



Preventing injuries from the manual handling of sharp edges in the engineering industry

Engineering Sheet No 16

Introduction

Injuries resulting from the manual handling of objects and materials with sharp edges are common in the engineering industry. Data from firms show that as many as a third of all injuries recorded are caused by cuts from sharp metal during handling. Even minor incidents can lead to significant accumulations of lost time. Many accidents result in the injured person being away from work for some days or transferring to lighter duties. Problems can also occur with infections of uncovered cuts or contamination of cuts with chemicals.

This information sheet is aimed at employers. It details the types of work most likely to lead to such injuries, and some of the ways in which injuries can be avoided.

Hazards

Contact with sharp edges is routine in many engineering jobs. Injuries are common:

- where people are involved in handling sheet or strip metal;
- during work at presses, where small pieces of metal with sharp edges are handled frequently;
- following accidental contact with scrap metal, banding or swarf, principally during cleaning and disposal;
- by contact with machinery blades, cutters or tools (for example when fitting, removing, cleaning or storing).

Those most at risk include:

- stores and warehouse staff;
- tool setters;
- operators of machines such as presses, guillotines, and steel-slitting lines where sheet steel is often manipulated by hand; and
- welders who have to move or hold items being worked on.

Working practices of these employees should be examined carefully to determine the level of risk.

Legal requirements

Under the Manual Handling Operations Regulations 1992, employers are required to avoid, where reasonably practicable, the need for manual handling which involves a

risk of injury. A review of your accident book should show you how often injuries of this type occur and give you some idea of their causes. Where you can, you should eliminate the risk, for example by altering working practices to avoid the need for manual handling which could lead to injury. Where manual handling cannot be avoided, a suitable and sufficient risk assessment must be carried out to identify any steps you can take to reduce the risk of injury.

Risk assessment

You should consider who is at risk and for how long, and whether differences in individual capability (such as manual dexterity) increase the risk. Other factors to consider include sharp edges which may be hot or very cold, the weight of objects being handled and which parts of the body are most at risk. Is it just the hands or could the lower limbs also be affected? Bear in mind the effects of the environment. Does the handler have to walk upstairs, or through an awkward gap? Is the floor even and free from obstruction or liquid on which people might slip? There may be potential for secondary contamination or infection, for example where sharp-edged items are being jigged in metal-finishing workshops.

Control measures

Where risk of injury is identified, appropriate control measures should be introduced. **The use of gloves should be a last resort.** Try working through the list below. You should consider each possibility and decide whether it is reasonably practicable for you to take the steps outlined. This means that you should balance the level of risk with the cost (financial or otherwise) of compliance. For instance, if a significant risk could be eliminated or controlled at reasonable cost, you must ensure that this is done. Conversely, it may not be reasonably practicable to go to great expense to control a low risk.

1 **Avoid direct handling of sharp edged items**
Processes could be automated or conveyor belts installed where there is a frequent need to move sharp objects. Automatic feeds and air ejection systems can reduce handling at machinery, although the latter may increase noise risks. Tongs or hooks could be used to move items.

Scrap can be moved with a rake or shovel, and swarf with a tool or brush. Small items which have to be welded all around can be placed on turntables, and magnets could be used to separate thin metal sheets. Handling aids such as lift trucks, trolleys or small hoists can be used to move items.

2 **Engineer out sharp edges**

Press tools could be designed to minimise sharp edges on pressings. You could ask your suppliers to provide material with sharp edges removed. Packaging banding should also have smooth edges.

3 **Remove sharp edges by machining**

Edges of metal strip could be dressed or rolled, or edges of large items could be ground or sanded.

4 **Cover or otherwise protect sharp edges**

Padding or wrapping could be fitted to sharp edges which are handled regularly (especially smaller items). Jigs or holders could be used to keep items in place for machining, rather than holding them by hand. Drums of oil or other liquids could have covers placed on their edges to reduce risk of injury when they are moved.

5 **Use personal protective equipment (PPE)**

This might include gloves, gauntlets and armbands. All PPE must be suitable for the circumstances, taking into account the range of employees who will use it, as well as the nature of the task, the load and the working environment. Many different types of gloves are available, from basic leather, cotton or rubber, through to cotton coated with a variety of materials including PVC, nitrile, neoprene and latex. Man-made fabrics such as Kevlar can provide very good protection.

There are many different types of gloves available; you should choose the most appropriate for your circumstances. Different sizes of glove may be needed to suit the range of employees you have working on the task. You should discuss your needs with a reputable supplier. Consider any chemicals with which the glove wearer may come into contact - is there a need for the gloves to be resistant to these? Make sure that it is possible for employees to carry out their duties while wearing gloves, otherwise they will not be used.

Do not always go for the cheapest type of glove - think about how often gloves will have to be replaced. Think of all possible areas on the hand where sharp metal injuries may occur and where extra protection may be required. A trial period may be appropriate before making a permanent choice.

In some situations, different types of PPE may be used. Hand pads, thumb guards and wrapping tape can all provide protection to various parts of the hand and may be used if they adequately control the risk. Use of hand pads, for instance, may free the fingers to perform intricate operations which would not be possible while wearing gloves.

Remember that gloves can pose a serious entanglement risk at drilling machines and other machinery with rotating parts. These should be guarded.

PPE should be maintained and replaced at regular

intervals. Insides of gloves should be kept clean, free from swarf and substances which could cause cuts or irritation.

Training and supervision

Whatever control measures you decide on, all your employees will need to be trained in how to use them. Systems of work may be needed for cleaning and maintenance of machinery when this results in contact with swarf or sharp material.

The use of gloves and other control measures by employees should be enforced where a risk assessment indicates a need for them. All employees have legal responsibilities to co-operate with you and use the control measures provided, including PPE. Managers and supervisory staff should be active in encouraging and enforcing the use of PPE where appropriate.

Further information

Manual handling Manual Handling Operations Regulations 1992. Guidance on Regulations HSE Books ISBN 0 7176 0411 X

Management of health and safety at work Management of Health and Safety at Work Regulations 1992. Approved Code of Practice HSE Books ISBN 0 7176 0412 8

Manual handling - Solutions you can handle 1994 HSE Books ISBN 0 7176 0693 7

Health and safety in engineering workshops 1995 HSE Books ISBN 0 7176 0880 8

British Standard EN 388: 1994 *Protective gloves against mechanical risks*

Video: *A sharp reminder* available from CFL Vision, PO Box 35, Wetherby LS23 7EX, tel: 01937 541010

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

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