

OSHA RESEARCH FOR SOFT TOUCH CONCEPT

May 2004, Page 1 of 2

Unitrol contacted an OSHA representative and discussed the requirements for pinch point guarding for resistance welders. The operation of the SOFT TOUCH system was also discussed. The OSHA representative recommended the following regulations to cover requirements for this device:

1910.212(a) (general machinery)

Machine guarding

[http://www.osha.gov/pls/oshaweb/owalink.query_links?src_doc_type=STANDARDS&src_unique_file=1910_0212&src_anchor_name=1910.212\(a\)\(1\)](http://www.osha.gov/pls/oshaweb/owalink.query_links?src_doc_type=STANDARDS&src_unique_file=1910_0212&src_anchor_name=1910.212(a)(1))

1910.212(a)(1)

Types of guarding. One or more methods of machine guarding shall be provided to protect the operator and other employees in the machine area from hazards such as those created by **point of operation**, ingoing nip points, rotating parts, flying chips and sparks. Examples of guarding methods are-barrier guards, two-hand tripping devices, **electronic safety devices**, etc.

Unitrol note: The SOFT TOUCH sensor board is an “electronic safety device” in that it closes an electro-mechanical relay when it electronically senses that the electrodes are closed on the metal part in the work area prior to application of high force.

1910.255(b)(4) (resistance welding machines)

Guarding. All press welding machine operations, where there is a possibility of the operator's fingers being under the point of operation, shall be effectively guarded by the use of a device such as an electronic eye safety circuit, two hand controls or protection similar to that prescribed for punch press operation, 1910.217.

Unitrol note: The following sections are all that were recommended for this application:

1910.217(c)(3)(iii)

A presence sensing point of operation device shall protect the operator as provided in paragraph (c)(3)(i)(a) of this section, and shall be interlocked into the control circuit to prevent or stop slide motion if the operator's hand or other part of his body is within the sensing field of the device during the downstroke of the press slide.

Unitrol note: The electrode on the lowforce ram becomes the “sensor” in this system. The “downstroke” of the welder, with the Soft Touch system installed, starts when high pressure is applied to the welder ram.

OSHA RESEARCH FOR SOFT TOUCH CONCEPT

May 2004, Page 2 of 2

1910.217(c)(3)(iii)(b)

The device may not be used as a tripping means to initiate slide motion.

Unitrol note: This Soft Touch circuitry does not initiate any valves. It is only an input into the weld control to indicate that the part being welded has been sensed in between the electrodes.

1910.217(c)(3)(iii)(c)

The device shall be constructed so that a failure within the system does not prevent the normal stopping action from being applied to the press when required, but does prevent the initiation of a successive stroke until the failure is corrected. The failure shall be indicated by the system.

Unitrol note: At the start of each stroke, we check to see if the sensing system is closed. If it is, the sensor stroke is never started, and the control's display shows the fault. The sensor must be opened before any other action is possible on the welder.