



MIOSHA Fact Sheet

General Industry Safety & Health Division

Two-Hand Controls

What are two-hand controls?

Two-hand controls are an actuation device that requires the concurrent use of both hands of the operator(s) to start the cycle of a machine or piece of equipment. A two-hand control device is frequently a method that is used as a point of operation or pinch point protection device. The purpose is to prevent the operator from having any part of his/her body in the hazardous area during the operating cycle of a machine or piece of equipment. Two-hand controls need to be anti-tie down, anti-repeat, and designed to prevent bridging.

- Anti-tie down means that both individual controls must be actuated concurrently by the hands. The premature actuation of either control will not allow the cycle of the machine or equipment when the second control is actuated by the other hand.
- Anti-repeat means that both controls must be released before another cycle can be initiated.
- Bridging occurs when both buttons are located in such a manner that actuation can be initiated without the use of both of the operator's hands.

What is the difference between two-hand controls and two-hand trips?

Hold time is required in two-hand controls until a point is reached in the cycle where the operator cannot remove their hands from the controls and place them into the hazard. If the controls are released by the operator before this point in the cycle, the machine will either stop or return to the starting position without completing the cycle.

Two-hand trips require the concurrent use of both hands to start the cycle of the machine or piece of equipment and does not have a hold time. Two-hand trips do not prevent the operator from reaching into or accessing the hazard during the cycle of the machine or equipment.

When would two-hand controls be required?

They are not the only choice, except for those requirements found in Part 44, Foundries, on specific equipment where two-hand controls are mandatory. It is the employer's responsibility to select the adequate means of employee protection. Two hand-controls may be utilized when the operator is not protected by another means such as, but not limited to, barrier guarding, light curtains, safety mats, distance, presence sensing devices, etc.

What standards reference two-hand controls? (But not limited to)

- [Part 1. General Provisions](#)
- [Part 12. Welding and Cutting](#)
- [Part 17. Refuse Packer Units](#)
- [Part 23. Hydraulic Power Presses](#)
- [Part 24. Mechanical Power Presses](#)
- [Part 26. Metalworking Machinery](#)
- [Part 27. Woodworking Machinery](#)
- [Part 44. Foundries](#)
- [Part 45. Die Casting](#)
- [Part 52. Sawmills](#)
- [Part 62. Plastic Molding](#)

- [Part 71. Laundry and Dry Cleaning Machinery and Operations](#)
- [Part 81. Baking Operations](#)

Is training required for two-hand controls?

Although MIOSHA standards do not have a specific training requirement for two-hand controls, several MIOSHA standards state specifically the employee shall:

- Not operate a machine or equipment until trained in the operating procedures, hazards, and safeguards, and has been assigned to do so by the employer.
- Report any defects in control devices to their supervisor or management.

Training is necessary by the employer to ensure that the employee understands the responsibilities, operating procedures, hazards, safeguards, and the method for reporting defects related to machine or equipment operation.

How do I ensure the two-hand controls are functioning properly?

To ensure the controls are anti-tie down, activate the controls through a cycle and release one of the controls. Then activate the control that was released. If the machine cycles again then it is not anti-tie down. Repeat the same process for the second control. The controls should not be able to activate a subsequent cycle unless both controls have been released.

To test the controls for anti-repeat, activate both controls at the same time and maintain the contact through the cycle of the machine or equipment. The machine or equipment should not cycle a second time until both hands are completely removed from the controls and then the controls are activated again.

To test that bridging cannot occur the controls must be located and guarded so that one hand or arm cannot activate both controls at the same time; activation requires the use of both hands. The key to ensuring bridging is not occurring for two-hand controls are regular inspection of the controls and observance of their use. Also, the controls should be so engineered by design or guarding to prevent accidental activation by other items or parts of the body. Activation of two-hand controls should only be initiated by the purposeful application of both hands.

The two-hand control device should be inspected frequently. Opportunities for inspection are at the start of a shift, at operator changeover or after each set-up change.

How can I get more information?

More information is available from the MIOSHA Consultation Education and Training Division at (517) 322-1809 or on-line at www.michigan.gov/cet.

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