
***Risk management in
manufacturing – machinery
safety***

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HSE

The manufacturing sector?

Background

- Diverse range of industry from motor vehicle repair, woodworking and metal fabrication, paper and plastic manufacture, food and drink production to car manufacture, aerospace and shipbuilding.
- Some large employers but mainly SMEs
- 3 million people working in the sector representing around 9% of the GB workforce

The current position – room for improvement?



- On average, 27 workers killed each year in this sector
- Accounting for almost 20% of all workplace fatalities.
- Fatal injury rate is higher than all industry average where main causes were:
 - Struck by objects
 - Fall from height
 - Contact with machinery

and.....



Non-fatal injuries at work in GB in 2016-2017

- Approx. 600,000 workers suffered non-fatal injuries as a result of work activity
- Of which 44,000 resulted from contact with moving machinery

Fabrication of metal industry sector

- Last year: 2/3 of all inspections in this sector - we found risk was largely uncontrolled

So.....

- Manufacturing will continue to be a priority sector for HSE
- and YES, definitely room for improvement

Where is improvement needed?

- Lack of risk control relating to machinery has its roots in ineffective h+s management systems AND risk assessment.
- Firstly **Risk assessment**:
 - How it's done
 - Task, geographic, process or topic assessment and something being missed
 - Virtual as opposed actual
 - Assumption around how the machine is being used
 - Blinkered view that it's all about guarding (vitaly important but only a subset of wider risk control) and forgetting / ignoring what is reasonably practicable to achieve
 - Focussing only on the operation of the machine
 - Who's doing it
 - Competence, skills and knowledge of person completing the assessment
 - Attitude towards the process – seeing it as a paper work exercise and one time only

Considerations for effective identification of risk / what does reasonably practicable for risk control look like?



- Be clear on approach to risk assessment so that risks are not missed:
 - are you looking at the task (e.g. drilling holes into workpieces, loading the machine using a lifting equipment),
 - are you looking at a location within the premises (e.g. the machine shop, the maintenance area etc)
 - Are you looking at a topic (e.g. machinery safety, manual handling, slips and trips, ill health etc)
- Look at how the job is actually done, processes are laid out etc as practices may have crept in which expose workers to risk.
- Speak to and if necessary observe those carrying out the work during
 - Setting
 - Operation
 - Maintenance
 - Cleaning
- Guarding is only one aspect of risk control – and it may disappear or be removed as time goes by !
 - Covered by PUWER Reg 11 – but only to the extent of what is practicable
 - But what about wider management controls.....what is a reasonable expectation ?

Cont'd



- Reasonable expectations...from a **management system** perspective (not an exhaustive list):
 - Competent persons carry out the assessment who understand that risk assessment is a process and NOT a piece of paper to be filed.
 - Workers are trained and **competent**, properly instructed and informed about the operation they are carrying out
 - The benchmarks for guarding are properly established. Plethora of guidance in the public domain which we expect dutyholders to reference.
 - Systems exist for issues with machinery to be reported AND for remedial actions to be taken.
 - Allocation of responsibilities for supervisory management / other identified roles / named individuals to ensure poor practice is quickly identified.
 - **Monitoring, monitoring, monitoring!** – is the employer / are you complying with risk controls as identified and implemented?
 - Although no requirement to record systems of work / procedure etc – how are workers trained and instructed? What is being measured?
 - Strongly suggest that systems of work and procedure are recorded!

Getting it wrong.....

- Together, effective systems and risk assessment process should lead to effective risk control, compliance with the law BUT most importantly a safe workforce.
- BUT too many instances as shown by the statistics, of those with the duty getting it wrong.
- Court fines have increased with the introduction of the Sentencing Guidelines
- The law hasn't changed and guidance on machinery safety, while it is revised / refined from time to time, largely remains the same.
- Now a consistency in application of the law....including culpability

The sentencing guidelines - culpability



- **Very high**
 - Deliberate breach of or flagrant disregard for the law
- **High**
 - Offender fell far short of the appropriate standard; for example, by
 - failing to put in place measures that are recognised standards in the industry
 - ignoring concerns raised by employees or others
 - failing to make appropriate changes following prior incident(s) exposing risks to health and safety
 - allowing breaches to subsist over a long period of time
 - Evidence of serious and/or systemic failings within the organisation to address risks to health and safety
- **Medium**
 - Offender fell short of the appropriate standard in a manner that falls between descriptions in “high” and “low” culpability categories
 - Systems were in place but these were not sufficiently adhered to or implemented
- **Low**
 - Offender did not fall far short of appropriate standard; for example, because
 - significant efforts were made to address the risk although they were inadequate on this occasion
 - there was no warning indicating a risk to health and safety
 - Failings were minor and occurred as an isolated incident

Case study 1

Background:

- Cardboard manufacturer
- Machine – 50m in length with numerous fast moving conveyors protected by removable boards.
- Maintenance work involving two workers – access required to an area in the vicinity of the conveyors underneath the boards.
- Worker was seriously injured when his foot was drawn in to an in running nip – foot was degloved and toes lost

Case study 1 cont'd

- How and why did this happen?
 - Maintenance operation not covered in the RA – focus on operation.
 - Access to dangerous parts was not prevented as per PUWER Reg 11.
 - Boards were not secured
 - Custom and practice to remove those boards without isolation and lock off.
 - Activities and conduct of maintenance engineers went unchecked for a considerable length of time
 - Although not relevant to this incident, we discovered that spare actuator keys were standard kit for engineers to bypass interlocks.
- HSE action?
 - Prosecution - £400k fine

Case study 2

Background

- Metal fabrication company
- Work using a lathe where operative was attempting to reduce the diameter of a work piece / impart a surface finish with emery cloth on a workpiece while it was rotating.
- Worker was wearing gloves
- Emery cloth snagged on the rotating work piece and gloved hands were drawn in.
- Worker (early 20s) suffered life changing injuries - lost most of his fingers on one hand

Case study 2 cont'd

- How and why did this happen?
 - RA was not suitable and sufficient – entanglement risk not mentioned
 - Using engineering means (i.e. other more suitable machinery) to resize the work piece had not been explored.
 - Using of emery cloth was custom and practice in the work shop – used strips could be found on the machinery
 - Worker using the lathe was inexperienced and did not understand the entanglement risks
 - Assumption by his employer that the college he was attending was giving him the required safety information
 - Person carrying out the assessment failed to identify that lathe was not suitable work equipment AND that emery cloth was being used.
 - Raised questions about how the assessment was done
- HSE action
 - Prosecution - Fine of £200k

Summary

- Preventing access to dangerous parts is an important consideration and if **practicable** to achieve then should be done in line with the hierarchy of control set out by PUWER Reg 11
- Consideration of other reasonably practicable measures should not be forgotten
- Systems need not be complicated - can be achieved by SMEs.

Any questions?

