SAFETY & PRODUCTIVITY IN A BOX

CONTROL RELIABLE
HYDRAULIC SAFETY VALVES

SAFETY & PRODUCTIVITY IN A BOX
WHAT ARE CONTROL RELIABLE HYDRAULIC SAFETY VALVES?

Since 2006, Control Reliable Hydraulic Safety Valves have incorporated the latest technologies and leveraged the latest safety standards to help machines run safer and with increased productivity.

Control Reliable Valves offer redundant, control reliable solenoid valves that permit the use of “Alternative Methods” according to the lockout/tagout standard ANSI/ASSE Z244.1 - 2016. Single channel monitored safety valves and manual lockout/tagout valves with sequencing plates are also available which ensure the correct steps to shutdown/startup a hydraulic machine.

These are SRP/CS (safety related parts of a control system) that will allow access to an otherwise hazardous hydraulic machine area if incorporated properly into the safety control logic.

The Cat 3 PLd configurations are redundant so that if there is a failure of one channel, the second channel will reliably perform the safety function.

HOW DO THEY WORK?

Control Reliable Valves are suitable for ISO-13849 (Safety Categories 2, 3 PLd) in both 2-way and 3-way configurations. Our redundant solenoid valves reliably shift only when it is safe to do so and are designed to “fail-to-safe” if single or multiple faults are detected by a safety relay or safety controller supplied by others.

During normal operation, the assembly operates like a single valve. If the redundant spools ever get out of sync, the redundant switches detect the condition and the safety PLC or safety relay, not provided, interprets the out of sync condition as a fault and production is stopped.

The safe condition for EI, a 2-way Energy Isolation valve, is to block the power source and vent the machine to tank. The EI has series flow from the inlet through redundant valve elements to the discharge of the valve. The EI also features parallel flow through both valve elements to tank.

The safe condition for the BL, a 2-way Blocking valve, is to block flow and is commonly used to prevent cylinder movement caused by gravity. The BL series has flow from the inlet through the redundant valve elements to the discharge of the valve.
HOW TO SELECT THE RIGHT SAFETY VALVE:

Step 1: Complete a risk assessment on the machine to identify, assess, reduce, and document the machine hazards using EN ISO 13849-1 as a guideline.

Step 2: Based upon the level of risk found in the risk assessment, select the corresponding rating of safety valve or contact your Control Reliable Hydraulic Safety Valve representative for assistance.

WHY CONTROL RELIABLE HYDRAULIC SAFETY VALVES?

- Keep Employees Safe
- Protect Expensive Tooling
- Reduce Downtime During Safety Events By Incorporating Single Point Lockout
- Reduce Risk
- Pass OSHA Inspections
- Comply With EN ISO 13849-1 PL Safety Standards
- Reliably Isolate (or Block) Hydraulic Energy
- Used During Routine, Repetitive Processes Where Personnel Need To Enter An Otherwise Hazardous Area
CONTROL RELIABLE REDUNDANT VALVES

Suitable for Cat 2, 3 PLd Applications

**MODEL: CRBL - A2**

**DESCRIPTION:**
Control-reliable, redundant, 2 position 2-way poppet valves with force-guided safety switches. The de-energized and fail-to-safe path blocks hydraulic source and maintains pressure downstream, commonly used in counter balance applications.

**GPM @ 200 PSI:**
75, 135, 220, 330

**MODEL: CREI - A2**

**DESCRIPTION:**
Control-reliable, redundant, 2 position, 2-way poppet valves with force-guided safety switches. The de-energized and fail-to-safe path blocks hydraulic source and drains outlet to tank.

**GPM @ 200 PSI:**
75, 135, 220, 330

**MODEL: CREI-B2**

**DESCRIPTION:**
Control-reliable, redundant, 2 position, 4-way spool valves with inductive spool position-monitoring (N/C + N/O) switches. The de-energized and fail-to-safe path blocks hydraulic source and drains outlet to tank.

**GPM @ 200 PSI:**
15, 30, 60

**SIZES / OPTIONS:**

<table>
<thead>
<tr>
<th>CONTROL RELIABLE HYDRAULIC VALVE</th>
<th>TYPE</th>
<th>MONITORING</th>
<th>VALVE SIZE / CONNECTION SIZE</th>
<th>CONNECTION TYPE</th>
<th>VOLTAGE</th>
<th>MANIFOLD TYPE</th>
<th>DESIGN SERIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>CR</td>
<td>EI</td>
<td>RM</td>
<td>0720</td>
<td>FL</td>
<td>024</td>
<td>A</td>
<td>A2</td>
</tr>
</tbody>
</table>

EI – ENERGY ISOLATION VALVE
BL – BLOCKING VALVE
RM – PROVISION FOR REMOTE MONITORING

* TS CONNECTION ONLY
** ALUMINUM ONLY
*** DUCTILE IRON ONLY
† TÜV CERTIFIED

FL – THREADED SAE
**FL – CODE 61 FLANGE
***FH – CODE 62 FLANGE

024 – 924VDC
115 – 115VAC

A – ALUMINUM (3,000 psi Max)
D – DUCTILE IRON (2,000 psi Max)

www.controlreliable.com
INDUCTIVE POSITION MONITORING

Suitable for Cat 2 Applications

MODELS: IPM
DESCRIPTION:
Spool valves with inductive position monitoring (IPM) control valve, 24 VDC
GPM @ 200 PSI:
15, 30, 60
MAXIMUM PRESSURE:

DESCRIPTION:
Spool valves with inductive position monitoring (IPM) control valve, 24 VDC

GPM @ 200 PSI:
15, 30, 60
MAXIMUM PRESSURE:

SIZES / OPTIONS:

<table>
<thead>
<tr>
<th>SIZE</th>
<th>SPOOls TYPE</th>
<th>SPOOls POSITION</th>
<th>SEALS</th>
<th>VOLTAGE</th>
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<tbody>
<tr>
<td>IPM</td>
<td>3</td>
<td>030 B</td>
<td>N</td>
<td>24V</td>
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SIZES / OPTIONS:

<table>
<thead>
<tr>
<th>CODE</th>
<th>SPOOls POSITION</th>
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<tbody>
<tr>
<td>E</td>
<td>2 positions, Spring offset in position &quot;a&quot;</td>
</tr>
<tr>
<td>F</td>
<td>Spring offset in position &quot;b&quot;</td>
</tr>
<tr>
<td>K</td>
<td>Operated in position &quot;b&quot;</td>
</tr>
<tr>
<td>M</td>
<td>Spring offset in position &quot;a&quot;</td>
</tr>
<tr>
<td>C</td>
<td>3 positions, Operated in position &quot;a&quot; or &quot;b&quot;</td>
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</tbody>
</table>

SIZES / OPTIONS:

<table>
<thead>
<tr>
<th>CODE</th>
<th>SPOOls POSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Spring offset in position &quot;b&quot;</td>
</tr>
<tr>
<td>H</td>
<td>Spring offset in position &quot;a&quot;</td>
</tr>
<tr>
<td>D</td>
<td>Operated in position &quot;a&quot; or &quot;b&quot;</td>
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</table>

SIZES / OPTIONS:

<table>
<thead>
<tr>
<th>CODE</th>
<th>SPOOls POSITION</th>
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<tbody>
<tr>
<td>1</td>
<td>End position monitored side A</td>
</tr>
<tr>
<td>2</td>
<td>End position monitored side B</td>
</tr>
<tr>
<td>3</td>
<td>Start position monitored side A</td>
</tr>
<tr>
<td>4</td>
<td>Start position monitored side B</td>
</tr>
<tr>
<td>5</td>
<td>Start positions</td>
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SIZES / OPTIONS:

<table>
<thead>
<tr>
<th>TYPE</th>
<th>SAE SIZE</th>
<th>CONNECTION TYPE</th>
<th>OPTIONS</th>
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<tbody>
<tr>
<td>LBVV</td>
<td>12</td>
<td>TS</td>
<td>SS</td>
</tr>
</tbody>
</table>

LOCKOUT / TAGOUT VALVES

MODELS: LBVVO8
DESCRIPTION:
3-Way hydraulic blocking, venting, locking manual LOTO valve with sequencing plates. Locks in CLOSED position only.

SAFETY RATING:
For Lockout Tag Out

MAX PRESSURE:
Code 61: 1/2", 3/4", 1" - 5,000psi
Code 61: 1 1/4", 1 1/2", 2" - 3,000psi
Code 62: All Sizes - 6,000psi

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</thead>
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<tr>
<td>LBVV</td>
<td>12</td>
<td>TS - THREADED SAE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SS - STAINLESS STEEL BODY</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BLANK - NONE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TP - FP SEALS</td>
</tr>
</tbody>
</table>

* MAX PRESSURE RATING TBD
TUV CERTIFIED:

TUV Type Designation: CREI, CRBL
Codes & Standards: ISO 13849-1:2015
Scope and Result: Safety Functions:
CREI Valve: Block the flow from HPU and vent system to tank.
CRBL Valve: Block flow in hydraulic system

The assessment comes to the result that the valves meet the requirements related to category 1, PLc according to EN ISO 13849-1. With an appropriate process control system (PCS) providing at least a low diagnostic coverage (>60%) the requirements for Category 3 and PLd are fulfilled. The relevant notes in the operating instructions and safety brochure must be observed.

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