EFFECTIVE PURCHASING PROCEDURES FOR EQUIPMENT IN THE FOOD AND DRINK INDUSTRIES

INTRODUCTION

This guidance supplements the general HSE guidance *Buying new machinery* and *Safe use of work equipment* (see 'Further reading') and is aimed specifically at equipment purchasers in the food and drink industries. It will also be relevant to manufacturers and suppliers of such equipment.

Effective purchasing procedures can help employers meet their duties under the Provision and Use of Work Equipment Regulations 1998 (PUWER), through:

- only selecting equipment suitable to its intended use;
- specifying the safeguards required; and
- checking to see supplied equipment meets the specification.

The adoption of such effective purchasing procedures will generate market forces leading to design and supply improvements across the board.

Such improvements are particularly relevant to the food and drink industries as they have particularly high rates of reported injury and ill health compared to other industries. In 80% of cases the hazards which led to the injury could have been avoided by the purchasing employer ensuring new equipment was:

- suitable for its intended use;
- to current standards, incorporating currently known safeguards; and
- checked on delivery against such specification.

Individual purchasers are already reporting positive benefits from adopting such an ‘intelligent customer’ approach to suppliers. One industry survey has found equipment safety to be the commonest concern of prospective buyers of food equipment.

WHAT YOU NEED TO DO

If you are a purchasing employer, you have a duty to see that new work equipment you bring into use has been designed and constructed in compliance with regulation 10 of PUWER. This requires you to ensure such new equipment meets other UK legislation such as those which implement European Single Market Directives on product safety (see ‘The main legal requirements’ later in this leaflet).

Such product safety legislation requires suppliers to make and supply work equipment which conforms with the legislation’s essential requirements in respect of health and safety. But a purchasing employer can meet their own duties by adopting effective purchasing procedures which ensure that their suppliers have in fact met their duties.

If employers directly import work equipment into the European Union (EU) themselves, or build equipment themselves, then they will have to meet the duties on both an employer and those on a supplier.

HOW TO MAKE YOUR PURCHASING PROCEDURE EFFECTIVE

Step 1: Select work equipment which is suitable for its intended use in respect of health and safety

You should assess the hazards posed by your processing activity, not only during normal operations, but also importantly in food and drink processing from clearing blockages, cleaning, setting up and maintenance. For example, there may be special hazards from electric shock if the equipment needs to be hosed down.

You should also check that the equipment's level of hygienic design to deal with food safety risks matches your food safety risk assessment of Hazard Analysis Critical Control Points (HACCPs). The manufacturer has to foresee the likely food safety risks the machine may meet and design to a particular level of risk and/or specify the limitations of intended use.

When selecting which equipment would be most suitable, you should assess which offers most protection against the 12 risks which together cause over 80% of the industry's reported injuries and ill health. Table 1 indicates the main ways of reducing these risks by checking that equipment is suitable.

Safety representatives or employees should be consulted on changes to processes and can contribute from their operational experience.

You could also give suppliers a specification of the use and environment the equipment will operate in so they can match the equipment they supply to those needs.

Step 2: Specify clearly the health and safety, and hygienic design requirements for the supplier to meet

As the purchaser, you should specify that the supplier has to meet the UK legislation which implements relevant European Single Market Directives on product safety. You can also specify Harmonised European Standards which give a presumption of conformity to these Directives. It will help if purchasers' company specifications align with such European Standards wherever possible.

You should give particular priority to setting specifications for the equipment in Table 2 (on page 9). These are listed in rank order of involvement according to HSE-investigated accidents in the industry.

In general, longstanding UK safeguarding methods and guidance remain valid for new equipment and are being reflected in the developing Harmonised European Standards. However, purchasers should be cautious in adopting specifications from the current

draft Standards of dough moulding machines and most meat machines as the UK still has significant reservations over these, mainly in respect of safeguarding hopper access and other feed and discharge safeguards.

Purchasers should also note that, in the light of accident experience and following industry discussion, new UK safeguarding methods have been agreed for:

- manually lit, gas-fired ovens;
- some short-bed thermoform fill seal machines; and
- conveyors used in the food industry.

Step 3: Check that equipment supplied meets your specification and the supplier has met their legal duties

Ask the supplier how they have followed the principles required by the Single Market Directives of assessing the risks, eliminating or safeguarding risks (in that order), and covering any residual risks in the information to the installer and the user. The manufacturer has to draw up a 'technical file' for enforcing authorities verifying this approach which they may show to the purchaser upon request.

Check the instructions cover safe installation and maintenance; and especially for food and drink equipment, how to remove blockages and clean safely and effectively. Check all the requirements of a Harmonised European Standard have been followed if the manufacturer has declared that the product does meet such a Standard. Check the conformity assessment documentation (see page 6) and that the equipment carries the CE Mark (see page 7).

Assure yourself, from your own assessment and specification, that the manufacturer has met their duty to ensure the product is in fact safe. Significant defects could be reported to HSE.

HOW CAN HARMONISED EUROPEAN STANDARDS HELP?

Such voluntary Standards can be used by prospective purchasers in assessing suitability, specifying and checking new equipment.

The preparation of such Standards, by the European Standards Organisations CEN and CENELEC, is gradually leading to alignment of different safeguarding philosophies and hence safeguarding methods and levels of safety at food/drink equipment throughout Europe. These Standards are principally directed at guiding manufacturers on how to interpret the requirements of Single Market Directives on product safety at particular machines. Support for such Standards by purchasers (and European enforcement authorities) will help lead to universally acceptable designs being more readily available.
Such Standards are in preparation for almost all of the types of equipment in Table 2.

Some are already published, the others are in late draft form. The CEN Standards: Basic Requirements for Food Processing Machines: Part 1 Safety (prEN 1672-1) and Part 2 Hygiene (BS EN 1672.2) cover the risks common or special for most food/drink machines. Part 1 deals especially with how to arrange interlocking of guards to allow safe cleaning yet meet hygiene requirements (coded magnetic switches), electrical safeguards for wet environments and for hosing down, containment of product to avoid slip risks, safe hopper feeding and product loading, and instructions for the user on safe and effective clearing and cleaning methods. These Standards are supported by around 40 machine-specific Standards.

CENELEC Standards in the EN 60335 Part 2 Series for Household and Similar Electrical Appliances give guidance for ovens, grills, vending machines, toasters etc. Where no machine-specific Standard is available, other generic Standards giving general principles can be used (eg EN 292 Principles of Safeguarding, EN 1050: Risk Assessment, EN 418: Fixed and removable guards).

HYGIENIC DESIGN FOR FOOD SAFETY

A new legal requirement on makers of 'agri-foodstuffs' machinery throughout Europe is set by the Machinery Directive. They must design and construct them so as to eliminate crevices etc to prevent harbourage of micro-organisms or which make effective cleaning difficult. The Harmonised European Standard EN 1672-2 (see previous section) sets design principles and requires the choice of design which meets both safety and hygiene objectives.

DIRECT IMPORTS, OWN-BUILT, SECOND-HAND, RECONDITIONED OR HIRED AND MODIFIED EQUIPMENT

Employers directly importing equipment into the European Economic Area (EEA), or building their own equipment, take on the full duties of the supplier.

The supplier has to ensure second-hand equipment and hired equipment is safe and provided with instruction under section 6 of the Health and Safety at Work etc Act 1974 (HSW Act) and the purchaser, or user, has to ensure it meets the requirements of PUWER. Second-hand or hired equipment will not need a CE Mark unless it was first supplied into the EEA after implementation of the relevant Single Market Directive or it has been so significantly modified during reconditioning as to make it new equipment.

When a user modifies equipment then they must ensure it meets PUWER. While the supplier is primarily responsible for seeing the equipment is safe up to the point of supply, users are advised to consult them, where possible, about subsequent proposed modifications.

THE MAIN LEGAL REQUIREMENTS

The level of safety required of suppliers and of users is identical.

Employers have to meet the requirements of PUWER although certain hazards, eg mainly electrical, noise and hazardous substances, remain covered in other specific regulations. Suppliers have to meet the relevant Single Market Directive on product safety. If the product meets such supply legislation then it is deemed to comply with PUWER.

Only equipment which meets the relevant Single Market Directives on product safety can now be placed on the European Market by makers or suppliers. Any machines manufactured to a Harmonised European Standard can be presumed to meet the essential safety requirements of the appropriate Directives.

The main Directives and implementing UK legislation for the industry are:

- the Machinery Directive, implemented in the UK by the Supply of Machinery (Safety) Regulations 1992 (Amended 1994) (SMR), which came fully into force on 1 January 1996;

- the Low Voltage Directive, implemented in the UK by The Electrical Equipment (Safety) Regulations 1994 (ESSR), which came fully into force on 1 January 1997; and

- the Electromagnetic Compatability Directive, implemented in the UK by the Electromagnetic Compatability Regulations 1992, which came fully into force on 1 January 1996.

Most food and drink machinery has to meet all three of these Directives. The Harmonised European Standard published by CENELEC as EN 60204-1: 1998, Electrical Equipment of Machines, as supplemented by prEN 1672-1 (see 'How can Harmonised European Standards help?'), is agreed to be the relevant Standard under the first two Directives for electrical hazards for food, drink and catering machinery used at work.

Section 6 of HSWA also continues to require suppliers to research, test and supply articles and substances for use at work to make them as safe as reasonably practicable and to provide information on their safe usage.

CONFORMITY ASSESSMENT DOCUMENTATION

All machines used in the food/drink industry, except circular saws used on meat, need only the manufacturer's self-assessment that they comply with the relevant Directives and for them to sign the Declaration of Conformity. But some makers also voluntarily submit their equipment to a third-party assessment.
It is often the purchaser who puts together a production line in the industry. If the line is

made up of machines which can operate independently, they should be supplied with individual CE Marks and Declarations of Conformity. But if any component machine was only supplied with a Declaration of Incorporation because it would not function on its own, then the purchaser takes on the responsibility of a supplier for the technical file, CE Marking and Declaration of Conformity for the overall line. A specific agreement is needed between the supplier and purchaser relating to the provision of any essential safeguard not supplied with a machine (eg dust extraction). A 'responsible person' is needed to provide that safeguard and complete the conformity assessment and CE Marking procedures.

CE MARKING

Never assume that equipment with the CE Mark is safe. It is only the suppliers' claim that they have met the requirements of all relevant product safety Directives.

WHAT MANUFACTURERS CAN DO

Manufacturers can establish an effective organisation to ensure product safety and legal compliance. This could include:

- setting up an appropriate product safety organisation and procedures;
- initiating testing and examination and proactive research as necessary to supply articles which are as safe as reasonably practicable;
- establishing information systems to keep up-to-date with Directives, UK law, and Standards, eg via trade associations or membership of relevant BS Committees;
- training all staff in the supply chain from designer to sales staff and agents in the new requirements and product information;
- helping purchasers specify and select suitable equipment;
- designing and constructing equipment so as to meet the relevant Single Market Directives and standards in all facets;
- completing the relevant conformity assessment procedures; and
- providing information to new or previous purchasers on problems revealed by subsequent experience.

FURTHER READING

Table 1 Selecting suitable equipment: protection against main risks

Fatal injuries	
Falling from or being struck by transport	Eliminate or safeguard access onto the tops of tankers: strong tailgate catches on tippers, safe loading bay layout, safe systems for reversing. Access platforms used on lift trucks to be safe.
Falling from heights	Safe access.
Entry into vessels	Free running silos and remotely operated cleaning devices. Effective isolation for vessels.
Major injuries	
Slips	Equipment, eg hoppers and conveyors designed to contain products and avoid spillage. Walkways to be of sufficient slip-resistance.
Handling	Mechanical aids for stacking and for loading products into machines for handling, eg drinks containers and wrapping and packing; free moving trolleys where pushed/pulled.
Mechanical parts	Elimination or adequate safeguarding of dangerous parts, especially to allow safe blockage clearance, cleaning and adjustment. Guards to be interlocked (eg coded magnetic). Select most suitable cutting machines; if bandsaw appropriate jigs etc.
Over-3-day absence injuries	
Struck by moving/falling objects and use of hand tools	Secure storage: ergonomically designed hand-knives with safe storage for when not in use.
Slips	As above.
Handling	As above.
Ill health	
Musculoskeletal injuries	See handling.
Occupational lung disease	Containment or local ventilation for dust from grain, flour and spices.
Dermatitis	Safe cleaning substances specified.

Table 2 Specifying safeguards: priority equipment and safeguards

Conveyors	Especially safeguarding at belt roller, belt/fixed parts and transmission parts which allow safe cleaning and blockage clearance. Interlocking guards if daily access is required.
Bandsaws	Especially easily adjustable blade guard and the use of jigs and holders.
Lift trucks	Especially workplace layout (eg space, separating pedestrians and vehicles etc) and safe use of equipment, including lift-truck-mounted working platforms.
Wrapping machines	Especially adequate distance guarding at sealing mechanisms and safeguarding at separating mechanisms, pushers, transmissions parts, conveyors etc.
Pie and tart machines	Especially interlocked guards and mould infills.
Drinks processing machinery	Especially cleaning risks and conveyors.
Dough moulders	Especially safeguarding access to moulding parts via the hopper.
Horizontal form fill seal machines	Especially safeguarding at the forming and sealing dies.
Dough dividers	Especially safeguarding access to cutting and feed parts via the hopper.
Cartoning machines	Especially safeguarding access to hot parts (eg glue), conveyors, dumping residual energy, eg pneumatic or hydraulic.
Food mixers	Especially safeguarding access to paddles/beaters/ribbons via the discharge on larger machines.
Depositors	Especially safeguarding piston/ram, hopper and moving head during clearing blockages and cleaning.

Roll plant	Especially safeguarding access to rollers and blades conveyors.
Slicers	Especially safeguarding contact with the blade during processing and feed ram on larger machinery. Catering machines to have circumferential blade guard.
Vertical form fill seal machines	Especially interlocked and fixed guarding at access to the sealing jaws/head.
Shrink-wrapping machines	Especially safeguarding at sealers and cutters when clearing blockages and conveyors.
Mincer/grinder/mixers	See 'Food mixers'. Also feed hopper safeguarding.
Derinders	Especially restricting the blade and roller opening to a safe limit and selecting appropriate machine type.
Drinks labelling/marketing machines	Especially safeguarding at transmission parts and rollers parts.
Patty formers	Especially safeguarding access to the piston/rams and forming head.
Bottling machines	Especially cleaning risks, safeguarding at filler heads, parts, conveyors and access at height.
Kegging plant	As above.
Palletisers/depalletisers	Especially safeguarding against entry and safe systems of work for clearing blockages and maintenance.
Strapping, banding and tapeing machines	Especially safeguarding against trapping by moving parts or the band/product during processing.

Buying new machinery INDG271 HSE Books 1998 Single copies free, multiple copies in priced packs ISBN 0 7176 1559 6

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

Precautions at manually ignited gas-fired catering equipment Catering Information Sheet No 3 HSE Books 1995

Safety standards for horizontal-form fill and seal machines Catering Information Sheet No 14 HSE Books (Publication due later in 2000)

Safeguarding flat-belt conveyors in the food and drink industries Catering Information Sheet No 15 HSE Books (Publication due later in 2000)

While every effort has been made to ensure the accuracy of the references listed in this publication, their future availability cannot be guaranteed.

HSE priced and free publications are available by mail order from HSE Books, PO Box 1999, Sudbury, Suffolk CO10 2WA. Tel: 01787 881165 Fax: 01787 313995. Website: www.hsebooks.co.uk

HSE priced publications are also available from good booksellers.

British Standards are available from BSI Customer Services, 389 Chiswick High Road, London W4 4AL. Tel: 020 8996 9001 Fax: 020 8996 7001

For other enquiries ring HSE's InfoLine Tel: 08701 545500, or write to HSE's Information Centre, Broad Lane, Sheffield S3 7HQ. Website: www.hse.gov.uk

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

Printed and published by the Health and Safety Executive

INDG323 06/00 C300