

# 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 2013-2018, 334 workers in Michigan had a work-related (WR) crushing injury treated in the emergency department; 40 of whom were hospitalized. Many Michigan workers, who are using a type of press at their workplace, are at risk of a crushing injuries. A press is a machine that uses pressure to change the shape of a workpiece 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 (210) and the highest rate of work-related crushing injuries (4.1/100,000 workers) followed by the Services Sector (except Public Safety) with 32 cases, and then the Wholesale and Retail Trade Sector with 29 cases.

### EXAMPLES OF WORK-RELATED CRUSHING INJURIES IN MICHIGAN

- A 21-year-old male sustained a crushing injury with fractures of his left ring and middle fingers, while trying to free dough that had gotten stuck in a dough press, his fingers were pulled into the press.
- A 48-year-old male sustained a crushing injury with contusions and a laceration to his left hand after a pneumatic press, which grabs containers and moves them along a conveyor belt, faulted out and pinned his hand onto the conveyor belt for eight minutes before his coworkers could reverse the press.
- A 24-year-old male was hospitalized for two days after his left hand got caught in a hydraulic press. He sustained fractures and lacerations to his fingers after a 200-lb. piston came down on his hand.
- A 28-year-old female sustained crushing injuries and second and third degree burns to her left hand after a welding press came down on her hand.
- A 38-year-old male was hospitalized for two days after he sustained crushing injuries to his right hand and fingers after his glove was caught in a roller 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 a press maintenance and inspection program and ensure that regular and periodic inspections are conducted. Maintain inspection records. 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, including 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-two percent of crushing injuries were to the arm, hand or fingers.
- 26% of individuals with crushing injuries 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, does 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/0,5863,7-336-78421\\_11407\\_30453-93831--00.html#machgd](https://www.michigan.gov/leo/0,5863,7-336-78421_11407_30453-93831--00.html#machgd)
- **OSHA: Machine Guarding e-tool – Presses**  
<https://www.osha.gov/SLTC/etools/machineguarding/presses.html>
- **OSHA: Machine Guarding**  
<https://www.osha.gov/SLTC/machineguarding/>
- **Technical Advisory: Safe Use of Power Presses and Press Brakes**  
[https://www.wshc.sg/files/wshc/upload/ms/file/TA\\_for\\_Safe\\_Use\\_of\\_Power\\_Presses\\_and\\_Press\\_Brakes.pdf](https://www.wshc.sg/files/wshc/upload/ms/file/TA_for_Safe_Use_of_Power_Presses_and_Press_Brakes.pdf)

Hazard Alert: Work-Related Crushing Injuries Due to Presses, 6/15/20