
Plovila za celinske vode - Električne povezave s kopnim, trifazni tok 400 V, do 63 A, 50 Hz - 1. del: Splošne zahteve

Inland navigation vessels - Electrical shore connection, three phase current 400 V, up to 63 A, 50 Hz - Part 1: General requirements

Fahrzeuge der Binnenschifffahrt - Elektrischer Landanschluss, Drehstrom 400 V, bis 63 A, 50 Hz - Teil 1: Allgemeine Anforderungen

Bateaux de navigation intérieure - Connexion au réseau électrique terrestre, courant triphasé 400 V, à 63 A, 50 Hz - Partie 1: Exigences générales

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47.020.60	Električna oprema ladij in konstrukcij na morju	Electrical equipment of ships and of marine structures
47.060	Jezerska in rečna plovila	Inland navigation vessels

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This European Standard was approved by CEN on 25 December 2009.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

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Foreword

This document (EN 15869-1:2010) has been prepared by Technical Committee CEN/TC 15 “Inland navigation vessels”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2010, and conflicting national standards shall be withdrawn at the latest by August 2010.

EN 15869, *Inland navigation vessels — Electrical shore connection — Three-phase current 400 V, up to 63 A, 50 Hz* comprises:

- *Part 1: General requirements*
- *Part 2: Onshore unit, safety requirements*
- *Part 3: On-board unit, safety requirements*

According to the CEN/GENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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Introduction

Inland navigation vessels are equipped with a variety of electrical loads operating at 230 V or 400 V. While underway, continuous electrical power supply is provided by the onboard system from generators driven by diesel engines. When the vessel is berthed, these generators have to remain in operation if there is no suitable onshore power supply available. In some cases, this leads to intense noise pollution both for the crew on the vessel itself and on other vessels lying alongside and also for residents ashore. The exhaust fumes are an additional pollution factor.

The electrical shore connections specified in this standard make it possible to provide the vessels with an electrical power supply while berthed and to eliminate noise and exhaust pollution. This calls for a uniform Europe-wide connection that can be activated and deactivated by the vessel's crew in all ports and berths, if possible, without requiring any assistance from shore-based personnel. This standard contains electrical safety requirements for the prevention of hazards in making, using and breaking the shore connection. Furthermore, cashless settlement for the electricity used shall be possible, ideally a standard Europe-wide payment system.

Electrical shore connections with a permissible current of over 63 A as used for passenger ships with a hotelling function are not covered by this standard.

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1 Scope

This European Standard specifies requirements applicable to equipment for shore-to-vessel supply of three-phase 400 V electrical power up to 63 A and a frequency of 50 Hz to berthed inland navigation vessels.

This part of the European Standard specifies general requirements and contains information on the settlement method.

2 Normative references

This document does not contain any normative references.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

electrical shore connection

<inland navigation> equipment consisting of electrical power-supply station, cable set and feed unit for the supply of electrical power to inland navigation vessels in ports and at berths

3.2

electrical power-supply station

shore-side part of the electrical shore connection with one or more connector units

3.3

connector unit

<inland navigation> unit for connecting an inland navigation vessel

3.4

activation medium

<inland navigation> system for activating the supply of power and cashless settlement of the costs

3.5

feed unit

<inland navigation> all the onboard devices for receiving the electrical power on board

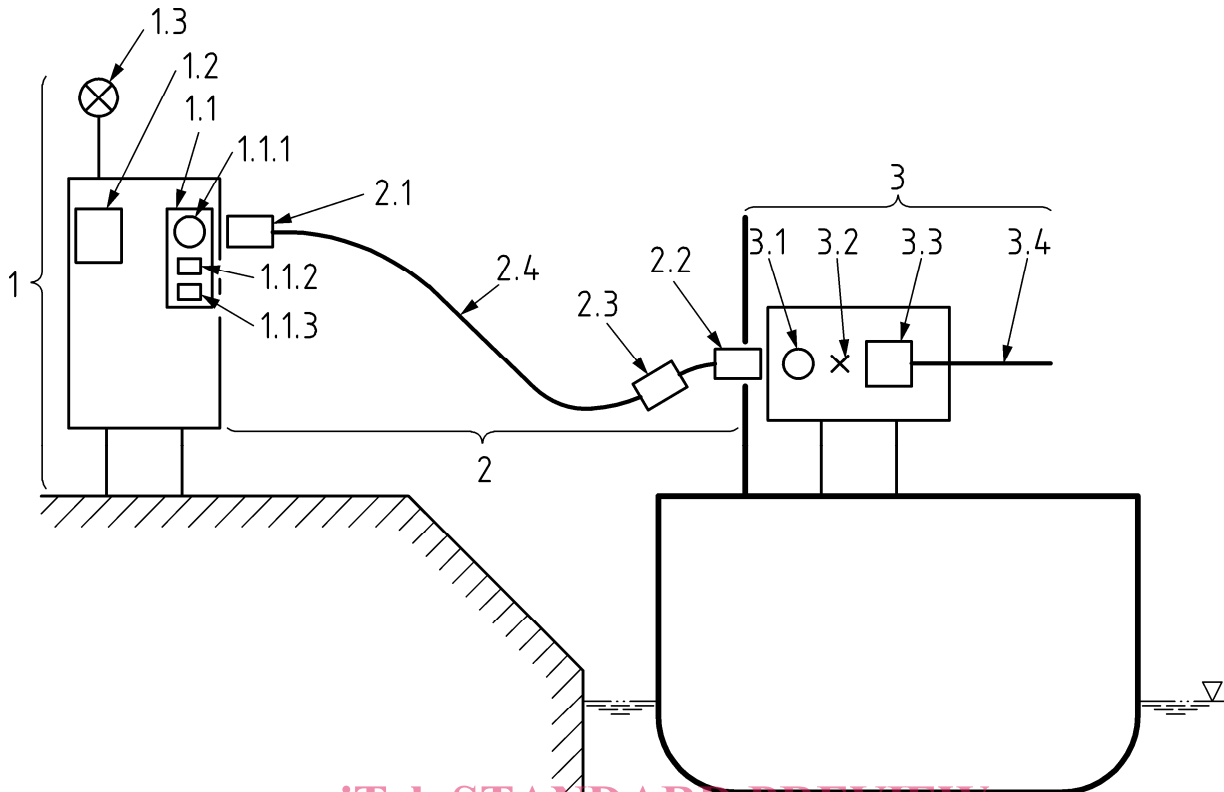
4 Requirements

4.1 Components

The electrical shore connection comprises (see Figure 1):

- a) electrical power-supply station, see Part 2 of the standard;
- b) cable set, see Part 3 of the standard;
- c) feed unit, see Part 3 of the standard..

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Key

- 1 electrical power-supply station
 1.1 connector unit
 1.1.1 socket outlet
 1.1.2 three-phase meter
 1.1.3 activation medium
 1.2 operating instructions
 1.3 lighting
- 2 cable set
 2.1 plug
 2.2 coupler (optional, instead of fixed cable)
 2.3 strain-relief device
 2.4 connection cable
- 3 feed unit
 3.1 equipment plug (optional, instead of fixed cable)
 3.2 all-pole switch
 3.3 isolating transformer
 3.4 permanently-connected cable for control panel (optional, if the feed unit is not integrated in the control panel)

Figure 1 — Layout diagram of an electrical shore connection

4.2 Characteristic values

The electrical shore connection shall be designed for three-phase 400 V, 16 A, 50 Hz and may also be designed for three-phase 400 V, 32 A, 50 Hz or for three-phase 400 V, 32 A and 63 A, 50 Hz.

NOTE At 16 A, it can transfer approximately 11 kW continuous-load power, at 32 A approximately 22 kW and at 63 A approximately 44 kW.

4.3 Readiness for operation

The electrical shore connection shall only be energized via the activation medium used for recording consumption (see 4.4). It shall be possible to start and stop the power supply at any time without the aid of shore-side personnel.

4.4 Consumption recording and settlement

If settlement is requested, this shall be done on a cash-free basis via a fixed tariff or on consumption. Each connector unit shall then have its own consumption recording system.

Annex A gives examples of activating and consumption recording systems.

4.5 Deviations from 4.3 and 4.4

In ports and berths where personnel are provided at all times or there is free service, there may be deviations from the requirements for the autonomous connection and consumption measurement as described in 4.3 and 4.4.

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