



IEEE Standard for Zinc-Coated Forged Anchor Shackles

Power & Energy Society

Sponsored by the
Transmission and Distribution Committee

IEEE
3 Park Avenue
New York, NY 10016-5997, USA
7 December 2009

IEEE Std C135.62™-2009

Currently in preview, click buy full version

IEEE Standard for Zinc-Coated Forged Anchor Shackles

Sponsor

**Transmission and Distribution Committee
of the
IEEE Power & Energy Society**

Approved 11 September 2009

IEEE-SA Standards Board

Currently in preview, click buy full version

Abstract: Dimensions and strength requirements for anchor shackles used in overhead transmission and distribution line hardware are covered in this standard.

Keywords: anchor, shackle

The Institute of Electrical and Electronics Engineers, Inc.
3 Park Avenue, New York, NY 10016-5997, USA

Copyright © 2009 by the Institute of Electrical and Electronics Engineers, Inc.
All rights reserved. Published 11 December 2009. Printed in the United States of America.

IEEE is a registered trademark in the U.S. Patent & Trademark Office, owned by the Institute of Electrical and Electronics Engineers, Incorporated.

PDF: ISBN 978-0-7381-6076-4 STD95976
Print: ISBN 978-0-7381-6077-1 STDPD95976

No part of this publication may be reproduced in any form, in an electronic retrieval system or otherwise, without the prior written permission of the publisher.

IEEE Standards documents are developed within the IEEE Societies and the Standards Coordinating Committees of the IEEE Standards Association (IEEE-SA) Standards Board. The IEEE develops its standards through a consensus development process, approved by the American National Standards Institute, which brings together volunteers representing varied viewpoints and interests to achieve the final product. Volunteers are not necessarily members of the Institute and serve without compensation. While the IEEE administers the process and establishes rules to promote fairness in the consensus development process, the IEEE does not independently evaluate, test, or verify the accuracy of any of the information or the soundness of any judgments contained in its standards.

Use of an IEEE Standard is wholly voluntary. The IEEE disclaims liability for any personal injury, property or other damage, of any nature whatsoever, whether special, indirect, consequential, or compensatory, directly or indirectly resulting from the publication, use of, or reliance upon this, or any other IEEE Standard document.

The IEEE does not warrant or represent the accuracy or content of the material contained herein, and expressly disclaims any express or implied warranty, including any implied warranty of merchantability or fitness for a specific purpose, or that the use of the material contained herein is free from patent infringement. IEEE Standards documents are supplied "AS IS."

The existence of an IEEE Standard does not imply that there are no other ways to produce, test, measure, purchase, market, or provide other goods and services related to the scope of the IEEE Standard. Furthermore, the viewpoint expressed at the time a standard is approved and issued is subject to change brought about through developments in the state of the art and comments received from users of the standard. Every IEEE Standard is subjected to review at least every five years for revision or reaffirmation, or every ten years for stabilization. When a document is more than five years old and has not been reaffirmed, or more than ten years old and has not been stabilized, it is reasonable to conclude that its contents, although still of some value, do not wholly reflect the present state of the art. Users are cautioned to check to determine that they have the latest edition of any IEEE Standard.

In publishing and making this document available, the IEEE is not suggesting or rendering professional or other services for, or on behalf of, any person or entity. Nor is the IEEE undertaking to perform any duty owed by any other person or entity to another. Any person utilizing this, and any other IEEE Standards document, should rely upon his or her independent judgment in the exercise of reasonable care in any given circumstances or, as appropriate, seek the advice of a competent professional in determining the appropriateness of a given IEEE standard.

Interpretations: Occasionally questions may arise regarding the meaning of portions of standards as they relate to specific applications. When the need for interpretation is brought to the attention of IEEE, the Institute will initiate action to prepare appropriate responses. Since IEEE standards represent a consensus of concerned interests, it is important to ensure that any interpretation has also received the concurrence of a balance of interests. For this reason, IEEE and the members of its societies and Standards Coordinating Committees are not able to provide an instant response to interpretation requests except in those cases where the matter has previously received formal consideration. A statement, written or oral, that is not processed in accordance with the IEEE-SA Standards Board Operations Manual shall not be considered the official position of IEEE or any of its committees and shall not be considered to be, nor be relied upon as, a formal interpretation of the IEEE. At lectures, symposia, seminars, or educational courses, an individual presenting information on IEEE standards shall make it clear that his or her views should be considered the personal views of that individual rather than the formal position, explanation, or interpretation of the IEEE.

Comments for revision of IEEE Standards are welcome from any interested party, regardless of membership affiliation with IEEE. Suggestions for changes in documents should be in the form of a proposed change of text, together with appropriate supporting comments. Recommendations to change the status of a stabilized standard should include a rationale as to why revision or withdrawal is required. Comments and recommendations on standards, and requests for interpretation, should be addressed to:

Secretary, IEEE-SA Standards Board
445 Hoes Lane
Piscataway, NJ 08854
USA

Authorization to photocopy portions of any individual standard for internal or personal use is granted by The Institute of Electrical and Electronics Engineers, Inc., provided that the appropriate fee is paid to Copyright Clearance Center. To arrange for payment of licensing fee, please contact Copyright Clearance Center, Customer Service, 222 Rosewood Drive, Danvers, MA 01923 USA; +1 978 750 8400. Permission to photocopy portions of any individual standard for educational classroom use can also be obtained through the Copyright Clearance Center.

Introduction

This introduction is not part of IEEE Std C135.62-2009, IEEE Standard for Zinc-Coated Forged Anchor Shackles.

Notice to users

Laws and regulations

Users of these documents should consult all applicable laws and regulations. Compliance with the provisions of this standard does not imply compliance to any applicable regulatory requirements. Implementers of the standard are responsible for observing or referring to the applicable regulatory requirements. IEEE does not, by the publication of its standards, intend to urge action that is not in compliance with applicable laws, and these documents may not be construed as doing so.

Copyrights

This document is copyrighted by the IEEE. It is made available for a wide variety of both public and private uses. These include both use, by reference, in laws and regulations, and use in private self-regulation, standardization, and the promotion of engineering practice and methods. By making this document available for use and adoption by public authorities and private users, the IEEE does not waive any rights in copyright to this document.

Updating of IEEE documents

Users of IEEE standards should be aware that these documents may be superseded at any time by the issuance of new editions or may be amended from time to time through the issuance of amendments, corrigenda, or errata. An official IEEE document at any point in time consists of the current edition of the document together with any amendments, corrigenda, or errata then in effect. In order to determine whether a given document is the current edition and whether it has been amended through the issuance of amendments, corrigenda, or errata, visit the IEEE Standards Association web site at <http://ieeexplore.ieee.org/xpl/standards.jsp>, or contact the IEEE at the address listed previously.

For more information about the IEEE Standards Association or the IEEE standards development process, visit the IEEE-SA web site at <http://standards.ieee.org>.

Errata

Errata, if any, for this and all other standards can be accessed at the following URL: <http://standards.ieee.org/reading/ieee/updates/errata/index.html>. Users are encouraged to check this URL for errata periodically.

Interpretations

Current interpretations can be accessed at the following URL: <http://standards.ieee.org/reading/ieee/interp/index.html>.

Patents

Attention is called to the possibility that implementation of this standard may require use of subject matter covered by patent rights. By publication of this standard, no position is taken with respect to the existence or validity of any patent rights in connection therewith. The IEEE is not responsible for identifying Essential Patent Claims for which a license may be required, for conducting inquiries into the legal validity or scope of Patent Claims or determining whether any licensing terms or conditions provided in connection with submission of a Letter of Assurance, if any, or in any licensing agreements are reasonable or non-discriminatory. Users of this standard are expressly advised that determination of the validity of any patent rights, and the risk of infringement of such rights, is entirely their own responsibility. Further information may be obtained from the IEEE Standards Association.

Participants

At the time this standard was submitted for approval, the Overhead and Line Structural Materials and Hardware Working Group had the following membership:

Robert C. Peters, Chair

Dick Aichlinger
Mehmet Arslan
Tony Baker
Yair Berenstein
Allen Berstorf
Nelson G. Bingel, III
Tom Bozeman
Michael Brucato
Bill Calhoun
Jerry Cheeks
Allen Clapp
Michael Clodfelder
Len Consalvo
Glen Davidson
Mike Della Vecchia
Nicholas J. DeSantis
Tony DiGioia
Michael Dolan
Bruce Freimark
Erich Gnandt
Waymon Goch

Asim Haldar
Steven Harrison
Ibrahim Hathout
Donald G. Heald
Michael Hudgens
Magdi F. Ishac
Doug Jones
Jacob Joplin
Mark Jurgemeyer
Kenneth Keller
Robert O. Kluge
Samy Krishna Kumar
Brian Lacossiere
Hong-Lo Lam
Jim Marley
Keith E. Lindsey
Ming Lu
Otto Lynch
Thomas McCarthy
Ray McCoy

Steven Miller
May Millies
Robert J. Millies
Roger Montambo
George B. Niles
John J. Olenik
Bob Oswald
Douglas Proctor
Brian Reed
Rafael Rios
Karen Rowe
Ron Rowland
Robert Santarsiero
Steve Smith
Eric Stemshorn
Andrew H. Stewart
Carl R. Tamm
Vinh N. Tran
Larry Vandergriend
Jeff Wang
Ed West

The following members of the individual balloting committee voted on this standard. Balloters may have voted for approval, disapproval, or abstention.

Mehmet Arslan
Harvey Bowles
William Byrd
Robert Cristman
Michael Clodfelder
Tommy Cooper
Gary Engmann
George Gela
Waymon Goch
Edwin Goodwin
Randall Groves

Steven Harrison
Lee Herron
R. Jackson
Mark Jurgemeyer
Robert O. Kluge
Jim Kulchisky
Keith E. Lindsey
Federico Lopez
Thomas McCarthy
Gary Michel

Michael S. Newman
Gregory Obenchain
John J. Olenik
Carl Orde
Robert C. Peters
Percy Pool
Douglas Proctor
Bartien Sayogo
James E. Smith
John Vergis
Larry Young

When the IEEE-SA Standards Board approved this standard on 11 September 2009, it had the following membership:

Robert M. Grow, *Chair*
Thomas Prevost, *Vice Chair*
Steve M. Mills, *Past Chair*
Judith Gorman, *Secretary*

John Barr
Karen Bartleson
Victor Berman
Ted Burse
Richard DeBlasio
Andy Drozd
Mark Epstein

Alexander Gelman
Jim Hughes
Richard H. Hulett
Young Kyun Kim
Joseph L. Koepfing*
John Kulick

David J. Law
Ted Olsen
Glenn Parsons
Ronald C. Petersen
Narayanan Ramachandran
Jon Walter Rosdahl
Sam Sciacca

*Member Emeritus

Also included are the following nonvoting IEEE-SA Standards Board liaisons:

Howard L. Wolfman, *TAB Representative*
Michael Janezic, *NIST Representative*
Satish K. Aggarwal, *NRC Representative*

Michelle Turner
IEEE Standards Program Manager, Document Development

Matthew Ceglia
IEEE Standards Program Manager, Technical Program Development

Contents

1. Overview	1
1.1 Scope	1
1.2 General	1
2. Normative references.....	1
3. Material	2
4. Dimensions.....	2
5. Conformance tests for strengths	3
6. Corrosion protection.....	3
7. Finish.....	3
8. Marking of shipped packages.....	3
9. Application notes.....	3

Currently in preview, click buy full version

IEEE Standard for Zinc-Coated Forged Anchor Shackles

IMPORTANT NOTICE: *This standard is not intended to ensure safety, security, health, or environmental protection in all circumstances. Implementers of the standard are responsible for determining appropriate safety, security, environmental, and health practices or regulatory requirements.*

This IEEE document is made available for use subject to important notices and legal disclaimers. These notices and disclaimers appear in all publications containing this document and may be found under the heading “Important Notice” or “Important Notices and Disclaimers Concerning IEEE Documents.” They can also be obtained on request from IEEE or viewed at <http://standards.ieee.org/IPR/disclaimers.html>

1. Overview

1.1 Scope

This standard covers the dimensional, strength, and testing requirements for zinc coated forged anchor shackles used in overhead transmission and distribution line construction.

1.2 General

All anchor shackles conforming to the requirements of this standard shall, in all respects, meet the basic dimensional and performance requirements herein stated.

2. Normative references

The following referenced documents are indispensable for the application of this standard (i.e., they must be understood and used, so each referenced document is cited in text and its relationship to this standard is explained). For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments or corrigenda) applies.

IEEE Std C135.61™, IEEE Standard for the Testing of Overhead Transmission and Distribution Line.¹

ASTM A153/A153M-05, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.²

¹ IEEE publications are available from the Institute of Electrical and Electronics Engineers, 445 Hoes Lane, Piscataway, NJ 08854, USA (<http://standards.ieee.org/>).

² ASTM publications are available from <http://global.ihs.com/>.