**GeoGuard**

**high-performance deepwater safety valves**

Subsurface safety valves (SSVs) with superior reliability at extremely deep setting depths

- **Tubing sizes:** 4½ and 5½ in
- **Pressure rating:** up to 20,000 psi [137 MPa]
- **Working temperature:** up to 176 degC [350 degF]

**Applications**
Deepwater and ultradeepwater wells

**How it improves wells**

GeoGuard* high-performance deepwater safety valves improve reliability as compared with conventional SSVs, with patented seal technology and qualification methods that enable extremely deep setting to avoid deposition of precipitants such as hydrates, paraffins, and scales in the safety valve.

Flexible engineering design enables delivery with a choice of actuator types to ideally match the well’s subsea infrastructure requirements and completion design.

The safety valves’ low hydraulic operating pressure also simplifies deepwater control system requirements.

**How it works**

When requested to actuate from surface—either by manual actuation or through an automated control system—GeoGuard safety valves slam shut to secure the well.

GeoGuard safety valves are available with a choice of actuator types:

- Nitrogen dome technology is ideal for ultradeep setting depths (>3,048 m [>10,000 ft]) and includes fully redundant hydraulic actuation systems.
- Balance line technology delivers high performance for setting depths up to 3,048 m without redundancy.

**What it replaces**

Legacy tubing-retrievable, charged surface-controlled subsurface safety valves (SCSSVs) without upgraded sealing capabilities.

**Additional information**

GeoGuard safety valves are validated to API Spec 14A V1 and V1-H.

Because of the customized nature of the GeoGuard safety valves and the extreme setting depths at which these safety valves can be used, Schlumberger recommends contacting your local representatives for specific lockout procedures for each application, when needed.

**GeoGuard Safety Valve Specifications**

<table>
<thead>
<tr>
<th>Nominal Tubing Size, † in</th>
<th>Actuator Type</th>
<th>Pressure Rating, ‡ psi [MPa]</th>
<th>OD, in [mm]</th>
<th>Bore Size, in [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>4½</td>
<td>B,N</td>
<td>10,000 [69]</td>
<td>7.262–8.072 [184.4–205.0]</td>
<td>3.812 [96.8]</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>15,000 [103]</td>
<td>7.660 [199.6]</td>
<td>3.500 [88.9]</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>20,000 [137]</td>
<td>8.160 [207.3]</td>
<td>3.500 [88.9]</td>
</tr>
<tr>
<td>5½</td>
<td>B,N</td>
<td>10,000 [69]</td>
<td>8.316–9.335 [211.2–237.1]</td>
<td>4.562 [115.9]</td>
</tr>
</tbody>
</table>

All specifications are subject to change without notice.

† Additional sizes and pressure ratings are available upon request.

‡ B = Balance line technology; N = Nitrogen dome technology

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slb.com/safetyvalves