

WSHAlert

27 May 2020, Ref: 2021022

Accident Advisory: Worker struck by ejected assembly component

Ref: [1920114](#) WSH Alert Accident Notification dated 24 March 2020

On 23 March 2020, a worker was using a hydraulic press machine to dismantle an engineering component when he was struck by a part of the assembly. He was conveyed to the hospital where he passed away.



Figure 1: Hydraulic Press Machine.



Figure 2: Closeup of assembly after the accident.

Recommendations

Stakeholders such as occupiers, employers and principals in control of similar workplaces and work activities are advised to consider the following risk control measures to prevent similar accidents:

Safer machine by design

- When conducting Risk Assessment (RA) for the use of press machines, the hazard of component ejection during operation should be identified, where applicable. As the severity of component ejection is "Major" or "Catastrophic", consideration must first be given to hazard elimination. This may be achieved by redesigning its ancillary tools and components in such a way that the hazard of component ejection is eliminated.
- In the event the risk of component ejection cannot be eliminated, machine guarding that is designed to withstand the impact force of the ejected component must be installed. Such guarding may need to be custom-built for the machine and must be of sufficient thickness and material strength to prevent the ejected component from punching through.

Safe Work Procedures (SWPs)

- Establish and implement SWPs for the (i) selection and proper use of tools, and (ii) safe method for component securing, dismantling and assembly.
- Allow only authorised and competent workers, who have been trained on the SWP,

- to operate the machine.
- Provide adequate supervision to ensure adherence to the SWP.

Worker training

- Ensure that workers are adequately trained for the specific make and model of the press machine prior to assigning work. The training should include educating workers on the hazards posed by the machine and the controls that are in place to minimise risk of accident.
- Where applicable, machinery buyers should work closely with the machine manufacturer and/or supplier to provide customised end-user training sessions, especially for machine operators and in-house machine maintenance personnel.
- Stakeholders, including employers and principals, must ensure safety and health information is conveyed to workers. Such information (that must be made available by manufacturers and suppliers of such machinery) includes (i) precautions to be taken for the proper use and maintenance of the machine, (ii) health hazards associated with the machinery, and (iii) results of any tests that are relevant to the safe use of the machine.

Risk Assessment

Conduct a thorough Risk Assessment for all work activities to manage any foreseeable risk that may arise when working with machinery. The RA should cover, but not limited to, the following areas:

- How to get a better understanding of the WSH risk(s) posed by the machine, the risk controls put in place by the manufacturer, and the risks that remain prior to machine purchase/acquisition.
- Possibility of components and/or materials being ejected from the machine while it is in operation.
- Safe position for machine operators to adopt prior to activating the machine.
- Adequacy of the machine guarding in protecting the worker from injury.

Further Information

1. Workplace Safety and Health Act
2. Workplace Safety and Health (Risk Management) Regulations
3. Workplace Safety and Health (General Provisions) Regulations
4. Singapore Standard SS 537: Part 1: 2008 Code of Practice for Safe Use of Machinery Part 1: General Requirements
5. WSH Guidelines on Managing Safety and Health for SMEs in the Metalworking Industry
6. WSH Guidelines on Safe Use of Machinery
7. WSH Council's Technical Advisory for Safe Use of Power Presses and Press Brakes
8. WSH Council's Case Studies for Metalworking Industry
9. WSH Council's Activity Based Checklist on Working Safely with Machines
10. WSH Council's 6 Basic Workplace Safety and Health Rules for Working with Machines
11. WSH Council's Article "Protect Against Machine Accidents"

12. ISO 12100: 2010 Safety of Machinery – General Principles for Design – Risk Assessment and Risk Reduction
13. ISO 13855: 2010 Safety of Machinery – Positioning of Safeguards with respect to the Approach Speeds of Parts of the Human Body
14. ISO 14119: 2013 Safety of Machinery – Interlocking Devices associated with Guards – Principles for Design and Selection
15. ISO 14120: 2015 Safety of Machinery – Guards – General Requirements for the Design and Construction of Fixed and Movable Guards
16. Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on Machinery
17. UK HSE's "Providing and Using Work Equipment Safely – A Brief Guide"

Information on the accident is based on preliminary investigations by the Ministry of Manpower as at 8 May 2020. This may be subject to change as investigations are still on-going. Please also note that the recommendations provided here are not exhaustive and they are meant to enhance workplace safety and health so that a recurrence may be prevented. The information and recommendations provided are not to be construed as implying any liability on any party nor should it be taken to encapsulate all the responsibilities and obligations under the law.

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