

ASME B30.12-2011
(Revision of ASME B30.12-2006)

Handling Loads Suspended From Rotorcraft

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

AN AMERICAN NATIONAL STANDARD



**The American Society of
Mechanical Engineers**

ASME B30.12-2011
(Revision of ASME B30.12-2006)

Handling Loads Suspended From Rotorcraft

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

AN AMERICAN NATIONAL STANDARD



**The American Society of
Mechanical Engineers**

Three Park Avenue • New York, NY • 10016 USA

Date of Issuance: March 16, 2012

The next edition of this Standard is scheduled for publication in 2017. 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.

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 assume 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
Three Park Avenue, New York, NY 10016-5990

Copyright © 2012 by
THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS
All rights reserved
Printed in U.S.A.

CONTENTS

Foreword	v
Committee Roster	vi
B30 Standard Introduction	viii
Summary of Changes	:
Chapter 12-0 Scope, Definitions, and References	1
Section 12-0.1 Scope of B30.12	1
Section 12-0.2 Definitions	1
Section 12-0.3 References	4
Chapter 12-1 External Load Ratings and Characteristics	5
Section 12-1.1 Load Ratings	5
Section 12-1.2 Load Characteristics	5
Chapter 12-2 Lifting Components	6
Section 12-2.1 Primary Cargo Hook(s)	6
Section 12-2.2 Hoist/Winch	6
Section 12-2.3 Rotorcraft	7
Section 12-2.4 Slings	7
Section 12-2.5 Longlines	7
Chapter 12-3 Inspection and Maintenance	10
Section 12-3.1 Rotorcraft Inspection and Maintenance	10
Section 12-3.2 Primary Hook(s) and Attaching Means Inspection and Maintenance	10
Section 12-3.3 Hoist and Hoist Rope Inspection and Maintenance	10
Section 12-3.4 Sling Inspection, Replacement, and Maintenance	10
Chapter 12-4 Operations	11
Section 12-4.1 Pilots and Crew	11
Section 12-4.2 Pilot Qualification	11
Section 12-4.3 Signalperson Qualifications and Responsibilities	11
Section 12-4.4 Operating Practices	13
Chapter 12-5 Handling the Load	17
Section 12-5.1 Hooking and Unhooking Loads	17
Section 12-5.2 Techniques	17
Section 12-5.3 Attachment Methods	17
Chapter 12-6 Signals and Communication	18
Section 12-6.1 Signal Systems	18
Section 12-6.2 Personnel	18
Section 12-6.3 Human External Cargo Communications	18
Chapter 12-7 Fueling and Ground-Based Facilities at the Work Area	19
Section 12-7.1 Fueling Operations	19
Section 12-7.2 Personnel Training	19
Section 12-7.3 Ground-Based Facilities Arrangement	19
Figures	
12-0.2.2-1 Hook With Closed-Throat Load Beam	2
12-0.2.2-2 Hook With Open-Throat Load Beam	3
12-2.4.1-1 Vertical Hitch	8
12-2.4.1-2 Two-Leg Sling	8
12-2.4.1-3 Three-Leg Sling	8

12-2.4.1-4	Four-Leg Sling	8
12-2.4.1-5	Two-Leg Spreader Sling	9
12-2.4.1-6	Four-Leg Spreader Sling	9
12-4.3.4-1	Helicopter Hand Signals	12
12-4.4.16-1	Personnel Approach/Departure Path (Level Ground)	15
12-4.4.16-2	Personnel Approach/Departure Path (Sloping Ground)	15
12-4.4.16-3	Personnel Approach/Departure With Tools	15
12-5.1-1	Helicopter Station	17
Table		
12-2.4.3-1	Determining Sling Strength	9

Currently in preview, click buy full version

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, 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 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 B30 Standard 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.

This Volume of the Standard contains minor revisions that were approved by the B30 Committee and ASME. This Volume of the Standard was approved by ANSI and designated as an American National Standard on December 6, 2011.

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
T. L. Blanton, NACB Group, Inc.
P. A. Boeckman, The Crosby Group, Inc.
R. J. Bolen, E. I. DuPont
M. E. Brunet, The Manitowoc Co.
T. A. Christensen, Liberty Mutual Insurance Co.
M. W. Mills, *Alternate*, Liberty Mutual Insurance Co.
B. D. Closson, Craft Forensic Services, Inc.
B. Pickett, *Alternate*, Forensic Engineering & Applied Science Institute
R. M. Cutshall, Savannah River Nuclear Solutions
L. D. DeMark, Equipment Training Solutions, LLC
D. Jordan, *Alternate*, BP
D. W. Eckstine, Eckstine and Associates
H. G. Leidich, *Alternate*, Leidich Consulting Services
R. J. Edwards, Alliance Concrete Pumps
E. D. Fidler, Grove Crane/The Manitowoc Crane Group
J. L. Gordon, Acco Material Handling Solutions
N. C. Hargreaves, Terex Corp.
C. E. Imerman, *Alternate*, Link-Belt Construction Equipment Co.
J. J. Headley, Crane Institute of America
W. C. Dickinson, *Alternate*, Crane Industry Services, LLC
G. B. Hetherston, E. I. DuPont
K. M. Hyam, The American Society of Mechanical Engineers
C. W. Ireland, National Oilwell Varco
A. J. Egging, *Alternate*, National Oilwell Varco
D. C. Jackson, Tulsa Winch Group
W. E. Osborn, *Alternate*, Ingersoll Rand
P. R. Juhren, Morrow Equipment Co., LLC
R. M. Kohner, Landmark Engineering Services
D. Duerr, *Alternate*, 2DM Associates, Inc.
C. E. Lucas, The Crosby Group, Inc.
F. P. Masson, *Alternate*, Bishop Lifting Products, Inc.
A. J. Lusi, International Union of Operating Engineers
D. W. Frantz, *Alternate*, Ohio Operating Engineers Local 18
E. K. Marburg, Columbus McKinnon Corp.
D. K. Huber, *Alternate*, Columbus McKinnon Corp.
L. D. Means, Means Engineering and Consulting/Wire Rope Technical Board
D. A. Henninger, *Alternate*, Bridon American
D. Morgan, Mission Support Alliance
C. Brewer, *Alternate*, Mission Support Alliance
G. L. Owens, Consultant
R. M. Parnell, Wire Rope Rigging Consultants/Industrial Training International, Inc.
J. Daniels, *Alternate*, Boeing
J. T. Parsons, Consultant
J. E. Richardson, U.S. Department of the Navy
M. M. Jaxtheimer, *Alternate*, Navy Crane Center
D. W. Ritchie, David Ritchie Consultant, LLC
J. D. Wiethorn, *Alternate*, Haag Engineering Co.
J. W. Rowland III, Consultant
J. C. Ryan, Boh Brothers Construction Co.
A. R. Ruud, *Alternate*, Atkinson Construction
D. W. Smith, Chicago Bridge and Iron Co.
S. K. Rammelsberg, *Alternate*, Chicago Bridge and Iron Co.
W. J. Smith, Jr., NBIS Claims and Risk Management, Inc.
J. Schoppert, *Alternate*, NBIS Claims and Risk Management, Inc.
R. G. Strain, Advanced Crane Technologies, LLC
J. Sturm, Crane's Aerial Truck Service
P. D. Sweeney, General Dynamics, Electric Boat
B. M. Casey, *Alternate*, Electric Boat
B. E. Weir, Jr., Norris Brothers Company, Inc.
J. R. Schober, *Alternate*, American Bridge Co.
R. C. Wild, U.S. Army Corps of Engineers
E. B. Stewart, *Alternate*, U.S. Army Corps of Engineers
D. N. Wolff, National Crane/Manitowoc Crane Group
A. L. Calta, *Alternate*, Manitowoc Crane Group

HONORARY MEMBERS

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

B30 REGULATORY AUTHORITY COUNCIL

C. Shelhamer, *Chair*, New York City Department of Buildings
W. J. Dougherty, Jr., *Vice Chair*, City of Philadelphia
K. M. Hyam, *Secretary*, The American Society of Mechanical Engineers
L. G. Champion, DOL/OSHA
P. F. Finn, U.S. Department of Energy
C. Harris, City of Chicago, Department of Buildings

E. S. Kawa, Jr., Massachusetts Department of Public Safety
C. Lemon, Washington State Department of Labor & Industries
C. R. Smith, Pennsylvania Department of State, Bureau of Professional and Occupational Affairs
L. C. Markee, *Alternate*, Washington State Department of Labor & Industries

B30.12 SUBCOMMITTEE PERSONNEL

T. L. Blanton, *Chair*, NACB Group, Inc.
R. E. Bluff IV, Gantry Constructors, Inc.
J. E. Chamberlin, United Space Alliance, Inc.

D. R. Chambers II, Erickson A. Crane Co.
T. A. Christensen, Liberty Mutual Insurance Co.
T. F. McLoughlin, Breezeway Easton Corp.

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

(11)

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 Supported 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-Erect Tower Cranes
- B30.30 Ropes¹

SECTION II: SCOPE EXCLUSIONS

Any exclusions 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 These volumes are currently in the development process.