Camco Nitrogen-Charged Chemical Injection Valves

Slickline-retrievable valves to control chemicals injected into the production fluid at valve depth

**APPLICATION**
- Chemical injection operations

**BENEFITS**
- Uniform operation and extended life
- Operational versatility
- Increased reliability and efficiency

**FEATURES**
- Patented hydraulic forming process for the bellows
- Premium or standard materials that work within various environments
- Bubble-tight seal between the valve stem tip and the floating seat
- Guided valve stem for precise alignment with the seat during operation
- Valves to prevent backflow into the tubing annulus

Camco® nitrogen-charged chemical injection valves use nitrogen-charged bellows or nitrogen containment pistons to provide the force necessary to maintain the valves in the normally closed position.

This line of valves comprises the 1-in [25.4-mm] OD BKCI-2 and BKLK-2 valves and the 1¼-in [38.1-mm] OD RCB valves. BKCI-2 valves use nitrogen-containment pistons with metal-to-metal seals for high-pressure applications. BKLK-2 and RCB valves use a multi-ply MONEL® bellows for low- to medium-pressure applications.

BKCI-2 and RCB valves use a metal ball-and-seat containment for the nitrogen charge in the filling port; BKLK-2 valves use a dill core. All these chemical injection valves contain positive spring-loaded, reverse-flow check valves and floating seats.

**Port sizes**
1/8-in and 3/16-in [3.2-mm and 4.8-mm] ports are available for all the valves.

**Operation**
Injection chemicals enter the valve from the casing annulus. In the case of valves with a wider opening-closing pressure spread, such as the BKCI-2 valve, injection chemicals enter from a separate injection line attached to the appropriate side-pocket mandrel.

Chemical injection pressure acts on the effective bellows area or piston area of the valve. As injection pressure overcomes the precharged nitrogen pressure, the bellows or piston compresses and lifts the stem tip off the seat. Chemicals then flow through the valve port, past the reverse-flow check valve, and into the production tubing.
# Engineering Data for Camco Nitrogen-Charged Chemical Injection Valves

<table>
<thead>
<tr>
<th>Valve Type</th>
<th>Nominal OD, in [mm]</th>
<th>Latch</th>
<th>Running Tool</th>
<th>Pulling Tool</th>
<th>Mandrel Series</th>
<th>Max. Circulating Area, in² [mm²]</th>
</tr>
</thead>
<tbody>
<tr>
<td>BKCI-2</td>
<td>1.000 [25.4]</td>
<td>BK series</td>
<td>JK</td>
<td>JDC</td>
<td>KBM, KBMM, KBMG, KBG</td>
<td>5,500 [37,923]</td>
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<tr>
<td>BKLK-2</td>
<td>1.000 [25.4]</td>
<td>BK series</td>
<td>JK</td>
<td>JDC</td>
<td>KBM, KBMM, KBMG, KBG</td>
<td>2,800 [19,306]</td>
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<tr>
<td>RCB</td>
<td>1.500 [38.1]</td>
<td>RA</td>
<td>JC-3</td>
<td>JDC</td>
<td>MMA</td>
<td>2,800 [19,306]</td>
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<tr>
<td>RCB</td>
<td>1.500 [38.1]</td>
<td>RK</td>
<td>RK-1</td>
<td>JDS</td>
<td>MMM, MMG, MMRG</td>
<td>2,800 [19,306]</td>
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</tbody>
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