



SLOVENSKI STANDARD
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Automatic forced draught burners for liquid fuels

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Automatische Brenner mit Gebläse für flüssige Brennstoffe

Bruleurs automatiques a air soufflé pour combustibles liquide

Ta slovenski standard je istoveten z: EN 267:1999/prA2

SIST EN 267:2000/oprA2:2006

en

ICS

English Version

Automatic forced draught burners for liquid fuels

Brûleurs automatiques à air soufflé pour combustibles
liquide

Automatische Brenner mit Gebläse für flüssige Brennstoffe

This draft amendment is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 47.

This draft amendment A2, if approved, will modify the European Standard EN 267:1999. If this draft becomes an amendment, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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Foreword

This document (EN 267:1999/prA2:2006) has been prepared by Technical Committee CEN/TC 47 “Atomizing oil burners and their components - Function - Safety - Testing”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZB which is an integral part of this document.

ANNEX K (normative)

Additional requirements for burners with pressurised parts and burners with monitoring devices firing pressurised equipment as defined in Pressure Equipment Directive (PED) 97/23/EC

prEN 267:2005 applies with the following supplements or modifications of the corresponding clauses.

K.1 Scope

according to clause 1 and addition:

For piping this amendment applies only for pressurised parts and accessories with a product of the maximum allowable pressure PS and the diameter DN between 100 mm and 350 mm of less than 3 500 bar mm (category II) or with a product of PS and DN between 25 mm and 100 mm of less than 1 000 bar mm (category I), as defined by EU directive 97/23/EC.

Additional electrical functional requirements are given for monitoring devices.

The risk philosophy adopted in this standard is based on the analysis of hazards on account of pressure. The standard applies to the principals to eliminate or reduce hazards and where they can not be eliminated appropriate protection measures shall apply.

Any residual hazards are identified and communicated to the user where appropriate.

Depending on the installation situation additional requirements may apply to cover the risks arising from traffic, wind, earthquake loading and external fire.

K.3 Terms and definitions

according to clause 3 and addition:

K.3.11

pressurised parts

piping components and devices having pressure bearing housings with a pressure greater than 500 mbar

NOTE See EU Directive 97/23/EC

K.3.12

monitoring devices

devices used for monitoring and controlling the burner when firing pressurised equipment

K.4.4.1 General Design

according to 4.4.1 and addition:

The design of the burner shall be based on the intended life time declared by the manufacturer. The intended life time of the equipment shall be taken into account.

The pressure equipment shall be properly designed taking all relevant factors into account in order to ensure that the equipment will be safe throughout its intended life.

The design shall incorporate appropriate safety coefficients using comprehensive methods which are known to incorporate adequate safety margins against all relevant failure modes in a consistent manner.

NOTE The life time of the components may differ from the life time of the burner.

K.4.4.4 Materials

according to 4.4.4 and addition:

If the pressurised parts carry aggressive media, the materials used shall be resistant to this media.

K.4.4.7 Pressurised parts

K.4.4.7.1 Design

Pressurised parts shall be designed for loadings appropriate to their intended use and other reasonably foreseeable operating conditions.

Pressurised parts shall withstand a pressure strength test according to 4.5.5.4 and K.5.9.1.

K.4.4.7.2 Materials

Materials of pressurised parts, which are subject to a maximum allowable pressure $> 0,5$ bar, shall be suitable for the intended lifetime unless replacement is foreseen. Such materials shall be verified according to the following requirements:

Materials

- shall comply with harmonised standards (see Table L.1), or
- shall be covered by a European approval of pressure equipment materials (e.g. EN 13840), or
- shall be subject of a particular material appraisal.

Materials used in similar applications under similar operating conditions, which have been recognised as being safe to use before 29 November 1999 may also be regarded as suitable. The safety of pressurised parts using such materials shall be verified in combination with the design assessment according to K.4.4.7.1

NOTE 1 For a list of materials used for the construction of pressure equipment and recognised as being safe to use before 29 November 1999, see Table L.2 and Table L.3.

K.4.4.7.3 Permanent joints

Permanent joints and adjacent zones shall be free of any surface or internal defects detrimental to the safety of the equipment.

The properties of permanent joints shall meet the minimum properties specified for the materials to be joined unless other relevant property values are specifically taken into account in the design calculations.

For pressure equipment, permanent joining of components which contribute to the pressure resistance of equipment and components which are directly attached to them shall be carried out by suitably qualified personnel according to suitable operating procedures.

K.4.5.4.1 General

according to 4.5.4.1 and addition

All fuel line components shall be assembled and mounted without bending, torque and other mechanical stress.

All fuel line components used as pressurised parts shall comply with the PED or its mandated standards.

All fuel line components shall be made of materials for appropriate lifetime. The manufacturer shall declare periods of service and maintenance and declare appropriate lifetime or cycles to maintain safety.

K.4.5.6.2 Air proving device

according to 4.5.6.2 and addition:

The burner shall be fitted with a device for proving adequate air flow during the pre-purge, ignition and operation of the burner. If a pressure sensing device is used as being a monitoring device for fired pressurized bodies the requirements of EN 1854 shall apply analogue.

K.4.5.8 Automatic burner control unit

The automatic burner control system as being a monitoring device for fired pressurized bodies shall comply with the requirements of EN 230 and > 1200 kW burner output it shall have a permanent operation mode.

K.4.6.1 General functions requirements

according to 4.6.1 and addition:

The following functions of the burner shall be designed according to EN 50156-1 as equivalence to maintain safety integrity level 3 (SIL-class 3):

- pressure control;
- burner control and flame detection;
- safe shut off of the fuel supply;
- air/fuel ratio control;
- integration of the superior safety equipment of the boiler and of the firing system.

The requirements of the construction, see K.4.6.18 .

The requirements of the safety life cycle, see K.4.6.19.

K.4.6.11.1 Protection of the oil and air supply

according to 4.6.11.1 and addition:

A fuel pressure switch for low fuel pressure is required for permanent operation without supervision of burners firing a pressure equipment according to category IV of the PED. It shall lead to a shut-off of the burner, if the required atomizing pressure is not reached.

K.4.6.17 External safety limiter

The operation of an external safety limiter (e.g. safety accessory of the pressure vessel as water level limiters, pressure sensing devices, etc.) as being a safety accessory shall cause at least a non volatile lockout of the burner.

K.4.6.18 Design according to EN 50156-1

K.4.6.18.1 General

The equipment of the following paragraphs is considered to be an equivalence to the requirements of SIL-Class 3 of the EN 50156-1.

Alternative equipment has to comply with EN 50156-1 and has to maintain SIL-Class 3, and to prove it.

NOTE 1 Fulfilling a specific SIL class implies fulfilling a fault assessment according to EN 50156-1:2005, 10.5

NOTE 2 Other SIL-classes may be applicable, if this is based on a risk assessment according to EN 50156-1.

K.4.6.18.2 Pressure control

The pressure control shall be designed according to K.4.5.6.2.

K.4.6.18.3 Safe shut off of the fuel supply

The safe shut off of the fuel supply shall be designed for the foreseen lifetime. The expected lifetime shall be declared by the burner manufacturer.

K.4.6.18.4 Air/fuel ratio control

Mechanical air-/fuel ratio controls shall be operated by mechanical feed and shall be designed in such a way that the ratio is not inadmissibly influenced by interference and operation effects.

For electronic air-/fuel ratio controls the requirements of ISO/DIS 23552-1 shall apply.

K.4.6.18.5 Integration of the superior safety equipment of the boiler and of the firing system

The signal processing of superior safety equipment of the boiler shall be designed according to EN 50156-1:2005, Figure 10 or Figure 11, see K.4.6.17.

K.4.6.19 Consideration: Safety Life Cycle

In Figure K.1 the safety life cycle for the application and installation of a protective system of a burner according to this standard is demonstrated.

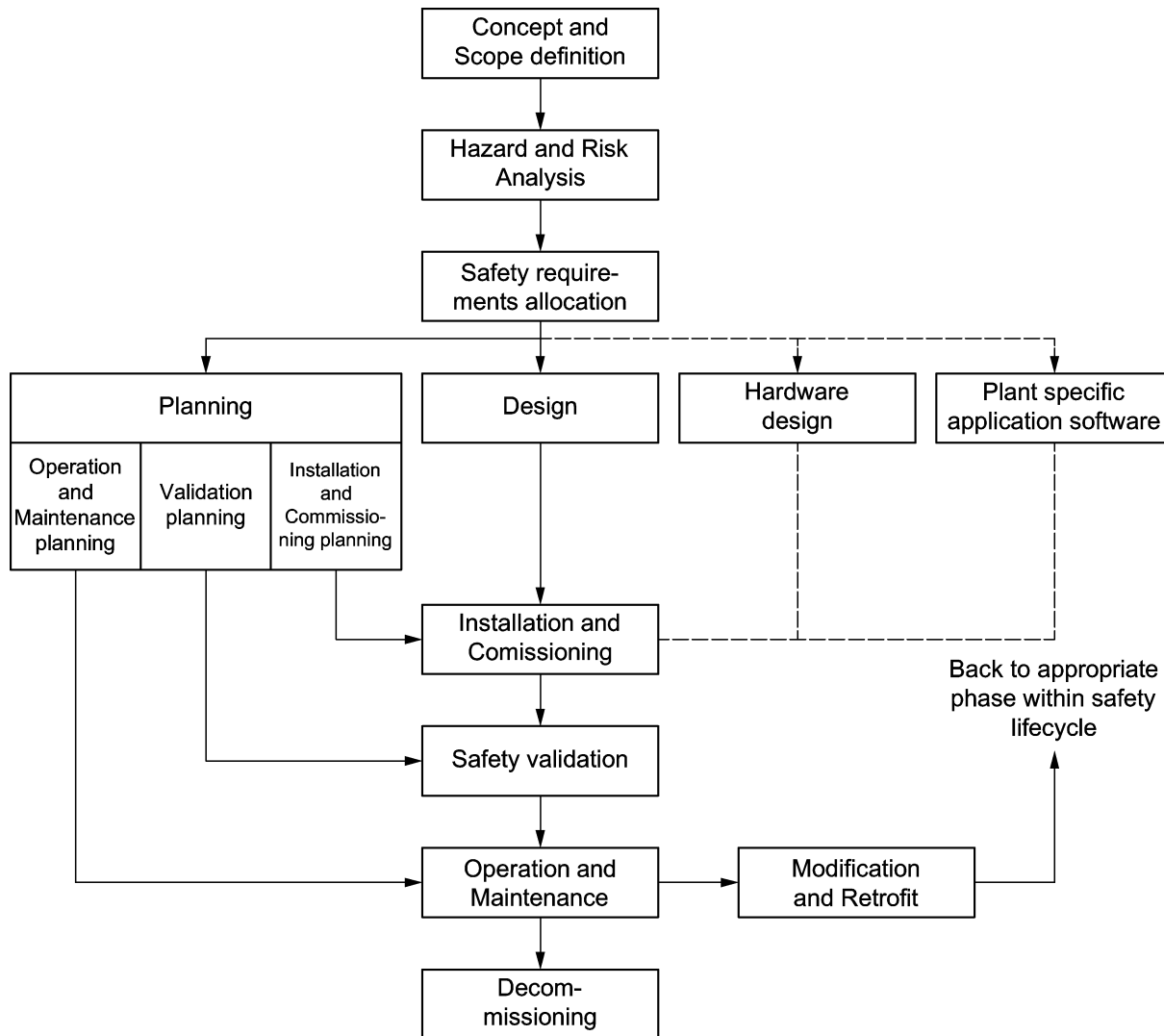


Figure K.1 — Safety life cycle for the burner

K.5 test methods

according to clause 5 and addition :

K.5.9 Pressurised Parts

K.5.9.1 Component Design Pressure Strength Test

The pressure strength test shall be performed by using a safety factor f for the test pressure where f is the multiplication factor for the maximum inlet pressure.

If not otherwise defined by harmonised design standards, a safety factor for the design $f = 1,5$ shall be considered.

NOTE Experimental test factors dependent on the type of the device and on the material are given in appropriate design standards for pressurised parts, e. g. see prEN 12516-3.