

ANSI B11.19-2010

American National Standard for Machines –
Performance Criteria for Safeguarding

Secretariat and Accredited Standards Developer:

B11 Standards, Inc.,

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Leesburg, VA 20176, USA

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Foreword

(This forward is not part of the requirements of American National Standard B11.19-2010)

The primary objective of this standard is to establish the requirements for the design, construction, installation, operation and maintenance of the safeguarding (e.g., guards, safeguarding devices, awareness devices, safeguarding methods), complementary equipment and measures, and safe work procedures used to eliminate or control hazards to individuals associated with machines. This standard relies on other standards to determine which safeguarding is required or allowed to control identified hazards or hazardous situations, and is intended to be used in conjunction with the ANSI B11.0 standard on general safety requirements and risk assessments of machines, and the ANSI B11 ~~base~~ standard for a given machine. To accomplish this objective, this standard has established responsibilities for the safeguarding supplier (e.g., manufacturer, rebuilder, installer, integrator and modifier), the user, and individuals in the working environment. The overall goal is to achieve safe work practices and a safe work environment.

B11.19 was established as a B11 subcommittee in 1980 to bring together widely scattered information into one document. Mr. Barry Stockton (B11.19 Chairman 1980 - 2003) guided a diverse group of industry experts through the creation of the original standard in 1990, which was reaffirmed in 1997. The second revision, which was approved by ANSI in 2003, was a major rewrite that included updated Liberty Mutual anthropometric data and a new safety distance annex.

This current revision of B11.19 has incorporated new requirements and information including: Protective (safety) Stops, Perimeter Guarding, Muting, Bypass, Emergency Stop including rope/cable pulls, three-position Enabling Devices, Hold-to-run Control, Guard Interlocking Switches with guard locking, and Presence-sensing Device Initiation (PSDI).

The informative annexes have been expanded to include explanatory information on Transparent Guards using Plastic (e.g., Polycarbonate) Viewing Panels, Safe Distances for upper limbs for reaching over guards (e.g., fencing) that harmonizes with ISO 13857, an outline of Protective Measures that includes examples, and a cross reference of safety solutions in use at the time of release of this revision of B11.19.

A greater emphasis has been placed on risk assessment in an attempt to allow safety solutions other than those meeting requirements contained in clause 6.1 (control reliability). The intent is to maintain a high level of safety performance for safety related functions, but also allow safety solutions that can be reasonably justified through the process of a documented risk assessment that meets the required risk reduction.

The requirements that had been contained in ANSI B15.1 ~~Safety Standard for Mechanical Power Transmission Apparatus~~ have been divided and incorporated into the ANSI B11.0-2010 and ANSI B11.19-2010 standards. The safeguarding requirements have been located in a clause of the ANSI B11.0 standard entitled ~~Mechanical Power Transmission Apparatus~~ and the specific guidelines to comply with those requirements are contained within this B11.19 standard (e.g., guards, safe-distance safeguarding and safe-location safeguarding).

Throughout its history, ANSI B11.19 has not provided the requirements for the selection of the safeguarding, but only the implementation of the safeguarding once chosen. No hierarchy, no level of risk reduction, or any relationship between safeguarding options are implied within this standard.

The words "safe" and "safety" are not absolutes. Safety begins with good design. While the goal of this standard is to eliminate injuries, this standard recognizes that risk factors cannot practically be reduced to zero in any human activity. This standard is not intended to replace good judgment and personal responsibility. Operator skill, attitude, training, job monotony, fatigue and experience are factors that affect safety and that must be considered by the user.

Other industry sectors may benefit from applying this standard. Where a machine-specific standard exists, B11.19 may be used to supplement that standard.

Safeguarding and associated equipment technologies are continuously evolving. This standard reflects the most commonly used and time-tested state of the art at the time of its approval. The inclusion or omission of language relative to any evolving technology, either in the requirements or explanatory area of this standard, in no way infers acceptance or rejection of such technologies.

Inquiries with respect to the application or the substantive requirements of this standard, and suggestions for its improvement are welcomed, and should be sent to the American National Standards Institute, 25 West 43rd Street, 4th Floor, New York, NY 10036; (212) 642-4900. Attention: B11 Secretariat.

Effective Date

The following is informative guidance only, and not a normative part of this standard. This Subcommittee recognizes that some period of time after the approval date on the title page of this document is necessary for suppliers and users to develop new designs, or modify existing designs or manufacturing processes in order to incorporate the new or revised requirements of this standard into their product development or production system.

This Subcommittee recommends that suppliers complete and implement design changes for new machines within 30 months of the approval of this standard.

For existing or modified machines, this Subcommittee recommends that users should confirm that the equipment / process has tolerable risk using generally recognized risk assessment methods within 30 months of the approval date of this standard. If the risk assessment shows that modification(s) is necessary, refer to the requirements of this standard to implement protective measures for appropriate risk reduction.

This standard was processed and submitted for ANSI approval by the B11 Accredited Standards Committee on Safety Standards for Machines. Committee approval of this standard does not necessarily imply that all committee members voted for its approval. At the time this standard was approved as an American National Standard, the ANSI B11 Accredited Standards Committee was composed of the following member organizations:

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 General Motors Corporation
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Standard Requirements

Explanatory Information

*American National Standard for Machines -
Performance Criteria for Safeguarding*

STANDARD REQUIREMENTS

EXPLANATORY INFORMATION

(Not part of the requirements of this American National Standard for Machines — Performance Criteria for Safeguarding ANSI B11.19–2010)

1 Scope

This standard provides performance requirements for the design, construction, installation, operation and maintenance of the safeguarding listed below when applied to machines.

- a) Guards (see clause 7);
- b) Safeguarding devices (see clause 8);
- c) Awareness devices (see clause 9);
- d) Safeguarding methods (see clause 10).

This standard also provides performance requirements for complementary equipment and measures (see clause 12), safe work procedures (see clause 11), and safety functions (see clause 6).

This standard does not provide the requirements for the selection of the safeguarding for a particular application.

Any deviation in conforming to a requirement of this standard shall be carefully considered and based on a documented risk assessment to achieve acceptable risk. The reasoning and information concerning any deviation shall be included in the information for operation and maintenance of the machinery.

E1

The manufacturer or supplier referred to in this standard is the manufacturer or supplier of the safeguarding, not the manufacturer or supplier of the machine (see clause 3 definitions of manufacturer and supplier).

See the appropriate ANSI B11 machine-specific standard or other related machinery safety standard(s) for the requirements for the selection of safeguarding based on specific applications. Selection of the safeguarding requires task and hazard identification, and the application of documented risk assessment and risk reduction of the total production system.

See ANSI B11.0 for additional information and guidance on risk assessment and risk reduction.

Alternate safeguarding solutions or a combination of protective measures can provide a best practical solution for a specific application. The user should evaluate the reasoning and the information concerning the deviation to ensure acceptable risk for the specific application. See ANSI B11.0.

Safeguarding and associated equipment technologies are continuously evolving. This standard reflects the most commonly used and time-tested state of the art at the time of its approval. The inclusion or omission of language relative to any evolving technology, either in the requirements or explanatory area of this standard, in no way infers acceptance or rejection of such technologies. See also, Annexes H and I.