

ASME B30.10-2005
(Revision of ASME B30.10-1999)

Hooks

**Safety Standard for Cableways, Cranes, Derricks, Hoists,
Hooks, Jacks, and Slings**

AN AMERICAN NATIONAL STANDARD



**The American Society of
Mechanical Engineers**

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Three Park Avenue • New York, NY 10016

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The next edition of this Standard is scheduled for publication in 2008. There will be no addenda issued to this edition.

ASME issues written replies to inquiries concerning interpretations of technical aspects of this Standard. Interpretations are published on the ASME Web site under the Committee Pages at <http://www.asme.org/codes/> as they are issued, and are also published within this edition of the Standard.

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FOREWORD

This American National Standard, Safety Standard for Cableways, Cranes, Derricks, Hoists, Hooks, Jacks, and Slings, has been developed under the procedures accredited by the American National Standards Institute (formerly the United States of America Standards Institute). This Standard had its beginning in December 1916 when an eight-page Code of Safety Standards for Cranes, prepared by an ASME Committee on the Protection of Industrial Workers, was presented to the annual meeting of the ASME.

Meetings and discussions regarding safety on cranes, derricks, and hoists were held from 1920 to 1925, involving the ASME Safety Code Correlating Committee, the Association of Iron and Steel Electrical Engineers, the American Museum of Safety, the American Engineering Standards Committee (later changed to American Standards Association and subsequently to the USA Standards Institute), Department of Labor — State of New Jersey, Department of Labor and Industry — State of Pennsylvania, and the Locomotive Crane Manufacturers Association. On June 11, 1925, the American Engineering Standards Committee approved the ASME Safety Code Correlating Committee's recommendation and authorized the project with the U.S. Department of the Navy, Bureau of Yards and Docks, and ASME as sponsors.

In March 1926, invitations were issued to 50 organizations to appoint representatives to a Sectional Committee. The call for organization of this Sectional Committee was sent out October 2, 1926, and the committee organized November 4, 1926, with 57 members representing 29 national organizations. The Safety Code for Cranes, Derricks, and Hoists, ASA B30.2-1943, was created from the eight-page document referred to in the first paragraph. This document was reaffirmed in 1952 and widely accepted as a safety standard.

Due to changes in design, advancement in techniques, and general interest of labor and industry in safety, the Sectional Committee, under the joint sponsorship of ASME and the Naval Facilities Engineering Command, U.S. Department of the Navy, was reorganized as an American National Standards Committee on January 31, 1962, with 39 members representing 27 national organizations.

The format of the previous code was changed so that separate standards (each complete as to construction and installation; inspection, testing, and maintenance; and operation) will cover the different types of equipment included in the scope of B30.

In 1982, the Committee was reorganized as an Accredited Organization Committee, operating under procedures developed by the ASME and accredited by the American National Standards Institute.

This Standard presents a coordinated set of rules that may serve as a guide to government and other regulatory bodies and municipal authorities responsible for the guarding and inspection of the equipment falling within its scope. The suggestions leading to accident prevention are given both as mandatory and advisory provisions; compliance with both types may be required by employers of their employees.

In case of practical difficulties, new developments, or unnecessary hardship, the administrative or regulatory authority may grant variances from the literal requirements or permit the use of other devices or methods, but only when it is clearly evident that an equivalent degree of protection is thereby secured. To secure uniform application and interpretation of this Standard, administrative or regulatory authorities are urged to consult the B30 Committee, in accordance with the format described in Section III, before rendering decisions on disputed points.

This volume of the Standard, which was approved by the B30 Committee and by ASME, was approved by ANSI and designated as an American National Standard on September 27, 2005.

Safety codes and standards are intended to enhance public safety. Revisions result from committee consideration of factors such as technological advances, new data, and changing environmental and industry needs. Revisions do not imply that previous editions were inadequate.

ASME B30 STANDARDS COMMITTEE

Safety Standards for Cableways, Cranes, Derricks, Hoists, Hooks, Jacks, and Slings

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

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C. E. Lucas , The Crosby Group	

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SAFETY STANDARD FOR CABLEWAYS, CRANES, DERRICKS, HOISTS, HOOKS, JACKS, AND SLINGS

B30 STANDARD INTRODUCTION

(05)

SECTION I: SCOPE

The ASME B30 Standard contains provisions that apply to the construction, installation, operation, inspection, testing, maintenance, and use of cranes and other lifting and material-handling related equipment. For the convenience of the reader, the Standard has been divided into separate volumes. Each Volume has been written under the direction of the ASME B30 Standards Committee and has successfully completed a consensus approval process under the general auspices of the American National Standards Institute (ANSI).

As of the date of issuance of this Volume, the B30 Standard comprises the following volumes:

- B30.1 Jacks
- B30.2 Overhead and Gantry Cranes (Top Running Bridge, Single or Multiple Girder, Top Running Trolley Hoist)
- B30.3 Construction Tower Cranes
- B30.4 Portal, Tower, and Pedestal Cranes
- B30.5 Mobile and Locomotive Cranes
- B30.6 Derricks
- B30.7 Base Mounted Drum Hoists
- B30.8 Floating Cranes and Floating Derricks
- B30.9 Slings
- B30.10 Hooks
- B30.11 Monorails and Underhung Cranes
- B30.12 Handling Loads Suspended From Rotorcraft
- B30.13 Storage/Retrieval (S/R) Machines and Associated Equipment
- B30.14 Side Boom Tractors
- B30.15 Mobile Hydraulic Cranes
(NOTE: B30.15-1973 has been withdrawn. The revision of B30.15 is included in the latest edition of B30.5).
- B30.16 Overhead Hoists (Underhung)
- B30.17 Overhead and Gantry Cranes (Top Running Bridge, Single Girder, Underhung Hoist)
- B30.18 Stacker Cranes (Top or Under Running Bridge, Multiple Girder With Top or Under Running Trolley Hoist)
- B30.19 Cableways
- B30.20 Below-the-Hook Lifting Devices
- B30.21 Manually Lever Operated Hoists
- B30.22 Articulating Boom Cranes
- B30.23 Personnel Lifting Systems

- B30.24 Container Cranes¹
- B30.25 Scrap and Material Handlers
- B30.26 Rigging Hardware
- B30.27 Material Placement Systems
- B30.28 Balance Lifting Units¹

SECTION II: SCOPE EXCLUSIONS

The B30 Standard does not apply to track and automotive jacks, railway or automobile wrecking cranes, shipboard cranes, shipboard cargo-handling equipment, well-drilling derricks, skip hoists, mine hoists, truck body hoists, car or barge pullers, conveyors, excavating equipment, or equipment covered under the scope of the following standards: A10, A17, A90, A92, A120, B20, B56, and B77.

SECTION III: PURPOSE

The B30 Standard is intended to

- (a) prevent or minimize injury to workers, and otherwise provide for the protection of life, limb, and property by prescribing safety requirements
- (b) provide direction to manufacturers, owners, employers, users, and others concerned with or responsible for its application
- (c) guide governments and other regulatory bodies in the development, promulgation, and enforcement of appropriate safety directives

SECTION IV: USE BY REGULATORY AGENCIES

This Standard may be adopted in whole or in part for governmental or regulatory use. If adopted for governmental use, the references to other national codes and standards in the specific volumes may be changed to refer to the corresponding regulations of the governmental authorities.

SECTION V: EFFECTIVE DATE

(a) *Effective Date.* The effective date of this Volume of the B30 Standard shall be one year after its date of issuance. Construction, installation, inspection, testing, maintenance, and operation of equipment manufactured and facilities constructed after the effective date of this Standard shall conform to the mandatory requirements of this Standard.

¹ These volumes are currently in development.

(b) *Existing Installations.* Equipment manufactured and facilities constructed prior to the effective date of this Volume of the B30 Standard shall be subject to the inspection, testing, maintenance, and operation requirements of this Standard after the effective date.

It is not the intent of this Volume of the B30 Standard to require retrofitting of existing equipment. However, when an item is being modified, its performance requirements shall be reviewed relative to the requirements within the current volume. The need to meet the current requirements shall be evaluated by a qualified person selected by the owner (user). Recommended changes shall be made by the owner (user) within 1 year.

SECTION VI: REQUIREMENTS AND RECOMMENDATIONS

Requirements of this Standard are characterized by use of the word *shall*. Recommendations of this Standard are characterized by the word *should*.

SECTION VII: USE OF MEASUREMENT UNITS

This Standard contains SI (metric) units as well as U.S. Customary units. The values stated in customary units are to be regarded as the standard. The SI units are a direct (soft) conversion from the customary units.

SECTION VIII: REQUESTS FOR REVISION

The B30 Standards Committee will consider requests for revision of any of the volumes within the B30 Standard. Such requests should be directed to:

Secretary of the B30 Committee, ASME, Three Park Avenue, New York, NY 10016-5990

The requests should be in the following format:

Volume: Cite the designation and title of the volume.
Edition: Cite the applicable edition of the volume.
Subject: Cite the applicable paragraph number(s) and the relevant heading(s).
Request: Indicate the suggested revision.
Rationale: State the rationale for the suggested revision.

Upon receipt by the Secretary, the request will be forwarded to the relevant B30 Subcommittee for consideration and action. Correspondence will be provided to the requester defining the actions undertaken by the B30 Standards Committee.

SECTION IX: REQUESTS FOR INTERPRETATION

The B30 Standards Committee will render an interpretation of the provisions of the B30 Standard. Such requests should be directed to

Secretary of the B30 Committee, ASME, Three Park Avenue, New York, NY 10016-5990

The requests should be in the following format:

Volume: Cite the designation and title of the volume.
Edition: Cite the applicable edition of the volume.
Subject: Cite the applicable paragraph number(s) and the relevant heading(s).
Question: Phrase the question as a request for an interpretation of a specific provision suitable for general understanding and use, not as a request for approval of a proprietary design or situation. Plans or drawings that explain the question may be submitted to clarify the question. However, they should not contain any proprietary names or information.

Upon receipt by the Secretary, the request will be forwarded to the relevant B30 Subcommittee for a draft response, which will then be subject to approval by the B30 Standards Committee prior to its formal issuance.

Interpretations to the B30 Standard will be published in the subsequent edition of the respective volume, and will be available online at <http://cstools.asme.org>.

SECTION X: ADDITIONAL GUIDANCE

The equipment covered by the B30 Standard is subject to hazards that cannot be abated by mechanical means, but only by the exercise of intelligence, care, and common sense. It is therefore essential to have personnel involved in the use and operation of equipment who are competent, careful, physically and mentally qualified, and trained in the proper operation of the equipment and the handling of loads. Serious hazards include, but are not limited to, improper or inadequate maintenance, overloading, dropping or slipping of the load, obstructing the free passage of the load, and using equipment for a purpose for which it was not intended or designed.

The B30 Standards Committee fully realizes the importance of proper design factors, minimum or maximum dimensions, and other limiting criteria of wire rope or chain and their fastenings, sheaves, sprockets, drums, and similar equipment covered by the Standard, all of which are closely connected with safety. Sizes, strengths, and similar criteria are dependent on many different factors, often varying with the installation and uses. These factors depend on the condition of the equipment or material; on the loads; on the acceleration or speed of the ropes, chains, sheaves, sprockets, or drums; on the type of attachments; on the number, size, and arrangement of sheaves or other parts; on environmental conditions causing corrosion or wear; and on many variables that must be considered in each individual case. The requirements and recommendations provided in the volumes must be interpreted accordingly, and judgment used in determining their application.

ASME B30.10-2005

SUMMARY OF CHANGES

Following approval by the ASME B30 Committee and ASME, and after public review, ASME B30.10-2005 was approved by the American National Standards Institute on September 27, 2005.

ASME B30.10-2005 includes the following changes identified by a margin note, **(05)**.

<i>Page</i>	<i>Location</i>	<i>Change</i>
vii, viii	B30 Standard Introduction	Revised in its entirety
6	10-1.2.1.3	paragraphs (c)(1) and (2) revised
7	10-1.2.3	paragraphs (b)(3) and (4) revised
9	10-2.2.1.3	paragraphs (c)(1) and (2) revised
10	10-2.2.3	paragraphs (b)(3) and (4) revised

SPECIAL NOTE:

The interpretations to ASME B30.10 are included in this edition as a separate section for the user's convenience.

HOOKS

Chapter 10-0 Scope and Definitions

SECTION 10-0.1: SCOPE OF ASME B30.10

Within the general scope defined in Section I, ASME B30.10 applies to all types of hooks shown in Figs. 1 through 21 used in conjunction with equipment described in other volumes of the B30 Standard. Hooks supporting a load in a direct-pull configuration, with the load carried in the base (bowl/saddle or pin hole — see Figs. 3 and 4) of the hook, are covered in Chapter 10-1. Hooks that do not support a load in a direct-pull configuration are covered in Chapter 10-2.

SECTION 10-0.2: DEFINITIONS

abnormal operating conditions: environmental conditions that are unfavorable, harmful, or detrimental to or for the use of a hook.

administrative or regulatory authority: governmental agency or the employer in the absence of governmental jurisdiction.

appointed: assigned specific responsibilities by the employer or the employer's representative.

crack: a crevice-type discontinuity in the material.

designated person: a person selected or assigned by the employer or the employer's representative as being competent to perform specific duties.

hook, self-closing: a hook with a throat opening that is closed by a spring-loaded latch, gate, or bail that is manually opened for loading and closes upon release. It may be locked in the closed position (see Figs. 8 through 14).

hook, self-locking: a hook with a throat opening that will close and lock when a load is applied, and will not open

until unloaded and the lock released (see Figs. 6 and 7).

latch: a mechanical device used to close the throat opening of a hook (see Figs. 1 through 5).

load: the total weight imposed on the hook.

load, proof: the specific load applied in performance of the proof test.

load, rated: the maximum allowable working load.

mouse: rope or wire used to close the throat opening of a hook.

nick or gouge: sharp notch in hook surface which may act as stress riser in the area of the notch.

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

service, heavy: service that involves operating at 85% to 100% of rated load as a regular specified procedure.

service, normal: service that involves operating at less than 85% of rated load except for isolated instances.

service, severe: heavy service coupled with abnormal operating conditions.

test, nondestructive: a test that does not destroy the functional use of the hook, such as but not limited to dye penetrant test, magnetic particle test, radiography test, and ultrasonic test.

test, proof: a nondestructive load test made to verify the manufacturing integrity of the hook.

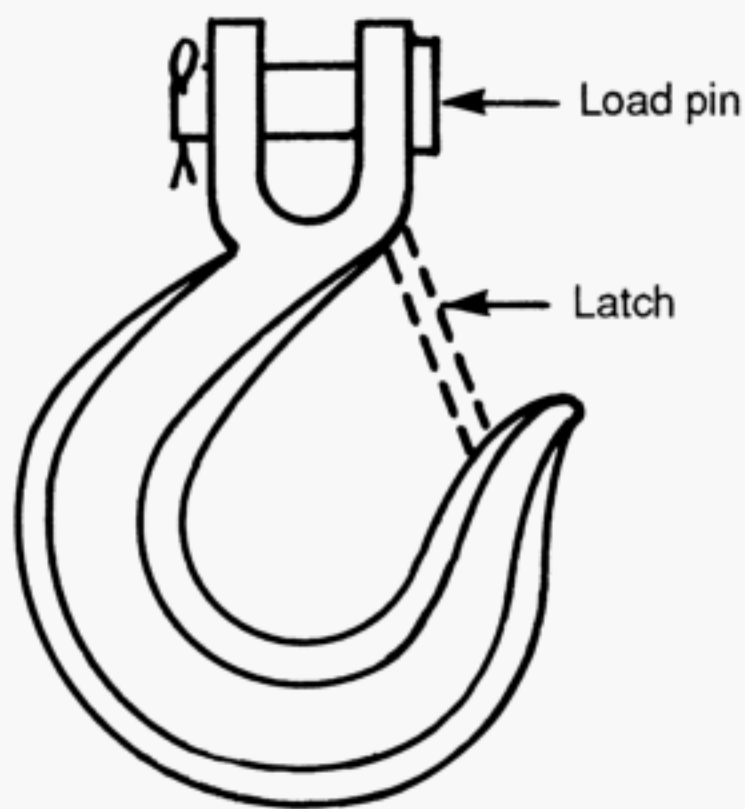
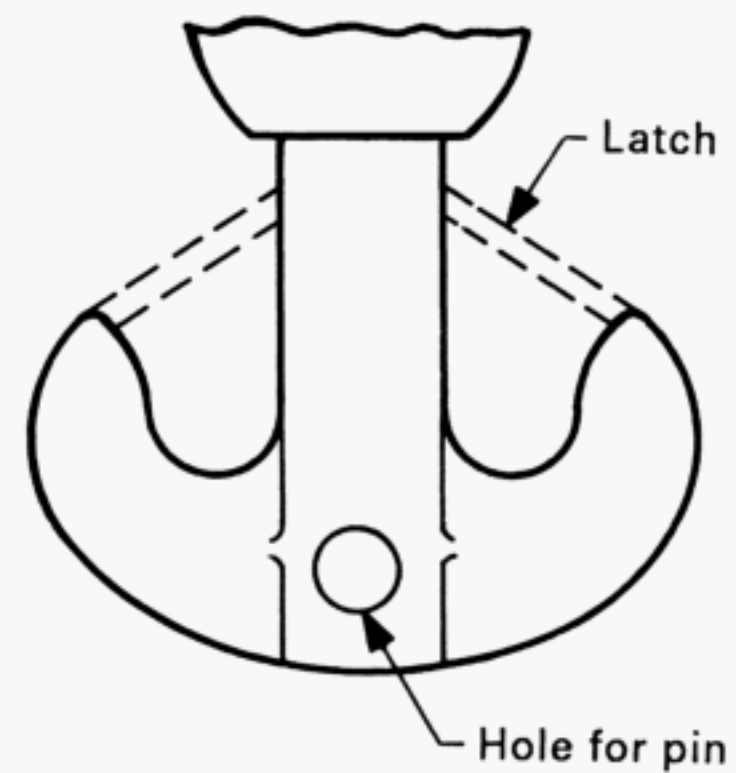


Fig. 1 Clevis Hook (Latch — When Required)



**Fig. 4 Duplex Hook (Sister)
(Hole for Pin Is Optional) (Latch — When Required)**

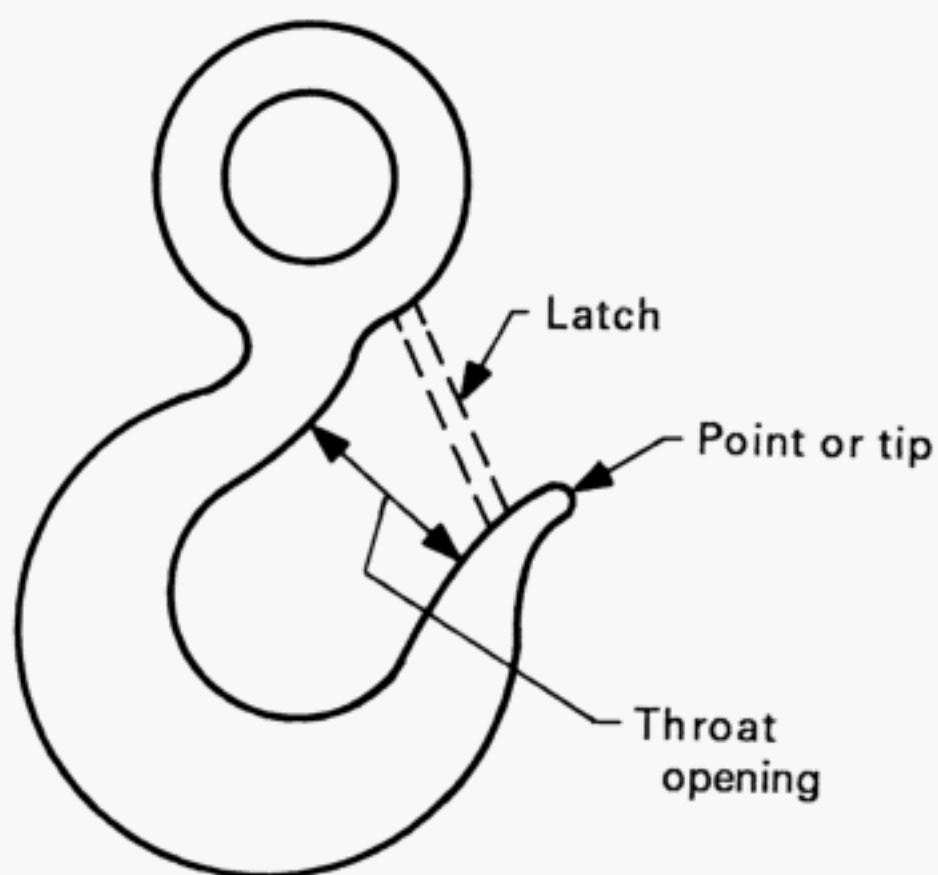
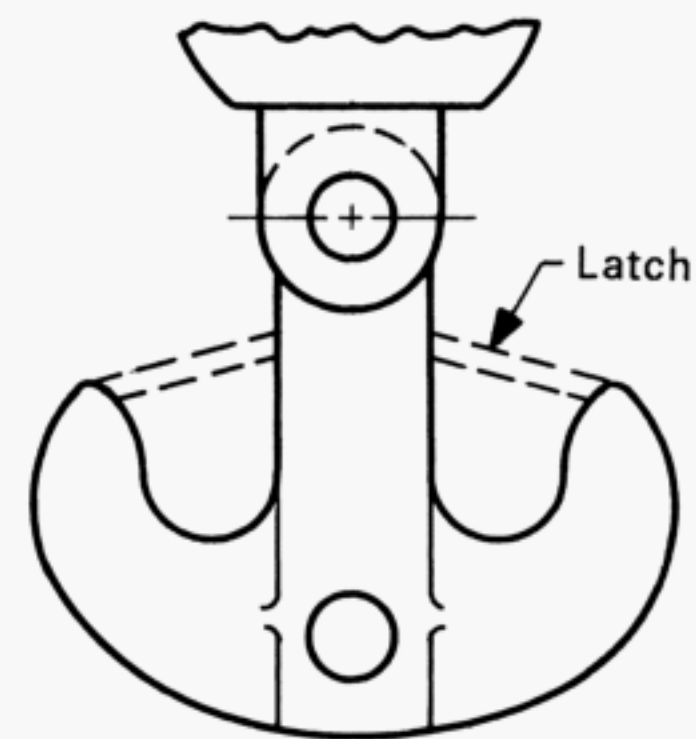


Fig. 2 Eye Hook (Latch — When Required)



GENERAL NOTE: The shape of the bowl of the hook shall be designed such that an unbalanced load positioned directly beneath the pivot point will not allow sling (load attachment) to be dislodged.

**Fig. 5 Articulated Duplex Hook (Sister)
(Hole for Pin Is Optional) (Latch — When Required)**

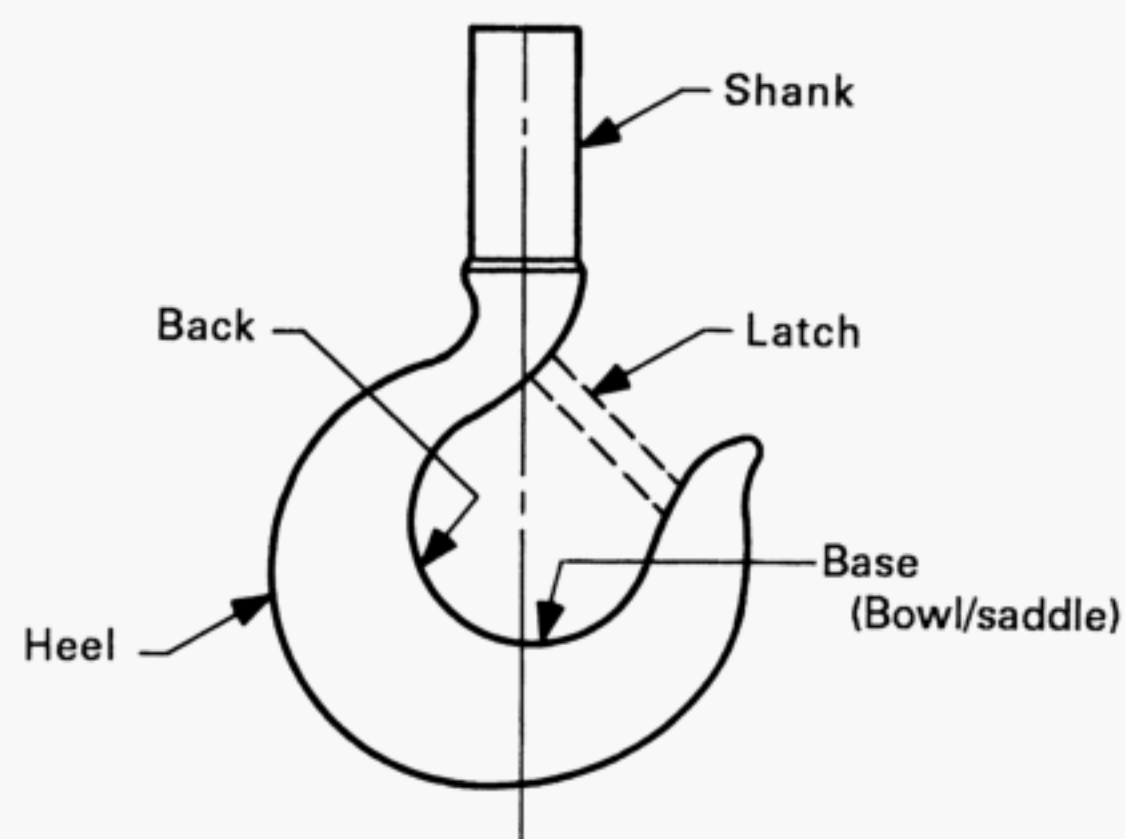


Fig. 3 Shank Hook (Latch — When Required)



Fig. 6 Self-Locking Eye Hook (Open)

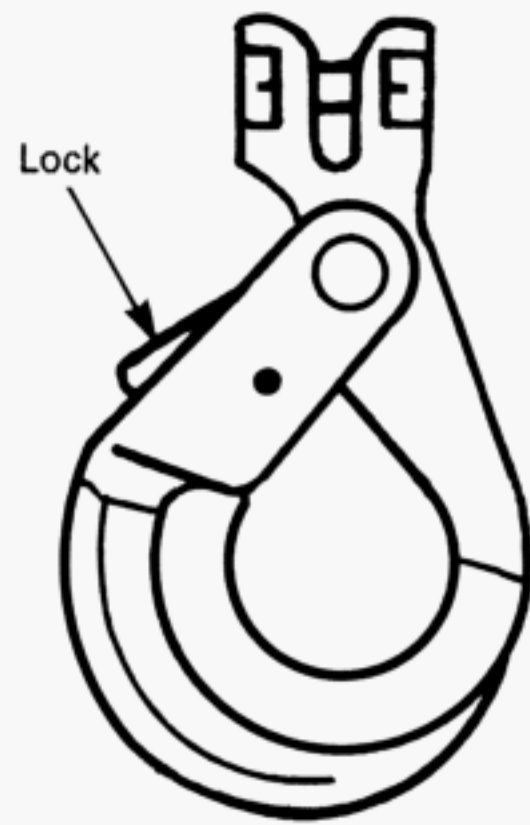


Fig. 7 Self-Locking Clevis Hook (Closed)



Fig. 10 Self-Closing Flapper Latch (Shank Hook)



Fig. 8 Self-Closing Bail (Eye Hook)



Fig. 11 Self-Closing Flapper Latch (Swivel Hook)



Fig. 9 Self-Closing Gate Latch (Shank Hook)



Fig. 12 Self-Closing Flipper Latch (Eye Hook)

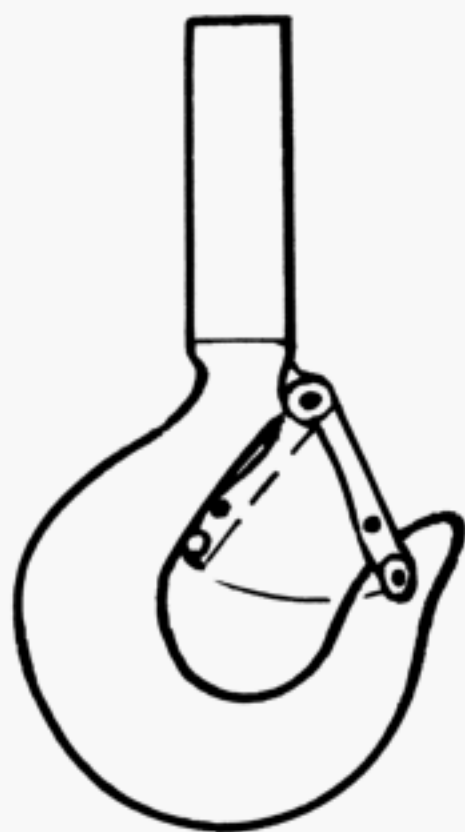


Fig. 13 Self-Closing Tiplock Latch (Shank Hook)



Fig. 16 Laminated Plate Hook



Fig. 14 Self-Closing Tiplock Latch (Eye Hook)



Fig. 17 Eye Grab Hook



Fig. 15 Single Plate Hook

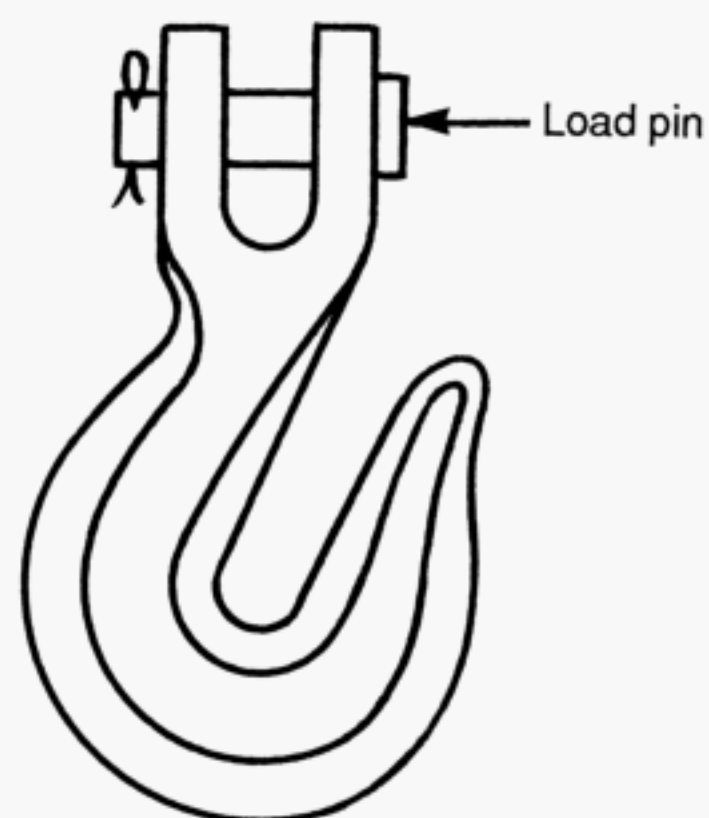


Fig. 18 Clevis Grab Hook



Fig. 19 Foundry Hook



Fig. 20 Sorting Hook



Fig. 21 Choker Hook

Chapter 10-1

Hooks

This Chapter applies to all hooks specifically shown in Figs. 1 through 16 that support a load in a direct-pull configuration where the load is carried in the base (bowl/saddle or pin hole — see Figs. 3 and 4) of the hook.

SECTION 10-1.1: MARKINGS AND CONSTRUCTION

10-1.1.1 Markings

Manufacturer's identification shall be forged, cast, or die stamped on a low stress and nonwearing area of the hook.

10-1.1.2 Construction

(a) The hook material shall have sufficient ductility to permanently deform before losing the ability to support the load at the temperatures at which the specific hook will be used.

(b) When a latch is provided, it shall be designed to retain such items as, but not limited to, slings and chains under slack conditions. The latch is not intended to support the load.

(c) Attachments, such as handles, latch supports, etc., shall not be welded to a finished hook in field applications. If welding of an attachment such as these is required, it shall be done in manufacturing or fabrication prior to any required final heat treatment.

SECTION 10-1.2: INSPECTION, TESTING, AND MAINTENANCE

10-1.2.1 Inspection

10-1.2.1.1 Inspection Classification

(a) *Initial Inspection.* Prior to initial use, all new and repaired hooks shall be inspected to verify compliance with the applicable provisions of this volume.

(b) Inspection procedure and record keeping requirements for hooks in regular service shall be governed by the kind of equipment in which they are used. When such requirements for hooks are stated in standards for the specific equipment, they shall take precedence over the following. Otherwise, there shall be two general classifications based upon intervals at which examination shall be performed. The classifications are herein designated *frequent* and *periodic*, with intervals between examinations defined as follows:

(1) *Frequent Inspection.* Visual examinations by the operator or other designated person with records not required:

- (a) normal service — monthly
- (b) heavy service — weekly to monthly
- (c) severe service — daily to weekly

(2) *Periodic Inspection.* Visual inspections by a designated person making records of apparent external conditions to provide the basis for continuing evaluation:

(a) normal service — yearly, with equipment in place

(b) heavy service — semiannually, with equipment in place unless external conditions indicate that disassembly should be done to permit detailed inspection

(c) severe service — quarterly, as in heavy service [see para. 10-1.2.1.1(b)(2)(b)], except that the detailed inspection may show the need for a nondestructive type of testing

10-1.2.1.2 Frequent Inspection

(a) Frequent inspections shall include observations during operation.

(b) A designated person shall determine whether conditions found during the inspection constitute a hazard and whether a more detailed inspection is required.

(c) Hooks shall be inspected for the following items:

- (1) distortion, such as bending, twisting, or increased throat opening
- (2) wear
- (3) cracks, nicks, or gouges [see para. 10-1.2.3(e)]
- (4) latch engagement (if provided)
- (5) damaged or malfunctioning latch (if provided)
- (6) hook attachment and securing means
- (7) self-locking hooks for proper operation and locking

10-1.2.1.3 Periodic Inspection

(05)

(a) Inspection of hooks shall be performed as defined in para. 10-1.2.1.1(b)(2).

(b) The inspection shall include the requirements of para. 10-1.2.1.2.

(c) Hooks having any of the following conditions shall be removed from service until repaired or replaced.

(1) *Deformation.* Any visibly apparent bend or twist from the plane of the unbent hook.

(2) *Throat Opening.* Any distortion causing an increase in throat opening of 5% not to exceed $\frac{1}{4}$ in. (or as recommended by the manufacturer).

Table 1 Proof Test Load

Rated Load		Proof Load, Min.		
Tons (2,000 lb)	kg	Rated Load, %	Tons (2,000 lb)	kN
0.50	453.6	200	1	8.9
1	907.2	200	2	17.8
5	4,536	200	10	89
10	9,072	200	20	178
15	13,608	200	30	267
20	18,144	200	40	356
25	22,680	200	50	445
30	27,216	200	60	534
35	31,752	200	70	623
40	36,288	200	80	712
45	40,824	200	90	801
50	45,360	200	100	890
60	54,432	193	116	1032.5
75	68,040	183	137	1219
100	90,720	166	166	1477
125	113,400	150	188	1673
150	136,080	133	200	1780
175	158,760	133	233	2074
200	181,440	133	266	2367
250	226,800	133	333	2964
300	272,160	133	399	3551
350	317,520	133	465	4139
400	362,880	133	532	4735
450	408,240	133	598	5322
500	453,600	133	665	5919
Above 500	> 453,600	133

GENERAL NOTES:

- (a) 1 ton (short, 2,000 lb) = 8.9 kN (unit of force).
 (b) For hooks with rated loads not shown in the above table, use the next lower rating for determining the percent of rated load to be applied as a proof load.

(3) *Wear.* Any wear exceeding 10% (or as recommended by the manufacturer) of the original section dimension of the hook or its load pin.

(4) *Inability to Lock.* Any self-locking hook that does not lock.

(5) *Inoperative Latch.* Any latch that does not close the hook's throat.

10-1.2.2 Testing

(a) When proof tests are used to verify manufacturing process, material, or configuration, the hooks shall be able to withstand the proof load application without permanent deformation when the load is applied for a minimum of 15 sec. This condition shall be considered to have been satisfied if the permanent increase in the throat opening does not exceed 1% or 0.02 in. (0.5 mm), whichever is greater. For such tests, Table 1 states the

proof loads that shall be applied to a hook having a rated load capacity.

(b) For a duplex (sister) hook having a pin hole, the proof load for the pin hole shall be in accordance with Table 1. The proof load on the hook shall be shared equally between the two prongs of a sister hook, unless designed for unbalanced loading.

(c) Performance testing of hooks shall not be required except where necessary to conform to the requirements for the equipment of which they are a part.

10-1.2.3 Maintenance

(05)

(a) Any conditions disclosed by the inspections performed in accordance with the requirements of para. 10-1.2.1.2 or 10-1.2.1.3 shall be corrected by repair or replacement before continuing to use the hook.

Hooks shall be removed from service unless a qualified person approves their continued use and initiates corrective action.

(b) Hooks having damage or wear described as follows shall be repaired or replaced:

(1) cracks, nicks, and gouges [see para. 10-1.2.3(e) below]

(2) wear exceeding 10% (or as recommended by the manufacturer) of the original sectional dimension

(3) any visibly apparent bend or twist from the plane of the unbent hook

(4) any distortion causing an increase in throat opening of 5%, not to exceed $\frac{1}{4}$ in. (or as recommended by the manufacturer)

(5) inability of self-locking hooks to lock

(c) A hook latch, when required, that is inoperative shall be repaired or replaced.

(d) A hook with a latch that does not close the throat opening shall be removed from service or moused until the latch is replaced or repaired.

(e) Repair of cracks, nicks, and gouges shall be carried out by a designated person by grinding longitudinally, following the contour of the hook, provided no dimension is reduced more than 10% (or as recommended by the manufacturer) of its original value.

(f) All other repairs shall be performed by the manufacturer or a qualified person.

(g) Replacement parts, such as load pins for clevis hooks, shall be at least equal to the original manufacturer's specifications.

SECTION 10-1.3: OPERATING PRACTICES

Personnel using hooks shall be aware of the following:

(a) It shall be determined that the weight of the load to be lifted does not exceed the lesser of the load rating of the hook or the load rating of the equipment of which the hook is a part.

(b) Shock loading should be avoided.

(c) Load shall be centered in the base (bowl/saddle) of the hook to prevent point loading of the hook.

(d) Hooks shall not be used in such a manner as to place a side load or back load on the hook.

(e) When using a device to close the throat opening of the hook, care shall be taken that the load is not carried by the closing device.

(f) Hands, fingers, and body shall be kept from between hook and load.

(g) Duplex (sister) hooks shall be loaded equally on both sides unless the hook is specifically designed for single loading. When using an articulated duplex (sister) hook (see Fig. 5), care should be taken because articulation of the hook may cause instability in the slung load.

(h) If the duplex (sister) hook is loaded at the pin hole instead of at the two saddles, the load applied shall not exceed the rated load that would normally be shared by the two saddles or the rated load of the supporting equipment.

(i) The use of a hook with a latch does not preclude the inadvertent detachment of a slack sling or a load from the hook. Visual verification of proper hook engagement is required in all cases.

(j) Self-locking hooks shall be locked during use.

(k) When a lock is equipped with a latch, the latch should not be restrained from closing during use.

Chapter 10-2

Hooks — Miscellaneous

This Chapter applies to all hooks specifically shown in Figs. 17 through 21 that do not support a load in a direct-pull configuration, such as grab hooks, foundry hooks, sorting hooks, and choker hooks.

(05) SECTION 10-2.1: MARKINGS AND CONSTRUCTION

10-2.1.1 Markings

Manufacturer's identification shall be forged, cast, or die stamped on a low stress and nonwearing area of the hook.

10-2.1.2 Construction

(a) The hook material shall have sufficient ductility to permanently deform before losing the ability to support the load at the temperatures at which the specific hook will be used.

(b) Rated loads for a hook, when used in the manner for which it is intended, shall be equal to or exceed the rated load of the chain, wire rope, or other suspension members to which it is attached. In those instances when this is not feasible, special precautions shall be taken to ensure that the rated load limit of the hook is not exceeded.

SECTION 10-2.2: INSPECTION, TESTING, AND MAINTENANCE

10-2.2.1 Inspection

10-2.2.1.1 Inspection Classification

(a) *Initial Inspection.* Prior to initial use, all new and repaired hooks shall be inspected to verify compliance with the applicable provisions of this Volume.

(b) Inspection procedure and record keeping requirements for hooks in regular service shall be governed by the kind of equipment in which they are used. When such requirements for hooks are stated in standards for the specific equipment, they shall take precedence over the following. Otherwise, there shall be two general classifications based upon intervals at which examination shall be performed. The classifications are herein designated *frequent* and *periodic*, with intervals between examinations defined as follows:

(1) *Frequent Inspection.* Visual examinations by the operator or other designated person with records not required:

(a) normal service — monthly

(b) heavy service — weekly to monthly

(c) severe service — daily to weekly

(2) *Periodic Inspection.* Visual inspections by a designated person making records of apparent external conditions to provide the basis for continuing evaluation

(a) normal service — yearly, with equipment in place

(b) heavy service — semiannually, with equipment in place unless external conditions indicate that disassembly should be done to permit detailed inspection

(c) severe service — quarterly, as in heavy service [see para. 10-2.2.1.1(b)(2)(b)], except that the detailed inspection may show the need for a nondestructive type of testing

10-2.2.1.2 Frequent Inspection

(a) Frequent inspection shall include observations during operation.

(b) A designated person shall determine whether conditions found during the inspection constitute a hazard and whether a more detailed inspection is required.

(c) Hooks shall be inspected for the following items:

(1) distortion, such as bending, twisting, or increased throat opening

(2) wear

(3) cracks, nicks, or gouges [see para. 10-2.2.3(b)]

(4) hook attachment and securing means

10-2.2.1.3 Periodic Inspection

(a) Inspection of hooks shall be performed as defined in para. 10-2.2.1.1(b)(2).

(b) The inspection shall include the requirements of para. 10-2.2.1.2.

(c) Hooks having any of the following conditions shall be removed from service until repaired or replaced.

(1) *Deformation.* Any visibly apparent bend or twist from the plane of the unbent hook

(2) *Throat Opening.* Any distortion causing an increase in throat opening of 5%, not to exceed $\frac{1}{4}$ in. (or as recommended by the manufacturer).

(3) *Wear.* Any wear exceeding 10% (or as recommended by the manufacturer) of the original section dimension of the hook or its load pin.

10-2.2.2 Testing

Performance testing of hooks shall not be required except where necessary to conform to the requirements for the equipment of which they are a part.

(05) 10-2.2.3 Maintenance

(a) Any conditions disclosed by the inspections performed in accordance with the requirements of paras. 10-2.2.1.2 or 10-2.2.1.3 shall be corrected by repair or replacement before continuing to use the hook.

Hooks shall be removed from service unless a qualified person approves their continued use and initiates a corrective action.

(b) Hooks having damage or wear described as follows shall be repaired or replaced:

(1) cracks, nicks, and gouges [see para. 10-2.2.3(c)]

(2) wear exceeding 10% (or as recommended by the manufacturer) of the original dimension

(3) any visibly apparent bend or twist from the plane of the unbent hook

(4) any distortion causing an increase in throat opening of 5%, not to exceed $\frac{1}{4}$ in. (or as recommended by the manufacturer); for grab hooks (see Figs. 17 and 18), when the portions of the hook forming the throat are not parallel

(c) repair of cracks, nicks, and gouges shall be carried out by a designated person by grinding longitudinally,

following the contour of the hook, provided that no dimension is reduced more than 10% (or as recommended by the manufacturer) of its original value.

(d) all other repairs shall be performed by the manufacturer or a qualified person

(e) replacement parts, such as load pins for clevis hooks, shall be at least equal to the original manufacturer's specifications

SECTION 10-2.3: OPERATING PRACTICES

Personnel using miscellaneous hooks shall be aware of the following:

(a) It shall be determined that the load or force required does not exceed the rated load of the hook's assembly, especially when special conditions, such as chocking or grabbing, are considered.

(b) Shock loading should be avoided.

(c) A hook shall not be used in a manner other than that for which it is intended.

(d) Hands, fingers, and body shall be kept away from between the load and the hook.

ASME B30.10-2005 INTERPRETATIONS

Replies to Technical Inquiries September 1999 through May 2004

FOREWORD

This publication includes all of the written replies issued between the indicated dates by the Secretary, speaking for the ASME B30 Standards Committee, Safety Standards for Cableways, Cranes, Derricks, Hoists, Hooks, Jacks, and Slings, to inquiries concerning interpretations of technical aspects of ASME B30.10, Hooks.

These replies are taken verbatim from the original letters except for a few minor typographical and editorial corrections made for the purpose of improved clarity. In some few instances, a review of the interpretation revealed a need for corrections of a technical nature; in these cases, a corrected interpretation follows immediately after the original reply.

These interpretations were prepared in accordance with the accredited ASME procedures. ASME procedures provide for reconsideration of these interpretations when or if additional information is available that the inquirer believes might affect the interpretation. Further, persons aggrieved by this 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.

Interpretation: 10-11

Subject: ASME B30.10b-1991, Hooks, Section 10-2.2

Date Issued: September 20, 1999

Question (1): In reference to para. 10-2.2.1.2(c), does inspection of a hook that has areas covered by nonreadily removable assemblies comply if only the visible portions are inspected?

Reply (1): Inspection of only the visible portions (of the hook) does not comply with the requirements of para. 10-2.2.1.2(c)(4), which requires inspection of the hook attachment and securing means.

Question (2): In reference to Section 10-2.2, is the intent of the inspection to look at or nondestructively test all areas of the hook?

Reply (2): The intent of the inspection is to visually inspect all visible areas of the hook as well as to visually inspect the hook attachment or securing means. There is no requirement in the inspection section for a nondestructive test.

Question (3): With reference to Sections 10-2.2, 16-2.1, 21-1.2, and 21-3.2, what recommendation is given by the Standard to properly inspect the hook if the shank and swivel are riveted into an assembly that makes it impossible to examine the hook for cracks, distortion of the shank, or evidence of other distress?

Reply (3): There are at least eight recommendations given in the B30 Standard in volumes B30.10, B30.16, and B30.21 to properly inspect the hook. The physical parts to be inspected have been identified in the replies to questions one, two, and three and are included in paras. 10-2.2.1.2(c), 10-2.2.1.3(c), 16-2.1.2(c)(5), 16-2.1.3(d)(4), 21-1.2.2(c)(2), 21-1.2.3(d)(4), 21-2.2.2(c)(2), 21-2.2.3(d)(4), 21-3.2.2(c)(2), and 21-3.2.3(d)(4). Other recommendations and requirements include:

(a) The intervals at which the inspections shall be made based on the kind of equipment in which they are used and the type of service in which the equipment is used: normal, heavy, severe.

(b) The inspector shall be a person selected by the employer or the employer's representative as being competent to perform the inspection.

(c) Records if external conditions are required to provide a basis for a continuing evaluation.

(d) A requirement that a competent person shall determine whether conditions found during the inspection constitute a hazard and whether a more detailed inspection is required.

(e) The Periodic Inspection may be performed with the hoist in its normal location and does not require the hoist to be disassembled (the hook and its securing means are a part of the hoist).

(f) A requirement that a competent person shall determine whether conditions found during the inspection constitutes whether disassembly is required.

(g) Convenient aids to inspection such as Tables 1 and 2 found in ASME B30.16, and Tables 1, 2, and 3 of ASME B30.21.

Interpretation: 10-12

Subject: ASME B30.10-1999, Hooks, Chapter 10-2

Date Issued: May 30, 2001

Question: Chapter 10-2 does not mention or show point load hooks. Would this hook be included with grab hooks, foundry hooks, sorting hooks, and choker hooks?

Reply: No.

Interpretation: 10-13

Subject: ASME B30.10-1999, Hooks, Para. 10-1.2.2

Date Issued: May 30, 2001

Question (1): What are the requirements for verifying manufacturing?

Reply (1): The Committee cannot offer an interpretation since requirements to verify manufacturing are not contained in ASME B30.10.

Question (2): What methods other than proof testing are acceptable for verifying manufacturing?

Reply (2): Refer to Reply (1).

Question (3): Are there requirements regarding these other methods?

Reply (3): No. Refer to Reply (1).

Question (4): When proof testing is used to verify manufacturing, what are the requirements for sampling?

Reply (4): Sampling requirements are not contained in ASME B30.10.

Please note that testing requirements for assembled items employing hooks may be contained in other Volumes of the B30 Standard.

Interpretation: 10-14

Subject: ASME B30.10-1999, Hooks

Date Issued: January 28, 2002

Question: When are safety latches required to be on hook slings?

Reply: Neither ASME B30.9 (Slings) nor B30.10 (Hooks) address when hook latches are required on hooks. Other codes and standards may require hook latches. The need for a latch on any hook is a function of the application of the hook, which is beyond the scope of ASME B30.10.

Interpretation: 10-15

Subject: ASME B30.10-1999, Hooks, Para. 10-1.1.1

Date Issued: May 26, 2004

Question (1): What is the definition of “manufacturer’s identification”?

Reply (1): Manufacturer’s identification is any unique marking, trademark, or name that can be used to determine the source or producer of the hook.

Question (2): What is the reason or intended purpose for marking the hook with the manufacturer’s identification?

Reply (2): The manufacturer’s identification is intended to provide the buyer, user, or manufacturer with a means to determine or trace the source or producer of the hook.

Question (3): If the hook is marked with a rated load, does this by itself meet the requirement of para. 10-1.1.1?

Reply (3): No.

Question (4) Does para. 10-1.1.1 apply only to the hook itself, or does it also apply to the yoke or load block assembly?

Reply (4): The requirements of ASME B30.10, para. 10-1.1.1 only apply to the hook, and do not address the yoke or load block assembly. As stated in Section 10-0.1, “...ASME B30.10 applies to all types of hooks shown in Figs. 1 through 21 used in conjunction with equipment described in other volumes of the B30 Standard.”

ASME B30.10-2005

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