ANSI B11.0 – 2023

American National Standard

Safety of Machinery

ANSI-Accredited Standards Developer and Secretariat:

B11 Standards, Inc.
Houston, Texas - USA

APPROVED: 27 JUNE 2023
by the American National Standards Institute
Board of Standards Review

AMERICAN NATIONAL STANDARDS

By approving this American National Standard, the ANSI Board of Standards Review confirms that the requirements for due process, consensus, balance and openness have been met by B11 Standards, Inc., (the ANSI-accredited standards developing organization). American National Standards are developed through a consensus process. Consensus is established when substantial agreement has been reached by directly and materially affected interests. Substantial agreement means much more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that a concerted effort be made toward resolution. This process brings together volunteers and/or seeks out the views of persons who have an interest in the topic covered by this publication. While B11 Standards, Inc., administers the process and establishes procedures to promote fairness in the development of consensus, it does not write the document and it does not independently test, evaluate or verify the accuracy or completeness of any information or the soundness of any judgments contained in its standards or guidelines.

American National Standards are promulgated through ANSI for voluntary use; their existence does not in any respect preclude anyone, whether they have approved the standards or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standards. However, users, distributors, regulatory bodies, certification agencies and others concerned may apply American National Standards as mandatory requirements in commerce and industry.

Neither B11 Standards, Inc. nor any of the organizations or individuals that assisted in authoring, developing, editing or distributing this standard (B11 Standards, Inc. and such organizations and individuals collectively referred to as the "Contributing Parties") makes any warranty, either expressed or implied, as to the fitness of merchantability or accuracy of the information contained within this standard. The Contributing Parties disclaim and make no warranty that the information in this document will fulfill any of your particular purposes or needs. The Contributing Parties disclaim liability for any personal injury, property or other damages of any nature whatsoever, whether special, indirect, consequential or compensatory, directly or indirectly resulting from the publication, use of, application or reliance on this document. The Contributing Parties do not undertake to guarantee the performance of any individual manufacturer or seller's products or services by virtue of this standard or guide, nor does it take any position with respect to the validity of any patent rights asserted in connection with the items which are mentioned in or are the subject of this document. The Contributing Parties disclaim liability for the infringement of any patent resulting from the use of or reliance on this document. Users of this document are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, is entirely their own responsibility.

In publishing or making this document available, the Contributing Parties are not undertaking to render professional or other services for or on behalf of any person or entity, nor are the Contributing Parties undertaking to perform any duty owed by any person or entity to someone else. Anyone using this document should rely on his or her own independent judgment, or as appropriate, seek the advice of a competent professional in determining the exercise of reasonable care in any given circumstances. In addition to conforming to the requirements of this standard, the responsible personnel need to also make an independent determination as to whether a machine, activity or condition complies with the applicable legal requirements in the relevant jurisdiction(s).

B11 Standards, Inc., has no power, nor does it undertake to police or enforce conformance to the requirements of this document. B11 Standards, Inc., does not certify, test or inspect products, designs, or installations for safety or health purposes. Any certification or other statement of conformance to any health or safety-related information in this document shall not be attributable to B11 Standards, Inc., and is solely the responsibility of the certifier or maker of the statement. The American National Standards institute does not develop standards and will in no circumstances give an interpretation of an American National Standard. Moreover, no person shall have the right or authority to issue an interpretation of an American National Standard in the name of the American National Standards Institute. Requests for interpretations should be addressed to the Secretariat (B11 Standards, Inc.).

NOTICE: This American National Standard may be revised or withdrawn at any time. The procedures of the American National Standards Institute require that action be taken periodically to reaffirm, revise, or withdraw this standard. You may contact the Secretariat for current status information on this, or other B11 standards.

Published by: B11 Standards, Inc.,
POB 690905, Houston, TX - USA

TABLE of CONTENTS PAGE

LIST of FIGURES

LIST of TABLES

FOREWORD (This Foreword is not part of the requirements of this ANSI B11.0 standard on Safety of Machinery)

Overview and History

The B11 series of machinery safety standards are over 100 years old, beginning with the first standard on the safety requirements for power presses in 1922. Since that time, safety requirements for a variety of machines have been developed and are continually updated/revised to become the current series of ANSI B11 American National Standards and Technical Reports on machinery safety.

This American National Standard was promulgated by the B11 Standards Development Committee as a voluntary consensus standard to establish and specify general safety requirements for the design, construction, operation and maintenance (including installation, dismantling and transport) of machinery and machinery systems. This standard also applies to devices that are integral to these machines.

This standard was first published in 2008 as ANSI B11.GSR (General Safety Requirements). It was substantively revised and re-designated as ANSI B11.0 in 2010. The standard was again revised and published in 2015; that third edition of this standard added responsibilities related to machinery components, clarified the relationship between the risk assessment for the machine and the design specification for control systems, provided additional information on documentation requirements, included new subclauses on supervision and training, presented new annexes correlating machinery safety standards in the U.S. and EN/ISO, and generally clarified and simplified text in the standard. The 2020 edition of B11.0 provided additional or improved guidance in several key areas such as existing (legacy) equipment, prevention through design, how to achieve acceptable risk and validate/verify (check, test, confirm) risk reduction measures. It also included new content on alternative methods for the control of hazardous energy, manual and special operation modes, and machinery systems dealing with aspects such as layout analysis and spans of control.

Changes from prior edition

The current edition of this American National Standard on the Safety of Machinery (ANSI B11.0-2023) includes updates / content in the following areas:

- **clarified text related to responsibilities of machinery suppliers, users, modifiers, purchasers of used machinery, and other entities;**
- **introduced concepts of co-manufacturer(s) and their associated responsibilities;**
- **updated and clarified responsibilities for existing (legacy) machinery;**
- **included requirements for when whole body access situations exist and/or apply;**
- **improved the information about validation;**
- **improved information related to remote / tele–operations of machinery;**
- **expanded requirements for radiation hazards and associated risk reduction measures;**
- **added a new section for heated systems and related equipment for processing of materials;**
- **updated requirements for *Information for Use* and manuals, consistent with ISO 20607;**
- **reorganized clauses 4 (*Responsibilities*) and 5 (*Lifecycle Requirements*);**
- **added new definitions and updated existing ones (e.g., recognizing distinctions between, and characterizing energy as hazardous, non-hazardous, or beneficial);**
- **updated and improved existing Annexes to assist the reader in applying the content of the standard;**
- **clarified content of Table D1 on estimating severity of harm;**
- **added a new annex on *Control Devices*.**

