

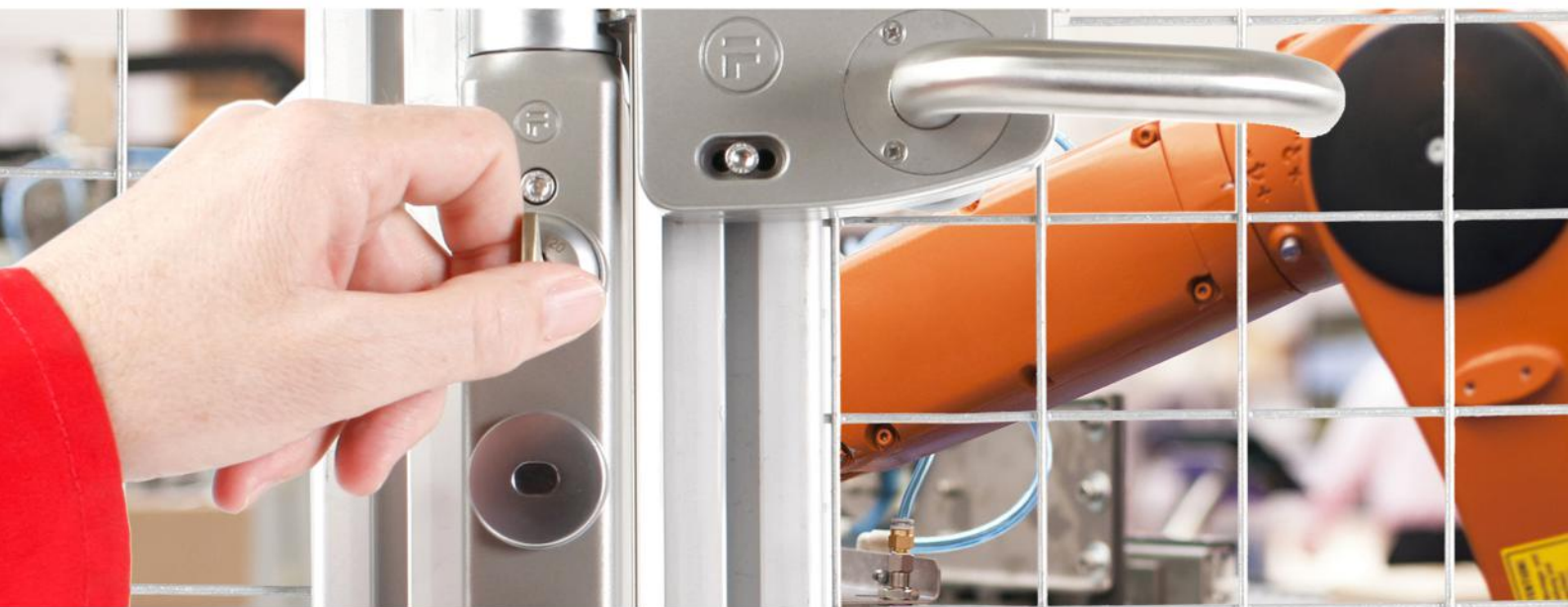
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# Protecting People, Industry and Productivity



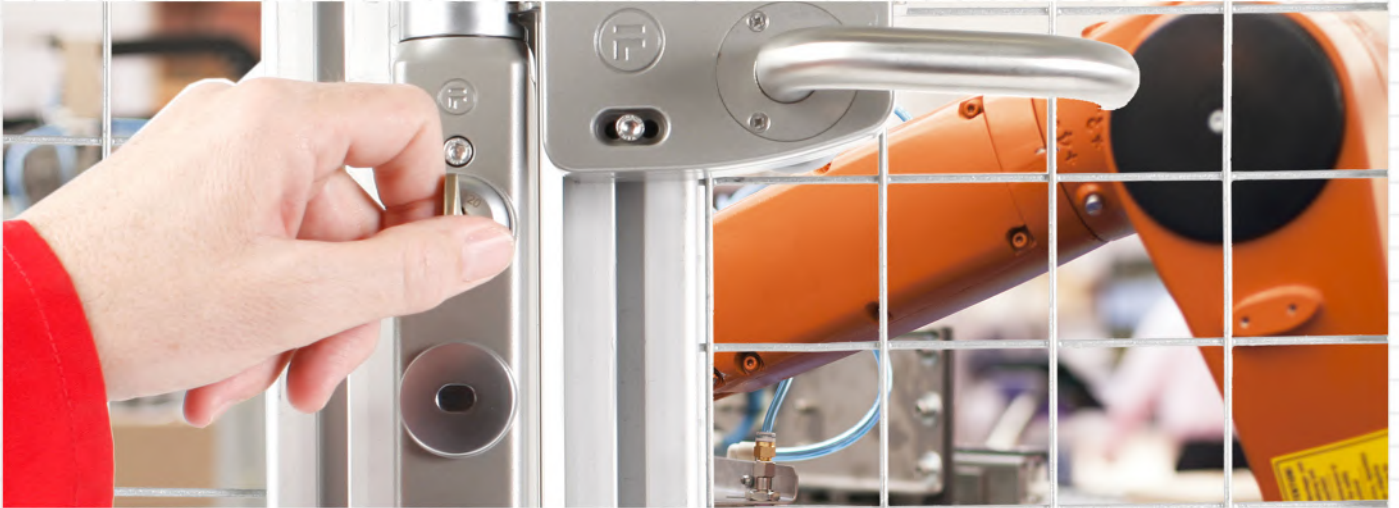
**t Gard**

Modular Approach to controlling  
access to hazardous machinery

LEARN MORE

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**t Gard** “The interlock of choice”



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The "Company"

"Who we are and What we do"

Fortress Interlocks helps customers protect their personnel and capital assets. The company has over 40 years of experience in the safety market, designing and manufacturing safety interlock systems. These systems create safe workplaces where employees in industrial environments are safeguarded from injury and equipment is protected from damage. A world leader in access control systems, Fortress products guarantee that actions and events are undertaken in a pre-determined sequence ensuring a safe working environment.

The company's products are suitable for applications across a wide industrial base including power generation and distribution, steel, automotive, recycling, building materials, food and beverage, robotics and palletisers. Its extensive product offering and interlocking experience allows Fortress to provide unique solutions for all safeguarding applications. We regularly creates bespoke solutions, often by customising our standard products.

**tGard**

**tGard** offers total integration of control and safety. This is Fortress' brand new product that is customisable as standard.

Its unique design allows the configuration of safety interlock switches, trapped key interlocks and machine control stations or any configuration of all three.

**tGard** elements are housed in a metal body to create a simple and robust safety system.



**mGard**

**mGard** is the premier range of modular robust trapped key interlocks for heavy duty applications. Trapped key interlocking is a tried and tested method of mechanically safeguarding dangerous machines and hazardous processes, and is suitable for use up to SIL 3 (EN/IEC 62061), Category 4 and PLe (EN/ISO 13849-1).

It is called "Trapped Key" as it works by releasing and trapping keys in a predetermined sequence. After the control or power has been isolated, a key is released that can be used to grant access to individual or multiple doors.



The “Company”

**am Gard**  
*pro*

**amGardpro** is the ultimate range of modular safety gate switch interlocks for heavy duty applications.

Its unique modular construction allows easy configuration and provides total electro-mechanical solutions for practically any safeguarding application up to SIL3 (EN/IEC 60261) Category 4 and PLe (EN/ISO 13849-1).



**am Gard**  
*S40*

**amGardS40** is a range of safety interlock switches, manufactured in 316 stainless steel. The range is modular in design, allowing a wide range of safety interlock switches to be configured to suit many industrial applications, including:

- Solenoid Locking Safety Switches
- Non Solenoid Tongue Switches, all with or without machine control

The range is supplied in enclosures sealed to IP69K making it suitable to be pressure washed at high temperatures and has a retention force of 10,000N, so it is ideal for ensuring guard doors are held closed until machines and/or processes are in a safe condition.



**am Gard**  
*nct*

**amGardnct** is a range of safety switches that utilise non contact technology.

Designed with IP69K housings, these robust, coded, non contact, safety proximity switches are long lasting and virtually maintenance free with a high level of misalignment making them ideal for guarding applications across a range of industries.



## The "Concept"

**tGard** is the new innovative approach to controlling access to hazardous machinery and equipment. It is a compact metal bodied system that enables the configuration of various safety products including electrical safety gate switches (with or without guard locking), mechanical trapped key interlocks, and electrical operator controls, either as separate devices or integrated into one device.

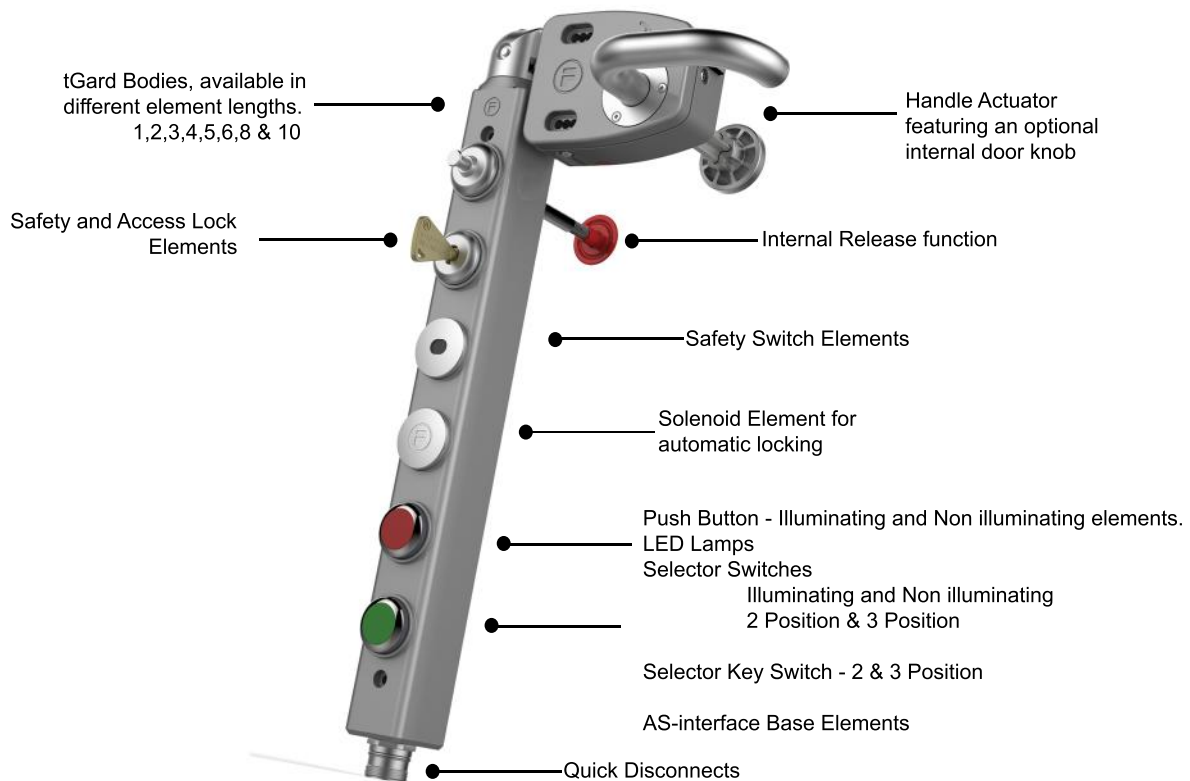
**tGard** offers "a customised safety solution, as standard" and is defined by a range of tGard elements, including selector switches, safety switches (solenoid and non solenoid), personnel keys, emergency release, push buttons, eStops, indicator lamps and a choice of operating handles for both hinged and sliding guard doors. These elements are simply selected and then assembled into a robust housing, suitable for mounting onto machine guarding, providing the user with an exact configuration specific to the application.

**tGard** is quick and easy to install and can be mounted directly onto a flat surface, doors or extruded aluminium profiles without the need for mounting plates or brackets. It is IP65 as standard and has been designed to be fully compliant with the new machinery safety standards.



### Customised Safety Solutions as Standard

- Combines interlocking and control in one device
- Simply Robust - All metal housing.
- Customisable - Select exact elements required.
- Future proof for future element expansion.
- Easy and fast to install.
- Quick Disconnects as standard (selfwire option available).
- Mounts directly to extruded aluminium frame.
- Fast on site handing change.
- Allows for door misalignment
- Compliant with all key standards.
  - EN ISO 14119.
  - EN ISO 13849 1 & 2
- Configured products include:
  - Safety Gate Switches.
  - Trapped Key Interlocks.
  - Operator Control.



**“Compliance”**

**t Gard “The interlock of choice”**

EU machinery safety standards are regarded as the most stringent in the world and are adopted via IEC on a global basis. Fortress strive to adhere to such standards from design phase through to final product delivery, so that our customers can have peace of mind that their product or system selection from Fortress complies with the very latest machinery safety standards, regardless of where in the world the equipment is deployed.

Our tGard range currently complies with the following ISO ‘Safety of Machinery’ standards:-

- EN ISO 14119:2013 Safety of Machinery - Interlocking devices associated with guards
  - Principles for design and selection
- BS EN 62061:2013 Safety of Machinery - Functional safety of safety related electrical, electronic and programmable electronic control systems
- 2006/42/EC The Machinery Directive

Extensive testing of all of our products is inherent in our design for industrial applications. In addition, all of the equipment within the tGard range has been independently assessed by TÜV SÜD test house to ensure compliance with EN ISO 13849-2:2012 and EN ISO 14119:2013.



Creation and understanding of such standards for machinery safety is also fundamental to Fortress (and hence our customers) and therefore we participate in various working groups and committees that are instrumental in generating and overseeing any changes in such standards. Knowledge is therefore a critical part of the Fortress service offer and we have several functional safety experts within our global applications team who are always on hand to offer advice on product selection, application and standards compliance.

**t Gard “The interlock of choice”**



Compliance = Knowledge + Understanding + Implementation  
 = (Standards Working Groups) + (Functional Safety Experts) + (Product / Application)

**Fortress - “The interlock of choice”**

**Our “Competency”**

**t Gard Applications Highlights**

**IT'S A GATE SWITCH (WITH AN INTEGRATED HANDLE)**

**It's a Gate Switch**

**Key Facts**

- 2 NC Contacts
- All metal construction
- Red Status LED
- IP65
- 1 NO monitor contact available
- Fits directly to aluminium extrusion guarding with just 2 bolts

To watch all of our product videos please visit our YouTube channel: [www.youtube.com/FortressInterlocks](http://www.youtube.com/FortressInterlocks)

**It's a Gate Switch with an Integrated Handle**

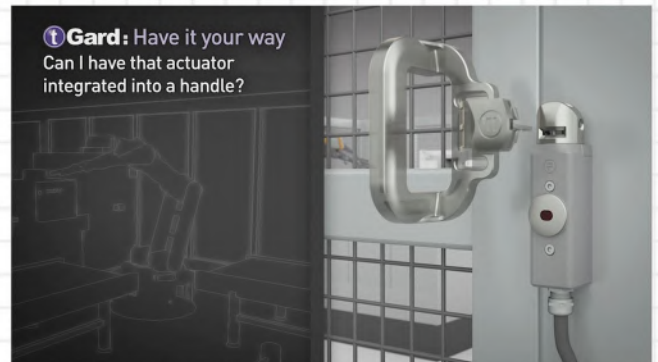
**Key Facts**

- Handle can be changed on site to suit right, left or sliding doors
- 4mm of misalignment
- Robust all metal design rated to 2.5KN retention force
- Fits directly to aluminium extrusion guarding with just 2 bolts

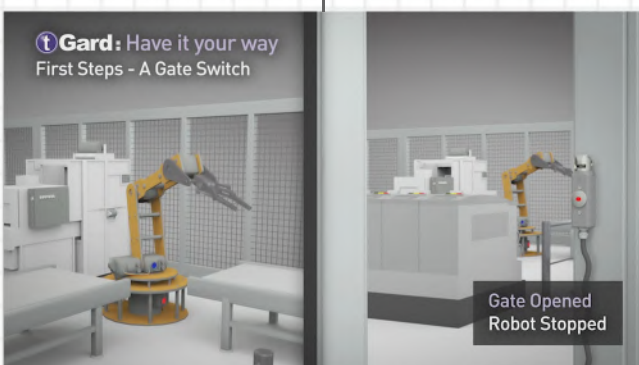
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Guard door closed, contacts made and machine runs.



Actuator for gate switch can be incorporated into an actual handle.



Guard door open, contacts broken and machine stops.



Handle fits easily on to the guard door and no additional hardware to hold door closed is needed.



**Our “Competency”**

**t Gard Applications Highlights**

**IT'S A SOLENOID GATE SWITCH**

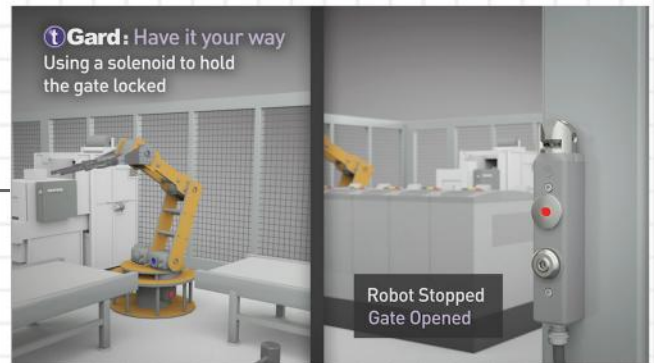
**Key Facts**

- Dual NC contacts for both head and solenoid wired in series or independently
- 1 NO monitor for head
- Power to Lock and Power to Un-lock available
- 1 NO monitor for solenoid
- Rated to 2.5KN retention force
- Red & Green status LED's

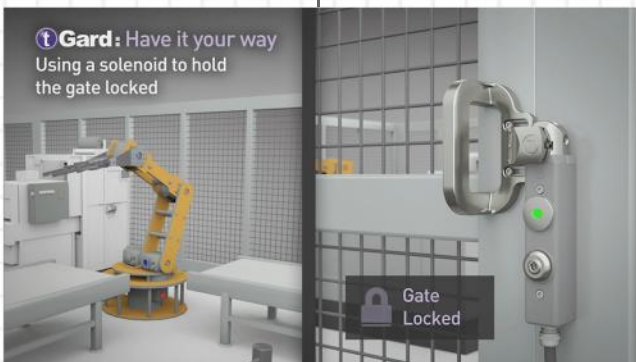
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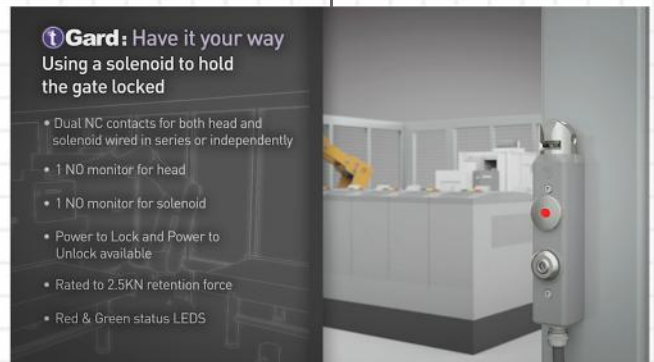
Gate switch can incorporate a solenoid ideal for machines with a run down cycle.



When guard door is opened, a second set of safety contacts are broken.



With guard door closed, contacts are made, solenoid is de-energised and machine can run.



When guard door is open, machine cannot re-start. Closing the door re-sets the gate switch and machine can be restarted at control panel.



When machine is at end of cycle, solenoid is energised, breaking safety contacts and machine stops.

**Our “Competency”**

**t Gard Applications Highlights**

**PREVENTING OPERATORS BEING TRAPPED ON THE INSIDE**

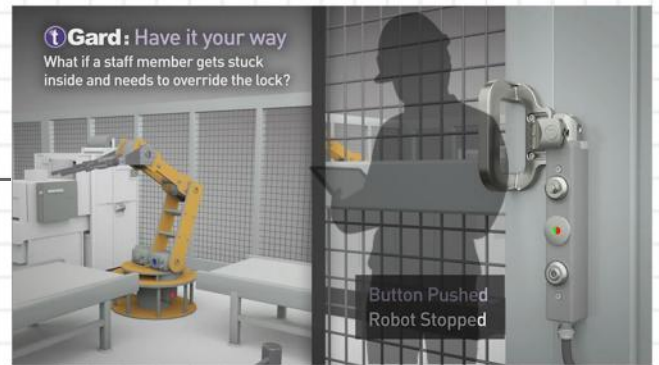
**Key Facts**

- Interlock can be fitted with Escape Release facility
- Escape Release acts directly on the NC contacts
- All lock mechanisms (solenoid and mechanical) overridden
- NC contacts held open until unit reset

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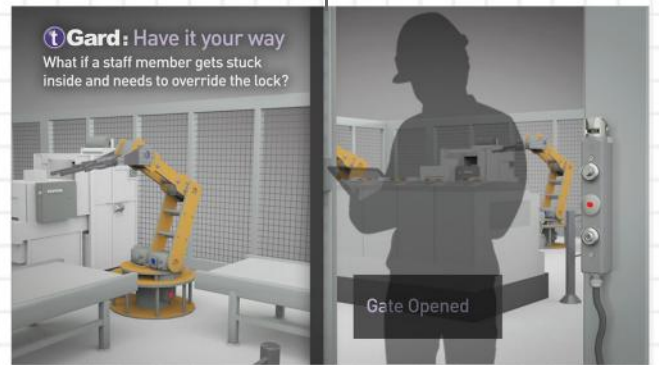
Guard door is open and operator enters cell.



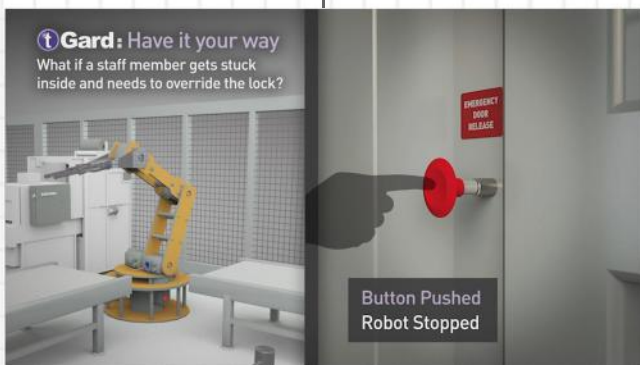
Interlock is overridden both electrically (stopping machine) and mechanically (allowing guard door to be opened).



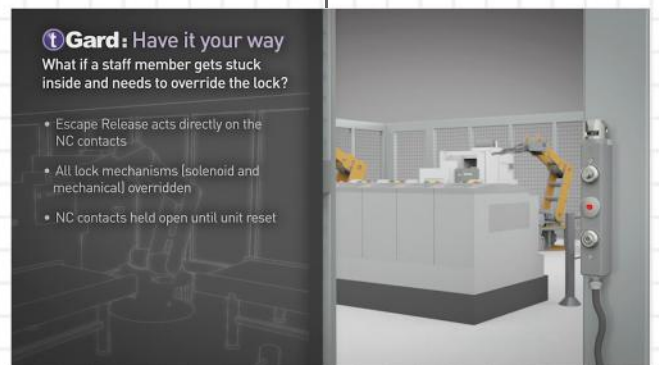
Guard door is closed, trapping operator inside cell



Machine is stopped, guard door is opened and operator exits cell.



Operator hits escape release button, overriding solenoid and stopping machine.



Interlock requires resetting to ensure door is closed and machine can restart.

**Our “Competency”**

**t Gard Applications Highlights**

**PREVENTING IN ADVERTENT START UP WITH SOMEONE INSIDE**

**Key Facts**

- Safety key acts directly on NC contacts
- Machine cannot start whilst operator has the key

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Solenoid controlled interlock is provided with a 'safety' key to protect operator inside guarded area.



Even if guard door is closed, the interlock switch cannot be re-set and so robot can not re-start.



Solenoid is energised, safety circuits interrupted to stop robot. Key can then be released and door opened.



Only when operator exits the guarded area and returns key to the interlock, can the door be closed and locked.



Operator takes key inside guarded area and retains the key in his pocket.



With key back in place, door is closed and locked and robot restarted.