ASME A90.1-2023
(Revision of ASME A90.1-2015)

# Safety Standard for Belt Manlifts

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

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The American Society of Mechanical Engineers
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# FOREWORD

ASME A90.1-2023 is a revision of A90.1, Safety Code for Belt Manlifts, which was originally drawn up and approved in 1949 and reaffirmed in 1956. The original sectional committee consisted of 19 members representing manufacturers, users, insurance groups, enforcement officials, and independent specialists.

Work began in 1966 on a revision of A90.1. Each provision of the code was carefully evaluated in light of considerable practical field experience. A draft revision was completed in 1967 and approved by letter ballot in 1968. The USA Standards Institute [now called the American National Standards Institute (ANSI)] approved the revised standard on February 7, 1969.

In 1970, several serious manlift accidents prompted the committee, through correspondence, to consider additional changes to the 1969 standard. Subsequently, the committee issued ANSI A90.1a-1972, a supplement to ANSI Standard A90.1-1969, in 1972. That year, new committee officers were appointed, and committee membership was expanded to include new members, many of whom have since made significant contributions to the work of the A90 Standards Committee.

Due to changes in technology and the desire to maximize manlift safety, the committee set about the task of totally revising the A90.1 standard. This was accomplished with a great deal of individual member research and study, coupled with numerous meetings of the entire committee. In 1976, following three years of concentrated work, the committee approved by ballot a completely revised draft of the A90.1 standard. This draft was approved by ANSI for issuance as American National Standard A90.1-1976.

In 1981, the A90 Standards Committee was converted from an American National Standards Committee to an American Society of Mechanical Engineers (ASME) Accredited Organization Committee, operating under procedures developed by ASME and accredited by ANSI. Several new members were added to the committee in this process. After several years of work, a revision to ANSI A90.1-1976 was approved by the A90 Standards Committee and the sponsor organization and was designated an American National Standard by ANSI on September 10, 1985.

ASME A90.1-2003 was approved by ANSI on August 14, 2003.

ASME A90.1-2009 was approved by ANSI on March 23, 2009.

ASME A90.1-2015 was approved by ANSI on January 13, 2015.

ASME A90.1-2023 has been extensively revised. All tables and figures have been redesignated and the relevant cross-references have been updated. The references in section 2 have also been updated, and new definitions have been added to section 3. Section 8 has been revised to offer more detailed guidance for tests and inspections. Section 9 has been added to address maintenance, repair, replacement, and alteration criteria. In addition, the Belt Manlift Inspection Report (Form II-1) in Mandatory Appendix II has been revised in its entirety. Following approval by the ASME A90 Committee, ASME A90.1-2023 was approved by ANSI on August 1, 2023.

# ASME A90 COMMITTEE
# Safety Standards for Belt Manlifts

(The following is the roster of the committee at the time of approval of this Standard.)

## STANDARDS COMMITTEE OFFICERS

**Z. C. Barnes,** *Chair*
**J. M. Favro,** *Vice Chair*
**G. A. Burdeshaw,** *Secretary*

## STANDARDS COMMITTEE PERSONNEL

**J. Anderson,** American Hoist and Manlift, Inc.
**C. Cameo,** American Hoist and Manlift, Inc.
**Z. C. Barnes,** Barnesco, Inc.
**G. A. Burdeshaw,** The American Society of Mechanical Engineers
**S. A. Cleary,** Mobility Concepts
**J. M. Favro,** Humphrey Manlift Co., Inc.
**W. E. Phillips, Jr.,** Security Matrix, LLC
**D. Reinhardt,** Shawnee Milling Co.
**J.W. Thompson**, Riceland Foods, Inc.
**L. Barnes,** *Alternate,* Barnesco, Inc.
**J. E. Anderson,** *Contributing Member,* Consultant

# CORRESPONDENCE WITH THE A90 COMMITTEE

**General.** ASME codes and standards are developed and maintained by committees with the intent to represent the consensus of concerned interests. Users of ASME codes and standards may correspond with the committees to propose revisions or cases, report errata, or request interpretations. Correspondence for this Standard should be sent to the staff secretary noted on the committee's web page, accessible at https://go.asme.org/A90committee.

**Revisions and Errata.** The committee processes revisions to this Standard on a continuous basis 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 in the next edition of the Standard.

In addition, the committee may post errata on the committee web page. Errata become effective on the date posted. Users can register on the committee web page to receive e-mail notifications of posted errata.

This Standard is always open for comment, and the committee welcomes proposals for revisions. Such proposals should be as specific as possible, citing the paragraph numbers, the proposed wording, and a detailed description of the reasons for the proposal, including any pertinent background information and supporting documentation.

**Cases.** The committee does not issue cases for this Standard.

**Interpretations.** Upon request, the committee will issue an interpretation of any requirement of this Standard. An interpretation can be issued only in response to a request submitted through the online Interpretation Submittal Form at https://go.asme.org/InterpretationRequest. Upon submitting the form, the inquirer will receive an automatic e-mail confirming receipt.

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 information submitted, it is the opinion of the committee that the inquirer should seek assistance, the request will be returned with the recommendation that such assistance be obtained. Inquirers can track the status of their requests at https://go.asme.org/Interpretations.

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.

Interpretations are published in the ASME Interpretations Database at https://go.asme.org/Interpretations as they are issued.

**Committee Meetings.** The A90 Standards Committee regularly holds meetings that are open to the public. Persons wishing to attend any meeting should contact the secretary of the committee. Information on future committee meetings can be found on the committee web page at https://go.asme.org/A90committee.

# ASME A90.1-2023
# SUMMARY OF CHANGES

Following approval by the ASME A90 Committee and ASME, and after public review, ASME A90.1 was approved by the American National Standards Institute on August 1, 2023.

ASME A90.1-2023 has been revised in its entirety.

# SAFETY STANDARD FOR BELT MANLIFTS

## 1 GENERAL

### 1.1 Scope

This Standard applies to the manufacture, installation, maintenance, inspection, and operation of belt manlifts. Belt manlifts covered by this Standard consist of steps (platforms) and accompanying handholds mounted on or attached to an endless belt that operates vertically in one direction only and is supported by and driven through pulleys at the top and bottom. These belt manlifts are for the conveyance of people only. This Standard does not cover moving stairways, elevators with enclosed platforms (paternoster elevators), gravity lifts, or conveyors used only for transporting materials.

### 1.2 Purpose

This Standard establishes safety requirements for belt manlifts. It is intended as a standard reference for use by manufacturers, architects, plant designers, installers, consulting engineers, users of belt manlifts through voluntary application, and governmental authorities.

### 1.3 Application

*(a)* This Standard applies to belt manlifts used only to carry authorized personnel trained in their use. Belt manlifts shall not be available to the general public.

*(b)* Belt manlifts are not recommended for use on construction sites because of the difficulty in enforcing paras. 4.2 and 7(a) on-site.

*(c)* One year after the date of issuance, all provisions of this Standard shall apply to both new and existing installations, except as noted in individual sections.

### 1.4 Exceptions

In case of practical difficulty or unnecessary hardship, the authority having jurisdiction may grant exceptions from the literal requirements of this Standard or permit the use of alternate methods, but only when it is evident that equal safety is thereby secured.

NOTE: Where exceptions are asked for, the authority having jurisdiction should consult with The American Society of Mechanical Engineers, Attn: Secretary, A90 Standards Committee, Two Park Avenue, New York, NY 10016-5990.

### 1.5 Units of Measurement

This Standard contains U.S. Customary units as well as SI (metric) units. The SI units have been directly (softly) converted from the U.S. Customary units.

## 2 REFERENCES

The following is a list of publications referenced in this Standard. Unless otherwise specified, the latest edition shall apply.

ANSI A12.1. Safety Requirements for Floor and Wall Openings, Railings, and Toe Boards. American National Standards Institute.

ANSI/ASC A14.3-2018. Ladders - Fixed - Safety Requirements. American National Standards Institute.

ASME B18.5-2012 (R2017). Round Head Bolts (Inch Series). The American Society of Mechanical Engineers.

NFPA 70 (2020). National Electric Code. National Fire Protection Association.

## 3 DEFINITIONS

*alteration:* any change to the original equipment, including its parts, components, or subsystems, other than maintenance, repair, or replacement.

*authority having jurisdiction:* the organization, office, or individual responsible for enforcement of this Code. Where legislation or regulation mandates compliance with this Code, the “authority having jurisdiction” is the regulatory authority.

*authorized personnel:* a person who has been trained in accordance with Mandatory Appendix I and is authorized by the belt manlift owner to operate the belt manlift. This person shall be trained in the purpose and operation of the control rope, all safety stop devices, and floating-type hoods if applicable.

*belt-breaking strength:* the amount of tensile load [pounds (Newtons)] applied to a belt to cause its fracture.

*belt manlift:* a power-driven endless belt that moves in one direction only and has steps (platforms) and handholds for the transportation of personnel from floor to floor.

*belt manlift personnel:* a person who is trained and has knowledge of all applicable codes and is allowed by the owner or authority having jurisdiction or both to do maintenance and repairs and replace parts on the