

**Case 363. 34-year-old process technician cleaning a Van Dorn 1500 ton horizontal injection mold machine was crushed when another operator started the machine.**

A 34-year-old male process technician cleaning a Van Dorn 1500 horizontal injection mold machine was crushed when another operator started the machine. The decedent was directed by his team leader to start up the 1993-vintage Van Dorn 1500 ton horizontal injection mold machine (HIMM). The HIMM was equipped with mechanical, electric and pneumatic interlocks on the front and rear gates, but there was no guard below the gates on either the front or the rear side of the press. The press base and platform was located on the floor and the platform stood approximately 16 inches high and was approximately the size of the machine's mold area. The height from the floor to the top of the front gate rail was approximately 50 inches and the gate opened about 74 inches. From the bottom of the front gate rail to the platform was 27 inches. The unguarded area under the operator's door was approximately 27 inches high x 74 inches long. The distance from the edge of the mold to the operator's gate was about 12 inches. The controller was located within 21 inches of the operator's gate window. The area below the rear gate had an approximate opening of 24 inches x 62 inches and the mold was located about 30 inches from the gate. The decedent pressed the F2 key on the controller placing the HIMM in automatic cycle, pausing both the machine and the pick & place conveyor that picked the molded parts and placed them on a nearby conveyor. Pressing F2 also left the mold area open. The decedent entered the mold area through one of the unguarded openings and stood on the press platform cleaning the molds when the incident occurred. Another process technician looked at the HIMM controller and noticed it was in automatic cycle, paused mode. The press's gates were closed. The process technician pressed the F2 button to restart the machine. The HIMM cycled and the press ram closed, crushing the decedent. The HIMM had to complete its cycle before the mold area would open. The decedent was declared dead at the scene.

The MIOSHA General Industry Safety and Health Division issued both Serious and Willful citations to the company at the conclusion of its investigation.

**Serious:** PLASTIC MOLDING, PART 62, RULE 6234(1):

An injection molding machine was not equipped with a safety gate that was designed and constructed to prevent an employee from reaching into the point of operation.

No guard below front and rear gates of the Horizontal Injection Molding Machine #13, located in the Injection Molding Department.

**Serious:** THE CONTROL OF HAZARDOUS ENERGY SOURCES, PART 85, RULE 1910.147(c)(4)(i):

Procedures were not developed, documented and utilized for the control of potentially hazardous energy when employees were engaged in activities covered by Part 85:

Machine specific lockout written procedures were not developed for Injection Molding Machine #13 and the auxiliary pick and place conveyor located in the Injection Mold Department to address how to safely de-energize the energy sources for pneumatic, electric, and hydraulic or how to test to ensure that the energy sources were effectively isolated.

**Willful Serious: CONVEYORS, PART 14, RULE 1412(3):**

Repairs or clean-up, where unexpected motion would cause injury, shall be done when power is off and locked out.

An employee was inside the mold area to clean the mold of Injection Molding Machine #13 while the auxiliary pick and place conveyor was energized, set to run in automatic run mode, and not locked out.

**Willful Serious: PLASTIC MOLDING, PART 62**

- RULE 6211(1): An employer shall provide training to an employee regarding the operating procedures, hazards, and safeguards of any assigned job.

Inadequate training: An employee was allowed to bodily enter the mold area by going under the unguarded portion of the front and/or rear gate of the machines to clean and/or service the molds while the machines were energized

- RULE 6227(2): Except as permitted in R 408.16234(10), each employee doing the work shall lock out the power source of the machine or equipment to be repaired or serviced if unexpected motion would cause injury. Any residual pressure which would be hazardous shall be relieved before, and remain relieved during, work by an employee doing the work.

An employee was inside Horizontal Injection Molding Machine #13, located in the Injection Mold Department conducting the mold maintenance cleaning while it was energized with no lockout or alternate procedure followed.