

MICHIGAN



MICHIGAN STATE UNIVERSITY: Prevention of work-related injuries & illnesses through research & investigation

WORK-RELATED CRUSHING INJURIES DUE TO PRESSES

STOP WORK-RELATED CRUSHING INJURIES

A crushing injury is one of the most severe and traumatic injuries a worker can sustain in a workplace. From 2019-2022, 179 workers in Michigan were treated in the emergency department for a work-related (WR) crushing injury involving a press; 22 were hospitalized. A press is a machine that uses pressure to change the shape of a product by rolling, forming, forging, punching, stamping, bending, piercing, drawing, etc. Presses are classified by the work they perform in addition to their source of power: manual driven, mechanical, hydraulic, or pneumatic. The Manufacturing Sector had the highest number of crushing injuries (100) and the highest rate of work-related crushing injuries (3.0/100,000 workers) followed by the Wholesale and Retail Trade Sector with 13 injuries, and then the Services Sector (except Public Safety) with 8 injuries.

EXAMPLES OF WORK-RELATED CRUSHING INJURIES INVOLVING A PRESS IN MICHIGAN

- A 47-year-old male working in the service industry was hospitalized for two nights after his arm was caught in an industrial press, which crushed his arm and caused a degloving wound over his elbow.
- A 32-year-old female working in the service industry sustained a crushing injury after her hand was pulled through two rubber rollers in an industrial press.
- A 31-year-old male working in the wholesale and retail trade industry was hospitalized for eleven nights after his arm was caught in a hydraulic press, which crushed and caused an open degloving injury to his shoulder, elbow, and forearm.
- A 61-year-old male working in the manufacturing industry was hospitalized for three nights when a hydraulic press went off and crushed his hand while he was removing an object from the press.
- A 24-year-old male was working in the manufacturing industry when his upper arm and forearm were crushed in a die punch press.



IN ORDER TO PREVENT SIMILAR INJURIES IN THE FUTURE

- Equip the press with properly designed and constructed point of operation guards and/or properly applied and adjusted point of operation protection devices.
- Establish and maintain records of the press maintenance and inspection program and ensure that regular and periodic inspections are conducted. The program should confirm that all parts and safeguards are in safe operating condition and adjusted properly. DO NOT USE if any part of the press or its safeguards are worn, damaged or not operating correctly.
- Develop, implement, train and ensure workers use safe work practices, power press controls, and safety guards and devices, and ensure all workers have received appropriate Lock Out/Tag Out training. All workers associated with press production systems should be included (e.g., operators, die setters, maintenance personnel and supervisors).

DID YOU KNOW?

- Ninety-six percent of crushing injuries involving a press were to the arm, hand or fingers.
- Thirty percent of individuals with crushing injuries involving a press were 25-34 years of age.
- Hand feeding tools are not a point of operation guard or protection device and MUST NOT be used in lieu of a guard or device.
- Safeguards should be designed so they cannot be easily tampered or removed, do not create a new hazard, or impede a worker from performing the job.
- Point of operation guards and devices can include light curtains, barrier guards, two-hand controls, and pullbacks and restraints.

RESOURCES

- **MIOSHA General Industry Safety Standards: Hydraulic (Part 23) and Mechanical (Part 24) Power Presses**
https://www.michigan.gov/leo/-/media/Project/Websites/leo/Documents/MIOSHA/Standards/General_Industry/GI_24/GI_24_11-21-2016.pdf
- **OSHA: Machine Guarding e-tool - Presses**
<https://www.osha.gov/etools/machine-guarding/presses>
- **OSHA: Machine Guarding**
<https://www.osha.gov/machine-guarding>
- **Technical Advisory: Safe Use of Power Presses and Press Brakes**
https://www.tal.sg/wshc/-/media/tal/wshc/resources/publications/technical-advisories/files/ta_for_safe_use_of_power_presses_and_press_brakes.ashx