IV - American regulations and standards

Today, both CSA and UL's testing and certification roles have expanded to cover both Canada and the USA. CSA is now recognized by the U.S. Occupational Safety and Health Administration (OSHA) as a Nationally Recognized Testing Laboratory (NRTL). This means that they can now test and certify products to U.S. as well as Canadian standards. There are three different CSA marks:

For Canada only

For US only

For both US and Canada

Honeywell products that carry the CSA NRTL/C or CULus mark are approved and recognized for use throughout the US as well as Canada.

For Canada only

For US only

For both US and Canada

UL has similar marks as well.

Control Reliability

Control reliability information can be found in documents published by the American National Standards Institute (ANSI) and Occupational Safety and Health Administration (OSHA). ANSI is an institute that provides industry guidance through their published machinery standards. OSHA is a US government agency responsible for labor regulations. Additional information about ANSI and OSHA is described later in this section. These organizations have provided the following definitions for control reliability.

"Control Reliability" means that, "the device, system or interface shall be designed, constructed and installed such that a single component failure within the device, interface or system shall not prevent normal stopping action from taking place but shall prevent a successive machine cycle." (ANSI B11.19-1990, 5.5)

In addition, OSHA 29 CFR 1910.217 states that, "the control system 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 initiation of a successive stroke until the failure is corrected. The failure shall be detectable by a simple test, or indicated by the control system."

The health and safety of American workers is a serious topic. Agencies like OSHA and ANSI have published regulations and standards related to the safe operation of industrial equipment. OSHA document 29 Code of Federal Regulations (CFR), parts 1900 to 1910, sets the rules that need to be followed for a safe industrial environment. This publication also refers to the ANSI B11 standards for specific industrial machinery. These standards are more likely to include state-of-the-art information than an applicable OSHA standard. The word "shall" found in US standards and regulations is equivalent to "must" and indicates a mandatory condition.

The requirements of 29 CFR 1910.212 are applicable to **all industrial machinery**. Paragraph (a) (1), requires that **employees be**

protected from the hazards created by point of operation, in-going nip points, and rotating parts.

ANSI B11.19, paragraph 2.38 defines the point of operation as, "The location in the machine tool where material is positioned and a process performed."

Protection from machinery applies to either new or existing machinery as stated in ANSI B11.19, in Part 1.3 Applications (Adopted in Feb. 28 1990).

"1.3.1 New Safeguarding. **The requirements of this standard pertaining to the construction of safeguarding shall be applied to all new safeguarding**, as referenced by the other B11 machine tool safety standards, to be installed on machine tools in the United States within 12 months after the approval date of this standard."

"1.3.2 Existing Safeguarding. **Within 48 months of the approval date of this standard**, all safeguarding, as referenced by the other B11 machine tool safety standards, installed in the United States on **machine tools shall be modified by the employer to the extent required to bring them into conformity with the requirements of this standard**."

To protect operators working with industrial machinery, the following safety devices shall be used:

"2.15 Device, Safeguarding. A control attachment that:

(1) Restrains the operator from inadvertently reaching into the hazardous area, or
(2) Prevents normal or hazardous operation if any part of an individual's body is inadvertently within the hazardous area, or
(3) Automatically withdraws the operator's hands, if the operator's hands are inadvertently within the hazardous area during the hazardous portion of the machine cycle, or
(4) Maintains the operator or the operator's hands during the hazardous portion of the machine cycle at a safe distance from the hazardous area." (ANSI B11.19)

Honeywell provides electromechanical switches and electronic sensors to protect operators and other employees from industrial machine hazards. When used in accordance with our detailed instructions for use, these products will fulfill one or more of the following requirements:

"2.30 Interlocked Barrier Guard. A fixed or movable barrier attached and interlocked in such a manner that the machine tool will not cycle or will not continue to cycle unless the guard itself or its hinged or movable sections enclose the hazardous area." (ANSI B11.19)

"2.39 Presence-sensing Device. A device designed, constructed, and arranged to create a sensing field, area, or plane that will detect the presence of the operator's or other's hand or other body part and send a signal to stop or prevent hazardous motion of the machine tool." (ANSI B11.19)

Honeywell safety devices are reliable and designed to meet the highest possible level of safety. When selected properly and used in accordance with our detailed instructions for use, these products comply with all the necessary safety standards as mentioned in the following regulation extracts.

OSHA 29 CFR 1910.212 Paragraph (a) (3) describes the requirements for safeguarding the point of operation as follows: "**The guarding device shall be in conformity with any appropriate standards** therefore, or in the absence of applicable specific standards, shall be so designed and constructed as to prevent the operator from having any part of his body in the danger zone during the operating cycle."

Honeywell safety products comply with control reliability requirements as described below:

"Control Reliability" means that, "the device, system or interface shall be designed, constructed and installed such that **a single component failure within the device, interface or system shall not prevent normal stopping action from taking place but shall prevent a successive machine cycle**."

List of Specific ANSI Safety Standards and OSHA Federal Regulations

(ANSI B11.19-1990, 5.5)

American National Standards On Safety Requirements for Construction, Care, and Use of Machine Tools, Conveyors

Standards	Title
ANSI B11.1-1982	Mechanical Power Presses
ANSI B11.2-1982	Hydraulic Power Presses
ANSI B11.3-1982	Power Press Brakes
ANSI B11.4-1983	Shears
ANSI B11.5-1988	Iron Workers
ANSI B11.6-1984	Lathes
ANSI B11.7-1985	Cold Headers and Cold Formers
ANSI B11.8-1983	Drilling, Milling, and Boring Machines
ANSI B11.9-1975	Grinding Machines
ANSI B11.10-1983	Metal Sawing Machines
ANSI B11.11-1985	Gear Cutting Machines
ANSI B11.12-1983	Roll Forming and Roll Bending Machines
ANSI B11.13-1983	Single and Multiple Spindle Automatic - Screw/Bar and Chucking Machines
ANSI B11.14-1983	Coil Slitting Machines/Equipment
ANSI B11.15-1984	Pipe, Tube, and Shape Bending Machines
ANSI B11.17-1982	Horizontal Hydraulic Extrusion Presses
ANSI B11.18-1985	Machinery and Machine Systems for the processing of Coiled Strip, Sheet, and Plate
ANSI B11.19-1990	Machine Tools, Safeguarding
ANSI B11.20-1991	Manufacturing Systems/Cells
ANSI/RIA 15.06	Safety Requirements for Industrial Robots and Robot Systems
ANSI B20.1	Conveyors

Occupational Safety And Health Federal Regulations

Regulations	Title
1910.212	General Requirements for all Machines
1910.217	Mechanical Power Presses