

## the law

### **England, Scotland and Wales**

Provision and Use of Work  
Equipment Regulations 1998  
(PUWER)

### **Northern Ireland**

Provision and Use of Work  
Equipment Regulations (Northern  
Ireland) 1999 (PUWER)

# Using Machinery Safely

Moving machinery can cause injuries in many ways:

- People can be struck and injured by moving parts of machinery or ejected material. Parts of the body can also be drawn in and trapped between rollers, belts and pulley drives.
- Sharp edges can cause cuts and severing injuries. Sharp-pointed parts can puncture the skin, and rough surface parts can cause friction or abrasion.
- People can be crushed either between parts moving together or parts moving towards a fixed part of the machine, wall or other object. Two parts moving past one another can cause shearing.
- Machine parts, materials and emissions (such as steam or water) can be hot or cold enough to cause burns or scalds. Electricity can cause electrical shock and burns.
- Injuries can also occur due to machinery becoming unreliable and developing faults or when machines are used improperly.

## What do I have to do?

Before you start using any machine, you need to think about what risks may occur and how these can be managed. You should therefore do the following:

- Check that the machine is complete, with all safeguards fitted, and free from defects. The term 'safeguarding' includes guards, interlocks, two-hand controls, light guards and pressure-sensitive mats. By law, the supplier must provide the right safeguards and inform buyers of any risks ('residual risks') that users need to be aware of and manage because they could not be designed out.
- Produce a safe system of work for using and maintaining the machine. Maintenance may require the inspection of critical features where deterioration would cause a risk. Also look at the residual risks identified by the manufacturer in the information/instructions provided with the machine and make sure they are included in the safe system of work.
- Ensure every static machine has been installed properly and is stable (usually fixed down).
- Choose the right machine for the job and do not put machines where customers or visitors may be exposed to risk.
- Note that new machines should be CE marked and supplied with a Declaration of Conformity and instructions in English.

Make sure the machine is:

- Safe for any work that has to be done when setting up, during normal use, when clearing blockages, when carrying out repairs for breakdowns and during planned maintenance; and
- Properly switched off, isolated or locked-off before taking any action to remove blockages, clean or adjust the machine.

Also, make sure you identify and deal with the risks from:

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- Electrical, hydraulic or pneumatic power supplies
  - Badly designed safeguards
    - These may be inconvenient to use or easily over-ridden, which could encourage your workers to risk injury and break the law. If they are, find out why they are doing it and take appropriate action to deal with the reasons/causes.

### **Preventing access to dangerous parts**

Think about how you can make a machine safe. The measures you use to prevent access to dangerous parts should be in the following order. In some cases it may be necessary to use a combination of these measures.

- Use fixed guards (secured with screws or nuts and bolts) to enclose the dangerous parts whenever practical. Use the best material for these guards—plastic may be easy to see through but can easily be damaged. Where you use wire mesh or similar materials, make sure the holes are not large enough to allow access to moving parts.
- If fixed guards are not practical, use other methods, such as interlocking the guard so that the machine cannot start before the guard is closed and cannot be opened while the machine is still moving. In some cases, trip systems such as photoelectric devices, pressure-sensitive mats or automatic guards may be used if other guards are not practical.
- Where guards cannot give full protection, use jigs, holders and push sticks if it is practical to do so.
- Control any remaining risk by providing the operator with the necessary information, instruction, training, supervision and appropriate safety equipment.

### **Other things you should consider**

- If machines are controlled by programmable electronic systems, changes to any programmes should be carried out by a competent person (someone who has the necessary skills, knowledge and experience to carry out the work safely). Keep a record of such changes and check that they have been made properly.
- Ensure control switches are clearly marked to show what they do.
- Have emergency stop controls where necessary, such as mushroom-head push buttons within easy reach.
- Make sure operating controls are designed and placed to avoid accidental operation and injury, use two-hand controls where necessary and shroud start buttons and pedals.
- Do not let unauthorised, unqualified or untrained people use machinery, and never allow children to operate or help at machines. Some workers, such as new starters, young people or those with disabilities, may be particularly at risk and need instruction, training and supervision.
- Adequate training should ensure that those who use the machine are competent to use it safely. Sometimes formal qualifications are needed, such as for chainsaw operators.
- Ensure the work area around the machine is kept clean and tidy, well lit, and free from obstructions or slip and trip hazards.

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## Dos and don'ts of machinery safety for workers

### Do:

- Check that the machine is well maintained and fit to be used—that is, appropriate for the job and working properly—and that all the safety measures are in place, such as guards, isolators, locking mechanisms and emergency off switches.
- Use the machine properly and in accordance with the manufacturer's instructions.
- Make sure you are wearing appropriate protective clothing and equipment required for that machine, such as safety glasses, hearing protection and safety shoes.

### Don't:

- Use a machine or appliance that has a danger sign or tag attached to it. Danger signs should only be removed by an authorised person who is satisfied that the machine or process is safe.
- Wear dangling chains, loose clothing or rings, or have loose, long hair that could get caught up in moving parts.
- Distract people who are using machines.
- Remove any safeguards, even if their presence seems to make the job more difficult.

### Case Study:

Scenario	What Caused It?
A company was prosecuted after a worker received horrific injuries when using a cross-cut saw, almost severed his left arm.	The nose guard had not been set correctly because the worker's training was inadequate. The worker had no previous experience and had only five minutes' training on the saw. This did not include any instruction about the saw guards and how to adjust them properly. In addition, the saw used was unsuitable for training purposes.