ASME A90.1-2009
(Revision of ASME A90.1-2003)

Safety Standard for Belt Manlifts

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

ASME
SETTING THE STANDARD

Date of Issuance: April 30, 2009

The next edition of this Standard is scheduled for publication in 2014. This Standard will become effective 1 year after the Date of Issuance. There will be no addenda or written interpretations of the requirements of this Standard issued to this edition.

The American Society of Mechanical Engineers
Three Park Avenue, New York, NY 10016-5990

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FOREWORD

This is a revision of A90.1, Safety Code for 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 was started in 1966 on a revision of this Standard. Each provision of the original code was carefully evaluated in the 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) approved the revised standard on February 7, 1969.

Prompted by several serious manlift accidents, the Committee, through correspondence in 1970, considered additional changes to the 1969 standard. Subsequently, in 1972, the Committee issued ANSI A90.1a-1972, a supplement to ANSI Standard A90.1-1969.

In 1972, 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 only with a great deal of individual member research and study, coupled with numerous meetings of the entire Committee. After three years of concentrated work, the Committee approved by ballot, in 1976, a completely revised draft of the A90.1 Standard. Subsequently, this draft was approved by the American National Standards Institute 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 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 the American National Standards Institute on September 10, 1985.

A90.1-2003 was approved by the American National Standards Institute on August 14, 2003. This revision was approved by the American National Standards Institute on March 23, 2009.

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

G. S. Cole, *Chair*
W. E. Phillips, Jr., *Vice Chair*
G. A. Burdeshaw, *Secretary*

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D. L. Weinhold, The Solae Co., LLC

CORRESPONDENCE WITH THE A90 COMMITTEE

General. ASME Codes and 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 proposing revisions and attending Committee meetings. Correspondence should be addressed to:

Secretary, A90 Standards Committee
The American Society of Mechanical Engineers
Three Park Avenue
New York, NY 10016

Proposed 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.

Attending 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 A90 Standards Committee.

SAFETY STANDARD FOR BELT MANLIFTS

1 GENERAL

1.1 Scope

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

1.2 Purpose

The purpose of this Standard is to establish safety requirements for manlifts. It is intended for use as a standard reference for manlift safety requirements by manufacturers, architects, plant designers, installers, and consulting engineers, and for users of manlifts through voluntary application and for governmental authorities.

1.3 Application

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

(b) Because of the difficulty in enforcing paras. 4.2 and 7.1(a), manlifts are not recommended for use on construction sites.

(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 enforcing authority may grant exceptions from the literal requirements of this Standard or permit the use of alternate methods, but only when it is clearly evident that equal safety is thereby secured.

NOTE: It is suggested that in cases where exceptions are asked for, the enforcing authority consult with The American Society of Mechanical Engineers, Attn: Secretary, A90 Standards Committee, Three Park Avenue, New York, NY 10016-5990.

1.5 Units of Measurement

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

2 REFERENCES

This Standard is intended for use in conjunction with the following American National Standards:

ANSI A12.1-1973, Safety Requirements for Floor and Wall Openings, Railings, and Toeboards

ANSI A14.3-1984, Safety Requirements for Fixed Ladders

Publisher: American National Standards Institute (ANSI), 25 West 43rd Street, New York, NY 10036

ASME B15.1-2000, Safety Standard for Mechanical Power Transmission Apparatus

ASME B18.5-1990, Round Head Bolts

Publisher: The American Society of Mechanical Engineers (ASME), Three Park Avenue, New York, NY 10016-5990; Order Department: 22 Law Drive, P.O. Box 2300, Fairfield, NJ 07007-2300

NFPA 70-1984, National Electrical Code

Publisher: National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA 02169-7471

3 DEFINITIONS

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

belt travel: the distance between the centers of the top and bottom pulleys when the bottom pulley is at its highest position.

debris deflector: a protective shield positioned to deflect falling objects away from the bottom pulley.

elevator bolt: a flathead, countersunk elevator bolt as defined by ASME B18.5-1990, Table 9.

factor of safety: the ratio of the tensile strength of the material to the allowable stress when a part is subjected to full-load operation.

handhold (handgrip): a cup-shaped device securely attached to the belt, which can be grasped by the passenger to provide a means for maintaining balance.

manlift: a power-driven endless belt that moves in one direction only, and is provided with steps (platforms)