

ASME HST-2-2018
(Revision of ASME HST-2-2014)

Performance Standard for Hand Chain Manually Operated Chain Hoists

AN AMERICAN NATIONAL STANDARD



**The American Society of
Mechanical Engineers**

ASME HST-2-2018
(Revision of ASME HST-2-2014)

Performance Standard for Hand Chain Manually Operated Chain Hoists

AN AMERICAN NATIONAL STANDARD



**The American Society of
Mechanical Engineers**

Two Park Avenue • New York, NY • 10016 USA

Date of Issuance: June 28, 2019

The next edition of this Standard is scheduled for publication in 2024.

ASME issues written replies to inquiries concerning interpretations of technical aspects of this Standard. Interpretations are published on the Committee web page and under <http://go.asme.org/InterpsDatabase>. Periodically certain actions of the ASME HST Committee may be published as Cases. Cases are published on the ASME website under the HST Committee Page at <http://go.asme.org/HSTcommittee> 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 HST Committee Page can be found at <http://go.asme.org/HSTcommittee>. 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 © 2019 by
THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS
All rights reserved
Printed in U.S.A.

CONTENTS

Foreword	v
Committee Roster	vi
Correspondence With the HST Committee	vii
Chapter 2-0	Scope, Definitions, References, and Appendix	1
Section 2-0.1	Scope	1
Section 2-0.2	Definitions	1
Section 2-0.3	References	4
Section 2-0.4	Appendix	4
Chapter 2-1	Performance	5
Section 2-1.1	General	5
Section 2-1.2	Characteristics	5
Section 2-1.3	Application Analysis	5
Section 2-1.4	Specifications of Lift, Headroom, and Reach	5
Section 2-1.5	Trolleys	5
Section 2-1.6	Overload Limiting Device	6
Section 2-1.7	Load Sprockets (Pocket Wheels)	7
Section 2-1.8	Load Chain	7
Section 2-1.9	Hooks	7
Section 2-1.10	Load Blocks	8
Section 2-1.11	Brakes	8
Section 2-1.12	Overtravel Restraint	8
Section 2-1.13	Typical Hoist Inquiry Data Form	8
 Nonmandatory Appendix		
A	Performance Requirements for Hand Chain Manually Operated Chain Hoists Used in Marine and Other Applications as Required by the U.S. Department of Defense (DoD)	10
 Figure		
2-0.2-1	Headroom, Lift, and Reach	3
 Tables		
2-1.2-1	Typical Hoist Characteristics — Hook Suspended or Clevis Suspended	6
2-1.2-2	Typical Trolley-Suspended Hoist Characteristics (Hoist Suspended From a Separate Trolley)	7
2-1.2-3	Typical Trolley-Suspended Hoist Characteristics (Integral)	8
A-2.3.3-1	Type D, Hand-Chain-Operated Hoist, Link Chain, Low Headroom, Plain Trolley Suspension	11
A-2.3.4-1	Type E, Hand-Chain-Operated Hoist, Link Chain, Low Headroom, Geared Trolley Suspension	12

A-3.4-1	Hook Throat Openings	13
Form		
2-1.13-1	Typical Hoist Inquiry Data Form	9

FOREWORD

This Standard is one in a series that provides performance requirements for hoists and was originally issued in 1983. It was developed by the ASME HST Standards Committee, Hoists — Overhead. It is intended to serve as a guide to manufacturers of the equipment and to the purchasers and users of the equipment.

Standards in this series are as follows:

Designator	Title
HST-1	Performance Standard for Electric Chain Hoists
HST-2	Performance Standard for Hand Chain Manually Operated Chain Hoists
HST-3	Performance Standard for Lever Hoists
HST-4	Performance Standard for Overhead Electric Wire Rope Hoists
HST-5	Performance Standard for Air Chain Hoists
HST-6	Performance Standard for Air Wire Rope Hoists

This Standard is available for public review on a continuing basis. This provides an opportunity for additional public review input from industry, academia, regulatory agencies, and the public-at-large.

This Standard was approved as an American National Standard on October 30, 2018.

ASME HST COMMITTEE

Hoists — Overhead

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

STANDARDS COMMITTEE OFFICERS

J. R. Burkey, *Chair*
W. E. Osborn, *Vice Chair*
E. Dominguez, *Secretary*

STANDARDS COMMITTEE PERSONNEL

J. R. Burkey , Columbus McKinnon Corp.	M. A. Martinez Correa , Chevron Upstream and Gas
B. M. Casey , Electric Boat	W. E. Osborn , Ingersoll Rand
E. Dominguez , The American Society of Mechanical Engineers	N. L. Pagano , Harrington Hoist, Inc.
J. E. Eaglin , John Group International	J. Davis , <i>Contributing Member</i> , John W. Davis
F. G. Heath , Heath & Associates	R. B. Wehrmeister , <i>Contributing Member</i> , Advanced Overhead Crane
E. K. Marburg , Columbus McKinnon Corp.	

CORRESPONDENCE WITH THE HST COMMITTEE

General. ASME Standards are developed and maintained with the intent to represent the consensus of concerned interests. As such, users of this Standard may interact with the Committee by requesting interpretations, proposing revisions or a case, and attending Committee meetings. Correspondence should be addressed to:

Secretary, HST Standards Committee
The American Society of Mechanical Engineers
Two Park Avenue
New York, NY 10016-5990
<http://go.asme.org/Inquiry>

Proposing Revisions. Revisions are made periodically to the Standard to incorporate changes that appear necessary or desirable, as demonstrated by the experience gained from the application of the Standard. Approved revisions will be published periodically.

The Committee welcomes proposals for revisions to this Standard. Such proposals should be as specific as possible, citing the paragraph number(s), the proposed wording, and a detailed description of the reasons for the proposal, including any pertinent documentation.

Proposing a Case. Cases may be issued to provide alternative rules when justified, to permit early implementation of an approved revision when the need is urgent, or to provide rules not covered by existing provisions. Cases are effective immediately upon ASME approval and shall be posted on the ASME Committee web page.

Requests for Cases shall provide a Statement of Need and Background Information. The request should identify the Standard and the paragraph, figure, or table number(s), and be written as a Question and Reply in the same format as existing Cases. Requests for Cases should also indicate the applicable edition(s) of the Standard to which the proposed Case applies.

Interpretations. Upon request, the HST Standards Committee will render an interpretation of any requirement of the Standard. Interpretations can only be rendered in response to a written request sent to the Secretary of the HST Standards Committee.

Requests for interpretation should preferably be submitted through the online Interpretation Submittal Form. The form is accessible at <http://go.asme.org/InterpretationRequest>. Upon submittal of the form, the Inquirer will receive an automatic e-mail confirming receipt.

If the Inquirer is unable to use the online form, he/she may mail the request to the Secretary of the HST Standards Committee at the above address. The request for an interpretation should be clear and unambiguous. It is further recommended that the Inquirer submit his/her request in the following format:

Subject:	Cite the applicable paragraph number(s) and the topic of the inquiry in one or two words.
Edition:	Cite the applicable edition of the Standard for which the interpretation is being requested.
Question:	Phrase the question as a request for an interpretation of a specific requirement suitable for general understanding and use, not as a request for an approval of a proprietary design or situation. Please provide a condensed and precise question, composed in such a way that a "yes" or "no" reply is acceptable.
Proposed Reply(ies):	Provide a proposed reply(ies) in the form of "Yes" or "No," with explanation as needed. If entering replies to more than one question, please number the questions and replies.
Background Information:	Provide the Committee with any background information that will assist the Committee in understanding the inquiry. The Inquirer may also include any plans or drawings that are necessary to explain the question; however, they should not contain proprietary names or information.

Requests that are not in the format described above may be rewritten in the appropriate format by the Committee prior to being answered, which may inadvertently change the intent of the original request.

Moreover, ASME does not act as a consultant for specific engineering problems or for the general application or understanding of the Standard requirements. If, based on the inquiry information submitted, it is the opinion of the Committee that the Inquirer should seek assistance, the inquiry will be returned with the recommendation that such assistance be obtained.

ASME procedures provide for reconsideration of any interpretation when or if additional information that might affect an interpretation is available. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME Committee or Subcommittee. ASME does not “approve,” “certify,” “rate,” or “endorse” any item, construction, proprietary device, or activity.

Attending Committee Meetings. The HST Standards Committee regularly holds meetings and/or telephone conferences that are open to the public. Persons wishing to attend any meeting and/or telephone conference should contact the Secretary of the HST Standards Committee. Future Committee meeting dates and locations can be found on the Committee Page at <http://go.asme.org/HSTcommittee>.

Chapter 2-0

Scope, Definitions, References, and Appendix

SECTION 2-0.1: SCOPE

(a) This Standard establishes performance requirements for hand chain manually operated chain hoists for vertical lifting service involving material handling of freely suspended (unguided) loads, using welded link type load chain as a lifting medium, with one of the following types of suspension:

- (1) hook or clevis
- (2) trolley

(b) This Standard is applicable to hoists manufactured after the date on which this Standard is issued. Differential pulley and self-locking worm drive type hoists are not covered in this Standard.

(c) This Standard is not applicable to

- (1) damaged or malfunctioning hoists
- (2) hoists that have been misused or abused
- (3) hoists that have been altered without authorization of the manufacturer or a qualified person
- (4) hoists used for lifting or supporting people
- (5) hoists used for the purpose of drawing both the load and the hoist up or down the hoist's own load chain
- (6) hoists used in applications where the load on the hand chain hoist is not freely suspended from the hand chain hoist

The requirements of this Standard shall be applied together with the requirements of ASME B30.16. Please also refer to ASME B30.16 for requirements pertaining to marking, construction, installation, inspection, testing, maintenance, and operation.

SECTION 2-0.2: DEFINITIONS

ambient temperature: the temperature of the atmosphere surrounding the hoist.

beam: an overhead standard structural shape or specially fabricated shape on which a trolley operates.

chain, hand: the chain provided to control movement of a hand-chain-operated hoist or trolley (see [Figure 2-0.2-1](#)).

NOTE: Hand chain and load chain properties do not conform to those shown in ASME B30.9.

chain, load: the load-bearing chain in the hoist.

NOTE: Hand chain and load chain properties do not conform to those shown in ASME B30.9.

conditions, abnormal operating: environmental conditions that are unfavorable, harmful, or detrimental to or for the operation of a hoist, such as excessively high or low ambient temperatures, exposure to weather, corrosive fumes, dust-laden or moisture-laden atmospheres, and hazardous locations.

conditions, normal operating: conditions during which a hoist is performing functions within the scope of the original design.

hand chain drop: the distance to the lowest point of the hand chain measured from the saddle of the load hook at its upper limit of travel (see [Figure 2-0.2-1](#)).

hand chain overhaul: the number of feet (meters) the hand chain must travel to raise the load hook 1 ft (1 m).

hand chain pull: the average force measured in pounds (kilonewtons) exerted by the operator on the hoist hand chain to lift the rated load.

hand chain wheel: a wheel with formed pockets on its periphery to allow torque to be transmitted when a force is applied to the hand chain.