ASME HST-1–2023
(Revision of ASME HST-1–2017)

Performance Standard for Electric Chain Hoists

AN AMERICAN NATIONAL STANDARD



The American Society of Mechanical Engineers

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FOREWORD

ASME HST-1 is one in a series of standards that provides performance requirements for hoists. Originally published in 1982, ASME HST-1 was developed by the ASME HST Standards Committee, Hoists — Overhead to guide manufactures, purchasers, and users of electric chain hoists.

Standards in the ASME HST series are as follows:

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

ASME HST-1–2023 includes a Nonmandatory Appendix A that provides the U.S. Department of Defense requirements for electric chain hoists used in marine and other applications. Nonmandatory Appendix A, in conjunction with ASME HST-1, has replaced the requirements of MIL-H-15317.

ASME HST-1–2023 includes a Nonmandatory Appendix B that provides guidance to assist both the manufacturer and the end user in configuring a hoist for use in a potentially explosive environment. The requirements of this Standard shall be applied with the requirements of ASME B30.16.

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

ASME HST-1–2023 was approved by the American National Standard Institute as an American National Standard on April 6, 2023.

ASME HST COMMITTEE
Hoists — Overhead

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

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M. A. Martinez Correa, *Vice Chair*
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Revisions and Errata. The committee processes revisions to this Standard on a continuous basis 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 in the next edition of the Standard.

In addition, the committee may post errata on the committee web page. Errata become effective on the date posted. Users can register on the committee web page to receive e-mail notifications of posted errata.

This Standard is always open for comment, and the committee welcomes proposals for revisions. 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 background information and supporting documentation.

Cases

(a) The most common applications for cases are

(1) to permit early implementation of a revision based on an urgent need

(2) to provide alternative requirements

(3) to allow users to gain experience with alternative or potential additional requirements prior to incorporation directly into the Standard

(4) to permit the use of a new material or process

(b) Users are cautioned that not all jurisdictions or owners automatically accept cases. Cases are not to be considered as approving, recommending, certifying, or endorsing any proprietary or specific design, or as limiting in any way the freedom of manufacturers, constructors, or owners to choose any method of design or any form of construction that conforms to the Standard.

(c) A proposed case shall be written as a question and reply in the same format as existing cases. The proposal shall also include the following information:

(1) a statement of need and background information

(2) the urgency of the case (e.g., the case concerns a project that is underway or imminent)

(3) the Standard and the paragraph, figure, or table number(s)

(4) the edition(s) of the Standard to which the proposed case applies

(d) A case is effective for use when the public review process has been completed and it is approved by the cognizant supervisory board. Approved cases are posted on the committee web page.

Interpretations. Upon request, the committee will issue an interpretation of any requirement of this Standard. An interpretation can be issued only in response to a request submitted through the online Interpretation Submittal Form at https://go.asme.org/InterpretationRequest. Upon submitting the form, the inquirer will receive an automatic e-mail confirming receipt.

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ASME HST-1–2023
SUMMARY OF CHANGES

Following approval by the ASME HST Committee and ASME, and after public review, ASME HST-1–2023 was approved by the American National Standards Institute on April 6, 2023.

ASME HST-1–2023 includes the following changes identified by a margin note, **(23)**.

Page	*Location*	*Change*
1	Section 1-0.1	Subparagraph (b)(6) revised
1	Section 1-0.2	Definitions of *abnormal operating conditions*; *brake, mechanical load*; *braking, dynamic*; *control actuator*; *lift*; *power transmission parts*; *qualified person*; and *stop–start control function* revised
4	Section 1-0.4	Last paragraph added
6	Table 1-1.3-1	(1) General Notes (a) and (b) and Note (1) revised (2) Former Note (1) redesignated as General Note (c)
8	Table 1-1.6-1	Notes (1) and (2) revised
10	Chapter 1-2	(1) Added (2) Former Section 1-1.8 redesignated as Section 1-2.2
11	Chapter 1-3	(1) Added (2) Former para. 1-1.7.5 and Section 1-1.9 redesignated as Section 1-3.6 and para. 1-3.3.4, respectively
14	Chapter 1-4	(1) Former Section 1-1.10 redesignated as Chapter 1-4 (2) Form 1-4.1-1 (formerly Form 1-1.10-1) revised
16	Nonmandatory Appendix A	In-text reference citations updated throughout
16	A-1.4	Updated
17	A-2	(1) Paragraphs A-2.2 and A-2.6 through A-2.8 revised (2) Paragraph A-2.3.1 editorially redesignated as A-2.3 (3) First paragraph of A-2.4 editorially redesignated as A-2.4.1, and former A-2.4.1 redesignated as A-2.4.2
19	Table A-2.8-1	SI values added
19	A-3.2	Revised
20	A-3.3.5	Last sentence added
20	A-3.6.1	Paragraphs A-3.6.1.1 and A-3.6.1.3 revised
21	A-3.9.6	Added
22	A-3.10	Revised
22	A-4.1	First paragraph editorially redesignated as A-4.1.1, and former A-4.1.1 redesignated as A-4.1.2
23	A-4.2.8	Added
23	A-5.1.1	Revised
23	A-5.1.2	In paras. A-5.1.2.1 and A-5.1.2.2, last sentence added
25	A-5.1.12	Last sentence added

Page	*Location*	*Change*
25	A-5.1.13	Added
25	A-5.2	(1) Paragraph A-5.2.1 editorially redesignated as A-5.2 (2) Subparagraph (d) added and subsequent subparagraphs redesignated
25	A-5.3	Paragraph A-5.3.1 editorially redesignated as A-5.3
25	A-6	Former para. A-5.3.2 revised and redesignated as A-6
29	Nonmandatory Appendix C	Added

Chapter 1-0
Scope, Definitions, References, and Appendices

SECTION 1-0.1: SCOPE (23)

(a) This Standard establishes performance requirements for electric chain hoists for vertical lifting service involving material handling of freely suspended (i.e., unguided) loads using load chain of the roller or welded link types with one of the following types of suspension:

(1) lug
(2) hook or clevis
(3) trolley

(b) This Standard is applicable to hoists manufactured after the date on which this Standard is issued. It 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 or chains
(6) hoists used for marine and other applications as required by the U.S. Department of Defense (DOD) unless Nonmandatory Appendix A is invoked.

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, and installation; inspection, testing, and maintenance; and operation.

SECTION 1-0.2: DEFINITIONS (23)

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

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

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

brake: a device, other than a motor, used for retarding or stopping motion by means of friction or power.

brake, holding: a friction brake for a hoist that is automatically applied and prevents motion when power is off.

brake, mechanical load: an automatic type of friction brake used for controlling loads in a lowering direction. This unidirectional device requires torque from the motor to lower a load but does not impose any additional load on the motor when lifting a load. This mechanical brake may also be used as a holding brake if designed as such by the manufacturer.

braking, control: a method of controlling speed by removing energy from the moving body or by imparting energy in the opposite direction.

braking, dynamic: a method of controlling speed by using the motor as a generator, with the energy being dissipated by resistance.

braking, mechanical: a method of controlling or reducing speed by friction.

braking, regenerative: a method of controlling speed in which the electrical energy generated by the motor is fed back into the power system.

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

chain, roller: a series of alternately assembled roller links and pin links in which pins articulate inside the bushings, and the rollers are free to turn on the bushings. Pins and bushings are press-fit in their respective link plates.