 7,500 ft. with the liner below to 15,000 total vertical depth. The mud weight was 13.5 lb/gal with a formation fracture gradient of only 14.0 lb/gal. The operator estimated a 14-hour run-in time without the use of any float equipment, so they solicited bids for float equipment. Halliburton's SuperFill Big Bore surge reduction equipment was selected because it was estimated to reduce the run-in time of even the closest competitive float equipment, delivering rig-time savings of more than $280,000 (USD).

Features:
- 9-5/8 in. and larger casing
- Double valve collar run with guide shoe.
- Valve rated to 7,500 psi at 300°F (149°C).
  - Exceeds API III B.
  - Tool rating dependent on casing size.
- 3-1/2 in. caged ball and 8.95 in.^2 auto-fill flow area reduces surge, offering 17-percent more flow area than other comparable equipment.
- FVB (Flapper Valve Ball) Plus option
  - 1 – 4 bpm circulation rates prior to deactivation of auto fill
  - Auto fill deactivates at 5–7 bpm

SuperFill™ Big Bore Surge Reduction Equipment – Properties

<table>
<thead>
<tr>
<th>Feature</th>
<th>Ball Size</th>
<th>Valve Type</th>
<th>TFA Pre-conversion</th>
<th>TFA Post-conversion</th>
<th>Pressure rating</th>
<th>Conversion Rates</th>
<th>Conversion Pressure</th>
<th>Deviation Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ball Size</td>
<td>3.5 inches</td>
<td>Double Flapper</td>
<td>8.95 in^2</td>
<td>9.62 in^2</td>
<td>7,500 psi at 300°F (149°C)</td>
<td>5 – 7 bpm</td>
<td>400 – 600 psi</td>
<td>None</td>
</tr>
</tbody>
</table>

For more information on SuperFill™ Big Bore surge reduction equipment, please call your local Halliburton representative or email us at cementing@halliburton.com.

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