Norwich Union Risk Services

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Machinery Safety in the Engineering Industry

Introduction

This Hardfacts provides guidance on aspects of machinery safety within the engineering industry.

Most accidents involving machinery happen to employees when loading/unloading components; removing swarf; or taking measurements/making adjustments.

The most dangerous machine movements are the rotating, cutting, shearing, sawing or pressing movements of tools on machinery including: presses, drilling machines, milling machines, lathes, saws, guillotines and grinders.

Hands are most frequently injured; the most numerous injuries being cuts and abrasions. Broken bones, dislocations, amputations also occur. Eye injuries are also common. There are also some fatal injuries, usually involving entanglement or trapping.

The Legal Position

The key Regulations to ensure continued safety are Regs 5 and 6 of the Provision and Use of Work Equipment Regulations, 1998(PUWER '98) – see also Norwich Union Risk Services Hardfacts No 5015 (rev) – PUWER '98.

Reg 5 deals with maintenance, and requires that all employers ensure that work equipment (including all machinery) is maintained in an efficient state, is in efficient working order, and in a state of good repair. Where any machinery has a maintenance log (or record), this log is kept up to date.

Reg 6 requires inspection of all work equipment, especially where the safety depends on the installation conditions. Specifically all work equipment should be inspected:

- After installation and before being put into service for the first time; or,
- After assembly at a new site or in a new location, so as to ensure that it has been installed correctly and is safe to operate.

Furthermore, Reg 6 also requires that work equipment exposed to conditions causing deterioration which is liable to result in dangerous situations is inspected:

- At suitable intervals; and,
- Each time that exceptional circumstances which are liable to jeopardise the safety of work equipment have occurred, so as to ensure that health and safety conditions are maintained, and that any deterioration can be detected in good time.

Suitability of Work Equipment: Machinery Risk Assessments

Regulation 4 of PUWER '98 requires machinery risk assessments to be undertaken, so as to check the suitability of work equipment for the purposes for which it is used or provided.

In selecting work equipment, every employer shall have regard to the working conditions and to the risks to the health and safety of persons which exist in the premises in which that work equipment is to be used, and any additional risk posed by the use of that work equipment.

Further information on risk assessments is contained in Norwich Union Risk Services Hardfacts No 5010 - Conducting Risk Assessments.

Machinery Guarding

Reg 11 requires that effective measures are taken to protect dangerous parts of machinery, so as to prevent access or danger to the user. The following hierarchy of control is given:

- Fixed guards;
- Other guards or protection devices;
- Protection appliances (e.g., push stick)
- Information, instruction, training and supervision.

This is to prevent or adequately control exposure to mechanical hazards: drawing in or trapping; friction or abrasion; impact;

crushing; puncturing or stabbing; shearing; cutting or severing; entanglement; high pressure injection.

Employers must also prevent or control adequately exposure to other hazards:

- Burns, scalds and sears;
- Falling or ejection of articles/substances;
- Rupture or disintegration;
- Fire, overheating or explosion;
- Discharge of any substance.

Equipment should be provided with one or more controls for the purpose of starting, stopping, changing speeds and emergency stops. These controls should be clearly and visibly marked. Suitable means of isolation should also be provided from all sources of energy, i.e., mechanical, electrical, etc.

Equipment must be stable to prevent collapse or overturning in use. Suitable and sufficient lighting must be provided.

Work equipment should incorporate appropriate warnings or warning devices.

Key Action Steps

- Undertake machinery risk assessments on all work equipment.

- Provide the right safeguarding at all times that the equipment is in use.

- Check that all safeguards are in place and are operating as designed.

- Make sure that written safe systems of work are communicated, known to all concerned, referred to in training sessions, and utilised and adhered to at all times.

Reference Documents

L22 (rev) Safe Use of Work Equipment Approved Code of Practice and Guidance: Provision and Use of Work Equipment Regulations, 1998.
HSE Books, 1998.

HS G 129 (rev) Health and safety in engineering workshops. HSE Books, 1999.

HS G 17 (rev) Safety in the use of abrasive wheels. HSE Books, 2000.

HS G 42 Safety in the use of metal cutting guillotines and shears. HSE Books, 1988.

IND G 229 Using work equipment safety. HSE Books, 2002.

IND G 271 Buying new machinery. HSE Books, 1998.

EIS 19 Engineering machine tools: retrofitting CNC. HSE Books, 1997.

EIS 30 Safety in the use of hand and foot operated presses. HSE Books, 1999.

HSE Books telephone number is 01787 881165.

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