AlphaST™ Single-Trip Openhole Cement and Sidetrack System

Sets a reliable, cost-effective whipstock for a successful sidetrack

Applications
- Initiating efficient and reliable lateral departures in openhole wellbores
- Kicking off in hard, highly compressive formations where standard drilling methods are ineffective
- Increasing reservoir exposure through extended-reach drilling

Features and Benefits
- The AlphaST single-trip openhole sidetrack system can set, cement, and drill off in the same run.
- The IPP® injection production packer provides a full 360° of contact against the formation to securely anchor the whipstock system.
- The IPP packer has a high-strength elastomer element and a slim diameter—smaller than the concave or milling bottomhole assembly (BHA)—for drifting through borehole restrictions. An optional high-temperature elastomer can be used to enhance IPP performance in extreme environments.
- A copper flow tube within the whipstock concave facilitates pumping cement below the whipstock.
- Two mills on the drilloff BHA facilitate a quick departure from the original wellbore.
- The whipstock concave uses a single 3° angle for a smooth transition into the sidetrack without steps or ledges, which enables operators to run drilling BHAs that use short-tooth or PDC-style bits immediately after initial whipstock installation.

Tool Description
The Weatherford AlphaST single-trip openhole sidetrack system increases operator flexibility, eliminates multiple trips, and avoids costly cementing operations. The system consists of an IPP injection production packer anchor, a low-angle whipstock, and a twin-mill drilloff BHA. The IPP anchor enables the operator to position the lateral departure in the openhole wellbore without need of a false bottom or cement barrier. The single-angle 3° whipstock creates a smooth transition to eliminate BHA geometry issues on subsequent trips. A lead mill and flex mill initiate the kickoff. This reliable, field-proven openhole whipstock, anchor, and milling system enables operators to access the pay zone in the shortest possible route.
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Specifications

<table>
<thead>
<tr>
<th>Whipstock outside diameter</th>
<th>Concave face angle</th>
<th>Concave pin connection</th>
<th>Drilling tool outside diameter</th>
<th>Drilling tool box connection</th>
<th>Shear stud shear strength</th>
<th>IPP cable element packer H4</th>
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</thead>
<tbody>
<tr>
<td>6 in. (152.4 mm)</td>
<td>3°</td>
<td>3-1/2 IF</td>
<td>6.50 in. (165.10 mm)</td>
<td>3-1/2 in. IF</td>
<td>40,000 lb (18,181 kg)</td>
<td>5.5 in. (139.7 mm) 300°F (149°C)</td>
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<td></td>
<td></td>
<td></td>
<td>6.75 in. (171.45 mm)</td>
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<tr>
<td>8 in. (203.2 mm)</td>
<td>3°</td>
<td>4-1/2 XH</td>
<td>8.50 in. (215.90 mm)</td>
<td>4-1/2 in. IF</td>
<td>59,000 lb (36,761 kg)</td>
<td>7.5 in. (190.5 mm) 300°F (149°C)</td>
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<td></td>
<td></td>
<td></td>
<td>8.75 in. (222.25 mm)</td>
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</tr>
<tr>
<td>11.5 in. (203.2 mm)</td>
<td>3.88°</td>
<td>4-1/2 XH</td>
<td>12.25 in. (311.15 mm)</td>
<td>4-1/2 in. IF</td>
<td>59,000 lb (36,761 kg)</td>
<td>9.25 in. (234.9 mm) 300°F (149°C)</td>
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</tbody>
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IPP Element Performance Chart