There are many standards produced by many different standards-writing bodies. In an ever-shrinking world, hoist products increasingly pass across international borders. The list of standards referenced below is by no means complete, yet, in HMI’s opinion, represents the standards that are applicable in different regions of the world. Since some of those standards may differ from the country to country, it is important for purchasers, installers, and users to know which ones apply for a particular situation.

USA

In the USA, the American Society of Mechanical Engineers (ASME; website www.asme.org) publishes standards for hoists. Three are safety standards and six are performance standards. All carry the American National Standards Institute (ANSI) designator for a consensus American National Standard (ANS):

- 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 Manually Lever Operated Chain 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-B30.7 Safety Standard for Base Mounted Drum Hoists
- ASME-B30.16 Safety Standard for Overhead Hoists (Underhung)
- ASME-B30.21 Safety Standard Manually Lever-Operated Hoists

OSHA (Parts 1910 and 1926) adopts or invokes the American Society of Mechanical Engineers (ASME) HST Performance and B30 Safety Standards for hoists and related equipment.

Generally, for hoist installations in the US the standards published by the American Society of Mechanical Engineers apply.
NON-EUROPEAN
Outside North America, ISO (International Organization for Standardization) is sometimes referenced. For certain areas of the Asian markets the Japanese JIS standards may apply. Following is a selection of ISO and JIS standards applicable to hoists directly or through association with lifting machinery such as cranes:

ISO STANDARDS
The International Organization for Standardization (ISO; website www.iso.ch) publishes many standards for numerous types of lifting machinery, many specifically for application, design, operation and maintenance of cranes. Below is a brief selection applicable to hoists and hoist components:

ISO 1837  Lifting Hooks - Nomenclature
ISO 2374  Lifting Appliances - Range Of Maximum Capabilities for Basic Models
ISO 2408  Steel Wire Rope for General Purposes

JIS STANDARDS
The Japanese Industrial Standards Committee (JIS; website www.jisc.go.jp) publishes standards for hoists. Some of the primary ones are:

JIS B 8802 Manually Operated Chain Hoists
JIS B 8815 Electric Chain Hoists
JIS B 8819 Manually Operated Chain Lever Hoists
JIS C 9620 Electric Wire Rope Hoists

EUROPEAN
Traditionally, European countries have maintained national standards in reference to a large number of industrial products, e.g. DIN (Germany), BSI (United Kingdom). In addition the FEM (Federation Europeenne de la Manutention) has published standards specifically for material handling and lifting equipment.

With the creation of the European Union, organizations for standardization were established at different levels of regulatory authority covering numerous product areas.

The highest regulatory level is a European Standards Commission. Its regulations are absolute and regulatory, focusing primarily on worker safety and protection from occupational hazards.

There are three main regulations:
- Machinery Regulation (including Lifting and Material Handling Equipment)
- Low Voltage Electricity Regulation
- EMV – Electro-magnetic Compatibility Regulation

At the next level are CEN (mechanical) and CENELEC (electrical) Standards. They are more detailed and product oriented than the regulations. Per definition, the publications of CEN and CENELEC are “Standards”, non-regulatory guidelines, reflecting state of the art design and construction practices. They are based on the highest level of probability that equipment, designed to these standards will be safe and functional. They do not preclude deviations or “product improvement based on technological progress”.

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The goal of the CEN & CENELEC Committees is to harmonize the new, European norms with existing country-specific norms. The committees responsible for generating new standards include workgroups and sub-committees, which are comprised of representatives of related industries, academia and engineering research, as well as legal counsel. When a new CEN/CENELEC standard is introduced and “HARMONIZED” (language, legal, etc.) national norms (DIN (Germany), BS (England), AFNOR (France), AENOR (Spain), etc) lose validity.

CEN/CENELEC and ISO maintain communication between their committees working on related subjects. FEM is an Industry Association of Material Handling Manufacturers, similar in nature and function to MHIA Product Councils (HMI, CMAA, MMA, etc.). FEM specifications are not regulatory, yet they are widely accepted in the international arena, and usually referred to in the absence of national standards.

Following is a listing of European standards and specifications for hoists and related equipment:

**BSI STANDARDS**
Selection of primary standards published by British Standards (BSI website [www.bsi-global.com](http://www.bsi-global.com)) for hoists and related material handling equipment. (BS EN indicates harmonized standard):

- BS EN 292 Safety of Machinery
- BS EN 14492-2 Cranes – Power Driven Hoists
- BS EN 60034-1 Rotating Electrical Machines: Rating and performance
- BS EN 60034-5 Types of Enclosures for Rotating Electrical Machines
- BS EN 60204-32 Safety of Machinery - Electrical Equipment of Machines - Part 32: Requirements for Hoisting Machines

**DIN STANDARDS**
Selection of primary standards published by the Deutsches Institut für Normung (DIN; website [www.din.de](http://www.din.de)) for application, design, maintenance and safety aspects of hoist and related equipment. (DIN EN indicates harmonized standard):

- DIN EN 14492-2 Cranes – Power Driven Hoists
- DIN EN 60204-32 Safety of Machinery; Electrical Equipment of Machines; Requirements for Hoisting Machines.
- DIN 3051-Sections 1–4 Lifting Ropes; Steel Wires
- DIN 15017 Cranes & Hoists; Principles of Motor and Gear Sizing
- DIN 15020- Sections 1–2 Hoists; Principles of Rope Reving
- DIN 15061- Sections 1–2 Cranes & Hoists; Grooves for Rope Sheaves & Drums
- DIN 15100 Serial Lifting Equipment; Nomenclature
- DIN 15400 through DIN 15414 Detailed Aspects of Load Hooks and Bottom Block Construction
FEM STANDARDS
The Federation Europeenne de la Manutention (FEM; website www.fem-eur.com) publishes many standards for hoists and related material handling equipment. Some of the primary ones are:

FEM 1.002 Illustrated Terminology of Heavy Lifting Equipment
FEM 9.811 Rope and Chain Hoists – General Specifications
FEM 9.511 Rules for the Design of Series Lifting Equipment - Classification of Mechanisms
FEM 9.661 Rules for the design of Series Lifting Equipment - Dimensions and Design of Rope Reeving Components
FEM 9.683 Selection of Hoist and Travel Motors
FEM 9.852 Power Driven Series Hoist Mechanisms, Standardized Test Procedure for Verification of the Classification
FEM 9.755 Measures for Achieving Safe Working Periods for Motorized Serial Hoist Units (S.W.P.)
FEM 9.751 Power Driven Series Hoist Mechanisms, Safety
FEM 9.901 Rules for the Design of Series Lifting Equipment and Cranes Equipped with Series Lifting Equipment

CEN STANDARDS
Selection of primary standards published by the European Committee for Standardization (CEN; website www.cenorm.be) for hoists and related material handling equipment:

EN 341 Cranes – Bridge and Gantry Cranes
EN 13135-1 Cranes – Equipment – Part 1:Electrical Equipment
EN 13135-2 Cranes – Equipment – Part 2:Non-electrical Equipment
EN 13157 Cranes – Safety – Hand Powered Cranes
EN 13155 Cranes – Safety – Non-fixed Load Lifting Attachments
EN 13557 Cranes – Controls and Control Stations
EN 14492-1 Cranes – Power Driven Winches and Hoists – Part 1: Power Driven Winches
EN 14492-2 Cranes – Cranes – Power Driven Winches and Hoists – Part 2: Power Driven Hoists
EN 60204-32 Safety of Machinery; Electrical Equipment of Machines; Requirements for Hoisting Machines