RCX Lo-Shok SPM Valve Overview

Sub Plate Mounted (SPM) valves are 3-way, 2-position fluid control valves. SPM valves are used throughout National Oilwell Varco (NOV) control systems to direct hydraulic fluid within hydraulic circuits.

- NOV RCX Lo-Shok SPM valve assemblies have been created to address industry requests for a more robust and reliable valve.
- RCX Lo-Shok SPM valves are direct circuit replacements with matched flow rates. Closing times are not affected.
- RCX Lo-Shok SPM valves utilize improved materials and are designed to reduce hydraulic shock (water hammer). Test data provided on sheet 2.
- RCX Lo-Shok SPM valves must be used with RCX Lo-Shok SPM valve blocks. RCX Lo-Shok SPM valve blocks may be re-machined to NOV specifications. Non-RCX Lo-Shok blocks cannot be re-machined.

RCX Lo-Shok SPM Valve Components

- SPM valve engraved w/ identification
- SPM valve block stamped w/ identification
- Assembly tag stamped w/ SPM + valve block assembly ID
- RCX Lo-Shok SPM Valves must be used with RCX Lo-Shok SPM Valve Blocks
- SPM valve block re-machineable
- Cap threads made from high-strength copper all for anti-galling properties
- Keyhole assembly of actuator rod and spool eliminates retainer nut (see detail view - B)
- Spool support improved by moving wear bands further apart (see Detail View - A)
- Purge fitting available - Circulates pilot fluid and bleeds air from the control chamber
- SAE-4 port only (O-ring boss style)
- Nord-Lock washer retains assembly bolt
- Spring chamber filled with control fluid to prevent corrosion
- Seawater chamber drains through milled slot
- Spool clearances and line-on-line spool timing (opening/closing) of vent and supply port used to minimize interflow.
- Improved cage seals (Hi-Gap) - Designed to accommodate cavity rework and larger extrusion gaps
- Improved cage design - Designed to prevent “crushing”
- Cage flow design - Flow areas designed to gradually open and close the supply and vent chambers as the spool shifts
- Key/Keyhole design eliminates retainer nut
- Rod installed into spool

RCX Lo-Shok SPM — Cross Section
## RCX Lo-Shok SPM Valve Sheet 2 of 2

**Legend:**
- Supply Port - Current SPM - Yellow pod
- Work Port - Current SPM - Yellow pod
- Supply Port - Lo-Shok SPM - Blue pod
- Work Port - Lo-Shok SPM - Blue pod

### RCX Lo-Shok SPM Assemblies - Part Number and Description

<table>
<thead>
<tr>
<th>Valve size</th>
<th>Valve Configuration</th>
<th>Valve + Block Assembly P/N</th>
<th>Valve Application</th>
<th>Valve Only P/N</th>
<th>Seak Kit P/N</th>
<th>Repair Kit P/N</th>
<th><strong>Block Only P/N</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 1/2&quot;</td>
<td>NC (Normally Closed)</td>
<td>11448757-001</td>
<td>FRS</td>
<td>11394478-001</td>
<td>11444594-001</td>
<td>11444807-001</td>
<td>11327183-001</td>
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<td></td>
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<td>11448766-001</td>
<td>Non-FRS</td>
<td>11331583-001</td>
<td>11444818-001</td>
<td>11398673-001</td>
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<tr>
<td>NO (Normaly Open)</td>
<td>11449450-001</td>
<td>Pod Select</td>
<td></td>
<td>11444594-001</td>
<td>11444813-001</td>
<td>16557295-001</td>
<td></td>
</tr>
<tr>
<td>NBC (Normally Closed Bi-Directional)</td>
<td>16562565-001</td>
<td>Stack Mounted (Accumulator isolation)</td>
<td>11394477-001</td>
<td>11444594-001</td>
<td>16557295-001</td>
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<td></td>
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<tr>
<td>NPB (Normally Open, Pressure Balanced)</td>
<td>-</td>
<td>&quot;Rigid Conduit Manifold&quot;</td>
<td>11450588-001</td>
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<td>-</td>
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</tbody>
</table>

* Rigid Conduit Manifold must be replaced as a unit.
** For blocks not listed, contact RA-AftermarketUpgrades@nov.com for information and quotations.

## RCX Lo-Shok SPM - Identifying Block Style

### Legend:
- Pod Manifold Supply
- HP Upper Shear Close @ SPM Work Port
- HP Upper Shear Close @ Operator Door
- LMRP Accumulators @ Accumulators

### Pod Select

### Shear Accumulator Charge

### Shear Accumulator Block

### Shear Close

### Shear Block

*For reference only, please contact your local sales contact for more information.*