

ASME B30.5-2021
(Revision of ASME B30.5-2018)

Mobile and Locomotive Cranes

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

AN AMERICAN NATIONAL STANDARD



**The American Society of
Mechanical Engineers**

ASME B30.5-2021
(Revision of ASME B30.5-2018)

Mobile and Locomotive Cranes

**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: December 17, 2021

The next edition of this Standard is scheduled for publication in 2024. 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 website under the Committee Pages at <http://cstools.asme.org/> as they are issued.

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

Copyright © 2021 by
THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS
All rights reserved
Printed in U.S.A.

CONTENTS

Foreword	v
Committee Roster	vii
B30 Standard Introduction	ix
Summary of Changes	
Chapter 5-0 Scope, Definitions, Personnel Competence, and References	1
Section 5-0.1 Scope of B30.5	1
Section 5-0.2 Definitions	1
Section 5-0.3 Personnel Competence	16
Section 5-0.4 References	16
Chapter 5-1 Construction and Characteristics	17
Section 5-1.1 Load Ratings and Technical Information	17
Section 5-1.2 Backward Stability	23
Section 5-1.3 Boom Hoist, Load Hoist, and Telescoping Boom Mechanisms	23
Section 5-1.4 Swing Mechanism	24
Section 5-1.5 Crane Travel	24
Section 5-1.6 Controls	25
Section 5-1.7 Ropes and Reeving Accessories	28
Section 5-1.8 Cabs	30
Section 5-1.9 General Requirements	30
Section 5-1.10 Structural Performance	32
Section 5-1.11 Cranes Used for Other Than Lifting Service	32
Section 5-1.12 Translations of Safety Related Information and Control Designations	32
Chapter 5-2 Inspection, Testing, and Maintenance	33
Section 5-2.1 Inspection — General	33
Section 5-2.2 Testing	34
Section 5-2.3 Maintenance	35
Section 5-2.4 Rope Inspection, Replacement, and Maintenance	36
Chapter 5-3 Operation	39
Section 5-3.1 Qualifications and Responsibilities	39
Section 5-3.2 Operating Practices	44
Section 5-3.3 Signals	48
Section 5-3.4 Miscellaneous	49
Nonmandatory Appendix	
A Critical Lifts	59
Figures	
5-0.2.1-1 Commercial Truck-Mounted Crane — Telescoping Boom (Multiple Control Stations, Fixed)	2

5-0.2.1-2	Commercial Truck-Mounted Crane — Telescoping Boom With Fixed Jib (Multiple Control Stations, Fixed)	3
5-0.2.1-3	Commercial Truck-Mounted Crane — Telescoping Boom (Multiple Control Stations, Fixed and Rotating)	4
5-0.2.1-4	Crawler Crane — Lattice Boom	5
5-0.2.1-5	Crawler Crane — Lattice Boom With Lattice Luffing Jib	6
5-0.2.1-6	Crawler Crane — Lattice Boom With Lattice Luffing Jib and Lattice Offsettable Fixed Jib	7
5-0.2.1-7	Crawler Crane — Lattice Boom With Lattice Fixed Jib	8
5-0.2.1-8	Crawler Crane — Telescoping Boom	9
5-0.2.1-9	Locomotive Crane — Lattice Boom	10
5-0.2.1-10	Wheel-Mounted Crane — Telescoping Boom (Multiple Control Stations, Fixed and Rotating)	11
5-0.2.1-11	Wheel-Mounted Crane — Telescoping Boom With Offsettable Fixed Jib (Multiple Control Stations, Fixed and Rotating)	12
5-0.2.1-12	Wheel-Mounted Crane — Telescoping Boom With Luffing Jib (Multiple Control Stations, Fixed and Rotating)	13
5-0.2.1-13	Wheel-Mounted Crane — Telescoping Boom (Single Control Station, Rotating)	14
5-0.2.1-14	Wheel-Mounted Crane — Telescoping Boom (Single Control Station, Fixed)	15
5-1.1.3-1	Work Areas	19
5-1.6.1-1	Telescopic Boom Crane Control Diagram (Suggested Mobile Telescopic Boom Crane Basic Operating Control Arrangement for New Cranes)	26
5-1.6.1-2	Nontelesopic Boom Crane Control Diagram (Suggested Mobile Nontelesopic Boom Crane Basic Operating Control Arrangement for New Cranes)	27
5-1.7.3-1	Dead Ending Rope in a Socket	29
5-2.4.2-1	Core Failure in 19 × 7 Rotation-Resistant Rope	36
5-3.2.1.5-1	Examples of Typical Unequal Outrigger Extension Positions	46
5-3.3.4-1	Standard Hand Signals for Controlling Crane Operations	50
5-3.4.5.1-1	Flowchart to Assist in Determination of the Applicable Subsection for Crane Operation Near Electric Power Lines	53
5-3.4.5.1-2	Specified Clearance Around an Energized Electric Power Line	54
5-3.4.5.1-3	Specified Clearance Around an Energized Electric Power Line That Shall Be Maintained When the Crane Is in Travel or Transit	55
5-3.4.5.1-4	Electric Power Line Support Structures	56
 Tables		
5-1.1.1-1	Crane Load Ratings	18
5-3.4.5.1-1	Specified Clearance in the Vicinity of Energized Electric Power Lines	55