

ASME B30.26-2015
(Revision of ASME B30.26-2010)

Rigging Hardware

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

AN AMERICAN NATIONAL STANDARD



**The American Society of
Mechanical Engineers**

ASME B30.26-2015
(Revision of ASME B30.26-2010)

Rigging Hardware

**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: October 7, 2015

The next edition of this Standard is scheduled for publication in 2020. 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. Interpretations will also be included with each edition.

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.

ASME is the registered trademark of The American Society of Mechanical Engineers.

This code or standard was developed under procedures accredited as meeting the criteria for American National Standards. The Standards Committee that approved the code or standard was balanced to assure that individuals from competent and concerned interests have had an opportunity to participate. The proposed code or standard was made available for public review and comment that provides an opportunity for additional public input from industry, academia, regulatory agencies, and the public-at-large.

ASME does not “approve,” “rate,” or “endorse” any item, construction, proprietary device, or activity.

ASME does not take any position with respect to the validity of any patent rights asserted in connection with any items mentioned in this document, and does not undertake to insure anyone utilizing a standard against liability for infringement of any applicable letters patent nor assumes any such liability. Users of a code or standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, is entirely their own responsibility.

Participation by federal agency representative(s) or person(s) affiliated with industry is not to be interpreted as government or industry endorsement of this code or standard.

ASME accepts responsibility for only those interpretations of this document issued in accordance with the established ASME procedures and policies, which precludes the issuance of interpretations by individuals.

No part of this document may be reproduced in any form,
in an electronic retrieval system or otherwise,
without the prior written permission of the publisher.

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

Copyright © 2015 by
THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS
All rights reserved
Printed in U.S.A.

Section 26-4.2	Design Factor	19
Section 26-4.3	Rated Loads	19
Section 26-4.4	Proof Test	20
Section 26-4.5	Identification	20
Section 26-4.6	Effects of Environment	20
Section 26-4.7	Training	20
Section 26-4.8	Inspection, Repair, and Removal	21
Section 26-4.9	Operating Practices	21
Chapter 26-5	Rigging Blocks — Selection, Use, and Maintenance	24
Section 26-5.0	Scope	24
Section 26-5.1	Types and Materials	24
Section 26-5.2	Design Factor	24
Section 26-5.3	Rated Loads	24
Section 26-5.4	Proof Test	24
Section 26-5.5	Identification	24
Section 26-5.6	Effects of Environment	24
Section 26-5.7	Training	24
Section 26-5.8	Inspection, Repair, and Removal	28
Section 26-5.9	Operating Practices	28
Chapter 26-6	Detachable Load-Indicating Devices — Selection, Use, and Maintenance	30
Section 26-6.0	Scope	30
Section 26-6.1	Types and Materials	30
Section 26-6.2	Design Factor	30
Section 26-6.3	Rated Loads	30
Section 26-6.4	Proof Test	30
Section 26-6.5	Identification	30
Section 26-6.6	Effects of Environment	30
Section 26-6.7	Training	30
Section 26-6.8	Calibration, Inspection, Repair, and Removal	34
Section 26-6.9	Operating Practices	34
Figures		
26-1.1.1-1	Shackle Types	3
26-1.9.1-1	Angle of Loading (Shackles)	5
26-1.9.4-1	Typical Shackle Components	6
26-1.9.4-2	Side Loading	6
26-2.1.1-1	Turnbuckles	8
26-2.1.1-2	Eyebolts	8
26-2.1.1-3	Eye-bits	9
26-2.1.1-4	Swivel Hoist Rings	10
26-2.9.1-1	Angle of Loading (Adjustable Hardware)	12
26-3.1.1-1	Wire Rope Clips	15
26-3.1.1-2	Wedge Sockets	16
26-4.1.1-1	Links and Rings	19
26-4.1.1-2	Swivels	20
26-4.9.1-1	Angle of Loading (Links, Master Link Subassemblies, Rings, and Swivels)	22
26-5.1.1-1	Rigging Block Types	25
26-5.1.1-2	Typical Rigging Block Components	26
26-5.3-1	Block Load Factor Multipliers	27
26-6.1.1-1	Crane Scale — Dynamometer	31
26-6.1.1-2	Link Style Load-Indicating Device	32
26-6.1.1-3	Shackle With Load-Indicating Pin	33

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 1917 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 on October 2, 1926, and the committee was organized on 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 addressing just 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 would 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 subvisions 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 the introduction of Section IX, 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.

The first edition of this Volume was B30.26-2004, published on May 20, 2005. The second edition, B30.26-2010, which was published on June 30, 2010, added Chapter 26-6, Detachable Load-Indicating Devices — Selection, Use, and Maintenance. This 2015 Edition incorporates many global B30 changes, including addition of Sections on personnel competence, translations, and references; addition of general information paragraphs in the inspection Sections; and other revisions. This Edition, which was approved by the B30 Committee and by ASME, was approved by ANSI and designated as an American National Standard on August 6, 2015.

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

B. D. Closson, *Chair*
T. L. Blanton, *Vice Chair*
K. M. Hyam, *Secretary*

STANDARDS COMMITTEE PERSONNEL

N. E. Andrew, LTS Cranes Mechanical
M. Eggenberger, *Alternate*, Berry Contracting, Inc.
G. Austin, Terex Corp.
T. L. Blanton, NACB Group, Inc.
R. Ohman, *Alternate*, Verde Concepts, Inc.
P. A. Boeckman, The Crosby Group
C. E. Lucas, *Alternate*, The Crosby Group
P. W. Boyd, The Boeing Co.
M. E. Brunet, The Manitowoc Co.
A. L. Calta, *Alternate*, The Manitowoc Co.
B. D. Closson, Craft Forensic Services
B. A. Pickett, *Alternate*, Systems Engineering and Forensic Services
J. A. Danielson, The Boeing Co.
D. Decker, Becket, LLC
L. D. DeMark, Equipment Training Solutions, LLC
D. F. Jordan, *Alternate*, BP America
D. W. Eckstine, Eckstine & Associates
G. J. Brent, *Alternate*, NCCCO
R. J. Edwards, NBIS Claims and Risk Management, Inc.
A. J. Egging, National Oilwell Varco
R. Stanoch, *Alternate*, National Oilwell Varco
E. D. Fidler, The Manitowoc Co.
G. D. Miller, *Alternate*, The Manitowoc Co.
J. A. Gilbert, Associated Wire Rope Fabricators
J. L. Gordon, Associated Chain and Lifting Products
N. C. Hargreaves, Hargreaves Consulting, LLC
G. B. Hetherston, E. I. DuPont
R. J. Bolen, *Alternate*, E. I. DuPont
K. M. Hyam, The American Society of Mechanical Engineers
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. Young, Landmark Engineering Services, Ltd.
D. Owen, *Alternate*, 2DM Associates, Inc.
A. J. Busi, Jr., Lumark Consulting, LLP
R. L. Swain, *Alternate*, K. J. Shinn, Inc.
E. K. Marburg, Columbus McKinnon Corp.
J. R. Burkey, *Alternate*, Columbus McKinnon Corp.
L. D. Means, Means Engineering and Consulting
D. A. Henninger, *Alternate*, Barton American
M. W. Mills, Liberty Mutual Insurance
D. M. Gordon, *Alternate*, Liberty Mutual Insurance
D. L. Morgan, Lift Consultants, LLC
T. C. Macke, *Alternate*, WRPS Hanford
W. F. Osborn, Hagersoll Rand
S. D. Wood, *Alternate*, Link-Belt Construction Equipment Co.
R. K. Parrell, Industrial Training International
J. C. Wilkinson, Jr., *Alternate*, Industrial Training International
T. Terkins, Solarex
J. Schober, *Alternate*, American Bridge Co.
J. E. Richardson, Navy Crane Center
K. Kennedy, *Alternate*, Navy Crane Center
D. W. Ritchie, David 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., LLC
A. R. Ruud, *Alternate*, Atkinson Construction
D. W. Smith, STI Group
S. K. Rammelsberg, *Alternate*, Chicago Bridge & Iron Co.
W. J. Smith, Jr., NBIS Claims and Risk Management, Inc.
J. Schoppert, *Alternate*, NBIS Claims and Risk Management, Inc.
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.
M. Gardiner, *Alternate*, Haag Engineering Co.
R. C. Wild, CJ Drilling, Inc.
J. Dudley, *Alternate*, Archer Western Contractors
D. N. Wolff, National Crane/Manitowoc Crane Group
J. A. Pilgrim, *Alternate*, Manitowoc Crane Group

HONORARY MEMBERS

J. W. Downs, Jr., Downs Crane and Hoist Co.
J. L. Franks, Consultant
C. W. Ireland, National Oilwell Varco
J. M. Klibert, Lift-All Co., Inc.
R. W. Parry, Consultant
P. S. Zorich, Consultant

B30.26 SUBCOMMITTEE PERSONNEL

C. E. Lucas, *Chair*, The Crosby Group, Inc.
R. Ohman, *Alternate*, Verde Concepts, Inc.
N. E. Andrew, AM/NS Calvert
W. B. Bickett, Jr., *Alternate*, The Babcock & Wilcox Companies
T. Cobb, Columbus McKinnon Forge Operations Chattanooga
B. Considine, Skyazul, Inc.
D. Decker, Becket, LLC
D. W. Eckstine, Eckstine & Associates
W. Emberger, Exelon Energy

J. A. Gilbert, Associated Wire Rope Fabricators
S. R. Gridley, Navy Crane Center
M. W. Mills, Liberty Mutual Insurance
J. M. Randall, CB&I
S. K. Rammelsberg, *Alternate*, CB&I
M. J. Secrist, Ulven Companies
C. Seale, *Alternate*, Skookum
K. Sellers, Gunnebo-Johnson Corp.
B. D. Todd, Campbell Chain
D. W. Smith, *Contributing Member*, STI Group

B30 INTEREST REVIEW GROUP

O. Akinboboye, Ropetech Engineering Services
J. D. Cannon, Consultant
M. Eggenberger, Berry Contracting, Inc.
A. Gomes Rocha, Belgo Bekaert Arames
H. A. Hashem, Saudi Aramco
J. Hui, School of Civil Engineering, People's Republic of China

A. C. Mattoli, Provent LLC
M. W. Osborne, E-Crane International USA
G. L. Owens, Consultant
W. Rumburg, Crane Consultants, Inc.
C.-C. Tsai, Institute of Occupational Safety and Health, Taiwan

B30 REGULATORY AUTHORITY COUNCIL

C. Shelhamer, *Chair*, New York City Department of Buildings
A. O. Omran, *Alternate*, New York City Department of Buildings
K. M. Hyam, *Secretary*, The American Society of Mechanical Engineers
G. Beer, Iowa OSHA
L. G. Champion, U.S. Department of Labor/OSHA
W. L. Cooper, Arizona Division of Occupational Safety and Health
R. Feidt, Stephenson Equipment, Inc.

C. Harris, City of Chicago — Department of Buildings
J. L. Lankford, State of Nevada/OSHA
A. Lundeen, State of Washington – Department of Labor and Industries
G. E. Pushies, MIOSHA
C. N. Stribling, Jr., Kentucky Labor Cabinet
T. Taylor, State of Minnesota – Department of Labor and Industry
C. Tolson, State of California – OSH Standards Board

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

B30 STANDARD INTRODUCTION

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 Cranes
- B30.15 Mobile Hydraulic Cranes (with the 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 Lever 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 Ropes¹

SECTION II: SCOPE EXCLUSIONS

Any exclusions 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.