



**ANSI E1.6-2 – 2018**  
**Entertainment Technology—**  
**Design, Inspection, and Maintenance of**  
**Electric Chain Hoists for the Entertainment**  
**Industry**

Document number Rig/2005-2040r11a

Approved as an American National Standard by the ANSI Board of Standards Review on 10 April 2018.

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### **The ESTA Technical Standards Program**

The ESTA Technical Standards Program was created to serve the ESTA membership and the entertainment industry in technical standards related matters. The goal of the Program is to take a leading role regarding technology within the entertainment industry by creating recommended practices and standards, monitoring standards issues around the world on behalf of our members, and improving communications and safety within the industry. ESTA works closely with the technical standards efforts of other organizations within our industry, including USITT and VPLT, as well as representing the interests of ESTA members to ANSI, UL, and the NFPA. The Technical Standards Program is accredited by the American National Standards Institute.

The Technical Standards Council (TSC) was established to oversee and coordinate the Technical Standards Program. Made up of individuals experienced in standards-making work from throughout our industry, the Council approves all projects undertaken and assigns them to the appropriate working group. The Technical Standards Council employs a Technical Standards Manager to coordinate the work of the Council and its working groups as well as maintain a "Standards Watch" on behalf of members. Working groups include: Control Protocols, Electrical Power, Event Safety, Floors, Fog and Smoke, Followspot Position, Photometrics, Rigging, and Stage Machinery.

ESTA encourages active participation in the Technical Standards Program. There are several ways to become involved. If you would like to become a member of an existing working group, as have over four hundred people, you must complete an application which is available from the ESTA office. Your application is subject to approval by the working group and you will be required to actively participate in the work of the group. This includes responding to letter ballots and attending meetings. Membership in ESTA is not a requirement. You can also become involved by requesting that the TSC develop a standard or a recommended practice in an area of concern to you.

The Rigging Working Group, which authored this Standard, consists of a cross section of entertainment industry professionals representing a diversity of interests. ESTA is committed to developing consensus-based standards and recommended practices in an open setting.

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MP = mass-market producer	U = user

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## 1 Scope\*

This standard covers the design, inspection, and maintenance of serially manufactured electric link chain hoists having capacity of 2 tons or less and used in the entertainment industry. This standard does not cover attachment to the load or to the overhead structure. Controls used for multiple hoist operation are excluded from the scope of this standard.

(NB: Clauses marked with an asterisk \* have an explanatory Annex note.)

## 2 Definitions

**2.1 chain dead end:** The attachment point at the hoist for the load bearing static end of the load chain on multiple-reeved hoists.

**2.2 competent person:** A person capable of identifying existing and predictable hazards in the surroundings or working conditions that are hazardous or dangerous to employees, and who is authorized to take prompt corrective measures to eliminate the hazards.

**2.3 dynamic load test:** A test of the hoist wherein a test load is applied to the hoist and, at a minimum, lifted the distance required to completely test the power transmission system.

**2.4 hook block assembly:** A mechanical device that attaches the hook to the load chain.

**2.5 hook throat opening:** The distance from the inside of the hook body to the inside tip of the hook at its narrowest point.

**2.6 lift wheel:** A powered sprocket device that produces movement of the load chain.

**2.7 link chain:** A chain consisting of a series of interwoven links formed and welded.

**2.8 load block:** The hook or shackle assembly, bearing, swivel, sprockets, sheaves, frame, and pins, suspended by the load chain.

**2.9 power transmission system:** Machinery components of the hoisting machine that transfer load, including the gears, shafts, clutches, couplings, bearings, motors, and if applicable brakes.\*

**2.10 qualified person:** A person who by possession of a recognized degree or certificate of professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter and work.

**2.11 serially manufactured:** Indicating a specific manufacturing process in which the same facilities and procedures are used to produce a series of identical products for general use, each containing unique, permanently applied sequential alphanumeric identification marks, all of which are permanently recorded by the manufacturer for traceability, and for which the manufacturer's established operational design criteria and quality assurance procedures for any single unit are equally applicable to all other units of the series.

**2.12 service:** Usage.

## 3 Minimum Design Criteria

### 3.1 General

**3.1.1** Hoists shall be designed so that they may be configured for use in either a hoist up or hoist down orientation.