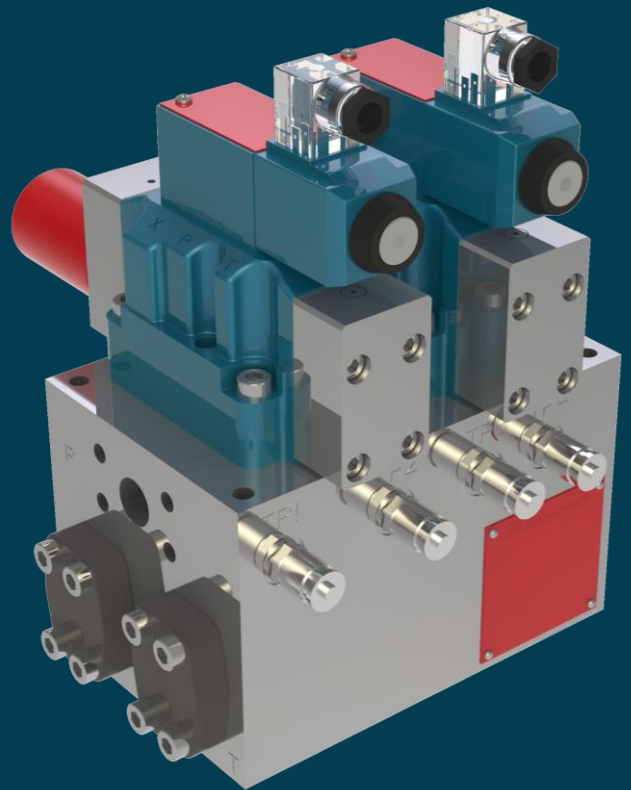
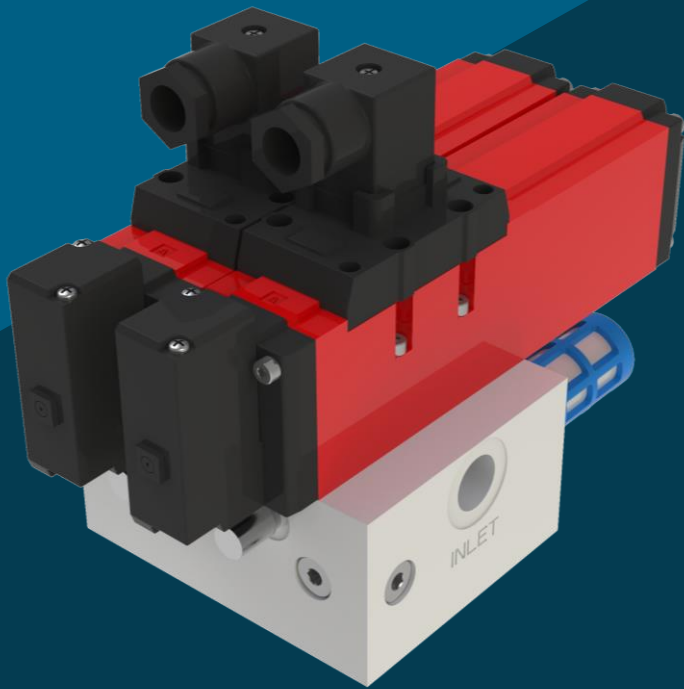


FORTRESS

FLUIDSENTRY



Fluid Power Safety



THE QUEEN'S AWARDS
FOR ENTERPRISE:
INTERNATIONAL TRADE
2018

Fluid Power & Machine Safety

Fluid power through hydraulics and pneumatics is a reliable and highly accurate method to apply, move and remove loads. With all systems, a level of risk is presented as fluid power holds a load in the transition between motions; the primary motion to apply the load and the secondary motion to remove that load.

Access to hazardous machinery should only be possible when all forms of hazardous energy have been isolated. Whilst electrical safety has become the forefront of safeguarding solutions, fluid safety is often overlooked. This oversight can omit severe risks and drastic failure modes where invisible stored energy operates.

Safety solutions surrounding fluid power aim to mitigate these risks with monitoring and detection. A safe fluid power system should consider three steps.

STOP

...the load from the machine eliminating the invisible stored energy

DETECT

...the load is eliminated with system feedback

PREVENT

...access until it is safe to do so

Consider it in the risk assessment

Performing a risk assessment at the appropriate stages through the process of design and installation is often more important than the specific risk process itself. When designing fluid power elements, electrical safety can be often overlooked. We're here to help integrate safety systems throughout the process

Consider upgrades to old equipment

It may be your responsibility to upgrade deficient machinery / installations to the latest safety requirements. Standards and regulations to machinery safety can differ around the world so local regulations can be used for guidance.



Murray Hodges

1961 – 2020

Fluidsentry – Their Story

Australian Murray Hodges was unfortunate enough to witness accidents in the manufacturing industry due to the lack of machine safety principles applied to fluid power systems.

Murray then made it his career to develop the world's first range of monitored safety valves and serve on safety standards development committees.

Fortress has worked with Fluidsentry for 20 years in Australia to offer a package of robust, high quality safety products that help protect people working in manufacturing environments.

The Fluidsentry story continues with Murray's two sons joining the Fortress business to offer Fortress Fluidsentry products to the global market

Monitored Safety Valve Solutions

Why Choose Fortress?

Reliable Design



Designed with redundancy on all safety critical components to **prevent single point of failure**

Retrofittable



Provide **safe isolation** of fluid hazards within existing systems

Robust



Built to last; Fortress solutions are designed for **durability** and **longevity**

Serviceable



Minimise downtime and maintain smooth operation with easy device servicing.

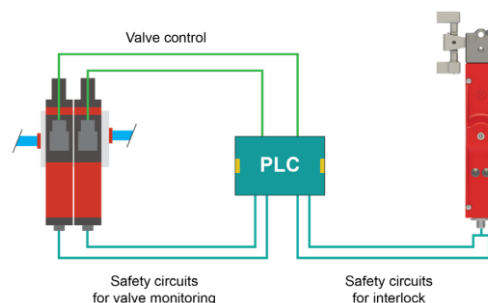
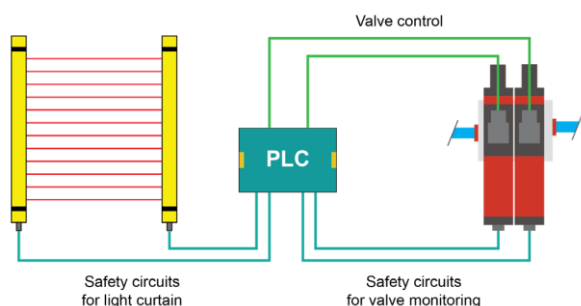
The Specialists in Safety



Our Team of safety experts is on-hand to support you

Highest Level of Safety for Access Applications

Monitored safety valves can be interfaced with guard locking interlocks. The valve design ensures power is in the off state before enabling access in Cat. 4 PLe electrical and pneumatic / hydraulic applications. Products are also rated for 10 million operating cycles.

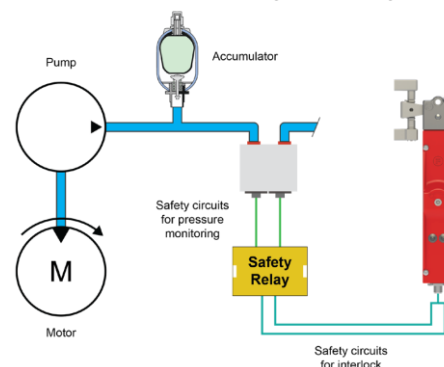


Maintain Safety Distances in Presence Sensing Applications

Applications using light curtains or scanners to detect access need to have a safety distance between the access point and the hazard, determined by the stopping performance of the equipment. Monitored safety valves are designed to operate and control power even when contamination or lack of lubrication is present, ensuring stopping performance is maintained.

Monitor Pressure in Low Frequency Access Applications

Confirming pressurised systems are in a safe state can be equally as important. This is a non-adjustable, non-tamper-able device to confirm zero pressure remains within a fluid power system.



| Summary of Monitored Safety Valve Key Features | Fortress Fluid Sentry Dual Monitored Safety Spool Valves | Other Brand Dual Cross Monitored Poppet Valves |
|--|--|--|
| Do the main valves have their own exhaust to prevent failure due to clogging or contamination? | ✓ | |
| Are the electrical safety contacts positively opened by the valve spool? | ✓ | |
| Product supplied as standard with silencers? | ✓ | |
| Electrical connector cables available with the product? | ✓ | |
| Ethernet based communication protocols supported? | ✓ | |
| Local LED indication of when valve is energized? | ✓ | |
| Built in solenoid surge suppression? | ✓ | |
| Manufacturer recommends accumulator tank between pressure regulator and dual valve? | | ✓ |

Monitored Safety Valves – In Application

Case Palletizing

Material handling applications typically require packages to be moved and stacked via fluid power actuators or end effectors. When access is required for routine and repetitive tasks, all power sources should be controlled safely.

Access to machinery which contains both electrical and pneumatic supplies must prevent access until all sources of supply are isolated.

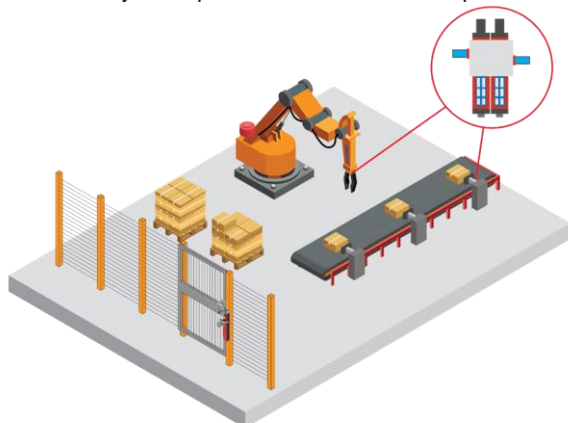
STOP – Power sources are isolated.

DETECT – Safe state has been confirmed.

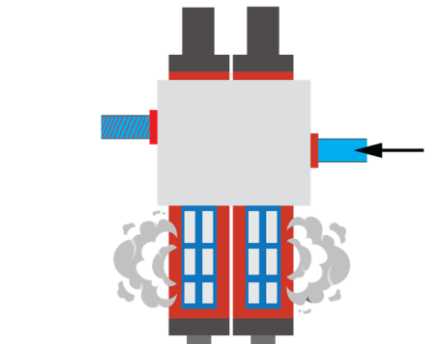
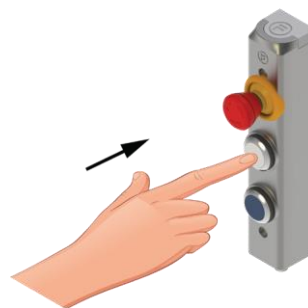
PREVENT – Access is only enabled when all safe conditions are met.

Operation

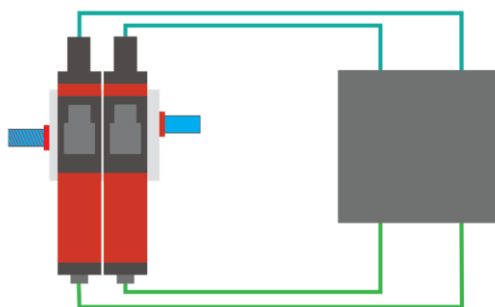
1. Machinery uses pneumatic and electrical power.



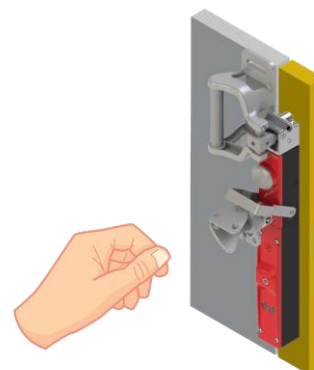
2. Operator requests to enter by the control system.



3. Supplied power is blocked.
Downstream system pressure is vented
via the monitored safety valve.



4. Positively driven safety contacts
confirm pressure is isolated.



5. Interlock allows access

Gain Efficiency Savings With Fluid Power Management

Engineering control methods with safety products can be implemented to gain efficiency in production. If traditional methods of isolation and administrative controls are applied to fluid power, they can be time consuming.

Sometimes they may be the only practical solution but by using engineering controls and safety products the time taken to ensure a machine is safe before entry is reduced. If an isolation procedure takes upwards of 15 minutes and is undertaken 10 times per day during 24/7/365 operation – what is the total lost production time over a year? 38 days.

Zero Pressure Monitor – In Application

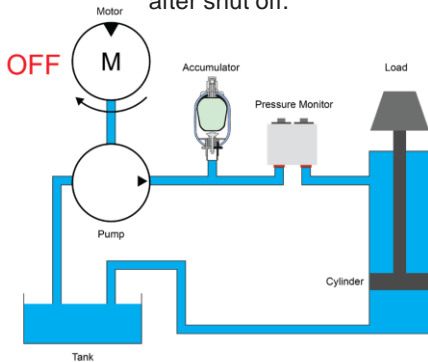
Aluminium Extrusion Press

In extrusion and pressing applications fluid power is often used to provide the high forces required to move tooling in production. When access is required for setting and simple maintenance applications, stored energy should be removed safely.

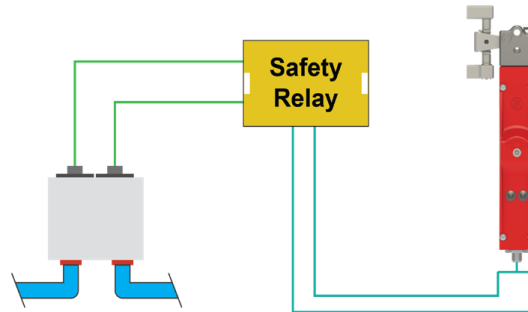
1. Shut motor off via machine controls.



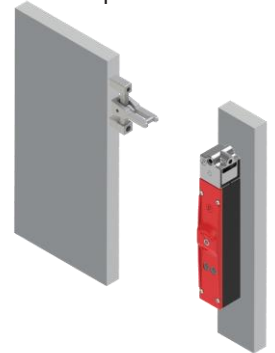
2. Due to an accumulator in the system, pressure is still present after shut off.



3. Upon reaching zero pressure, safety contacts change state to signal to safety relay.



4. The interlock is unlocked to enable access to the safeguarded space.



Interfacing Pneumatics & Hydraulics with Electrical Safety Control Circuits

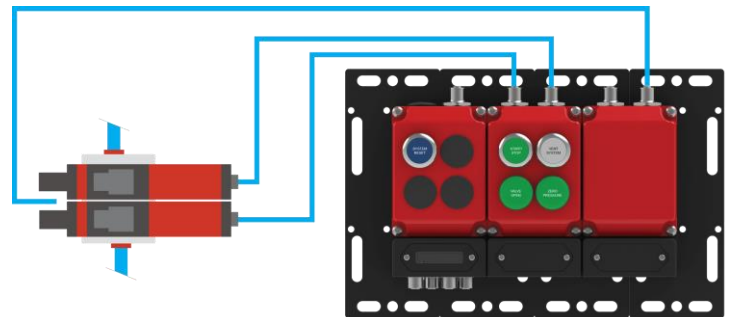
Fluid power safety technology today includes a range of monitored fluid power components from monitored valves systems, safety pressure switches and monitored rod locks. Mechanical systems may be the familiar technology to most engineers.

With monitored fluid power systems increasingly becoming popular, Fortress is available to help cross any bridges between mechanical and electrical design and help empower engineers where possible to design systems to meet requirements.

Networked Communication Module

Fortress offers an add on module to enable safety information to be communicated on PROFINET or Ethernet/IP networks. Networking modules arrive ready to be plugged into the network via a range of customisable quick disconnects.

The costs associated with wiring time, panel building, acquiring enclosures, I/O modules, terminals, multi-core cables, and industrial connectors for the monitored fluid power products can be replaced with a quick easy to install all in one solution. The Fortress Networked solutions can easily incorporate customised control functions such as pushbuttons, lamp indicators, and emergency stops alongside connection to a monitored fluid power product.



Connection to Networked Interlocks

To maximise the communications hardware and save on purchase costs, systems can be configured to utilise the 3 dual channel safety inputs available per networking module.

For example, networking modules can be configured into gate access interlocks with an emergency stop and external connection to a monitored fluid power product.

Access Control with Fortress

The possibilities with a Fortress solution do not stop here; access control allows you to regulate who can access machinery within a safeguarded space to those with the relevant permissions.

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Become A B11 Licensed Machinery Safety Specialist.

For more information or to sign up please visit www.b11lmss.com or contact our US office



FORTRESS

“

We have the peace of mind that our workers are safe and protected by fortress equipment.

”



FORTRESS

“

Fortress is best at providing customised solutions at a rapid turnaround - reacting immensely to a challenge to put the customer's needs first.

”



FORTRESS

“

Fortress' best quality is providing each customer the most robust and safe solution - all while being completely customizable and retaining a high level of quality.

”



FORTRESS

“

We value suppliers that can help navigate the standards and provide guidance that is directly linked to our applications.

”



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