

ANSI/ITSDF B56.5-2019
(Revision of ANSI/ITSDF B56.5-2012)



SAFETY STANDARD FOR DRIVERLESS, AUTOMATIC GUIDED INDUSTRIAL VEHICLES AND AUTOMATED FUNCTIONS OF MANNED INDUSTRIAL VEHICLES

AN AMERICAN NATIONAL STANDARD

INDUSTRIAL TRUCK STANDARDS DEVELOPMENT FOUNDATION

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Date of Issuance: August 12, 2019

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FOREWORD

(This foreword is not part of ANSI/ITSDF B56.5-2019)

On September 8, 1972, the B56.5 Subcommittee started work on this standard at the direction of the B56 Committee and the Sponsor, The American Society of Mechanical Engineers (ASME). Following a number of work sessions and ballots within the Subcommittee and the B56 Standards Committee, it was submitted to ASME B56 Committee ballot, public review, and Secretariat approval. After obtaining such approval, the Standard was submitted to the American National Standards Institute, Inc. (ANSI). ANSI approval to issue the Standard as American National Standard B56.5 was granted on August 30, 1978.

On October 18, 1984, the B56.5 Subcommittee held a meeting to begin work on the revision of ANSI B56.5-1978. After a number of additional subcommittee meetings, the Subcommittee came to consensus agreement on a proposed revision. The proposed revision was submitted for B56 Committee ballot and public review. After consideration of comments received, the proposed revision was submitted to the Sponsor for its approval. After obtaining approval, the proposed revision was submitted to ANSI and was approved and designated as an American National Standard on May 17, 1988.

Subsequently, addenda to the 1988 edition were approved and published in 1989, 1990, 1991, and 1992. Proposed revisions for inclusion in the 1993 edition were approved by the B56 Committee and the Sponsor, and were submitted for public review. The 1993 edition, which incorporated the revisions contained in the four addenda to the 1988 edition plus those revisions approved for the 1993 edition, was approved and designated as an American National Standard by ANSI on August 30, 1993.

The 2004 edition incorporates changes made in the ASME B56.5a-1994 supplement, as well as additional revisions. It was approved for issuance as an American National Standard on February 23, 2004.

On September 1, 2005, management of the B56 Standards Committee and its Subcommittees was transferred from ASME to the Industrial Truck Standards Development Foundation. This Standard was reaffirmed by the B56 Standards Committee after references to ASME were changed to ITSDF.

The 2012 edition of B56.5 was approved by the American National Standards Institute on March 1, 2012.

ANSI/ITSDF B56.5-2019 was approved as a revision by the American National Standards Institute on August 6, 2019.

This Standard shall become effective 1 year after its respective Date of Issuance. Part III applies only to trucks manufactured after the effective date.

Safety codes and standards are intended to enhance public health and 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.

ITSDF STANDARDS COMMITTEE ROSTER B56 Powered and Nonpowered Industrial Trucks

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

OFFICERS

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J. E. Johnson, *Vice Chair*
C.F. Merther, *Secretary*

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Rudy Fiers, U.S. Department of Labor - OSHA
Dennis Graham, Rite-Hite
Ron Graunstadt, U.A.W.
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Donald Labelle, Betsie Bay Consulting

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David Norton, The Raymond Corporation
Jeff Rhinehart, KION
Rolland Riley, U.S. Army TACOM
Richard Ward, MHIA/Round Prairie

SUBCOMMITTEE B56.5 – SAFETY STANDARD FOR GUIDED INDUSTRIAL VEHICLES AND AUTOMATED FUNCTIONS OF MANNED INDUSTRIAL VEHICLES

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David Emanuel, Amerden AGVS
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Michael Jordon, Ford Motor Company
Jeff Kuss, The Raymond Corporation
Marco Majoli, Elettric 80
Steve McDermitt, Crown Equipment
Kevin McGoldrick, Hyster-Yale
David Norton (Alt. to Kuss), The Raymond Corp.
Matthias Otto, Navitec Systems
Jörn Soukup, Jungheinrich
Richard Ward, Material Handling Industry of America/Round Prairie Engineering Assoc.
Mitchell Weiss, Piaggio Fast Forward

ANSI/ITSDF B56.5-2019 SUMMARY OF CHANGES

Following approval by the ITSDF B56 Committee and after public review, ANSI/ITSDF B56.5-2019 was approved as a revision by ANSI on August 6, 2019. The revision consists of updating the wording and provisions of the scope, Part II for the user, Part III for the manufacturer, and the glossary of commonly used words and phrases. Changes are indicated by the margin note **(19)**.

POWERED AND NONPOWERED INDUSTRIAL TRUCKS

B56 SERIES INTRODUCTION

GENERAL

This Standard is one of a series that have been formulated with the Industrial Truck Standards Development Foundation as Sponsor in accordance with the Accredited Organization method, the procedures accredited by the American National Standards Institute, Inc., and the following scope:

Establishment of the safety requirements relating to the elements of design, operation, and maintenance; standardization relating to principal dimensions to facilitate interchangeability, test methods, and test procedures of powered and nonpowered industrial trucks (not including vehicles intended primarily for earth moving or over-the-road hauling); and maintenance of liaison with the International Organization for Standardization (ISO) in all matters pertaining to powered and nonpowered industrial trucks.

One purpose of the Standard is to serve as a guide to governmental authorities having jurisdiction over subjects within the scope of the Standard. It is expected, however, that the Standard will find a major application in industry, serving as a guide to manufacturers, purchasers, and users of the equipment.

For convenience, Standards of Powered and Nonpowered Industrial Trucks have been divided into separate volumes:

Safety Standards

- B56.1 Low Lift and High Lift Trucks
- B56.5 Guided Industrial Vehicles and Automated Functions of Manned Industrial Vehicles
- B56.6 Rough Terrain Forklift Trucks
- B56.8 Personnel and Burden Carriers
- B56.9 Operator Controlled Industrial Tow Tractors
- B56.10 Manually Propelled High Lift Industrial Trucks
- B56.14 Safety Standard for Vehicle Mounted Trucks

Standardization Standards

- B56.11.1 Double Race or Bi-Level Swivel and Rigid Industrial Casters
- B56.11.4 Hook-Type Forks and Fork Carriers for Powered Industrial Forklift Trucks
- B56.11.5 Measurement of Sound Emitted by Low Lift, High Lift, and Rough Terrain Powered Industrial Trucks
- B56.11.6 Evaluation of Visibility from Powered Industrial Trucks
- B56.11.7 Liquefied Petroleum Gas (LPG) Fuel Cylinders (Horizontal or Vertical) Mounting – Liquid Withdrawal – for Powered Industrial Trucks
- B56.11.8 Safety Standard for Seat Belt (Lap-Type) Anchorage Systems for Powered Industrial Trucks

Safety standards that were previously listed as B56 volumes but now have different identification due to a change in standards development assignments are as follows:

- NFPA 505 Fire Safety Standard for Powered Industrial Trucks – Type Designations, Areas of Use, Maintenance and Operation (formerly B56.2)
- UL 583 Standard for Safety for Electric-Battery-Powered Industrial Trucks (formerly B56.3)
- UL 558 Standard for Safety for Internal Combustion Engine-Powered Industrial Trucks (formerly B56.4)

If adopted for governmental use, the references to other national codes and standards in the specific volumes may be changed to refer to the corresponding governmental regulations.

The use of powered and nonpowered industrial trucks is subject to certain hazards that cannot be completely eliminated by mechanical means, but the risks can be minimized by the exercise of intelligence, care, and common sense. It is therefore essential to have competent and careful operators, physically and mentally fit, and thoroughly trained in the safe operation of the equipment and the handling of the loads. Serious hazards are overloading, instability of the load, obstruction to the free passage of the load, collision with objects or pedestrians, poor maintenance, and use of equipment for a purpose for which it was not intended or designed.

Suggestions for improvement of these Standards, especially those based on actual experience in their application, shall be submitted to the Secretary of the B56 Committee, ITSDF, 1750 K Street NW, Suite 460, Washington DC 20006.

Comments shall be written in accordance with the following format:

- (a) specify paragraph designation of the pertinent volume;
- (b) indicate suggested change (addition, deletion, revision, etc.);
- (c) briefly state reason and/or evidence for suggested change;
- (d) submit suggested changes to more than one paragraph in the order in which they appear in the volume.

The appropriate B56 Subcommittee will consider each suggested revision at its first meeting after receipt of the suggested revision(s).

SAFETY STANDARD FOR DRIVERLESS, AUTOMATIC GUIDED INDUSTRIAL VEHICLES AND AUTOMATED FUNCTIONS OF MANNED INDUSTRIAL VEHICLES

Part I Introduction

1 SCOPE

This Standard defines the safety requirements relating to the elements of design, operation, and maintenance of powered, not mechanically restrained, unmanned automatic guided industrial vehicles and the system of which the vehicles are a part. It also applies to vehicles originally designed to operate exclusively in a manned mode but which are subsequently modified to operate in an unmanned, automatic mode, or in a semiautomatic, manual, or maintenance mode.

- (19) This Standard applies to automatic guided industrial vehicles in automatic mode of operation in non-restricted areas. Portions of this Standard, when designated, also apply to semiautomatic, manual, and maintenance modes and restricted areas of vehicle operation. It is recognized that restricted areas may exist, and require the user and system supplier to determine appropriate safeguard measures. This standard does not apply to vehicles operating in closed areas where personnel are not allowed and appropriate interlocking systems, safeguards, and procedures are in place.

Portions of this Standard, when designated, also apply to automated functions of manned vehicles.

This Standard does not apply to passenger-carrying vehicles.

2 PURPOSE

The purpose of this Standard is to promote safety through the design, construction, application, operation, and maintenance of unmanned guided industrial vehicles and automated functions of manned industrial vehicles.

This Standard may be used as a guide by governmental authorities desiring to formulate safety rules and regulations. The Standard is also intended for voluntary use by others associated with manufacturing or use of unmanned guided industrial vehicles and automated functions of manned industrial vehicles.

3 INTERPRETATION

3.1 Mandatory and Advisory Rules

To carry out the provisions of this Standard, the word *shall* is to be understood as mandatory and the word *should* as recommended.

3.2 Classification of Approved Automatic Guided Industrial Vehicles

The word *approved* means the classification or listing of automatic guided industrial vehicles as to fire, explosion, and electric shock hazard by a nationally recognized testing laboratory.

3.3 Requests for Interpretation

The B56 Committee will render an interpretation of any requirement of this Standard. Interpretations will be rendered only in response to a written request sent to the Secretary of the B56 Committee, ITSDF. The request for interpretation shall be in the following format.

Subject: Cite the applicable paragraph number(s) and provide a concise description.
Edition: Cite the applicable edition of the pertinent standard for which the interpretation is being requested.