

Svenska Elektriska Kommissionen, SEK

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Elutrustning för ugnar och pannor som eldas med fasta, flytande eller gasformiga bränslen – Del 1: Val och användning

*Electrical equipment for furnaces and ancillary equipment –
Part 1: Requirements for application design and installation*

Som svensk standard gäller europastandarden EN 50156-1:2004. Den svenska standarden innehåller den officiella engelska språkversionen av EN 50156-1:2004.

ICS 27.060.01

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EUROPEAN STANDARD

EN 50156-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 2004

ICS 27.060.01

English version

**Electrical equipment for furnaces and ancillary equipment
Part 1: Requirements for application design and installation**

Equipements électriques d'installation
de chaudière
Partie 1: Règles pour la conception,
pour l'application et l'installation

Elektrische Ausrüstung
von Feuerungsanlagen
Teil 1: Bestimmungen für die
Anwendungsplanung und Errichtung

This European Standard was approved by CENELEC on 2004-04-01. CENELEC 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 Central Secretariat or to any CENELEC 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 CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

This European Standard has been prepared by the German National Committee with the participation of experts of other National Committees on the basis of CLC/BT(DE/NOT)140.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50156-1 on 2004-04-01.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2005-04-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2007-04-01

The following further parts of this standard are under consideration:

Part 2: Requirements for design, development and type approval of safety-relevant equipment

Part 3: Requirements for plant-specific tests of safety-relevant equipment

This type B standard (CEN/TC 114 terminology) is based on the IEC Standard 61508 Functional safety – Safety-related systems, Parts 1 to 7 as a basic safety standard.

This standard shall serve as a basis for requirements on electrical equipment of boilers to be referenced in standards to be developed by CEN/TC 269.

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Introduction

This part of the European Standard EN 50156 specifies the requirements and recommendations for the application design and installation of electrical and control equipment for furnaces and ancillary equipment and for the systems heated by the thermal energy released in the furnace to ensure:

- safety of personnel, property and the environment;
- consistency of proper function;
- ease and economy of maintenance.

The operating conditions of the furnace, the hazards of combustion and the safety of heated systems are considered.

A protective system consisting of safety devices for

- monitoring of flames and other safety conditions of the firing;
- interrupting the flow of fuel to the furnace;
- ventilating the body of the furnace and the flue gas ducts;
- monitoring of safety condition of the heated systems (e.g. water level limiter in steam boilers)

may be necessary to ensure proper ignition and combustion of fuel and to avoid the development, existence and/or ignition of explosive mixture of fuel and air, and also to avoid damage of the heated systems (see 3.25).

The rating of necessary safety integrity levels is based on standard EN 61508-1. The requirements for protective system(s) for boilers have been coordinated with CEN/TC 269.

Figure 1 is provided as an aid to understanding the relationship between the various elements of furnaces and their ancillary equipment, the heated systems, the control system and the protective system(s).

The following further parts of this Standard are under consideration:

Part 2: Requirements for design, development and type approval of safety-relevant equipment

Part 3: Requirements for plant-specific tests of safety-relevant equipment

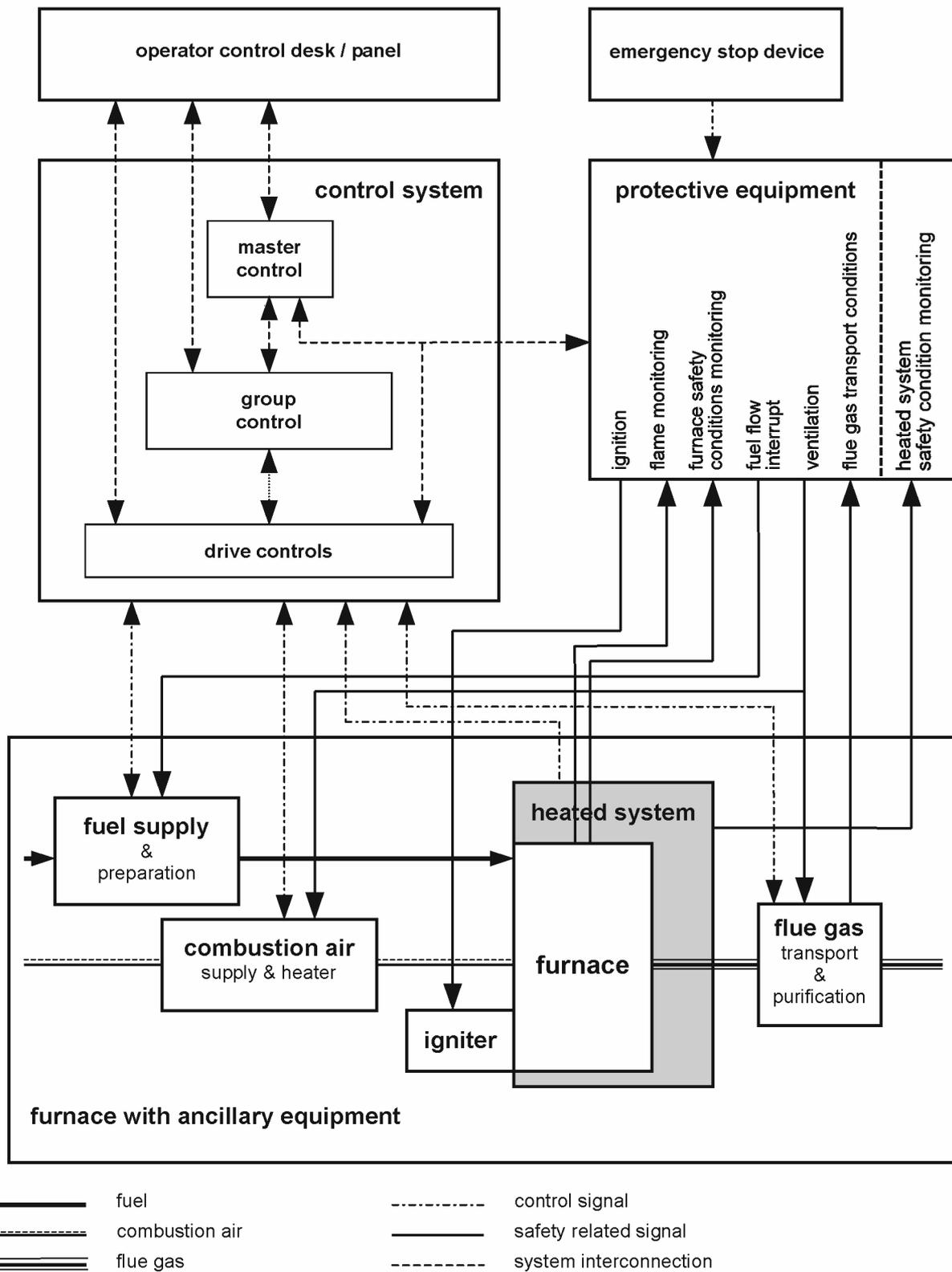


Figure 1 – Example of the functionality of a furnace with ancillary equipment, heated systems and relationship to control system and protective equipment.

1 Scope

This standard applies to the application design and installation of electrical equipment, control circuits and protective systems for furnaces which are operated with solid, liquid or gaseous fuels and their ancillary equipment. It specifies requirements to meet the operating conditions of furnaces, to reduce the hazards of combustion and to protect the heated systems from damage e.g. by overheating.

Such furnaces and the electrical equipment may be part of the following plants for example:

- a) Water heating systems
- b) Steam boiler installations (steam and hot-water boilers) and heat recovery steam boilers

NOTE 1 The requirements of this standard apply according to the electrical equipment of electrically heated steam boilers.

NOTE 2 Seagoing vessels and offshore facilities are governed by International Maritime Law and as such are not within the scope of this standard. These requirements may be used for such facilities.

- c) Warm air heaters
- d) Hot-gas heaters
- e) Heat exchanger systems
- f) Combustion chambers of stationary turbines
- g) As long as no other standard is applicable for combined heat and power stations it is recommended to use the requirements of this standard
- h) This standard may also be used as reference for electrical equipment requirements for thermo-processing equipment.

NOTE 3 The requirements of this standard are applicable in all cases where an equipment specific standard does not specify a requirement.

The requirements in this standard are not applicable to electrical equipment for:

- i) Non electrically heated appliances and burner control systems for household and similar purpose;
- j) Furnaces using technologies for the direct conversion of heat into electrical energy;
- k) Combustion chambers of non-stationary prime movers and turbines;
- l) Central oil supply systems for individual heating appliances;
- m) Furnaces using solid fuels for heating purposes for household use with a nominal thermal output up to 1 MW;
- n) Furnaces which are used to heat process fluids and gasses in chemical plant.

This standard may be used as a basis for the requirements placed on electrical equipment for furnaces which are excluded from its field of application.

2 Normative references

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

EN 267:1999, *Forced draught oil burners – Definitions, requirements, testing, marking*

EN 298:1993, *Automatic gas burner control systems for gas burners and gas burning appliances with or without fans*

EN 50265-1:1998, *Common test methods for cables under fire conditions – Test for resistance to vertical flame propagation for a single insulated conductor or cable – Part 1: Apparatus*