CheckStream® Chemical Injection System

OPTIMIZE FLOW ASSURANCE THROUGH CHEMICAL MANAGEMENT

FEATURES
» Dual redundant checks (hard and soft seats)
» Field-installable burst disc with selectable ranges
» Cracking pressures up to 1000 psi
» Range of flow rates up to 8 gallons per minute (GPM)
» Industry-proven testable, dual metal-to-metal FMJ seal connectors
» High pressure and temperature ratings of 15,000 psi
» Differential and 392°F (200°C) for HPHT applications
» Configurable for multi-point, single control line
» Injection applications
» Extensive qualification testing performed to achieve highest reliability

BENEFITS
» Maintains flow assurance
» Optimizes production performance
» Helps reduce costly intervention
» Brings high precision chemical management to the wellbore

OVERVIEW
The CheckStream® downhole chemical injection system provides precise wellbore chemical management for maintaining flow assurance and continuous production, without costly intervention. The system features a dual redundant check valve that allows delivery of chemical fluids to the wellbore while simultaneously preventing wellbore fluids and gas from entering the control line and migrating to the surface. The valve is installed and protected by an industry-standard mandrel.

CHECKSTREAM MANDREL
The CheckStream mandrel features a one-piece machined design for all applications, including deep water. The one-piece mandrel utilizes the same design criteria as the permanent downhole gauge mandrel.

CHECKSTREAM CHECK VALVE
CheckStream dual redundant check valve configurations include a range of flow, variable cracking pressures and different connection sizes providing a variety of options to best suit well conditions. The 3/8-in. and 1/2-in. variants allow for installation of burst disk in the field. The 1/4-in. variant comes with burst already installed.
Connections to the check valve are pressure testable, dual metal-to-metal seal FMJ connectors delivering added protection compared to standard single metal-to-metal seal connections.
CheckStream® Check Valve Configurations

<table>
<thead>
<tr>
<th>Check Valve Size (in.)</th>
<th>Flow Rate (gpm)</th>
<th>Cracking Pressure (psi)</th>
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</thead>
<tbody>
<tr>
<td>1/4</td>
<td>0.02 - 0.2</td>
<td>500</td>
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<tr>
<td>1/4</td>
<td>0.02 - 0.2</td>
<td>1000</td>
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<tr>
<td>1/4</td>
<td>0.2 - 3.0</td>
<td>50</td>
</tr>
<tr>
<td>3/8</td>
<td>0.02 - 0.2</td>
<td>500</td>
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<td>3/8</td>
<td>0.02 - 0.2</td>
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<td>3/8</td>
<td>2.0 - 8.0</td>
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CHECKSTREAM SYSTEM QUALIFICATION

Extensive qualification testing has been performed on CheckStream mandrels, valves and connectors to achieve the highest reliability in the industry. CheckStream valves endured thousands of pressure and temperature cycles using liquid and gas test mediums. Long-term endurance testing was also performed helping ensure optimal valve performance throughout the life of the well.

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

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