

IEEE Standard for Submersible Equipment—Enclosure Integrity

IEEE Power and Energy Society

Developed by the
Transformers Committee

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

IEEE Std C57.12.32™-2019
(Revision of IEEE Std C57.12.32-2002)

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Transformers Committee
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Approved 21 May 2019

IEEE-SA Standards Board

Abstract: Design and production tests and requirements for the integrity of submersible electrical equipment intended for installation in submerged or partially submerged environments are covered in this standard. These enclosures contain energized electrical apparatus, typically not accessible to the general public including, but not limited to, the following types of equipment: submersible distribution transformers; submersible network transformers; submersible network protectors; submersible switchgear; submersible capacitors or inductors; submersible junction enclosures; submersible metering equipment; and submersible control boxes.

Keywords: capacitors, coating integrity, control boxes, enclosure integrity, IEEE C57.12.32™, network protectors, submersible equipment, switches, transformers

The Institute of Electrical and Electronics Engineers, Inc.
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PDF: ISBN 978-1-5044-5898-6 STD23725
Print: ISBN 978-1-5044-5899-3 STDPD23725

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Scott Abbott	Thomas Holifield	Ronald Stahara
Omar Ahmed	Gael Kennedy	Robert Stinson
Israel Barrientos	Gary King	Wes Suddarth
Darren Brown	Brian Klaponski	Babanna Suresh
Thomas Callsen	Maria Lamorey	Giuseppe Termini
John Chisholm	Alejandro Macias	Michael Thibault
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Anil Dhawan	Dwight Parkinson	John Vartanian
Benjamin Garcia	Martin Rave	Joshua Verdell
James Gardner	Stephen Shull	Shelby Walters
Carlos Gaytan	Audrey Siebert-Timmer	Lee Welch
Ali Ghafourian	Igor Simonov	Alan Wilks
Said Hachichi	Edward Smith	William Wimmer
	Travis Spooone	

The Enclosure Integrity Working Group gratefully acknowledges the contributions of the following additional participants in this revision:

Adam Bromley	James Gardner	Robert Olen
Michael Faulkenberry	Rebecca Giang	Justin Pezzin
Fredric Friend	Thomas Goiner	Juan Saldivar
Jean-Francois Gagnon	Kent Miller	Sanjib Som

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

Chris Ambrose	Craig DeRouen	John Kay
Peter Balma	James Dorsten	Gael Kennedy
Paul Barnhart	Edgar Dullni	Sheldon Kennedy
Israel Barrientos	William Elliott	Gary King
Barry Beaster	Michael Faulkenberry	Boris Kogan
Steven Bezner	Derek Foster	Jim Kulchisky
Thomas Blackburn	Paul Found	John Leach
Darren Brown	Fredric Friend	Lee Matthews
Demetrio Bucaneg Jr.	Carlos Gaytan	Justin Minikel
William Byrd	Ali Ghafourian	Charles Morgan
Thomas Callsen	Saurabh Ghosh	Dan Mulkey
Paul Cardinal	Edwin Goodwin	Jerry Murphy
Suresh Channarasappa	Randall Groves	K.R.M. Nair
Arvind Chaudhary	Said Hachichi	Michael Newman
Paul Chisholm	John Harley	Joe Nims
C. Clair Claiborne	Thang Hochanh	Dwight Parkinson
Kent Coldsnow	Werner Hoelzl	Bansi Patel
Douglas Craig	Philip Hopkinson	Dhiru Patel
Thomas Dauzat	Richard Jackson	Howard Penrose

Alvaro Portillo
Larry Putman
James Ratty
Martin Rave
Timothy Robirds
Ryandi Ryandi
Pedro Salgado
Daniel Sauer
Bartien Sayogo
Robert Seitz

Stephen Shull
Jerry Smith
Gary Smullin
Sanjib Som
Francois Soulard
Travis Spooner
Ronald Stahara
Robert Stinson
Giuseppe Termini
Alan Traut
Donnie Trivitt

Karla Trost
James Van De Ligt
Ajith Varghese
Jason Varnell
John Vergis
David Wallace
Shelby Walters
Lee Welch
Alan Wilks
Terry Woodyard

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Kevin Lu
Daleep Mohla
Andrew Myles

Annette D. Reilly
Dorothy Stanley
Sha Wei
Phil Wennblom
Philip Winston
Howard Wolfman
Feng Wu
Jingyi Zhou

*Member Emeritus

Introduction

This introduction is not part of IEEE Std C57.12.32-2019, IEEE Standard for Submersible Equipment—Enclosure Integrity.

The Accredited Standards Committee on Transformers, Regulators, and Reactors, C57, originally developed and correlated standards on these products, together with the Accredited Standards Committee on Power Switchgear, C37, through the Joint ASC C57/C37 Working Group on Enclosures with Joseph Martin and then with Robert C. Olen as chairman. This group is now the Enclosure Integrity Working Group of the IEEE Transformers Committee.

The data used in this work have been gathered from many sources, including the standards of the Institute of Electrical and Electronics Engineers and the National Electrical Manufacturers Association, reports of committees of the Edison Electric Institute, and others.

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1. Overview

1.1 Scope

This standard covers conformance tests and requirements for the integrity of submersible electrical equipment intended for installation in submerged or partially submerged environments. These enclosures contain energized electrical apparatus, typically not accessible to the general public, including, but not limited to, the following types of equipment:

- a) Submersible distribution transformers
- b) Submersible network transformers
- c) Submersible network protectors
- d) Submersible switchgear
- e) Submersible capacitors or inductors
- f) Submersible junction enclosures
- g) Submersible metering equipment
- h) Submersible control box

1.2 Purpose

The purpose of this standard is to describe the requirements for a comprehensive enclosure integrity system for submersible equipment providing long field life with minimum maintenance.

2. Normative references

The following referenced documents are indispensable for the application of this document (i.e., they must be understood and used, so each referenced document is cited in text and its relationship to this document 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.

ASTM B117, Standard Practice for Operating Salt Spray (Fog) Apparatus.¹

¹ASTM publications are available from the American Society for Testing and Materials (<http://www.astm.org/>).