ASME B30.23-2005
(Revision of ASME B30.23-1998)

Personnel Lifting Systems

Safety Standard for Cableways, Cranes, Derricks, Hoists, Hooks, Jacks, and Slings

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

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Three Park Avenue • New York, NY 10016

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The next edition of this Standard is scheduled for publication in 2010. There will be no addenda issued to this edition.

ASME issues written replies to inquiries concerning interpretations of technical aspects of this Standard. Interpretations are published on the ASME Web site under the Committee Pages at http://www.asme.org/codes/ as they are issued, and are also published within this edition of the Standard.

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

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FOREWORD

This American National Standard, Safety Standard for Cableways, Cranes, Derricks, Hoists, Hooks, Jacks, and Slings, has been developed under the procedures accredited by the American National Standards Institute (formerly the United States of America Standards Institute). This Standard had its beginning in December 1916 when an eight-page Code of Safety Standards for Cranes, prepared by an ASME Committee on the Protection of Industrial Workers, was presented to the annual meeting of the ASME.

Meetings and discussions regarding safety on cranes, derricks, and hoists were held from 1920 to 1925, involving the ASME Safety Code Correlating Committee, the Association of Iron and Steel Electrical Engineers, the American Museum of Safety, the American Engineering Standards Committee (later changed to American Standards Association and subsequently to the USA Standards Institute), Department of Labor — State of New Jersey, Department of Labor and Industry — State of Pennsylvania, and the Locomotive Crane Manufacturers Association. On June 11, 1925, the American Engineering Standards Committee approved the ASME Safety Code Correlating Committee's recommendation and authorized the project with the U.S. Department of the Navy, Bureau of Yards and Docks, and ASME as sponsors.

In March 1926, invitations were issued to 50 organizations to appoint representatives to a Sectional Committee. The call for organization of this Sectional Committee was sent out October 2, 1926, and the committee organized November 4, 1926, with 57 members representing 29 national organizations. The Safety Code for Cranes, Derricks, and Hoists, ASA B30.2-1943, was created from the eight-page document referred to in the first paragraph. This document was reaffirmed in 1952 and widely accepted as a safety standard.

Due to changes in design, advancement in techniques, and general interest of labor and industry in safety, the Sectional Committee, under the joint sponsorship of ASME and the Naval Facilities Engineering Command, U.S. Department of the Navy, was reorganized as an American National Standards Committee on January 31, 1962, with 39 members representing 27 national organizations.

The format of the previous code was changed so that separate volumes (each complete as to construction and installation; inspection, testing, and maintenance; and operation) would cover the different types of equipment included in the scope of B30.

In 1982, the Committee was reorganized as an Accredited Organization Committee, operating under procedures developed by ASME and accredited by the American National Standards Institute.

This Standard presents a coordinated set of rules that may serve as a guide to government and other regulatory bodies and municipal authorities responsible for the guarding and inspection of the equipment falling within its scope. The suggestions leading to accident prevention are given both as mandatory and advisory provisions; compliance with both types may be required by employers of their employees.

In case of practical difficulties, new developments, or unnecessary hardship, the administrative or regulatory authority may grant variances from the literal requirements or permit the use of other devices or methods but only when it is clearly evident that an equivalent degree of protection is thereby secured. To secure uniform application and interpretation of this Standard, administrative or regulatory authorities are urged to consult the B30 Committee, in accordance with the format described in Section III, before rendering decisions on disputed points.

This volume of the Standard, which was approved by the B30 Committee and ASME, was approved by ANSI and designated as an American National Standard on December 13, 2005.

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 B30 STANDARDS COMMITTEE
Safety Standards for Cableways, Cranes, Derricks, Hoists, Hooks, Jacks, and Slings

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

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SAFETY STANDARD FOR CABLEWAYS, CRANES, DERRICKS, HOISTS, HOOKS, JACKS, AND SLINGS

B30 STANDARD INTRODUCTION (05)

SECTION I: SCOPE

The ASME B30 Standard contains provisions that apply to the construction, installation, operation, inspection, testing, maintenance, and use of cranes and other lifting and material-handling related equipment. For the convenience of the reader, the Standard has been divided into separate volumes. Each volume has been written under the direction of the ASME B30 Standards Committee and has successfully completed a consensus approval process under the general auspices of the American National Standards Institute (ANSI).

As of the date of issuance of this Volume, the B30 Standard comprises the following volumes:

B30.1 Jacks
B30.2 Overhead and Gantry Cranes (Top Running Bridge, Single or Multiple Girder, Top Running Trolley Hoist)
B30.3 Construction Tower Cranes
B30.4 Portal, Tower, and Pedestal Cranes
B30.5 Mobile and Locomotive Cranes
B30.6 Derricks
B30.7 Base Mounted Drum Hoists
B30.8 Floating Cranes and Floating Derricks
B30.9 Slings
B30.10 Hooks
B30.11 Monorails and Underhung Cranes
B30.12 Handling Loads Suspended From Rotorcraft
B30.13 Storage/Retrieval (S/R) Machines and Associated Equipment
B30.14 Side Boom Tractors
B30.15 Mobile Hydraulic Cranes
(NOTE: B30.15-1973 has been withdrawn. The revision of B30.15 is included in the latest edition of B30.5).
B30.16 Overhead Hoists (Underhung)
B30.17 Overhead and Gantry Cranes (Top Running Bridge, Single Girder, Underhung Hoist)
B30.18 Stacker Cranes (Top or Under Running Bridge, Multiple Girder With Top or Under Running Trolley Hoist)
B30.19 Cableways
B30.20 Below-the-Hook Lifting Devices
B30.21 Manually Lever Operated Hoists
B30.22 Articulating Boom Cranes
B30.23 Personnel Lifting Systems
B30.24 Container Cranes[1]
B30.25 Scrap and Material Handlers
B30.26 Rigging Hardware
B30.27 Material Placement Systems
B30.28 Balance Lifting Units[1]

SECTION II: SCOPE EXCLUSIONS

The B30 Standard does not apply to track and automotive jacks, railway or automobile wrecking cranes, shipboard cranes, shipboard cargo-handling equipment, well-drilling derricks, skip hoists, mine hoists, truck body hoists, car or barge pullers, conveyors, excavating equipment, or equipment covered under the scope of the following standards: A10, A17, A90, A92, A120, B20, B56, and B77.

SECTION III: PURPOSE

The B30 Standard is intended to

(a) prevent or minimize injury to workers, and otherwise provide for the protection of life, limb, and property by prescribing safety requirements

(b) provide direction to manufacturers, owners, employers, users, and others concerned with or responsible for its application

(c) guide governments and other regulatory bodies in the development, promulgation, and enforcement of appropriate safety directives

SECTION IV: USE BY REGULATORY AGENCIES

This Standard may be adopted in whole or in part for governmental or regulatory use. 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 regulations of the governmental authorities.

SECTION V: EFFECTIVE DATE

(a) Effective Date. The effective date of this Volume of the B30 Standard shall be one year after its date of

[1] These volumes are currently in development.

issuance. Construction, installation, inspection, testing, maintenance, and operation of equipment manufactured and facilities constructed after the effective date of this Standard shall conform to the mandatory requirements of this Standard.

(b) Existing Installations. Equipment manufactured and facilities constructed prior to the effective date of this Volume of the B30 Standard shall be subject to the inspection, testing, maintenance, and operation requirements of this Standard after the effective date.

It is not the intent of this Volume of the B30 Standard to require retrofitting of existing equipment. However, when an item is being modified, its performance requirements shall be reviewed relative to the requirements within the current volume. The need to meet the current requirements shall be evaluated by a qualified person selected by the owner (user). Recommended changes shall be made by the owner (user) within 1 year.

SECTION VI: REQUIREMENTS AND RECOMMENDATIONS

Requirements of this Standard are characterized by use of the word *shall*. Recommendations of this Standard are characterized by the word *should*.

SECTION VII: USE OF MEASUREMENT UNITS

This Standard contains SI (metric) units as well as U.S. Customary units. The values stated in customary units are to be regarded as the standard. The SI units are a direct (soft) conversion from the customary units.

SECTION VIII: REQUESTS FOR REVISION

The B30 Standards Committee will consider requests for revision of any of the volumes within the B30 Standard. Such requests should be directed to:

Secretary of the B30 Committee, ASME, Three Park Avenue, New York, NY 10016-5990

The requests should be in the following format:

Volume: Cite the designation and title of the volume.

Edition: Cite the applicable edition of the volume.

Subject: Cite the applicable paragraph number(s) and the relevant heading(s).

Request: Indicate the suggested revision.

Rationale: State the rationale for the suggested revision.

Upon receipt by the Secretary, the request will be forwarded to the relevant B30 Subcommittee for consideration and action. Correspondence will be provided to the requester defining the actions undertaken by the B30 Standards Committee.

SECTION IX: REQUESTS FOR INTERPRETATION

The B30 Standards Committee will render an interpretation of the provisions of the B30 Standard. Such requests should be directed to:

Secretary of the B30 Committee, ASME, Three Park Avenue, New York, NY 10016-5990

The requests should be in the following format:

Volume: Cite the designation and title of the volume.

Edition: Cite the applicable edition of the volume.

Subject: Cite the applicable paragraph number(s) and the relevant heading(s).

Question: Phrase the question as a request for an interpretation of a specific provision suitable for general understanding and use, not as a request for approval of a proprietary design or situation. Plans or drawings that explain the question may be submitted to clarify the question. However, they should not contain any proprietary names or information.

Upon receipt by the Secretary, the request will be forwarded to the relevant B30 Subcommittee for a draft response, which will then be subject to approval by the B30 Standards Committee prior to its formal issuance.

Interpretations to the B30 Standard will be published in the subsequent edition of the respective volume and will be available online at http://cstools.asme.org.

SECTION X: ADDITIONAL GUIDANCE

The equipment covered by the B30 Standard is subject to hazards that cannot be abated by mechanical means, but only by the exercise of intelligence, care, and common sense. It is therefore essential to have personnel involved in the use and operation of equipment who are competent, careful, physically and mentally qualified, and trained in the proper operation of the equipment and the handling of loads. Serious hazards include, but are not limited to, improper or inadequate maintenance, overloading, dropping or slipping of the load, obstructing the free passage of the load, and using equipment for a purpose for which it was not intended or designed.

The B30 Standards Committee fully realizes the importance of proper design factors, minimum or maximum dimensions, and other limiting criteria of wire rope or chain and their fastenings, sheaves, sprockets, drums, and similar equipment covered by the standard, all of which are closely connected with safety. Sizes, strengths, and similar criteria are dependent on many different factors, often varying with the installation and uses. These factors depend on the condition of the equipment or material; on the loads; on the acceleration

or speed of the ropes, chains, sheaves, sprockets, or drums; on the type of attachments; on the number, size, and arrangement of sheaves or other parts; on environmental conditions causing corrosion or wear; and on many variables that must be considered in each individual case. The requirements and recommendations provided in the volumes must be interpreted accordingly, and judgment used in determining their application.

ASME B30.23-2005
SUMMARY OF CHANGES

Following approval by the ASME B30 Committee and ASME, and after public review, ASME B30.23-2005 was approved by the American National Standards Institute on December 13, 2005.

ASME B30.23-2005 includes the following changes identified by a margin note, **(05)**.

Page	*Location*	*Change*
vii–ix	B30 Standard Introduction	Revised in its entirety
1, 2	Section 23-0.1	Revised
	Section 23-0.2	Revised
	Section 23-0.3	(1) *ground crew* added (2) *qualified person* revised (3) *shackle, safety type* deleted
3	23-1.1.1(a)(1)(b)	Revised
4	23-1.1.1(b)(7)	First paragraph revised
	23-1.1.1(b)(10)(d)	Revised
	23-1.1.1(b)(10)(i)	Revised
5	23-1.1.2(b)	Revised
	23-1.2.2(a)	Revised
6	23-2.1.2	Revised
	23-2.2.1(a)(2)	Revised
7	23-2.2.1(c)	Revised
	23-2.2.2(a)	Revised
9	23-3.1.3(a)	Revised
10	23-3.2.1(j)(7)	Added
11	23-3.2.2(a)(18)	Revised
	23-3.2.2(a)(25)	Added
12	23-3.2.5(a)	Revised
	23-3.2.5(h)	Added

SPECIAL NOTE:

The interpretations to ASME B30.23 are included in this edition as a separate section for the user's convenience.

PERSONNEL LIFTING SYSTEMS

Chapter 23-0
Scope, Definitions, and References

(05) SECTION 23-0.1: SCOPE OF B30.23

Within the general scope defined in Section I, ASME B30.23 may apply to hoisting and accessory equipment covered within certain volumes of the ASME B30 Standard, which is used to lift, lower, hold, or transport personnel in a platform, by wire rope or chain, from hoist equipment, or by a platform that is mounted on a boom of the hoist equipment. The lifting of personnel is not allowed using some ASME B30 Standard equipment. The ASME B30 volume addressing the hoisting equipment to be used shall be consulted for the applicability of the ASME B30.23 volume.

(05) SECTION 23-0.2: INTENT OF B30.23

This volume establishes the design criteria, equipment characteristics, and operational procedures which are required when material handling equipment, as defined by the ASME B30 Standard, is used to lift personnel. Hoisting equipment as defined by the ASME B30 Standard is intended for material handling. It is not designed, manufactured, or intended to meet the standards for personnel handling equipment, such as ANSI/SIA A92 (Aerial Platforms). The equipment and implementation requirements listed in this volume are not the same as that established for using equipment specifically designed and manufactured for lifting personnel. Hoisting equipment complying with the ASME B30 Standards shall not be used to lift or lower personnel unless it is not possible to accomplish the task by a less hazardous means. The lifting or lowering of personnel using ASME B30-compliant hoisting equipment is prohibited unless all applicable requirements of this volume have been met.

(05) SECTION 23-0.3: DEFINITIONS

anti-two-block device: a device that, when activated, disengages all hoisting equipment functions whose movement can cause two-blocking.

attachment point(s): the place(s) on a boom or a personnel platform that is used to connect either the platform to the boom or to a suspension system.

boom: a hinged structural member of hoisting equipment used for supporting the hoisting tackle and load.

brake: a device used for retarding or stopping motion.

brake, automatic: a device that retards or stops motion, without actuation by the operator, when specific equipment operational parameters are met.

certified welder: a person holding a current certificate, for the type of weld being applied, as proof that qualified test welds have been performed and passed in accordance with the American Welding Society or American Society of Mechanical Engineers criteria.

design factor: the ratio of the ultimate strength of a material to its working (unit) stress, unless defined otherwise in the text of this volume, for specific applications.

designated person: a person who is selected or assigned by the employer or employer's representative as being competent to perform specific duties.

ground crew: those individuals who are involved in the personnel lift, other than the hoisting equipment operator and platform occupants. These individuals include riggers, signal persons, and supervision.

handrail: a member supported on brackets to furnish support to platform occupants during lifting operations.

hoisting equipment: a machine for lifting and lowering a load and moving it horizontally. The machine may be fixed or mobile and be driven manually, by power, or by a combination of both. As used in this volume, the term covers all types of lifting machines addressed by the ASME B30 Standard volumes and used to lift, lower, or transport personnel.

intermediate rail: the middle member of a barrier along the edges of a platform, located approximately one-half the distance between the platform floor and top rail.

latch, hook: a device used to bridge or close the throat opening of a hook for the purpose of preventing attachments from being dislodged.

lifting, personnel: raising, lowering, or transporting personnel using hoisting equipment covered by the ASME B30 Standard.