

IEEE Recommended Practice for Sizing Nickel-Cadmium Batteries for Stationary Applications

Sponsor

IEEE Standards Coordinating Committee 29
on
Stationary Batteries

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Abstract: The sizing of nickel-cadmium batteries used in full float operation for stationary applications is covered in this recommended practice.

Keywords: nickel-cadmium batteries, stationary applications

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Introduction

(This introduction is not part of IEEE 1115-2000, IEEE Recommended Practice for Sizing Nickel-Cadmium Batteries for Stationary Applications.)

The storage battery is of primary importance in ensuring the satisfactory operation of generating stations, substations, and other stationary applications. This recommended practice is based on commonly accepted methods used to define the load and to ensure adequate battery capacity. The method described is applicable to all installations and battery sizes.

The installations considered herein are designed for operation with a battery charger serving to maintain the battery in a charged condition as well as to supply the normal dc load. Alternate energy systems (e.g., wind mills and photovoltaic systems) may provide only partial or intermittent charging, and are beyond the scope of this document. See IEEE Std 1144-1996 [B6]¹ for details.

This recommended practice was prepared by the Nickel-Cadmium Sizing Working Group of IEEE Standards Coordinating Committee 29 (SCC29). It may be used separately, but when combined with IEEE Std 1106-1995, it will provide the user with a general guide to designing, placing in service, and maintaining a nickel-cadmium battery installation. At the time this standard was approved the members of the Nickel-Cadmium Sizing Working Group were as follows:

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¹The numbers in brackets correspond to those of the bibliography in Annex D.

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1. Overview

This recommended practice describes methods for defining the dc load and for sizing a nickel-cadmium battery to supply that load. Some factors relating to cell selection are presented for consideration.

1.1 Scope

This recommended practice covers the sizing of nickel-cadmium batteries used in full float operation for stationary applications. Installation, maintenance, qualification, testing procedures, and consideration of battery types other than nickel-cadmium batteries are beyond the scope of this recommended practice.

Design of the dc system and sizing of the battery charger(s) are also beyond the scope of this recommended practice.

1.2 Purpose

The purpose of this recommended practice is to provide a proven and standardized sizing technique for nickel-cadmium batteries. This sizing method takes normal usage factors into account, and forms the basis for reliable battery operation.

2. References

This standard shall be used in conjunction with the following publications:

IEEE Std 1106-1995, IEEE Recommended Practice for Installation, Maintenance, Testing, and Replacement of Vented Nickel-Cadmium Batteries for Stationary Applications.¹

IEEE Std 1184-1994, IEEE Guide for the Selection and Sizing of Batteries for Uninterruptible Power Systems.

¹IEEE publications are available from the Institute of Electrical and Electronics Engineers, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331, USA (<http://standards.ieee.org/>).