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STN	**Elektrické zariadenia pre pece a pomocné zariadenia. Časť 2: Požiadavky na návrh, vývoj a overovanie typu bezpečnostných zariadení a subsystémov.**	**STN EN 50156-2** 36 1111

Electrical equipment for furnaces and ancillary equipment - Part 2: Requirements for design, development and type approval of safety devices and subsystems

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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EUROPEAN STANDARD **EN 50156-2**

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English Version

Electrical equipment for furnaces and ancillary equipment - Part 2: Requirements for design, development and type approval of safety devices and subsystems

Equipements électriques d'installation de chaudière - Partie 2: Règles pour la dessin, développement et essai de type d' élément sécurité et sous-système

Elektrische Ausrüstung von Feuerungsanlagen - Teil 2: Bestimmungen für den Entwurf, die Entwicklung und die Baumusterprüfung von Sicherheitsbauteilen und Teilsystemen

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European Committee for Electrotechnical Standardization
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Europäisches Komitee für Elektrotechnische Normung

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Contents

Page

European foreword

This document (EN 50156-2:2015) has been prepared by CLC/BTTF 132-2 “Revision of EN 50156 'Electrical equipment for furnaces and ancillary equipment'”.

The following dates are fixed:

• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2016-01-26
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2018-01-26

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

This European Standard is the second part of a series of European Standards that specify the requirements for equipment of safety functions for furnaces, especially safety related systems to protect personnel, the furnace with ancillary equipment against hazards related to heat generation, the heated system and to operate reliably during normal conditions, and abnormal conditions that can be foreseen.

EN 50156, *Electrical equipment for furnaces and ancillary equipment*, consists of the following parts:

- Part 1: Requirements for application design and installation;
- Part 2: Requirements for design, development and type approval of safety devices and subsystems;
- Part 3: Requirements for plant-specific tests of safety-related equipment [1)].

This European Standard is based on EN 61508:2010, *Functional safety – Safety-related systems*, Parts 1 to 7 as a basic safety standard.

1) In preparation.

Introduction

This part of EN 50156 sets out the requirements and recommendations for design, development and type approval of safety devices and subsystems to be applied to protect personnel, property and environment against the hazards of furnaces with ancillary equipment and the systems heated by the thermal energy released in the furnace. The operating conditions of the furnace, the hazards of combustion and the safety of the heated system are considered.

The safety requirements for all stages of the life-cycle of a particular plant, proof of fulfilment of the plant-specific safety-requirements, are defined in Part 1 of EN 50156. The requirements for plant specific tests during implementation, operation and maintenance are defined in Part 3 of EN 50156.

The requirements for the application of safety-related systems are specified in EN 50156-1:2015, Clause 10. The rating of necessary safety integrity levels, as specified in EN 50156-1:2015, 10.4, is based on EN 61508-1.

For the plant-specific implementation of safety-related systems, it is necessary to organize management of functional safety and to satisfy safety life-cycle requirements.

1 Scope

This part of EN 50156 applies to the requirements for design, development and approval of safety-relevant equipment for the safety related system for furnaces that are operated with solid, liquid or gaseous fuels and their ancillary equipment.

This part of EN 50156 specifies the requirements for safety-related equipment that is necessary to meet the safety conditions of furnaces, to reduce the hazards of combustion and to protect the heated systems from damage e.g. by overheating. Subsystems and devices of other technologies, which are part of the safety-related system (see EN 50156-1:2015, 3.38), are covered by this part of EN 50156.

This part of EN 50156 sets out special requirements for design, development and approval of safety devices and subsystems to satisfy the requirements of EN 50156-1:2015, Clause 10 “Additional requirements for the application of a safety-related system”.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 161:2011+A3:2013, *Automatic shut-off valves for gas burners and gas appliances*

EN 267:2009+A1:2011, *Automatic forced draught burners for liquid fuels*

EN 298:2012, *Automatic burner control systems for burners and appliances burning gaseous or liquid fuels*

EN 676:2003+A2:2008, *Automatic forced draught burners for gaseous fuels*

EN 1643:2014, *Safety and control devices for gas burners and gas burning appliances - Valve proving systems for automatic shut-off valves*

EN 1854:2010, *Pressure sensing devices for gas burners and gas burning appliances*

EN 12067-2:2004, *Gas/air ratio controls for gas burners and gas burning appliances - Part 2: Electronic types*

EN 12952-11:2007, *Water-tube boilers and auxiliary installations - Part 11: Requirements for limiting devices of the boiler and accessories*

EN 12953-9:2007, *Shell boilers - Part 9: Requirements for limiting devices of the boiler and accessories*

EN 13611:2007+A2:2011, *Safety and control devices for gas burners and gas burning appliances - General requirements*

EN 16340:2014, *Safety and control devices for burners and appliances burning gaseous or liquid fuels - Combustion product sensing devices*

EN 50156-1:2015, *Electrical equipment for furnaces and ancillary equipment – Part 1: Requirements for application design and installation*

EN 60730-1:2011, *Automatic electrical controls for household and similar use - Part 1: General requirements (IEC 60730-1:2010)*

EN 60812:2006, *Analysis techniques for system reliability - Procedure for failure mode and effects analysis (FMEA) (IEC 60812:2006)*

EN 60947-2:2006, *Low-voltage switchgear and controlgear - Part 2: Circuit-breakers (IEC 60947-2:2006)*

EN 61010-1:2010, *Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements (IEC 61010-1:2010+corr 2011)*

EN 61131-2:2007, *Programmable controllers - Part 2: Equipment requirements and tests (IEC 61131-2:2007)*

EN 61508-1:2010, *Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 1: General requirements (IEC 61508-1:2010)*

EN 61508-2:2010, *Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 2: Requirements for electrical/electronic/programmable electronic safety-related systems (IEC 61508-2:2010)*

EN 61508-3:2010, *Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 3: Software requirements (IEC 61508-3:2010)*

EN 61508-4:2010, *Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 4: Definitions and abbreviations (IEC 61508-4:2010)*

EN 61508-5:2010, *Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 5: Examples of methods for the determination of safety integrity levels (IEC 61508-5:2010)*

EN 61508-6:2010, *Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 6: Guidelines on the application of IEC 61508-2 and IEC 61508-3 (IEC 61508-6:2010)*

EN 61508-7:2010, *Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 7: Overview of techniques and measures (IEC 61508-7:2010)*

EN 61800-5-2:2007, *Adjustable speed electrical power drive systems - Part 5-2: Safety requirements - Functional (IEC 61800-5-2:2007)*

EN ISO 23553-1:2014, *Safety and control devices for oil burners and oil-burning appliances - Particular requirements - Part 1: Automatic and semi-automatic valves (ISO 23553-1:2014)*