



LAUNDRY MACHINERY SAFETY

A GUIDE TO SAFELY MANAGING INDUSTRIAL LAUNDRY EQUIPMENT

GOOD PRACTICE GUIDANCE | ENGINEERING MANAGEMENT

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INTRODUCTION

Industrial laundry processes are critically reliant on people. However, many, if not all these processes utilise some form of equipment. The suitability of the equipment provided can have a major impact (positive or negative) on the effectiveness of the processes and consequently the success of the business.

'Suitability' includes many aspects including design, testing, installation, maintenance, product finish, energy usage, cost of ownership and safety (and more). Where the equipment is suitable and meets the needs of the business, operational effectiveness and profits may be increased. Conversely, unsuitable equipment may lead to higher costs, increased downtime, poor product quality and severe injury.

Every employer has a duty under the Health and Safety at Work Act 1974 section 2.2.a for "the provision and maintenance of plant and systems of work that are, so far as is reasonably practicable, safe and without risks to health". The Provision and Use of Work Equipment Regulations 1998 (PUWER) provide further details of this duty and how to comply with the regulations.

The employer's duties under health and safety law begin no later than the point at which the work equipment arrives on site and would include ensuring the equipment can be safely unloaded from its transport, installation and commissioning, safe operation and maintenance.

Leaving consideration of what needs to be done to meet legal requirements until installation or later is frequently both problematic and expensive. In most cases, it is far more effective to start as early as possible in the process to ensure that your needs are fully integrated and can be delivered smoothly. This helps to ensure the business benefits anticipated from the provision of the equipment can be delivered.

This industry guide has been created to detail some of the key elements to be considered when procuring new equipment. This includes an introduction to the main legislative and regulatory requirements for work equipment and may provide some pointers for assessing existing work equipment retrospectively.

RESPONSIBILITIES

Clearly defining the roles and responsibilities is vital for the management of machinery safety in laundries. Please use the below as a general guide.

Employers as the Statutory Duty Holders are responsible for ensuring that the safety standards are implemented, including the provision of appropriate resources and competent appointments.

General/operations managers/directors are responsible for ensuring that there is a clear allocation of responsibility for machinery safety at the site and that persons given this responsibility are competent having the relevant skills, training, knowledge & experience. They are also responsible for monitoring progress with the actions identified from any assessments such as The Provision and Use of Work Equipment Regulations 1998 (PUWER).

Those purchasing equipment are responsible for ensuring that the minimum safety requirements are implemented and that competent persons have vetted the equipment according to the BS EN ISO 10472 suite of standards.

H&S Managers (or equivalent) are responsible for monitoring that the requirements are met and that any gaps are highlighted to the Managing & Production/Operations Directors. Engineering managers, line/ managers, including hygiene managers, are responsible for assessing equipment under their control, making sure that prestart checks are completed and ensuring that the isolation and lock-off procedure for their staff is robustly implemented. This includes regular, documented auditing of the controls.

Employees are responsible for ensuring that the requirements of this standard and guidance as it relates to them are implemented to the best of their ability.

GENERAL GUIDANCE FOR NEW MACHINERY

PLANNING STAGE

When purchasing industrial laundry equipment, the following aspects need to be considered:

- Carefully assess the need for the equipment - consider current requirements in line with your budget and then review any future development plans.
- Explore all available options – there is a range of experts within the TSA Knowledge Networks who can provide advice and help you make informed choices.
- View and explore similar installations at other laundry sites.
- Consider whether the introduction of this equipment could indirectly create or increase hazards such as manual handling or relating to workplace transport.

SELECTING THE EQUIPMENT

- Establish characteristics and performance criteria for the equipment; size of machine, batch size, power, speed of operation, what it needs to process and quality of output etc.
- Identify selected suppliers and commence the tendering process; seek advice on how to construct the tender document and how to evaluate the responses.
- Ensure that compliance with all current relevant legislation is a requirement of the equipment specification. This would typically include CE or UKCA compliance/markings and the supply of a declaration of conformity that shows which directives/standards are applicable. This would include the machinery directive as a minimum but there are usually more. Increasingly these may include environmental requirements. This can all be complicated so don't be afraid to ask for advice if you need it.
- Other compliance requirements may apply to certain specific equipment, e.g., the Medium Combustion Plant Directive (MCPD) for boiler emissions and the Pressure Vessel Regulations (updated) for all pressure vessels and their distribution system components.

MAKING THE DECISION TO PURCHASE EQUIPMENT

- Examine/compare all quotation details, e.g., price, specification, performance, warranty
- Choose your preferred supplier, negotiate price, terms and conditions
- Consider different options and balance out the commercial and practical advantages in taking responsibility for the safety aspects of the design of the machinery on or after installation as you may be accepting to take on expensive and/or difficult works that ought to be completed by the manufacturer. In

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any instance, think carefully and document the responsibilities together with the supplier as detailed as possible.

- Review specifications, agree on timelines for delivery, installation and commissioning, etc.
- Confirm if third-party sub-contractors will be involved and ensure that risk assessments and method statements are completed and signed off correctly along with permits to work, all in accordance with the HSE management of contractors on-site guidelines. Depending on the size and nature of the installation project, the Construction (Design and Management) Regulations (CDM) may apply.

ISO 10472 SUMMARY - THE SAFETY REQUIREMENTS FOR INDUSTRIAL LAUNDRY MACHINERY

ISO10472 Parts 1 – 6; 2008 Guidance Document for Laundry Owners (first draft)

Introduction

The BS EN ISO 10472 pts 1 – 6; 2008 suite of standards is specific to the Safety Requirements for Industrial Laundry Machinery globally. The standard has been in existence for some years, having superseded the 1997 version and it is the responsibility of the machinery manufacturers to comply with the content of this standard including all informative and normative references, so that the machine qualifies for CE or UKCA marking and all other such marks globally.

The technical design level is to the very highest specification and covers the total requirements for all aspects of manufacturing and operational safety.

The manufacturers and distributors must be cognisant of these requirements such as to present and guarantee only compliant equipment to their customers.

This Guidance Document provides an essential brief to the content of each part of the standard in order that the statutory requirements for PUWER compliance may be understood by the laundry owner who as the duty holder, is ultimately responsible for the safe operation of the equipment and the health and safety of operatives.

This HSE document provides a useful summary of PUWER compliance requirements.

Introduction to machinery safety - <https://www.hse.gov.uk/work-equipment-machinery/introduction.htm>

Summary – BS EN ISO 10472 Suite of Standards

ISO 10472 is a harmonized standard with a presumption of compliance with the Machinery Directive (now the Machinery Regulations since June 2023) and associated regulations concerning CE and UKCA marking, Functional Safety Standards, PUWER and the Supply of Machinery (Safety) Regulations. The Machinery Directive was revised shortly after the 2008 version of the standard was published and consequently Annex ZA, which appears in each part of ISO 10472, was reviewed to ensure that this presumption is still valid.

Each of the parts 2 – 6 are specific to the machine type, whereas part 1 identifies the common requirements; there are comprehensive references both normative and informative covering all technical disciplines and the relevant standards/regulations.

There may be some fine-tuning of the latter to satisfy national variances.

The six parts refer to:

1. Common requirements
2. Washing machines and washer extractors
3. Washing tunnel lines (CTW) including component machines
4. Air dryers (comprising tumble dryers, tunnel finishers and cabinet dryers)
5. Flatwork ironers, feeders and folders
6. Ironing and fusing presses

Introduction (taken from the standard)

This standard is intended to instruct the designer of industrial laundry machinery systematically, focusing on the type of machine, the relevant essential safety requirements, and suggesting possible state-of-the-art safety solutions.

The extent to which hazards are covered is indicated in the scope.

The manufacturer's attention is drawn to the fact that machinery should comply as appropriate with ISO/TR12100 parts 1 and 2 for hazards which are not specifically referred to in any part of ISO 10472. All examples given represent the current state of the art.

Equivalent solutions are acceptable, provided they attain at least the same safety level.

Scope (taken from the standard)

The individual parts of the standard identify all significant hazards associated with laundry machinery designed for use in industrial laundry premises; this may also include hotels, hospitals and prisons. Dry-cleaning presses and garment presses are also included.

The individual parts complement the basic requirements laid down in ISO/TR12100 parts 1 and 2. They give guidance to the designer on assessing the risks associated with the hazards (see EN 1050) and on selecting measures to attain the required safety level.

"Use of machinery" comprises both intended use and reasonably foreseeable misuse.

ISO 10472 essential content of each part.

1. COMMON REQUIREMENTS

Whereas parts 2 – 5 reference specific detail of the machine type, part 1 covers all general types of hazard, e.g., mechanical, electrical, thermal, noise, emissions, ergonomic, component or power failure and maintenance procedures, which must be risk assessed by the manufacturer and preventative measures implemented.

A description of all such hazards along with relevant normative references and check-list tables are provided for the manufacturer to explain to the user.

The normative references and informative bibliography are generally of a high technical level and outside the scope of the user's comprehension; it is for this reason that CE and UKCA marking exist to prove that the manufacturer has addressed and complied with all relevant standards requirements.

Particular reference is also given to the manufacturer's instruction manual requirements and the provision of warning signs.

2. WASHING MACHINES AND WASHER EXTRACTORS

In addition to all generic aspects of part 1, part 2 gives specific detail on the hazards associated with manual and automatic drum doors, cage rotation, load imbalance and entrapment between the moving drum and the rigid frame. Particular reference is made to biological hazards, barrier machine operation, tilting (backward and forward) machines and manual and conveyor-assisted loading/unloading.

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There is also specific information concerning machine use and requiring that the manufacturer shall provide in the instruction handbook detailed information as required in clause 5 of this part of ISO 10472 on:

• testing of brake;	• hypochlorite corrosion;
• maintenance of cage door locking means;	• explosive atmosphere;
• door opening velocity;	• disinfection effectiveness;
• out-of-balance test;	• water supply;
• safety measures for falling loads;	• use of supports;
• decision if IEC 335 or EN 60204-1 applies;	• prevention of fallback;
• minimum water level;	• overspeed test and acceptable overspeed;
• viewing panels;	• crushing hazard against building structure;
• suitable processes	• overturning

3. WASHING TUNNEL LINES INCLUDING COMPONENT MACHINES

This part of covers, together with ISO 10472-1, the most significant hazards associated with continuous tunnel washer lines including component machines such as:

- continuous tunnel washing machines
- squeeze presses or centrifugal extraction machines
- transfer conveyor systems
- automatic transfer tumblers
- loading or unloading system interfaces
- access platform and ladders.

Information concerning machine use requires that the instruction manual must include the following details:

• guard at loading position;	• fire and explosion hazard;
• access procedure;	• disinfection;
• mechanical supports/entry hazards;	• water supply.
• out-of-balance test;	• warning signs reference entry to washer and entry to squeeze press.
• tumble dryer unloading;	

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Whilst not referenced in the current standard, there is the TSA Code of Practice for the Safe Operation of Continuous Tunnel Washers which has been adopted by manufacturers and users globally as the industry code of practice. This covers all the design and operational elements referenced in ISO10472.

4. AIR DRYERS

The various features of tumble dryers, whether fixed, tilting, pass through or rotating (load/unload) are all covered in this part and the instruction manual must include reference to:

- clearing blockages, entry into machine
- tilting tumble dryers - installation of foundation bolts
- decision if IEC 335 or EN 60204-1 applies
- instruction about entry
- noise reduction
- combustion of loads - potentially explosive loads
- exothermic loads
- aggressive chemicals.

There is also considerable detail given to the hazards of fire/explosion, spontaneous combustion, power-operated doors, tilting machines and the ergonomics of loading/unloading as well as the danger of the rotating cage.

Concerning tunnel finishers, the key references to hazards include the hanger screw or chain/peg conveyor, entry guarding and the steam spray system.

The TSA Tunnel Finisher Guide references all these hazards.

5. FLATWORK IRONERS, FEEDERS AND FOLDERS

This part of ISO 10472 is the most complex, covering together with ISO 10472-1, significant hazards associated with flatwork ironers, feeders and folders, which form combined lines, often with a mixture of manufacturers' equipment such as:

- cylinder and bed ironers for flatwork finishing having a contact area (for bed ironers under pressure) > 0,25 m²
- flatwork feeding machines for the automatic feeding of flatwork into bed or cylinder ironers, or directly to folders
- flatwork folding machines for the automatic folding of flatwork in association with cylinder and bed ironers

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- folding machines for the automatic folding of small pieces (excluding continuous roller towels)
- multi-function machines.

Considerable detail is given to entrapment, hot surfaces, fumes, etc and the instruction manual must refer to:

• side guards;	• guard for floor pit;
• connection of feeder;	• decision if EN 60204-1 or IEC 335 applies;
• release of entrapped persons;	• flexible cable;
• reclothing procedure;	• residual thermal hazard;
• notice concerning access;	• thermal hazard from ironed work;
• maintenance of clutch;	• ignition of work;
• guard between feeding machine and ironer;	• thermal oil-heating information.

6. IRONING AND FUSING PRESSES

This part of ISO 10472 covers, together with ISO 10472-1, the most significant hazards associated with ironing and fusing presses used in the laundry, garment and dry-cleaning industry, in particular:

- scissor presses
- cabinet presses
- drawer presses
- rotary presses (carousel) and other presses with multiple bucks.

It is worth noting that in many laundries, these items of equipment may be quite old and their design not compliant with the current standard. Where there is doubt, a risk assessment should be undertaken; it would be useful to obtain a current sample instruction manual which must reference the following key points:

- operating a rotary cabinet machine
- release of entrapped person
- warning notice for access to machine
- pressure mat, guarding
- mechanical support for head
- operating surfaces
- environmental heat
- harmful fumes
- lighting
- warning signs should signify flexible covers and uncovered hot surfaces.

ISO 10472 STANDARD REVIEW; CURRENTLY IN PROGRESS

Since 2008, there have been considerable developments in the technology, size and operating characteristics of all industrial laundry equipment, necessitating the full technical review of all parts of the standard, which is currently in progress by the ISO Technical Committee. This does not affect or negate the need to comply with the current version. Publication of the reviewed standard as a prEN is anticipated during 2024 and will enable national standards bodies to address the new content.

The following outlines the requirements for review.

Part 1 - Common requirements; there have been many changes to existing references and the AI developments realise integral production system controls require addressing.

Part 2 - Washer extractors; the increased size of washer extractors and the extract speed to which they operate has realised issues with the current standard. Associated chemical dosing systems and loading systems also now require review.

Part 3 - Continuous Tunnel Washers (CTWs); their increased size and the change in design of presses, centrifugal extractors and tumble dryers require compatibility with the current standard to be reviewed. Loading and discharge systems also require inclusion. The Confined Spaces Regulations must also be included within the standard in order to address the extreme maintenance requirements in the case of machine entry, reference TSA industry CoP for the safe operation of continuous tunnel washer systems.

Part 4 - Air Dryers (Tumble Dryers and Tunnel Finishers); have developed in terms of size, automatic controls and energy performance hardware, which affects their structural design. Loading stations and conveying systems to the tunnel finisher and conveyor/storage prior to automatic folding equipment should be included.

Part 5 - Ironers and Ironer lines (combined feeder/ironer/folder and conveyors); operating speeds are now much greater and can reach 60+ m/min. The current standard must be reviewed with this in mind. It is also important to consider the combined equipment requirement for the interlocking under E-Stop and Re-Start conditions for loading stations, feeders, ironers, folders, conveyors, packaging/wrapping equipment, etc.

Part 6 - Presses, formers, automatic coat and shirt press units; the operating techniques for all concerned have been significantly transformed through technical development.

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The ISO technical committee has now added parts 7 and 8 to the suite, which address flatbed conveyors and monorail bag conveyor systems.

Equipment manufacturers, suppliers and textile service companies, the users of such equipment, are duty bound to comply with this standard in accordance with the Machinery Directive, duty of care (PUWER), the Management of Health and Safety Regulations and Conditions of Sale. However, it is the user who is ultimately responsible and culpable in any event. Whilst the manufacturers are necessarily bound to action and succeed at the outset with standards compliance, it is the user textile service companies which have the categorical requirement as duty holders to implement and ultimately comply with the content and practices stipulated within the standard.

EQUIPMENT INSTALLATION

- Prepare the business for all elements of disruption during the time of the installation, testing and optimisation.
- Following the successful installation and commissioning of the equipment, issues may arise which require corrective action. Commonly referred to as a snagging list, the items should be agreed upon and a record kept confirming the corrections completed. These may not be serious enough to prevent the equipment from being put into operation, but in the process of training operators and engineers, all parties must be made fully aware. However, if health and safety, performance or quality are compromised then normal operation should be delayed. Payment terms should have been constructed such that the final proportion is not paid until all issues have been corrected and the handover is completed.
- Use the performance criteria and characteristics that you established at the tendering stage and included on the purchase order as a reference for the snagging list to avoid any misunderstanding.
- As the Duty Holder, the equipment is now the responsibility of the buyer/owner.

ONGOING MAINTENANCE AND OPTIMISATION

- Most equipment installations in industrial laundries are bespoke. That means the responsibilities for maintenance and care can sometimes vaguely overlap between parties. Agree the roles and responsibilities as clearly as possible for the ongoing maintenance and care of the equipment.
- Having clear terms can help promote constructive engagement between relevant parties.
- Suppliers of machinery to the UK must provide a user manual in English. This should include maintenance requirements. Maintaining work equipment in accordance with the manufacturer's instructions is a requirement of PUWER, but you may decide to go beyond these requirements if that is appropriate for your operations.
- Be aware that some maintenance activities may require specialist technical competency that requires outsourcing.

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GENERAL GUIDANCE FOR EXISTING MACHINERY

PUWER (PROVISION AND USE OF WORK EQUIPMENT REGULATIONS)

The Provision and Use of Work Equipment Regulations commonly known as PUWER, place duties on people and companies who own, operate or have control over work equipment, whether owned by them or not.

For further information see <http://www.hse.gov.uk/pubns/indg291.pdf>

Open learning guidance can be found at: <http://www.hse.gov.uk/pubns/priced/puwer.pdf>

RISK ASSESSMENTS

All machinery must be assessed to ensure it is safe to use and complies with the relevant essential health and safety requirements defined in the Machinery Directive/Regulations. The risk assessment must cover interventions including set up, breakdowns, cleaning & maintenance as this is when the vast majority of accidents occur. Actions identified from the assessment must be implemented on a prioritised basis focussing on those machinery interventions which could result in irreversible injuries. The action plan must be monitored and reviewed regularly.

PUWER Regulation 6 requires work equipment to be inspected at suitable intervals where it is exposed to conditions which could cause deterioration (e.g. following cleaning where guarding is removed). It also requires inspection following work which may have jeopardised the safety of the work equipment (e.g. following installation, major modifications, known or suspected serious damage or a substantial change in use).

The purpose of an inspection is to identify whether work equipment can be operated, adjusted or maintained safely - with any deterioration detected and remedied before it results in a health and safety risk. The need for inspection and inspection frequencies should be determined through risk assessment.

Work equipment must be inspected if the risk assessment identifies any significant risk to operators and others from the equipment's installation or use. The frequency of the inspection should be determined via the likelihood and consequences of the potential production.

Work equipment that requires inspection should not be used, unless we know the inspection has taken place. Where it leaves your undertaking or is obtained from another (e.g. a hire company) it should be accompanied by physical evidence of the last inspection, such as an inspection report or, for smaller items of equipment, some form of tagging, colour coding or labelling system.

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The result of the inspection should be recorded, and this record should be kept at least until the next inspection of that equipment. Records do not have to be made in writing but, if kept in another form (e.g. on a computer), these should be held securely and made available upon request.

Who should carry out the inspection of work equipment?

Equipment can be inspected by anyone who has sufficient knowledge and experience of it to enable them to know:

- what to look at
- what to look for
- what to do if they find a problem

People should be trained on what to look for and what action to take when they find a problem. This should be documented. A simple safe system of work would be sufficient in the majority of cases.

The necessary level of competence will vary for inspections, according to the type of equipment and how/where it is used. This should be determined taking account of:

- the manufacturer's recommendations
- industry advice
- sites experience of the equipment, its use, the particular factors of the workplace and the people using the work equipment.

Managers and team leaders responsible for staff using work equipment should validate the checks occasionally as part of their monitoring of systems and procedures. Validation means physically checking a selection of the checks to make sure they have been carried out properly. This validation must be recorded.

SECURITY OF ACCESS VIA PANEL DOORS AND REMOVABLE COVERS

Following recent developments concerning a Health and Safety Executive visit to an industrial laundry, a review of the security of access to the panel doors and covers of machines, notably flatwork feeder, ironer and folder lines, has been undertaken. This has revealed a variety of systems and mechanisms in place, all of which are age, machine type and manufacturer-dependent, as well as identifying inconsistencies which are difficult to justify when questioned by HSE or indeed our industry experts.

The HSE has advised TSA of their current focus on industrial machinery guarding in general, taking a particular view that the degree of severity of hazard exposed by removing access doors/covers should define, by increasing security, the required system, e.g., engineers key (T-key), specific tools (Allen/Hex/Torx), lockable catch or hasp, interlock system, total isolation by lock off and tag.

TSA has worked in conjunction with the TSA H&S Steering Group, the industry suppliers with support from HSE to understand machinery safety requirements to generate this guidance for its Members. The objective of the guidance is to help our members navigate many variations across our industry, assess their machinery and enable their legal compliance with PUWER.

The requirement for access doors and covers on all types of industrial and commercial laundry machines varies considerably and the security system used to prevent accidental/unauthorised access must be of the correct type. This guidance outlines those requirements which are typical for all machines installed in industrial laundries which, being classified as factories, are governed by the Health and Safety Executive under the Health and Safety at Work etc Act (HASAWA) 1974.

Other legislation such as the Supply of Machinery Safety Regulations 2008, the BS EN ISO 10472 Safety Requirements for Industrial Laundry Machinery (including all normative and informative references), through to the responsibilities of the owner/user as the Duty Holder under PUWER (the Provision and Use of Work Equipment Regulations) is applicable to all equipment.

It is the user/owner who is required to practise a duty of care towards their operatives and to always ensure their safety, whilst operating equipment. This is clearly defined in this HSE guide, Introduction to Machinery Safety.

<https://www.hse.gov.uk/work-equipment-machinery/introduction.htm>

Access by the opening of doors or the removal of covers may be required for specialist cleaning, maintenance, fault correction, the observation of work (garments, linen, towels, etc) in progress, or the removal of fallen or tangled items. Accordingly, the designer/manufacture should foresee and define the potential reasons for access and ensure that the security of the opening/removal function is assured by the correct security mechanism.

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The general rule is:

1. If access is required during normal operation for whatever reason and this exposes a hazard, then electrical interlocking with time delay is used to govern safe access by turning off the machine and eliminating the hazard.
2. If infrequent access is required for specific purpose(s), to be undertaken by a competent person, the hazard, the security mechanism and its control system should be clearly defined:
 - identification and notice of Danger clearly displayed on the door or cover
 - the correct type of lock requiring a special tool to open or remove
 - the controlled availability of the lock opening tool, its management and log
 - the severity of Danger may prohibit access unless the machine is isolated

This will initially take the form of a risk assessment in order to qualify and quantify the hazard and ensure that its risk is eliminated or reduced. The design specification should take due regard of all relevant standards, codes of practice and the recommendations of component manufacturers.

The authorisation and control procedures should be strictly managed and recorded, with only identified competent personnel able to gain access to undertake work.

Removable covers on CTWs, hinged doors on ironers, feeders and folders, electrical control panel hinged doors, CTW-fenced compound access doors, cover plates on tumbler filter screens and conveyor feed bands access doors/covers are typical examples.

The opening/closing/removing mechanisms and the specification of the security devices should reflect the danger of the exposed machinery or components e.g., electric shock, entrapment, heat via contact/radiation/convection, slip, trip or fall, etc.

The person gaining access and undertaking the work should be educated, trained and competent, so as to manage and control the entire procedure safely and without risk to themselves or others both during and following the completion of the procedure.

The availability and use of any key required to open a cover or door, regardless of its type, must be strictly controlled and the competent user must not share the key nor leave the accessed panel at any point whilst it is open.

A log should be held for each machine and the access event(s) detail recorded briefly with date and time. All operatives involved in the use of the machine will have received full, certificated training and this should include awareness of the need to access panels and that this can only be done by the competent person.

The requirements for electrical control panels and any other panels which house live, exposed electrical components to afford the required security against electric shock are clearly defined by BSEN 60204, referenced in the ISO 10472 standard and are NOT included in this guidance document.

Recommendations for Managing Panel Access and Guarding

Various industrial laundry machines have been examined and it is evident that the degree of hazard and the security of access to panels, side-frames, CTW sub-frames, etc is afforded and controlled in numerous ways. It will be difficult to implement a common methodology to all existing machines, but it is recommended that the control of doors and panel access is risk assessed as described above and the following measures addressed immediately.

- Identify and fit a notice of Danger clearly stating the hazard.
- Fit the correct type of lock requiring a special tool to open.
- Implement controls for the security of the tool, its management and log of use.
- If the hazard severity prohibits access without isolation, this must be stated.

Going forward, the BS EN ISO 10472 suite of standards is currently under review and this subject will be addressed specifically for all new machines to adopt a specific standard for access security. The panel covers and doors on all machines should be opened (with the machine shut down and electrically isolated) and a Risk Assessment made of the hazard revealed.

Risk assessment will reveal various Hazards, the severity of which will determine the ability of the door/cover to be opened safely or NOT.

The procedure for controlling the availability of the Engineer's panel door/cover access key or tool must be in place and authorised by senior management. Engineers must be educated, trained and competent in accessing machine panels.

Signs can be custom-made from online suppliers such as the examples below.

<https://www.safetysigns4less.co.uk/>
<https://www.brady.co.uk/signs/machine-safety>

Note: TSA is not affiliated or commercially linked to the above-mentioned suppliers. These are provided just for example.

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Examples of what is behind the panel and the corresponding label (for illustration purposes only) to be fixed to the panel door/cover:



HOT SURFACES
OPEN WITH
CAUTION



ELECTRICAL COMPONENTS
OPEN WITH CAUTION



MOVING PARTS
TURN OFF,
ISOLATE AND LOCK-OFF
BEFORE OPENING

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Supply of Machinery Safety Regulations 2008 (as amended), the Essential Health and Safety Requirements (EHSR's) state: (1.4.2.1) Fixed guards must be fixed by systems that can be opened or removed only with tools; Their fixing systems must remain attached to the guards or to the machinery when the guards are removed; Where possible, guards must be incapable of remaining in place without their fixings.

The reference to tools is to try and ensure that removal is only undertaken by authorised/competent persons, so any system should require a specific tool, and one that cannot be easily improvised (for example fasteners with a straight screwdriver slot are inappropriate as other implements could be used to open them, such as steel rules, table knives and so on). Typically, suitable fasteners will include various types of bolts or screws (allen/hex/torx). Any such fixing should remain attached to the guard or to the machine itself.

TRAINING AND COMPETENCE

Employees required to lock off equipment must be trained on a detailed isolation and lock off procedure which must include (this list is not exhaustive):

- When the isolation and lock-off procedure must be used
- How to isolate and lock different forms of stored energy
- Who is authorised to conduct the isolation and lock-off
- When a tag-out device must be used
- The testing of equipment following isolation & lock-off to ensure that it is effective
- The release of stored energy, where applicable
- Long-term lock-off and the use of pooled devices
- The procedure to be taken if a machine is left isolated in error
- The communication arrangements for shift handover; and
- The action to take prior to working if an isolator is damaged.
- All training must be recorded including an employee's signature and date of training.
- Training on the detailed isolation & lock-off procedure must be conducted every two years.

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ESSENTIAL CONSIDERATIONS FOR SELECTING AND MAINTAINING EQUIPMENT IN INDUSTRIAL LAUNDRIES

For many businesses, the procurement of large and or expensive machinery is not an everyday activity. Not everyone is going to be an expert and the consequences of getting it wrong can be severe. The combined knowledge of TSA Health and Safety Steering Group is available to draw on as needed.

TSA Health and Safety Steering Group’s main objective is to share and transfer knowledge on critical health and safety aspects. You may contact one of the Steering Group members for informal advice at a general level. TSA, its directors or its employees do not approve or vet suppliers for their competence and are not liable for any misinformation or misrepresentation of any kind as a result of informal advice among the steering group members.

Specifications/Requirements Checklist:

Installation Specification	<input type="checkbox"/>	Commission Test	<input type="checkbox"/>
Supply Specifications	<input type="checkbox"/>	Training Certifications	<input type="checkbox"/>
Supplier Contract	<input type="checkbox"/>	Compatibility (with other machinery & systems)	<input type="checkbox"/>
Purchase Contract	<input type="checkbox"/>	Machine Guarding	<input type="checkbox"/>
Equipment	<input type="checkbox"/>	Packaging Waste	<input type="checkbox"/>
Structural Integrity	<input type="checkbox"/>	Accurate Drawings	<input type="checkbox"/>

LAUNDRY MACHINERY SAFETY

A GUIDE TO SAFELY MANAGING INDUSTRIAL LAUNDRY EQUIPMENT



Main Services Scope:

- Electricity
- LPG
- Steam generation
- Water systems
- Effluent recycling
- Compressed air
- Hot water generation
- Domestic water/sewerage

Main Equipment Types:

- MIS
- Monorail systems
- CTWs
- Press
- Dryer
- Washer Extractors
- Ironer Lines
- Towel Folders
- Tunnel Finishers
- Garment Folders
- Wrapping/Packaging

Specific Examples:

- **Washer Extractors**
 - Load, cycle time, quality and extraction by test piece and real sample trial
 - Ergonomic load/unload and time assessment
 - Design, manufacture, delivery and component parts assessment
 - Trial to prove specification
 - SPC utility consumption pod
- **Ironer Lines**
 - Pod for speed range, working area and drying performance, finished quality for test and real samples
 - Prove no fabric damage
 - Demonstrate temperature turn-down response
 - Ironer design, manufacture, delivery and component assessment
 - Feeder/folder design, manufacture, delivery, component and productivity gain
 - Demonstrate trial to prove specification
 - SPVC utility consumption pod

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REFERENCES

http://ec.europa.eu/growth/sectors/mechanical-engineering/machinery_en

EU Guidance approved by the Machinery Committee Working Group

https://ec.europa.eu/growth/single-market/european-standards/harmonised-standards_en

List of all harmonised standards

<http://www.hse.gov.uk/work-equipment-machinery/index.htm>

HSE Work Equipment and Machinery Guidance



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