ASME B20.1-2021
(Revision of ASME B20.1-2018)

Safety Standard for Conveyors and Related Equipment

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

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Two Park Avenue • New York, NY • 10016 USA

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The next edition of this Standard is scheduled for publication in 2024. This Standard will become effective 1 year after the Date of Issuance.

ASME issues written replies to inquiries concerning interpretations of technical aspects of this Standard. Interpretations are published on the ASME website under the Committee Pages at http://cstools.asme.org/ as they are issued.

Errata to codes and standards may be posted on the ASME website under the Committee Pages to provide corrections to incorrectly published items, or to correct typographical or grammatical errors in codes and standards. Such errata shall be used on the date posted.

The Committee Pages can be found at http://cstools.asme.org/. There is an option available to automatically receive an e-mail notification when errata are posted to a particular code or standard. This option can be found on the appropriate Committee Page after selecting "Errata" in the "Publication Information" section.

The American Society of Mechanical Engineers
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FOREWORD

The first edition of the Safety Standard for Conveyors, Cableways, and Related Equipment was sponsored by the National Conservation Bureau and The American Society of Mechanical Engineers (ASME). It was approved by the American Standards Association [now known as the American National Standards Institute (ANSI)] as American Standard B20.1-1947.

In 1950, the Sectional Committee B20 was reorganized under the sponsorship of the Accident Prevention Department of the Association of Casualty and Surety Companies and ASME. The following four Subcommittees were formed to make specific recommendations for revisions:

Subcommittee No. 1: Scope and Intent
Subcommittee No. 2: Nomenclature and Definitions
Subcommittee No. 3: Portable Conveyors
Subcommittee No. 4: Conveyors in General

The definitions section was based on the conveyor industry dictionary, Conveyor Terms and Definitions, as prepared by the Technical Committee (now the Engineering Conference) of the Conveyor Equipment Manufacturers Association (CEMA).

The second edition of this Standard, dated April 1955, was submitted in draft form to the Sectional Committee for approval and distributed to industry in general for criticism and comment. Approval was then given by the Sectional Committee, the sponsors, and the American Standards Association. The Standard was designated as American Standard B20.1-1957 on December 4, 1957.

In 1967, the third edition of the Safety Standard for Conveyors and Related Equipment was submitted in draft form to representatives of industry for comment. It was subsequently approved by the Sectional Committee, the sponsors, and ANSI for issuance as American National Standard B20.1-1972 on February 17, 1972.

The fourth edition of the Safety Standard for Conveyors and Related Equipment was undertaken in 1973 to assist the Office of Safety and Health Standards, U.S. Department of Labor, which indicated interest in the Standard.

A change in format from a specification standard to a performance standard was deemed necessary. Simply stated, the Standard describes what end result should be achieved without the limiting specification usually given by a design and without the inclusion of finite material selection or dimensions.

The fourth edition was subsequently approved by the B20 American National Standards Committee, the Secretariat, and ANSI for issuance as American National Standard B20.1-1976 on June 14, 1976.

In accordance with the policy of ANSI, the B20 Committee began working on a revision of B20.1-1976 in February 1980. The fifth edition was approved by the B20 Committee, the sponsor (ASME), and ANSI for issuance as American National Standard B20.1-1984 on March 13, 1984.

Per the procedures outlined and implemented in the fifth edition, the sixth edition was approved by the B20 Committee, the sponsor (ASME), and ANSI for issuance as American National Standard B20.1-1987 on March 11, 1987. The seventh edition was approved for issuance as an American National Standard on March 26, 1990. The eighth edition was approved for issuance as an American National Standard on August 9, 1993.

The ninth edition was a compilation of changes from the 1993 edition, B20.1a-1994, and B20.1b-1995. It was approved for issuance as an American National Standard on May 23, 1997.

The 2000 edition was a compilation of changes from the B20.1a-1997 and B20.1b-1998 addenda. It was approved for issuance as an American National Standard on December 14, 2000.

Following approval by the B20 Committee and ASME, and after public review, ASME B20.1-2003 was approved by ANSI on October 9, 2003. The 2003 edition was a revision to ASME B20.1-2000.

ASME B20.1-2006 was approved by ANSI on September 7, 2006. The 2006 edition was a revision to ASME B20.1-2003.

ASME B20.1-2009 was approved by ANSI on February 2, 2009. The 2009 edition was a revision to ASME B20.1-2006.

ASME B20.1-2012 was approved by ANSI on March 28, 2012. The 2012 edition was a revision to ASME B20.1-2009.

ASME B20.1-2015 was approved by ANSI on September 9, 2015. The 2015 edition was a revision to ASME B20.1-2012. This Standard shall become effective 1 year from the date of issuance.

Safety standards for lockout and tagout procedures are published in ANSI/ASSE Z244.1-2016, Control of Hazardous Energy — Lockout/Tagout and Alternative Methods, and OSHA Standard 29 CFR 1910.147, The Control of Hazardous Energy (Lockout/Tagout). The use of recommendations and guidelines as published by CEMA, Safety Label Brochure No.

201 and Application Guidelines for Vertical Reciprocating Conveyors, published by the Conveyor and Sortation Systems (CSS) of the Material Handling Institute in conjunction with ASME B20.1 is encouraged, as are the above-mentioned standards.

The values stated within this Standard are in both SI and U.S. Customary units, with the latter placed in parentheses. These units are essentially interchangeable, and, depending on the country, as well as industry preferences, the user will determine which values are to be regarded as the standard.

Safety codes and standards are intended to enhance public safety. Revisions result from committee consideration of factors such as technological advances, new data, and changing environmental and industry needs. Revisions do not imply that previous editions were inadequate.

ASME B20.1-2018 was approved by ANSI on June 22, 2018. The 2018 edition was a revision to ASME B20.1-2015.

ASME B20.1-2021 was approved by ANSI on July 16, 2021. The 2021 edition is a revision to B20.1-2018. This Standard shall become effective 1 year from the date of issuance.

ASME B20 COMMITTEE
Safety Standard for Conveyors and Related Equipment

(The following is a roster of the Committee at the time of publication of this Standard.)

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M. R. Webster, *Vice Chair*
R. Mohamed, *Secretary*

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M. R. Webster, Pflow Industries, Inc.

CORRESPONDENCE WITH THE B20 COMMITTEE

General. ASME Standards are developed and maintained with the intent to represent the consensus of concerned interests. As such, users of this Standard may interact with the Committee by requesting interpretations, proposing revisions or a case, and attending Committee meetings. Correspondence should be addressed to:

Secretary, B20 Standards Committee
The American Society of Mechanical Engineers
Two Park Avenue
New York, NY 10016-5990
http://go.asme.org/Inquiry

Proposing Revisions. Revisions are made periodically to the Standard to incorporate changes that appear necessary or desirable, as demonstrated by the experience gained from the application of the Standard. Approved revisions will be published periodically.

The Committee welcomes proposals for revisions to this Standard. Such proposals should be as specific as possible, citing the paragraph number(s), the proposed wording, and a detailed description of the reasons for the proposal, including any pertinent documentation.

Interpretations. Upon request, the B20 Standards Committee will render an interpretation of any requirement of the Standard. Interpretations can only be rendered in response to a written request sent to the Secretary of the B20 Standards Committee.

Requests for interpretation should preferably be submitted through the online Interpretation Submittal Form. The form is accessible at http://go.asme.org/InterpretationRequest. Upon submittal of the form, the Inquirer will receive an automatic e-mail confirming receipt.

If the Inquirer is unable to use the online form, he/she may mail the request to the Secretary of the B20 Standards Committee at the above address. The request for an interpretation should be clear and unambiguous. It is further recommended that the Inquirer submit his/her request in the following format:

Subject:	Cite the applicable paragraph number(s) and the topic of the inquiry in one or two words.
Edition:	Cite the applicable edition of the Standard for which the interpretation is being requested.
Question:	Phrase the question as a request for an interpretation of a specific requirement suitable for general understanding and use, not as a request for an approval of a proprietary design or situation. Please provide a condensed and precise question, composed in such a way that a "yes" or "no" reply is acceptable.
Proposed Reply(ies):	Provide a proposed reply(ies) in the form of "Yes" or "No," with explanation as needed. If entering replies to more than one question, please number the questions and replies.
Background Information:	Provide the Committee with any background information that will assist the Committee in understanding the inquiry. The Inquirer may also include any plans or drawings that are necessary to explain the question; however, they should not contain proprietary names or information.

Requests that are not in the format described above may be rewritten in the appropriate format by the Committee prior to being answered, which may inadvertently change the intent of the original request.

Moreover, ASME does not act as a consultant for specific engineering problems or for the general application or understanding of the Standard requirements. If, based on the inquiry information submitted, it is the opinion of the Committee that the Inquirer should seek assistance, the inquiry will be returned with the recommendation that such assistance be obtained.

ASME procedures provide for reconsideration of any interpretation when or if additional information that might affect an interpretation is available. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME Committee or Subcommittee. ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

Attending Committee Meetings. The B20 Standards Committee regularly holds meetings and/or telephone conferences that are open to the public. Persons wishing to attend any meeting and/or telephone conference should contact the Secretary of the B20 Standards Committee.

INTRODUCTION

Accidents resulting from the manual handling of materials have been reduced by the use of conveying and other forms of mechanical handling equipment. A further reduction in the accident rate can be gained by following safe practices in the design, construction, installation, operation, and maintenance of such equipment.

The design and installation of conveyors and conveyor systems should be supervised by qualified engineers. Likewise, the operation and maintenance of conveyors and systems should be supervised by trained personnel.

The purpose of this Standard is to present certain guides for the design, construction, installation, operation, and maintenance of conveyors and related equipment.

Those portions of this Standard relating to maintenance and operation procedures are fully as important as those relating to design and installation. The best design features may be negated by faulty maintenance and operating practices. It is important that operating and maintenance personnel be instructed in recognizing hazards and pertinent safety precautions.

Operation and maintenance instructions in this Safety Standard are intended for general applications. The equipment manufacturer and/or installer should be consulted for specific operating or maintenance instructions.

ASME B20.1-2021
SUMMARY OF CHANGES

Following approval by the ASME B20 Committee and ASME, and after public review, ASME B20.1-2021 was approved by the American National Standards Institute on July 16, 2021.

ASME B20.1-2021 includes the following changes identified by a margin note, **(21)**.

Page	*Location*	*Change*
9	5.15	Former 5.16 renumbered
10	5.16	Former 5.15 renumbered
18	I-3.9	Last two sentences revised

SAFETY STANDARD FOR CONVEYORS AND RELATED EQUIPMENT

1 SCOPE

This Standard applies to the design, construction, installation, maintenance, inspection, and operation of conveyors and conveying systems in relation to hazards. The conveyors may be of the bulk material, package, or unit-handling types, where the installation is designed for permanent, temporary, or portable operation.

This Standard shall apply, with the exceptions noted below, to all conveyor installations.

This Standard specifically excludes any conveyor designed, installed, or used primarily for the movement of people. This Standard does, however, apply to certain conveying devices that incorporate within their supporting structure workstations or operator's stations specifically designed for authorized operating personnel.

This Standard does not apply to conveyors for which specific standards are already in effect, or to equipment such as industrial trucks, tractors, trailers, automatic guided vehicles, tiering machines (except pallet load tierers), cranes, hoists, power shovels, power scoops, bucket drag lines, trenchers, platform elevators designed to carry passengers or an operator, manlifts, moving walks, moving stairways (escalators), highway or railroad vehicles, cableways, tramways, dumbwaiters, material lifts, industrial scissors lifts, pneumatic conveyors, robots, or integral machine transfer devices. Some of the foregoing have specific standards.

The provisions of this Standard shall apply to equipment installed 1 yr after the date of issuance.

2 REFERENCES

The following list of codes and standards have been cited as references in this Standard. Reference to them does not constitute inclusion of the complete text of such codes or standards as a part of this Standard.

This Safety Standard for conveyors is supplementary to any law or code covering fire or health regulations.

ANSI Z244.1-1982, Personnel Protection — Lockout/Tagout of Energy Sources — Minimum Safety Requirements
Publisher: American National Standards Institute (ANSI), 25 West 43rd Street, New York, NY 10036 (www.ansi.org)

ASME A17.1/CSA B44, Safety Code for Elevators and Escalators
Publisher: The American Society of Mechanical Engineers (ASME), Two Park Avenue, New York, NY 10016-5990 (www.asme.org)

ASSE Z590.3, Guidelines for Addressing Occupational Hazards and Risks in Design and Redesign Processes
Publisher: American Society of Sanitary Engineering (ASSE International), 18927 Hickory Creek Drive, Suite 220, Mokena, IL 60448 (www.asse-plumbing.org)

Application Guidelines for Vertical Reciprocating Conveyors
Publisher: Conveyor and Sortation Systems (CSS), a division of Material Handling Industry (MHI), 8720 Red Oak Boulevard, Charlotte, NC 28217-3992 (www.mhi.org/conv)

CEMA 102, Conveyor Terms and Definitions
CEMA Technical Report 2015-01
Publisher: Conveyor Equipment Manufacturers Association (CEMA), 5672 Strand Ct., Suite 2, Naples, FL 34110 (www.cemanet.org)

MIL-STD-882, System Safety
Publisher: Department of Defense, Defense Logistics Agency (DLA), DLA Document Services, Building 4/D, 700 Robbins Avenue, Philadelphia, PA 19111-5094 (http://dla.mil)

NEMA Z535.4, Product Safety Signs and Labels
Publisher: National Electrical Manufacturers Association (NEMA), 1300 North 17th Street, Suite 900, Arlington, VA 22209 (www.nema.org)

NFPA 70, National Electrical Code
NFPA 79, Electrical Standard for Industrial Machinery
Publisher: National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA 02169-7471 (www.nfpa.org)

OSHA Standard 29 CFR 1910.147, The Control of Hazardous Energy (Lockout/Tagout)
Publisher: Occupational Safety & Health Administration (OSHA), U.S. Department of Labor, 200 Constitution Avenue, Washington, DC 20210 (www.osha.gov)