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EUROPEAN STANDARD

EN 60 662/A10

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 1997

UDC 621.327.532  
ICS 29.140.30

Descriptors: Sodium vapour lamp, characteristic, particular requirements, conception requirement

English version

**High-pressure sodium vapour lamps**  
(IEC 60662:1980/A10:1997)Lampes à vapeur de sodium à haute  
pression  
(CEI 60662:1980/A10:1997)Natriumdampf-Hochdrucklampen  
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This amendment A10 modifies the European Standard EN 60662:1993; it was approved by CENELEC on 1997-10-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment 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 amendment 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, 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

The text of document 34A/747/FDIS, future amendment 10 to IEC 60662:1980, prepared by SC 34A, Lamps, of IEC TC 34, Lamps and related equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A10 to EN 60662:1993 on 1997-10-01.

The following dates were fixed:

- latest date by which the amendment has to be implemented  
at national level by publication of an identical  
national standard or by endorsement (dop) 1998-07-01
- latest date by which the national standards conflicting  
with the amendment have to be withdrawn (dow) 1998-07-01

For products which have complied with EN 60662:1993 and its amendments A4:1994, A5:1994, A6:1994, A7:1995 and A9:1997 before 1998-07-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 2003-07-01.

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#### Endorsement notice

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The text of amendment 10:1997 to the International Standard IEC 60662:1980 was approved by CENELEC as an amendment to the European Standard without any modification.

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**NORME  
INTERNATIONALE  
INTERNATIONAL  
STANDARD**

**CEI  
IEC  
60662**

Première édition  
First edition  
1980

Modifiée selon les amendements:  
Amended in accordance with amendments:  
1(1986), 2(1987), 3(1990), 4(1992), 5(1993), 6(1994),  
7(1995), 8(1995), 9(1997) et/and 10(1997)

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**Lampes à vapeur de sodium à haute pression**

**High-pressure sodium vapour lamps**

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International Electrotechnical Commission  
Telefax: +41 22 919 0300

e-mail: [inmail@iec.ch](mailto:inmail@iec.ch)

3, rue de Varembé Geneva, Switzerland  
IEC web site <http://www.iec.ch>



Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

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## SECTION THREE – MAXIMUM LAMP OUTLINES

The maximum voltage limit (right-hand side of the diagram) is the characteristic curve having a voltage high enough to allow for a lamp with:

- a) maximum zero-hour voltage;
- b) voltage rise during life;
- c) maximum voltage rise due to enclosure in a luminaire.

The wattage limit lines (top and bottom of the diagram) are chosen with regard to the effect of lamp wattage on performance factors such as initial light output, lumen maintenance, lamp life, lamp warm-up, etc.

The supply voltage limits for lamp operation on reactor (choke) ballasts shall be as shown below. The upper supply voltage limit should not be exceeded continuously in lamp use, otherwise special precautions are necessary. Short-term excursions above this limit can be tolerated.

The voltage limits are:

- 1) for rated supply voltages between 100 V and 150 V:
  - between 95% and 105% of rated voltage of the ballast;
  
- 2) for rated supply voltages between 220 V and 240 V:
  - the lower supply voltages limit is 95% of rated voltage of the ballast;
  - the upper supply voltage limits are:
    - for lamp ratings below 150 W: rated voltage of the ballast + 7 V
    - for lamp ratings 150 W and above: rated voltage of the ballast + 10 V.

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The lamp wattage obtained with a reference lamp when measured on a ballast at rated voltage, shall comply with the requirements of clause 20 of IEC 60923.

Lamp operating limits and a typical ballast characteristic are given as part of each lamp data sheet.

## 9 Information for luminaire design

This information refers to the luminaire design checks necessary to ensure that conditions in the luminaire do not cause premature failure of lamps complying with this standard. These checks do not constitute lamp requirements.

### 9.1 Voltage increase at lamp terminals

The lamp voltage increase as determined in accordance with the relevant procedure given in appendix E shall not exceed the value specified on the relevant lamp data sheet.

Tests shall be carried out in accordance with the relevant requirements of appendix E.

### 9.2 Lamp envelope temperatures

The lamp envelope temperature, when measured at any point, should not exceed the following:

European practice

150 W or lower	310 °C
above 150 W	400 °C

North American and Japanese practice

70 W and lower	385 °C
above 70 W	400 °C

During the measurement the lamp shall be operated at its rated wattage.

### 9.3 Maximum cap temperatures

The temperature of the lamp cap shall not exceed the following:

Cap	Maximum cap temperature (°C)
E26/24 (North America)	190
E26/25 (Far East)	165
E27	210
E39 (North America)	210
E39 (Far East)	230
E40 –150 W and lower	210
– above 150 W	250

NOTE – The limitations in subclauses 9.2 and 9.3 should be regarded with caution. These are limitations imposed by the lamp materials, but it should be understood that, in general, if the luminaire causes a lamp to reach these temperatures, it is probable that the voltage rise limitation in subclause 9.1 will be exceeded.

### 9.4 Possible condition at end of lamp life

A risk exists that at the end of lamp life a number of lamps exhibit a rectifying effect. This can lead to ballast, transformer or starting device overloading. Suitable protective measures should be taken to ensure that safety is maintained under this condition.



## 10. Maximum lamp outlines

Maximum lamp outline requirements are provided for the guidance of designers of luminaires and are based on a maximum-sized lamp inclusive of bulb to cap eccentricity, see Section Three.

Observance of these requirements in luminaire design will ensure mechanical acceptance of lamps complying with this standard.

Mechanical acceptance of the lamp cap and adjoining part of the lamp neck in the holder is ensured by compliance of the lamp with the gauges for testing contact-making as given in IEC 60061-3.

## 11. Numbering system for lamp data sheets

The first number represents the number of this Publication (60662) followed by the letters "IEC".

The second number represents the lamp data sheet number.

The third number on the sheet indicates the edition of the sheet.

Only those pages of the lamp data sheet which have been modified have a new edition number.

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