ASME B30.20-2013
(Revision of ASME B30.20-2010)

Below-the-Hook Lifting Devices

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

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

INTENTIONALLY LEFT BLANK

ASME B30.20-2013
(Revision of ASME B30.20-2010)

Below-the-Hook Lifting Devices

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

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers
Two Park Avenue • New York, NY • 10016 USA

Date of Issuance: January 15, 2014

The next edition of this Standard is scheduled for publication in 2016. 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 Web site under the Committee Pages at http://cstools.asme.org/ as they are issued, and will also be published within the next edition of the Standard.

Errata to codes and standards may be posted on the ASME Web site 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
Two Park Avenue, New York, NY 10016-5990

CONTENTS

Figures

Table

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 (ANSI). 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 at 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 (AESC) (later changed to American Standards Association (ASA), then to the United States of America Standards Institute (USASI), and finally to ANSI), 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, AESC 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. Commencing June 1, 1927, and using the eight-page code published by ASME in 1916 as a basis, the Sectional Committee developed the Safety Code for Cranes, Derricks, and Hoists. The early drafts of this safety code included requirements for Jacks, but, due to inputs and comments on those drafts, the Sectional Committee decided in 1938 to make the requirements for Jacks a separate code. In January 1943, ASA B30.2-1943 was published addressing a multitude of equipment types and in August 1943, ASA B30.1-1943 was published just addressing Jacks. Both documents were reaffirmed in 1952 and widely accepted as safety standards.

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 Bureau of Yards and Docks (now the Naval Facilities Engineering Command) was reorganized on January 31, 1962, with 39 members representing 27 national organizations. The new committee changed the format of ASA B30.2-1943 so that the multitude of equipment types it addressed could be published in separate volumes that could completely cover the construction, installation, inspection, testing, maintenance, and operation of each type of equipment that was included in the scope of ASA B30.2. This format change resulted in the initial publication of B30.3, B30.5, B30.6, B30.11 and B30.16 being designated as Revisions of B30.2 with the remainder of the B30 volumes being published as totally new volumes. ASA changed its name to USASI in 1966 and to ANSI in 1969, which resulted in B30 volumes from 1943 to 1968 being designated as either ASA B30, USAS B30, or ANSI B30, depending on their date of publication.

In 1982, the Committee was reorganized as an Accredited Organization Committee, operating under procedures developed by ASME and accredited by ANSI. 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 IX of the Introduction, before rendering decisions on disputed points.

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.

B30.20, Below the Hook Lifting Devices was first published in 1985, new editions were published in 1993, 1999, 2003, and 2006. In the 2010 edition, maintenance was made mandatory, definitions were revised and other changes were made to improve clarity. This 2013 revision adds requirements for personnel competence, operating controls marking and inspection, translation of non-English documentation into English and updates to the definition of Duty Cycle to align with revisions made to BTH-1. In addition, responsibilities for Owners and Operators are defined for each piece of equipment.

This Volume of the Standard, which was approved by the B30 Committee and by ASME, was approved by ANSI and designated as an American National Standard on August 27, 2013.

ASME B30 COMMITTEE
Safety Standard 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.)

STANDARDS COMMITTEE OFFICERS

L. D. Means, *Chair*
R. M. Parnell, *Vice Chair*
K. M. Hyam, *Secretary*

STANDARDS COMMITTEE PERSONNEL

N. E. Andrew, ThyssenKrupp Steel USA, LLC
C. M Robison, *Alternate,* UT Battelle / Oak Ridge National Laboratory
T. L. Blanton, NACB Group, Inc.
P. A. Boeckman, The Crosby Group, Inc.
C. E. Lucas, *Alternate,* The Crosby Group, Inc.
R. J. Bolen, Consultant
C. E. Cotton, *Alternate,* Navy Crane Center
M. E. Brunet, Manitowoc Cranes/The Manitowoc Crane Group
A. L. Calta, *Alternate,* Manitowoc Crane Group
T. A. Christensen, Liberty Mutual Group
M. W. Mills, *Alternate,* Liberty Mutual Group
B. Closson, Craft Forensic Service
B. A. Pickett, *Alternate,* Forensic Engineering & Applied Science Institute
R. M. Cutshall, Savannah River Nuclear Solutions
J. A. Danielson, The Boeing Co.
P. W. Boyd, *Alternate,* The Boeing Co.
L. D. Demark, Sr., Equipment Training Solutions, LLC
D. F. Jordan, *Alternate,* BP America
D. Eckstine, Eckstine & Associates
H. G. Leidich, *Alternate,* Leidich Consulting Services, Inc.
R. J. Edwards, NBIS
A. J. Egging, National Oilwell Varco
C. W. Ireland, *Alternate,* Consultant, National Oilwell Varco
E. D. Fidler, The Manitowoc Co., Inc.
G. D. Miller, *Alternate,* Manitowoc Cranes
J. A. Gilbert, Associated Wire Rope Fabricators
J. L. Gordon, Acco Chain & Lifting Products
N. C. Hargreaves, *Consultant,* Terex Hargreaves Consulting, LLC
C. E. Imerman, *Alternate,* Link-Belt Construction Equipment Co.
G. B. Hetherston, E. I. DuPont
J. B. Greenwood, *Alternate,* Navy Crane Center
K. M. Hyam, The American Society of Mechanical Engineers
D. C. Jackson, Tulsa Winch Group
S. D. Wood, *Alternate,* Link-Belt Construction Equipment Co.
M. M. Jaxtheimer, Navy Crane Center
S. R. Gridley, *Alternate,* Navy Crane Center
P. R. Juhren, Morrow Equipment Co., LLC
M. J. Quinn, *Alternate,* Morrow Equipment Co., LLC
R. M. Kohner, Landmark Engineering Service
D. Duerr, *Alternate,* 2DM Associates, Inc.
A. J. Lusi Jr., Lumark Consulting LLP
E. K. Marburg, Columbus McKinnon Corp.
J. R. Burkey, *Alternate,* Columbus McKinnon Corp.
L. D. Means, Means Engineering & Consulting
D. A. Henninger, *Alternate,* Bridon American
D. L. Morgan, Mission Support Alliance
C. E. Brewer, *Alternate,* Mission Support Alliance
W. E. Osborn, Ingersoll Rand
G. L. Owens, Consultant
R. M. Parnell, ITI-Field Service
W. C. Dickinson Jr., *Alternate,* Crane Industry Services, LLC
J. T. Perkins, Engineering Consultant
J. R. Schober, *Alternate,* American Bridge Co.
J. E. Richardson, U.S. Department of The Navy
K. Kennedy, *Alternate,* Navy Crane Center
D. W. Ritchie, Dave Ritchie Consultant, LLC
L. K. Shapiro, *Alternate,* Howard I Shapiro & Associates
J. W. Rowland III, Consultant
D. A. Moore, *Alternate,* Unified Engineering
J. C. Ryan, Boh Bros Construction Co.
A. R. Ruud, *Alternate,* Atkinson Construction
D. W. Smith, STI Group
S. K. Rammelsberg, *Alternate,* CB&I
W. J. Smith Jr., Nations Builder Insurance Service
J. Schoppert, *Alternate,* NBIS Claims & Risk Management
R. S. Stemp, Lampson International, LLC
E. P. Vliet, *Alternate,* Turner Industries Group
R. G. Strain, Advanced Crane Technologies, LLC
J. Sturm, Sturm Corp.
P. D. Sweeney, General Dynamics Electric Boat
B. M. Casey, *Alternate,* General Dynamics Electric Boat
J. D. Wiethorn, Haag Engineering Co.
R. C. Wild, USACE Army Engineering District
E. B. Stewart, *Alternate,* U.S. Army Corps of Engineers
D. N. Wolff, National Crane/Manitowoc Crane Group
J. A. Pilgrim, *Alternate,* Manitowoc Crane

HONORARY MEMBERS

J. W. Downs, Jr., Downs Crane and Hoist Co.
J. J. Franks, Consultant
J. M. Klibert, Lift-All Co., Inc.
R. W. Parry, Consultant
P. S. Zorich, RZP Limited

B30.20 SUBCOMMITTEE PERSONNEL

P. W. Boyd, *Chair,* The Boeing Co.
B. Baker, Young Corp.
G. A. Bond, Woods Powr-Grip Co., Inc.
D. Duerr, 2DM Associates, Inc.
J. D. Edmundson, Konecranes/P&H
T. Hayward, The Caldwell Group, Inc.
F. G. Heath, Heath & Associates
K. M. Jankowski, Walker Magnetics Group
T. C. Mackey, WRPS Hanford a URS Co.
D. L. McCabe, Babcock & Wilcox Co.
L. Radu, Mazzella Lifting Technologies
D. T. Rebbin, Bradley Lifting Corp.
J. E. Rea, *Alternate,* Bradley Lifting Corp.
C. M. Robison, UT Battelle / Oak Ridge National Lab
R. M. Cutshall, *Alternate,* Savannah River Nuclear Solutions
P. D. Sweeney, General Dynamics Electric Boat
D. R. Verenski, Hunter Lift, Ltd.
T. J. Brookbank, *Alternate,* Hunter Lift, Ltd.
J. W. Downs Jr., *Honorary Member*
B. E. Schaltenbrand, *Honorary Member,* Consulting Engineer

B30 INTEREST REVIEW GROUP

P. W. Boyd, The Boeing Co.
M. J. Eggenberger, Bay Ltd.
H. A. Hashem, Saudi Aramco
J. Hui, School of Civil Engineering, People's Republic of China
A. Mattoli, Prowinch, LLC
M. W. Osborne, E-Crane International USA
A. G. Rocha, Belgo Bekaert Arames
W. Rumburg, Crane Consultants, Inc.
C.-C. Tsaur, Institute of Occupational Safety on Health, Taiwan

B30 REGULATORY AUTHORITY COUNCIL

C. Shelhamer, *Chair,* New York City Department of Buildings
L. G. Campion, U.S. Department of Labor/OSHA
W. J. Dougherty Jr., City of Philadelphia
C. Harris, City of Chicago — Department of Buildings
K. M. Hyam, The American Society of Mechanical Engineers
D. G. Merriman, New York State Department of Labor, Division of Safety & Health/PESH
C. R. Smith, Pennsylvania Department of State, Bureau of Professional and Occupational Affairs, Crane Board Member

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

B30 STANDARD INTRODUCTION (13)

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-movement 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 Standard 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, Industrial Rollers, Air Casters, and Hydraulic Gantries
B30.2 Overhead and Gantry Cranes (Top Running Bridge, Single or Multiple Girder, Top Running Trolley Hoist)
B30.3 Tower Cranes
B30.4 Portal and Pedestal Cranes
B30.5 Mobile and Locomotive Cranes
B30.6 Derricks
B30.7 Winches
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 (withdrawn 1982 — requirements found in latest revision 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
B30.25 Scrap and Material Handlers
B30.26 Rigging Hardware
B30.27 Material Placement Systems
B30.28 Balance Lifting Units
B30.29 Self-Erecting Tower Cranes
B30.30 Ropes[1]

SECTION II: SCOPE EXCLUSIONS

Any exclusion of, or limitations applicable to the equipment, requirements, recommendations, or operations contained in this Standard are established in the affected volume's scope.

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

These volumes 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 1 yr after its date of issuance.

[1] This volume is currently in the development process.