**Fluid Power LOTO Safety Solutions**

**Manual Lock Out Tagout**

Three-way hydraulic blocking, venting, locking, manual valve with sequencing plates to ensure correct order and complete process of shutdown and setup steps.

**Automatic Lock Out Tagout Energy Isolation**

Redundant, 3/2 NC hydraulic control-reliable energy isolation valve.

**Automatic Lock Out Tagout Energy Isolation**

Redundant, 3/2 NC hydraulic control-reliable energy isolation valve.

**Automatic Lock Out Tagout Blocking**

Redundant, 2/2 NC hydraulic control-reliable blocking valve.

**Exotic LBVV Series**

Lockable only when the supply is blocked and downstream is vented to tank position.

Available in SS or Carbon Steel

1/2” to 2 1/2” Ports

**Exotic CREI Series**

If a risk assessment based upon EN ISO 13849-1 determines that a performance level, PL, of d or e, CAT 3 and CAT 4, the Exotic CREI0X8I is an externally-monitored safe choice.

Floors from 15 to 60 GPM at 200 psi ΔP

**Exotic CREI Series**

If a risk assessment based upon EN ISO 13849-1 determines that a performance level, PL, of d or e, CAT 3 and CAT 4, the Exotic CREI0XX is an externally-monitored safe choice.

Floors from 75 to 330 GPM at 200 psi ΔP

**Exotic CRBL Series**

If a risk assessment based upon EN ISO 13849-1 determines that a performance level, PL, of d or e, CAT 3 and CAT 4, the Exotic CRBLXX is an externally-monitored safe choice.

**Parker LV Series**

3/2 locking manual spool valve with exhaust port larger than inlet port for fast dump to safe condition. Lockable only in the supply blocked & downstream vented to atmosphere position.

Available in aluminum or 316 SS

1/4” to 2” Ports

**Parker P33 Series**

Redundant, 3/2 NC pneumatic control-reliable energy isolation valve with exhaust port larger than inlet port for fast dump to safe condition.

**Parker P33 with Soft Start**

P33 Series all the LOTO features as P33 Series plus a soft start feature for gradual, safe buildup of downstream pressure.

**Parker P33 with Soft Start**

Parker P33 with Soft Start

If risk assessment based upon EN ISO 13849-1 determines that a performance level, PL, of d or e, CAT 3 and CAT 4, the Parker P33 is an externally monitored safe choice.

Floors up to 265 SCFM

**Where are they used?**

- Hydraulic Presses
- Rubber Molding
- Coil Slitting Lines
- Actuator Isolation
- Paper Processing & Roll Handling
- Metal Forming:
  - Cutting
  - Bending
  - Punching
  - Forming

**Alternative Methods**
What is Control Reliable?

“Control Reliability”, essentially states that the safety system be designed, constructed and installed such that the failure of a single component within the device or system should not prevent normal machine stopping action from taking place, and shall prevent a successive machine cycle from being initiated until the failure is corrected. To achieve “Control Reliability”, a device should feature both redundancy and fault detection.

Safety Standards Defined:

The EN 954-1 standard (Categories B-4) that has been the staple of safety definition is being phased out and replaced by ISO-13849-1 PL (Performance Level). Below are the brief summaries of requirements for each definition: PLe gives the best reliability and is equivalent to that required at the highest level of risk.

ISO-13849-PLd (Safety Category 3): The safety control system must be designed such that a single fault will not lead to a loss of the safety function. Where practical, the single fault will be detected. This requires redundancy from the safety device through the load control device. Multiple faults may lead to a loss of the safety function.

ISO-13849-PLe (Safety Category 4): The safety control system must be designed such that a single fault will not lead to a loss of the safety function and will be detected at, or before, the next demand on the safety system. If this is not possible, then the accumulation of multiple faults must not lead to the loss of the safety function. This also requires redundancy from the safety device through the load control device. Here multiple faults must not lead to a loss of the safety function.

LOTO Alternative Methods:

The ANSI/ASSE Z244.1 Lockout/Tagout control of Hazardous Energy addresses alternative methods of controls. Alternative methods of control only apply to routine, repetitive tasks that are integral to the production process and are based on risk assessment. The machine must still have a standard lockout system for repairs and other tasks.

Alternative methods of controls save time by incorporating a single lock-point that simplifies the lockout process and increases safety by eliminating the chance of a lockout point being missed. Z244.1 also recognizes that under certain circumstances, the complete removal of stored energy could increase the hazard potential.

Incorporating alternative methods either by using a single point lockout or by partial de-energization can increase safety and productivity.