SLOVENSKI STANDARD
SIST EN 60662:2012

01-julij-2012

Visokotlačne natrijeve sijalke - Tehnične specifikacije

High-pressure sodium vapour lamps - Performance specifications

Natriumdampf-Hochdrucklampen - Anforderungen an die Arbeitsweise

Lampes à vapeur de sodium à haute pression - Spécification de performance

Ta slovenski standard je istoveten z: **EN 60662:2012**

ICS:

29.140.30	Fluorescenčne sijalke. Sijalke	Fluorescent lamps. Discharge lamps

SIST EN 60662:2012 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60662

May 2012

ICS 29.140.30

Supersedes EN 60662:1993 + A4:1994 + A5:1994 + A6:1994 + A7:1995 + A9:1997 + A10:1997

English version

High-pressure sodium vapour lamps - Performance specifications
(IEC 60662:2011, modified)

Lampes à vapeur de sodium à haute pression -
Spécifications de performance
(CEI 60662:2011, modifiée)

Natriumdampf-Hochdrucklampen -
Anforderungen an die Arbeitsweise
(IEC 60662:2011, modifiziert)

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CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 60662:2012 E

Foreword

This document (EN 60662:2012) consists of the text of IEC 60662:2011 prepared by SC 34A, "Lamps, of IEC TC 34, Lamps and related equipment", together with the common modifications prepared by CLC/SR 34 "Lamps and related equipment".

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2013-01-02
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2015-01-02

This European Standard supersedes EN 60662:1993 + A4:1994 + A5:1994 + A6:1994 + A7:1995 + A9:1997 + A10:1997.

Main items that required development of EN 60662:2011 are:

— restriction to performance requirements. Safety requirements are given in EN 62035: *Discharge lamps (excluding fluorescent lamps) – Safety specifications*;

— introduction of a test device for ignition;

— split of the lamp data sheets which make use of the test device and those which do not;

— provisions for measurement during starting, measurement of electrical and photometrical characteristics and tests for lumen maintenance and life;

— general review e.g. of maximum lamp outlines and alignment of data;

— new order of data sheets by wattage.

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

Endorsement notice

The text of the International Standard IEC 60662:2011 was approved by CENELEC as a European Standard with common modifications.

COMMON MODIFICATIONS

Lamps with the following caps are excluded from EN 60662, as they do not comply with European safety requirements:

E26

E39.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60081:1997	NOTE	Harmonized as EN 60081:1998 (not modified).
IEC 61231	NOTE	Harmonized as EN 61231.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60050-845	1987	International Electrotechnical Vocabulary (IEV) - Chapter 845: Lighting	-	-
IEC 60061-1 (mod)	-	Lamp caps and holders together with gauges for the control of interchangeability and safety - Part 1: Lamp caps	EN 60061-1	-
IEC 60061-3	-	Lamp caps and holders together with gauges for the control of interchangeability and safety - Part 3: Gauges	EN 60061-3	-
IEC 60923 + A1	2005 2006	Auxiliaries for lamps - Ballasts for discharge lamps (excluding tubular fluorescent lamps) - Performance requirements	EN 60923 + A1	2005 2006
IEC 61347-2-1	-	Lamp controlgear - Part 2-1: Particular requirements for starting devices (other than glow starters)	EN 61347-2-1 + corr. July + corr. December	-
IEC 62035 (mod)	-	Discharge lamps (excluding fluorescent lamps) - Safety specifications	EN 62035	-

IEC 60662

Edition 2.0 2011-02

INTERNATIONAL STANDARD

NORME INTERNATIONALE

High-pressure sodium vapour lamps – Performance specifications

Lampes à vapeur de sodium à haute pression – Spécifications de performance

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

PRICE CODE
CODE PRIX XJ

ICS 29.140.30

ISBN 978-2-88912-385-8

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

HIGH-PRESSURE SODIUM VAPOUR LAMPS – PERFORMANCE SPECIFICATIONS

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 60662 has been prepared by subcommittee 34A: Lamps, of IEC technical committee 34: Lamps and related equipment.

This second edition cancels and replaces the first edition published in 1980 and its amendments. It constitues a technical revision.

Main items that required development of the 2nd edition of IEC 60662 are:

- restriction to performance requirements. Safety requirements are given in IEC 62035: *Discharge lamps (excluding fluorescent lamps) – Safety specifications*;
- introduction of a test device for ignition;
- split of the lamp data sheets which make use of the test device and those which do not;
- provisions for measurement during starting, measurement of electrical and photometrical characteristics and tests for lumen maintenance and life;
- general review e.g. of maximum lamp outlines and alignment of data;
- new order of data sheets by wattage.

The text of this standard is based on the following documents:

FDIS	Report on voting
34A/1432/FDIS	34A/1452/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

INTRODUCTION

The relation between data sheet numbers of the first and the second edition is given below.

Lamp data sheets							
1st edition	2nd edition		1st edition	2nd edition		1st edition	2nd edition
1010	3250		1090	1105		2120	3300
1010	3255		1100	9000		2120	3305
1010	3260		1110	0770		2130	3310
1020	3265		1120	0775		2130	3315
1020	3270		1130	0780		2140	4500
1030	4400		1140	0785		2140	4505
1030	4405		1150	9005		2150	4510
1030	4410		1160	9010		2150	4515
1040	4415		1170	0550		3010	2300
1040	4420		1180	0555		3020	3400
1050	2150		1190	0560		3030	4600
1050	2155		-	6000		4010	3500
1060	2160		2100	2200		4020	3505
1060	2165		2110	2210		4030	4700
1070	1119		2110	2215		4040	4705
1080	1100						

Lamp outline sheets				
1st edition	2nd edition		1st edition	2nd edition
-	150 01		9030 mod.	400 01
9010	250 01		9031	400 02
9011	250 02		9032	400 03
9012 mod.	250 03		9040 mod.	400 04
9020	250 04			

HIGH-PRESSURE SODIUM VAPOUR LAMPS – PERFORMANCE SPECIFICATIONS

1 Scope

This International Standard specifies performance requirements for high-pressure sodium vapour lamps for general lighting purposes which comply with the safety requirements of IEC 62035.

For some of the requirements given in this standard, reference is made to "the relevant lamp data sheet". For some lamps these data sheets are contained in this standard. For other lamps, falling under the scope of this standard, the relevant data are supplied by the lamp manufacturer or responsible vendor.

The requirements of this standard relate only to type testing.

The requirements dealing with the lamp starting test and associated information for ballast/ignitor design are different depending on the practice of the country in which the lamp type was originally developed.

NOTE The requirements and tolerances permitted by this standard correspond to testing of a type test sample submitted by the manufacturer for that purpose. In principle, this type test sample should consist of units having characteristics typical of the manufacturer's production and being as close to the production centre point values as possible.

It may be expected with the tolerances given in the standard that product manufactured in accordance with the type test sample will comply with the standard for the majority of production. Due to the production spread however, it is inevitable that there will sometimes be products outside the specified tolerances. For guidance on sampling plans and procedures for inspection by attributes, see IEC 60410.

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.

IEC 60050-845:1987, *International Electrotechnical Vocabulary – Chapter 845: Lighting*

IEC 60061-1, *Lamp caps and holders together with gauges for the control of interchangeability and safety – Part 1: Lamp caps*

IEC 60061-3, *Lamp caps and holders together with gauges for the control of interchangeability and safety – Part 3: Gauges*

IEC 60923:2005, *Auxiliaries for lamps – Ballasts for discharge lamps (excluding tubular fluorescent lamps) – Performance requirements*[1]
Amendment 1 (2006)

IEC 61347-2-1, *Lamp controlgear – Part 2-1: Particular requirements for starting devices (other then glow starters)*

IEC 62035, *Discharge lamps (excluding fluorescent lamps) – Safety specifications*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-845 and the following apply.

[1)] There exists a consolidated edition 3.1 that comprises edition 3 and its Amendment 1.

3.1
high-pressure sodium vapour lamp
high-intensity discharge lamp in which the light is produced mainly by radiation from sodium vapour operating at a partial pressure of the order of 10 kilopascals

NOTE The term covers lamps with clear or diffusing bulb.

[IEC 60050-845 :1987, 845-07-23]

3.2
nominal value
approximate quantity value used to designate or identify a lamp

[IEC 60081:1997, definition 1.4.3]

3.3
rated value
quantity value for a characteristic of a lamp for specified operating conditions

The value and the conditions are specified in this standard, or assigned by the manufacturer or responsible vendor.

[IEC 60081:1997, definition 1.4.4]

3.4
reference ballast
special inductive type ballast, designed for the purpose of providing comparison standards for use in testing ballasts, for the selection of reference lamps and for testing regular production lamps under standardised conditions

It is essentially characterised by the fact that at its rated frequency, it has a stable voltage/current ratio which is relatively uninfluenced by variations in current, temperature and magnetic surroundings, as outlined in the relevant ballast standard.

3.5
calibration current
value of the current on which the calibration and control of the reference ballast are based

3.6
type test
test or series of tests made on a type test sample for the purpose of checking compliance of the design of a given product with the requirements of the relevant standard

[IEC 60081:1997, definition 1.4.10]

3.7
type test sample
sample consisting of one or more similar units submitted by the manufacturer or responsible vendor for the purpose of a type test

[IEC 60081:1997, definition 1.4.11]

4 General lamp requirements

4.1 Conditions on safety

A lamp, on which compliance with this standard is claimed, shall comply with the requirements of IEC 62035.

4.2 Expectations on performance

A lamp shall be so designed that its performance is reliable in normal and accepted use. In general, this can be achieved by satisfying the requirements of the following clauses.

The requirements and information given apply to 95 % of production.

4.3 Classification

For the purpose of this standard, the following designations are used as a classification according to the rated voltage at lamp terminals:

Lamp voltage designation	Abbreviation	Lamp voltage range V
Low lamp voltage	LV	< 70
High lamp voltage	HV	70 to 180
Extra high lamp voltage	EHV	> 180

5 Marking

In addition to lamp marking requirements prescribed in IEC 62035, the following symbols, indicating the starting method shall be marked on the lamp:

– for lamps without an internal starting device and requiring an external ignitor 

– for lamps having an internal starting device 

NOTE In the U.S.A., lamps are marked with an electrical code that is used to identify the proper ballast. See local standards. The symbols are not required or used in U.S.A.

6 Dimensions

The dimensions of a lamp shall comply with the values specified on the relevant lamp data sheet.

7 Caps

The cap on a finished lamp shall comply with IEC 60061-1.

8 Test requirements for lamp starting, warm-up, electrical and photometric characteristics

8.1 General

For the tests for lamp starting, lamp warm-up and lamp electrical characteristics the lamps shall be operated in a horizontal position in free air and at an ambient temperature of 25 °C ± 5 °C, on a 50 Hz or 60 Hz sinusoidal power supply using the specified reference ballast at voltage specified on the lamp data sheet. Lamps shall not be operated during 5 h immediately prior to making the starting test.

8.2 Lamp starting test

8.2.1 Lamps with external ignitor

In view of various types of ignitors in the market using essentially different methods for ignition, a well-defined reference device[2] allows to determine whether a lamp is ignitable in the sense of the standard or not. Since the device also is the basis for comparable measurements, essential component changes are not permitted unless the responsible IEC maintenance team has agreed the changes.

All variable starting parameters are given on the lamp data sheet and refer to either adjustments of the device or to an implicit property thereof (e.g. waveshape), see Figure A.1 for pulse features. If the lamp data sheet requires a second pulse, during the negative half

[2] The device can be obtained for example from Spitzenberger + Spies, D-94234 Viechtach, Germany. Brand name is LSTI5. This information is given for the convenience of users of this document and does not constitute an endorsement by the IEC of the product named.