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10.0 RIGGING HARDWARE

10.1 Scope

This Hanford Site Hoisting and Rigging Manual (HSHRM) chapter provides requirements that apply to the construction, installation, operation, inspection, and maintenance of detachable rigging hardware used for lifting purposes in conjunction with equipment described in other sections of this HSHRM. This hardware includes shackles, links, rings, swivels, turnbuckles, eyebolts, hoist rings, wire rope clips, wedge sockets, and rigging blocks. The proper and safe use of rigging hardware is governed by the American Society of Mechanical Engineers (ASME) standards and the Occupational Safety and Health Administration (OSHA) regulations. This chapter implements required criteria from ASME B30.26, *Rigging Hardware*, and OSHA 29 CFR 1926.251, *Rigging Equipment for Material Handling*.

10.2 Accessing Requirements

- a. To access ASME standards, choose one of the following options:
 - [IHS Engineering Standards, Regulations and Technical Specifications](#). The contractor must have paid for access to the specific standard.
 - Purchase standards directly from [ASME](#).
- b. To access the OSHA standard, go to:
 - [OSHA 29 CFR 1926.251, Rigging Equipment for Material Handling](#)

10.3 Implementation

Contractors shall comply with OSHA, ASME, this HSHRM, and manufacturers' requirements. Users of this HSHRM are responsible to implement all applicable requirements. If standards conflict, the user shall adhere to the standard containing the most stringent requirements. In most cases, ASME standards provide the most comprehensive information.

Users should contact a Hanford Site Hoisting Rigging Committee (HHRC) representative or send an [email](#) for a formal interpretation. See Appendix C, *Interpretations*, for the process to be followed. Notify the HHRC if any inconsistent standards are identified.

This HSHRM does not intend to require retrofitting of existing equipment. However, when any hoisting or rigging equipment is modified, its performance requirements shall be reviewed relative to the requirements within the current HSHRM. The need to meet the current requirements shall be evaluated by a qualified person selected by the owner (user).

10.4 Inconsistent Standards

ASME B30.26, Section 1.5.2, *Shackle Pin Identification*, specifies that each shackle pin shall have durable markings by the manufacturer to show the name or trademark of manufacturer and the grade, material type, or load rating.

OSHA does not address stamped identification of shackle pins.

Therefore, follow the requirements of ASME B30.26, Section 1.5.2, *Shackle Pin Identification*.

10.5 Temperature Limitations

The working temperature limits listed for carbon steel shall not be exceeded without the manufacturer's written approval. For hardware manufactured from other materials consult manufacturer.

Table 10-1: Temperature Limits by Hardware Types

Hardware Type	Temperature Limit	Reference
Wire Rope Clips	-40°F to +400°F	ASME B30.26
Wedge Sockets	-4°F to +400°F	ASME B30.26
Shackles	-40°F to +400°F	ASME B30.26
Turnbuckles	-40°F to +400°F	ASME B30.26
Eyebolts	+30°F to +275°F	ASME B30.26
Eye Nuts	-40°F to +400°F	ASME B30.26
Swivel Hoist Rigs	-20°F to +400°F	ASME B30.26
Detachable Load Indicating Devices	+14°F to +104°F	ASME B30.26
Links, Rings and Swivels	-40°F to +400°F	ASME B30.26
Rigging Blocks	0°F to +150°F	ASME B30.26

10.6 Hanford Specific Requirements

10.6.1 Manufacture-Installed Lift Points

All manufacturer-installed lift points shall be inspected and evaluated by a qualified person before use for cracks, deformation, excessive wear, or damage. When questions arise regarding the use of manufacturer-installed lift points, the equipment custodian or cognizant engineer shall be consulted.

10.6.2 Proof Testing

Rigging hardware used in critical lifts shall be proof tested (load tested) in accordance with the requirements of ASME B30.26, *Rigging Hardware*, and tagged or marked with proof test date. Proof test shall never be less than minimum requirements defined in ASME B30.26, *Rigging Hardware*. See Figure 10.1 for an example.

Dynamometers and Precision Load-Position Devices (hydro-set) shall have the following requirements:

- Load test at maximum capacity
- Shall have a minimum design factor of 4:1 based on yield of strength of materials
- Shall be load tested to 100% of rated capacity

- Shall be calibrated per the contractor’s requirements at least annually

Figure 10-1: Example of a Periodic Inspection Tag

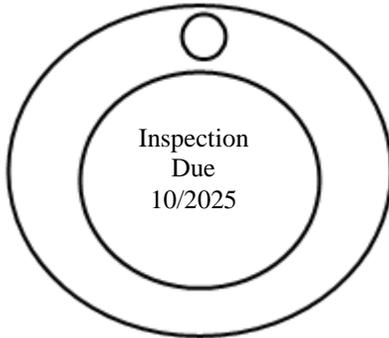
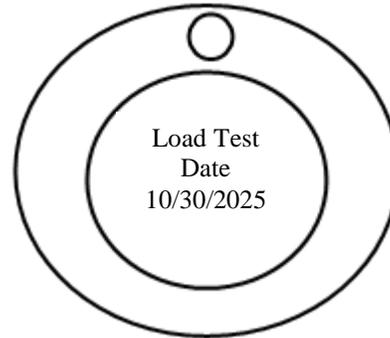


Figure 10-2: Example of a Load Test Tag



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