Two-hand control can be used as a safeguarding device in the single-stroke mode of operation on part-revolution clutch and hydraulic press and press brakes.

There are many requirements that must be met before two-hand control can be used as a point-of-operation safeguard. These requirements are located in OSHA 29 CFR 1910.217 and ANSI B11.1, B11.2, B11.3, and B11.19. We have referenced the following paragraphs for your convenience:

**OSHA**

(c)(3)(i) Point-of-operation devices shall protect the operator by:

(e) Requiring application of both of the operator’s hands to machine operating controls and locating such controls at such a safety distance from the point of operation that the slide completes the downward travel or stops before the operator can reach into the point of operation with his hands;

(c)(3)(vii) The two-hand control device shall protect the operator as specified in paragraph (c)(3)(i)(e) of this section.

(a) When used in press operations requiring more than one operator, separate two-hand controls shall be provided for each operator, and shall be designed to require concurrent application of all operators’ controls to activate the slide. The removal of a hand from any control button shall cause the slide to stop.

(b) Each two-hand control shall meet the construction requirements of paragraph (b)(7)(v) of this section.

(c) The safety distance ($D_s$) between each two-hand control device and the point of operation shall be greater than the distance determined by the following formula:

$$D_s = 63 \text{ inches/second} \times T_s$$

$D_s =$ minimum safety distance (inches);  
63 inches/second =$ hand speed constant; and  
$T_s =$ stopping time of the press measured at approximately 90° position of crankshaft rotation (seconds).

**ANSI**

The following formula is used to compute the minimum safety distance ($D_s$) on mechanical power presses to meet the ANSI (American National Standards Institute) B11.1 press safety standard:

$$D_s = K \times (T_s + T_c + T_r + T_{spm})$$

where:

$K =$ Hand speed constant (63 inches/second)
$T_s =$ Stop time of equipment measured at the final control element
$T_c =$ Response time of the control system
$T_r =$ Response time of the two-hand control device and its interface
$T_{spm} =$ Additional time allowed for the stopping performance monitor to compensate for variations in normal stopping time

$D_{pf} =$ The added distance due to the depth penetration factor. *Note: If the channel blanking feature is used on light curtains, additional safety distance must be enforced based on the number of channels blanked.*

When determining the safety distance, a portable or built-in stop-time measuring unit must be used to check the stopping time ($T_s$) of the machine. Please see pages 13 and 14 for details on a portable STM (stop-time measurement) device.

The application of any safeguarding device, the requirements of proper machine interface, as well as the safety distance formulas may be difficult to understand and apply. When any of these safeguarding devices detailed in this section are a consideration, these factors must be evaluated. To help understand how to apply these devices, we offer monthly safeguarding seminars to educate the employer/user on the safety requirements. See pages 5 through 9 for more details on our seminars. For a seminar schedule or for additional details, please use the address, phone or fax number, e-mail address, or Web site on the back cover of this catalog.
ALL-IN-ONE TWO-HAND CONTROL

The all-in-one two-hand control is a NEMA 12 control box with a control module, two relays, a terminal strip, and two buttons. Everything in the control box is prewired and ready for the user to bring wires in from the machine actuator.

FEATURES

- Preset time for concurrent operation of the buttons
- Buttons must be maintained (actuated) during hazardous portion of the cycle
- Nonresumption of an interrupted cycle
- Provides control reliability of the two-hand control portion of the control system
- Compact design for ease in mounting and can be easily applied to small machines or devices
- Choice of control modules or control monitor and actuating buttons
- Available in 24 V DC or 115 V DC (control monitor available in 115 V AC only)

The all-in-one two-hand control can be applied to most any machine or device that is pneumatically, hydraulically, or electrically operated that is usually manually fed. These machines or devices include small presses, stakers, riveters, and assembly machines. The all-in-one two-hand control can be used as a point-of-operation safeguarding device as long as it is located at the proper safety distance. For more information on two-hand control or two-hand trip, see pages 51 and 54-55. See the chart on the next page for selecting the proper two-hand control part number.

For information on mechanical and hydraulic power press and press brake controls, please call us toll-free at 1-800-922-7533, or visit our Web site at www.rockfordsystems.com.
All-In-One Two-Hand Control

SELECTING AN ALL-IN-ONE TWO-HAND CONTROL
To determine the 6-digit configured part number for the two-hand control required, follow directions 1-5 below and use the information in the PART NUMBERING SYSTEM CHART below.

1. The first 2 digits for all two-hand controls are TH.
2. The 3rd digit determines the type of two-hand control provided.
3. The 4th digit determines the type of run button, if provided, on the control enclosure. Zero (0) indicates no run buttons provided.
4. The 5th digit determines the type of emergency-stop button, if provided. Zero (0) indicates no emergency button provided.
5. The 6th digit is for the operating voltage existing at the machine.

TWO-HAND CONTROL PART NUMBERING SYSTEM CHART

<table>
<thead>
<tr>
<th>CONTROL</th>
<th>X</th>
<th>X</th>
<th>X</th>
</tr>
</thead>
<tbody>
<tr>
<td>TH—Two-Hand Control</td>
<td>OPERATING VOLTAGE AT MACHINE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TWO-HAND CONTROL</td>
<td>0—115 V AC</td>
<td>1—24 V DC</td>
<td>2—Line Voltage—Includes Multi-Tap Transformer</td>
</tr>
<tr>
<td>RUN BUTTON ON SIDES OF ENCLOSURE</td>
<td>EMERGENCY-STOP TYPE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A—A-B Control Module</td>
<td>0—None</td>
<td>1—Rees Red Palm Button—Latch-Out Type</td>
<td></td>
</tr>
<tr>
<td>B—Banner Control Module</td>
<td>2—A-B Red 40 mm Two-Position—Twist-to-Return Type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C—RSI Control Monitor (115 V AC only)</td>
<td>RUN BUTTON OPERATOR TYPE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0—Remotely Located</td>
<td>1—Rees Black Palm Buttons With Rockford Systems Guards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1—A-B Articulated Palm Buttons With Guards</td>
<td>2—A-B Zero-Force Touch Buttons With Guards (90-264 V AC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2—Touchdown™ Operators With Rockford Systems Guards (115 V AC)</td>
<td>3—Rees Chrome Light-Push Palm Buttons With Rockford Systems Guards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4—IDEC Green Push Button With Guards</td>
<td>4—Opto-Touch Buttons With Guards (20-30 V AC/DC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5—A-B Zero-Force Touch Buttons With Guards (90-264 V AC)</td>
<td>5—Rees Chrome Light-Push Palm Buttons With Rockford Systems Guards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6—Opto-Touch Buttons With Guards (20-30 V AC/DC)</td>
<td>7—Square D Mushroom Push Buttons With Guards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7—Square D Mushroom Push Buttons With Guards</td>
<td>8—Rees Chrome Light-Push Palm Buttons With Rockford Systems Guards</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All buttons have 1 NO and 1 NC contact arrangement.