

Using work equipment safely



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Introduction

Every year, there are a number of accidents from using work equipment, including machinery. Many are serious and some are fatal.

This leaflet gives simple, practical advice on what you can do to eliminate or reduce the risks from work equipment. It covers all workplaces and situations where the Health and Safety at Work etc Act 1974 applies, including offshore installations. It is mainly for those who have responsibility (directly or indirectly) for work equipment and how it is used. If you are an employer, a manager, a supervisor or hire out equipment for use in the workplace, this leaflet will help you understand what you can do to reduce the chances of an accident happening.

Accidents not only cause human suffering, they also cost money, for example in lost working hours, training temporary staff, insurance premiums, fines and managers' time. By using safe, well-maintained equipment operated by adequately trained staff, you can help prevent accidents and reduce these personal and financial costs.

This leaflet does not give details about the law, but gives practical information about what you should do. For some operations you will need more detailed information. If you wish to build, modify or add equipment (for example to a production line) you will probably need to seek advice from a competent engineer or equivalent person who is aware of the relevant European standards and requirements. If you would like more information on the law, or on other publications which give you more guidance on selection, protection measures and the safe use of particular types of machinery or other work equipment, see the 'HSE publications' section.

What is work equipment?

Work equipment' is almost any equipment used by a worker at work including:

- machines such as circular saws, drilling machines, photocopiers, mowing machines, tractors, dumper trucks and power presses;
- hand tools such as screwdrivers, knives, hand saws and meat cleavers;
- lifting equipment such as lift trucks, elevating work platforms, vehicle hoists, lifting slings and bath lifts;
- other equipment such as ladders and water pressure cleaners.

What do I need to do?

- look at all the equipment in use, decide what can cause risks, and how.
- consider what can be done to prevent or reduce these risks.
- check whether any of these measures are in place already.
- decide whether more needs to be done.
- then do it!

The following information may help you decide what to do.

What risks are there from using work equipment?

Many things can cause a risk, for example:

- using the wrong equipment for the job, eg ladders instead of access towers for an extended job at high level;
- not fitting adequate guards on machines, leading to accidents caused by entanglement, shearing, crushing, trapping or cutting;
- not fitting adequate controls, or the wrong type of controls, so that equipment cannot be turned off quickly and safely, or starts accidentally;
- not properly maintaining guards, safety devices, controls etc so that machines or equipment become unsafe;
- not providing the right information, instruction and training for those using the equipment;
- not fitting roll-over protective structures (ROPS) and seat belts on mobile work equipment where there is a risk of roll over (Note: this does not apply to quad bikes);
- not maintaining work equipment or carrying out regular inspections and thorough examinations;
- not providing the personal protective equipment needed to use certain machines safely, eg chainsaws, angle grinders.

Identifying the risks

When identifying the risks, think about:

- all the work which has to be done with the equipment during normal use and also during setting-up, maintenance, repair, breakdowns and removal of blockages;
- who will use the equipment, including inexperienced workers, workers with language difficulties, new starters, people who have changed jobs within the company or those who may have particular difficulties, eg those with impaired mobility or poor readers;
- young people, who may be inexperienced and lack knowledge or awareness of existing or potential risks;
- workers who may act foolishly or carelessly or are likely to make mistakes;
- whether guards or safety devices are poorly designed and inconvenient to use or are easily defeated (this could encourage workers to risk injury);
- the type of power supply, eg electrical, hydraulic or pneumatic - each type has different risks and ways to control them.

What can I do to reduce the risks?

Use the right equipment for the job

Many accidents happen because people have not chosen the right equipment for the work to be done. Controlling the risk often means planning ahead and ensuring that suitable equipment or machinery is available.

Make sure machinery is safe

You should check the machinery is suitable for the work - think about how and where it will be used. All new machinery should be:

- CE marked;
- safe - never rely exclusively on the CE mark to guarantee machinery is safe. It is only a claim by the manufacturer that the equipment is safe. You must make your own safety checks;
- provided with an EC Declaration of Conformity (ask for a copy if you have not been given one);
- provided with instructions in English.

If you think that machinery you have bought is not safe DO NOT USE IT. Contact the manufacturer to discuss your concerns and if they are not helpful, contact your local HSE office for advice.

Remember, it is your responsibility as an employer or a subcontractor to ensure you do not expose others to risk.

Hiring out work equipment

If you hire out work equipment you are responsible for ensuring that the equipment is safe to use at the point of hire. You should also make reasonable attempts to find out what the equipment will be used for and provide advice on how it should be used. The safe use of the equipment is the responsibility of the person who hires it.

Guard dangerous parts of machines

Controlling the risk often means guarding the parts of machines and equipment that could cause injury. Remember:

- use fixed guards wherever possible, properly fastened in place with screws or nuts and bolts which need tools to remove them;
- if employees need regular access to parts of the machine and a fixed guard is not possible, use an interlocked guard for those parts. This will ensure that the machine cannot start before the guard is closed and will stop if the guard is opened while the machine is operating;
- in some cases, eg on guillotines, devices such as photoelectric systems or automatic guards may be used instead of fixed or interlocked guards;
- check that guards are convenient to use and not easy to defeat, otherwise they may need modifying;
- think about the best materials for guards - plastic may be easy to see through, but can be easily scratched or damaged. If wire mesh or similar materials are used, make sure the holes are not large enough to allow access to the danger area. As well as preventing such access, a guard may also be used to prevent harmful fluids, dust etc from escaping;
- make sure the guards allow the machine to be cleaned and maintained safely;

- where guards cannot give full protection, use jigs, holders, push sticks etc to move the workpiece.

Note: For some types of machinery such as those used in engineering, woodworking and agriculture, more detailed guidance is available which you should consult if necessary (see 'HSE publications' section). For interlocks and other safety controls there are strict standards that need to be satisfied and you may need to ask for advice from a competent engineer if you intend to install such devices.

Select the right controls

Some risks can be reduced by careful selection and siting of the controls for machinery and equipment, for example:

- position 'hold-to-run' and/or two-hand controls at a safe distance from the danger area;
- make sure stop and start buttons are readily accessible;
- ensure control switches are clearly marked to show what they do;
- make sure operating controls are designed and placed to avoid accidental operation, eg by shrouding start buttons and pedals;
- interlocked or trapped key systems for guards may be necessary to prevent operators and maintenance workers from entering the danger areas before the machine has stopped;
- where appropriate, have emergency stop controls within easy reach, particularly on larger machines so they can be operated quickly in an emergency;
- ensure that a machine can only be re-started following a stoppage by use of the start control. It should not be possible to re-start the machine simply by re-setting a device such as an interlock guard or trip bar.

Note: Before fitting emergency stop controls to machines that have not previously had them, it is essential to check that fitting them will not cause other risks. For example, some machines need the power supply to be on to operate the brakes. This power could be lost if the machine were to be stopped using the emergency stop control.

Use mobile work equipment safely

This is equipment that carries out work while travelling or that travels from one work area to another, for example tractors, trailers, ploughs and fork-lift trucks. Anyone riding on mobile work equipment needs protection from:

- falling out of the equipment. Fit cab guard rails, barriers (side, front or rear) or seat restraints;
- the equipment becoming unstable. Fit wider wheels or counterbalance weights to prevent the equipment rolling over. Fit roll-over protective structures (ROPS) and seat restraints;
- falling objects. Fit falling object protective structures (FOPS). Provide a strong cab or protective cage.

Do not carry people on work equipment unless it is designed for that purpose, except under exceptional circumstances, eg trailers used to carry farm workers at harvest time. Under these circumstances the mobile work equipment must have features to prevent people falling from it, such as trailers with sides and/or secure handholds.

Make sure hand tools are safe

Many risks can be controlled by ensuring hand tools are properly used and maintained, for example:

- hammers - avoid split, broken or loose shafts and worn or chipped heads. Make sure the heads are properly secured to the shafts;
- files - these should have a proper handle. Never use them as levers;
- chisels - the cutting edge should be sharpened to the correct angle. Do not allow the head of cold chisels to spread to a mushroom shape - grind off the sides regularly;
- screwdrivers - never use them as chisels and never use hammers on them. Split handles are dangerous;
- spanners - avoid splayed jaws. Scrap any which show signs of slipping. Have enough spanners of the right size. Do not improvise by using pipes etc as extension handles.

Make sure machinery and equipment are maintained in a safe condition

To control the risk you should carry out regular maintenance and preventive checks, and inspections where there is a significant risk. Some types of equipment are also required by law to be thoroughly examined by a competent person.

Inspections should be carried out by a competent person at regular intervals to make sure the equipment is safe to operate. The intervals between inspection will depend on the type of equipment, how often it is used and environmental conditions. Inspections should always be carried out before the equipment is used for the first time or after major repairs. Keep a record of inspections made as this can provide useful information for maintenance workers planning maintenance activities.

- make sure the guards and other safety devices (eg photoelectric systems) are routinely checked and kept in working order. They should also be checked after any repairs or modifications by a competent person.
- check what the manufacturer's instructions say about maintenance to ensure it is carried out where necessary and to the correct standard.
- routine daily and weekly checks may be necessary, eg fluid levels, pressures, brake function, guards. When you enter a contract to hire equipment, particularly a long-term one, you will need to discuss what routine maintenance is needed and who will carry it out.
- some equipment, eg a crane, needs preventive maintenance (servicing) so that it does not become unsafe.
- lifting equipment, pressure systems and power presses should be thoroughly examined by a competent person at regular intervals specified in law or according to an examination scheme drawn up by a competent person. Your insurance company may be able to advise on who would be suitable to give you this help.

Carry out maintenance work safely

Many accidents occur during maintenance work. Controlling the risk means following safe working practices, for example:

- where possible, carry out maintenance with the power to the equipment off and ideally disconnected or with the fuses or keys removed, particularly where access to dangerous parts will be needed;
- isolate equipment and pipelines containing pressurised fluid, gas, steam or hazardous material. Isolating valves should be locked off and the system

depressurised where possible, particularly if access to dangerous parts will be needed;

- support parts of equipment which could fall;
- allow moving equipment to stop;
- allow components which operate at high temperatures time to cool;
- switch off the engine of mobile equipment, put the gearbox in neutral, apply the brake and, where necessary, chock the wheels;
- to prevent fire and explosions, thoroughly clean vessels that have contained flammable solids, liquids, gases or dusts and check them before hot work is carried out. Even small amounts of flammable material can give off enough vapour to create an explosive air mixture which could be ignited by a hand lamp or cutting/welding torch;
- where maintenance work has to be carried out at height, ensure that a safe and secure means of access is provided which is suitable for the nature, duration and frequency of the task.

Instruct and train employees

Make sure employees have the knowledge they need to use and maintain equipment safely.

- give them the information they need, eg manufacturer's instructions, operating manuals, training courses and check they understand them.
- instruct them on how to avoid risks, eg check that the drive is not engaged before starting the engine/machine and do not use on sloping ground.
- an inexperienced employee may need some instructions on how to use hand tools safely.
- as well as instruction, appropriate training will often be necessary, particularly if control of the risk depends on how an employee uses the work equipment.
- only competent workers should operate work equipment.
- never assume an employee can use work equipment safely, especially if they have just started work, even if they have used similar equipment elsewhere.

Training may be needed for existing staff as well as inexperienced staff or new starters (do not forget temporary staff), particularly if they have to use powered machinery. The greater the danger, the better the training needs to be. For some high-risk work such as driving fork-lift trucks, using a chainsaw, and operating a crane, training is usually carried out by specialist instructors.

Remember, younger people can be quite skilful when moving and handling powered equipment, but they may lack experience and judgement and require additional supervision. The level of supervision needed will depend on how mature they are and whether they can work safely without putting themselves or others at risk.

What do the precautions mean in practice?

Accidents using the following equipment are common in small firms, but they can be prevented by following some simple rules.

Ladders

To prevent accidents:

- avoid working from ladders if possible;
- ensure ladders are securely placed and fixed and secure and stable during use;

- prevent the ladder from moving by tying it off securely, using an anti-slip device or asking someone else to foot it;
- avoid climbing with loads and attach tools etc to your workbelt;
- avoid overreaching or overbalancing;
- do not use poorly maintained and/or faulty ladders.

Remember many accidents involving ladders happen during short jobs. They are often used when it would be safer to use other equipment such as a mobile elevating work platform.

Drilling machines

To prevent accidents:

- always provide adjustable guards (adjusted to give maximum protection) for the chuck and spindle, or trip devices;
- provide adequate clamps or a suitable vice for the workpiece to prevent impact from violently spinning machinery.

Make sure operators:

- tie back hair which may be caught in rotating spindles, chucks or tools;
- wear a suitable coverall so no loose clothing can get entangled;
- remove rings, gloves, ties or scarves etc which may become entangled in the machinery;
- wear eye protection to prevent swarf being thrown into unprotected eyes;
- are trained to check guards and report faults promptly.

Fork-lift trucks

To prevent accidents:

- always use the correct fork-lift truck for the task;
- ensure the braking system is adequate;
- ensure operators, supervisors and managers are adequately trained;
- lay out the site to ensure the fork-lift truck can move safely without danger to pedestrians;
- remove any obstructions where possible or ensure they are clearly marked;
- fit seat restraints, where appropriate;
- fit visibility aids such as mirrors, where appropriate.

When operating a fork-lift truck:

- do not overreach or overbalance;
- avoid travelling on uneven or steeply sloping ground;
- do not travel too fast, in particular around corners;
- do not overload;
- lower the load before operating the truck;
- ensure adequate visibility to avoid collisions with pedestrians and objects;
- protect obstacles such as support columns, pipework or other plant with impact barriers;
- ensure each operator has site-specific instructions;
- ensure that it is inspected and serviced at appropriate intervals and thoroughly examined by a competent person at least every 12 months or at intervals set by the competent person.

HSE publications

Guidance on Regulations

Safe use of work equipment. Provision and Use of Work Equipment Regulations 1998. Approved Code of Practice and guidance L22 (Second edition) HSE Books 1998 ISBN 0 7176 1626 6

Safe use of power presses. Provision and Use of Work Equipment Regulations 1998 as applied to power presses. Approved Code of Practice and guidance L112 HSE Books 1998 ISBN 0 7176 1627 4

Simple guide to the Provision and Use of Work Equipment Regulations 1998 Leaflet INDG291 HSE Books 1999 (single copy free or priced packs of 15 ISBN 0 7176 2429 3)

The Work at Height Regulations 2005: A brief guide Leaflet INDG401 HSE Books 2005 (single copy free or priced packs of 10 ISBN 0 7176 2976 7)

Safe use of ladders and stepladders: An employers' guide Leaflet INDG402 HSE Books 2005 (single copy free or priced packs of 5 ISBN 0 7176 6105 9)

Lifting and mobile equipment

Safe use of lifting equipment. Lifting Operations and Lifting Equipment Regulations 1998. Approved Code of Practice and guidance L113 HSE Books 1998 ISBN 0 7176 1628 2

Safety in working with lift trucks HSG6 (Third edition) HSE Books 2000 ISBN 0 7176 1781 5

Rider-operated lift trucks. Operator training. Approved Code of Practice and guidance L117 HSE Books 1999 ISBN 0 7176 2455 2

Simple guide to the Lifting Operations and Lifting Equipment Regulations 1998 Leaflet INDG290 HSE Books 1999 (single copy free or priced packs of 15 ISBN 0 7176 2430 7)

Workplace transport safety: Guidance for employers HSG136 HSE Books 1995 ISBN 0 7176 0935 9

Engineering machinery

Safety in the use of abrasive wheels HSG17 (Third edition) HSE Books 2000 ISBN 0 7176 1739 4

Safety in the use of metal cutting guillotines and shears HSG42 HSE Books 1988 ISBN 0 11 885455 0

Woodworking machinery

Safe use of woodworking machinery. Provision and Use of Work Equipment Regulations 1998 as applied to woodworking machinery. Approved Code of Practice and guidance L114 HSE Books 1998 ISBN 0 7176 1630 4

Agriculture

Safeguarding agricultural machinery: Advice for designers, manufacturers, suppliers and users HSG89 (Second edition) HSE Books 1998 ISBN 0 7176 2400 5

Further information

For information about health and safety, or to report inconsistencies or inaccuracies in this guidance, visit www.hse.gov.uk/. You can view HSE guidance online and order priced publications from the website. HSE priced publications are also available from bookshops.

This leaflet contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do.

This leaflet is available in priced packs of 10 from HSE Books, ISBN 978 0 7176 2389 1. Single copies are free and a web version can be found at www.hse.gov.uk/pubns/indg229.pdf.

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