

BS 6737 : 1986

IEC 809 : 1985

UDC 629.1.066 : [621.316.174 : 621.32] :  
628.9 : 535.249.2

---

# British Standard Specification for Dimensional, electrical and luminous requirements for lamps for road vehicles

[IEC title : Lamps for road vehicles — Dimensional, electrical and luminous requirements]

---

Lampes pour véhicules routiers — Prescriptions dimensionnelles électriques et lumineuses

Anforderungen hinsichtlich der Abmessungen sowie der elektrischen und lichttechnischen  
Eigenschaften von Glühlampen für Straßenfahrzeuge

National foreword

This British Standard has been prepared under the direction of the Electrical Illumination Standards Committee. It is identical with IEC 809 : 1985 ‘Lamps for road vehicles— Dimensional, electrical and luminous requirements’ published by the International Electrotechnical Commission (IEC).

BS 6737 is one of a series of three new British Standards that will ultimately supersede BS 941 : 1970 ‘Specification for filament lamps for road vehicles’. The other two British Standards in the series will cover performance requirements for lamps for road vehicles and filament lamps for cycles.

Attention is drawn to the fact that a large proportion of the lamps in this standard are contained in Regulation No. 37 of the Geneva agreement of 20 March 1958 of the United Nations Economic Commission for Europe. This regulation, which concerns the adoption of uniform conditions of approval and reciprocal recognition of approval for motor vehicle equipment and parts, is cited in United Kingdom legislation. It is likely that the next edition of Regulation 37 will refer to IEC Publication 809 and that in consequence the United Kingdom legislation may be revised to refer to this standard (BS 6737).

This standard is supplied in the form of separate standard sheets within a loose-leaf folder. Amendments containing new or revised standard sheets will be issued in the future to ensure that this standard is kept up to date.

Attention is drawn to the fact that the numbering for the standard sheets is derived from the IEC publication number (see 1.3).

NOTE. For ease of reproduction the French text in the standard sheets has been retained.

**Terminology and conventions.** The text of the international standard has been approved as suitable for publication as a British Standard without deviation. Some terminology and certain conventions are not identical with those used in British Standards; attention is drawn especially to the following.

The comma has been used as a decimal marker. In British Standards it is current practice to use a full point on the baseline as the decimal marker.

Wherever page numbers are quoted they are IEC page numbers.

Cross-references

| International standard | Corresponding British Standard                                                                                                                |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| IEC 51 : 1973*         | BS 89 : 1977 Specification for direct acting indicating electrical measuring instruments and their accessories<br>(Identical)                 |
| IEC 61 : 1969          | BS 5101 : 1975 Lamp caps and holders together with gauges for the control of interchangeability and safety<br>(Identical)                     |
| ISO 3951-1981          | BS 6002 : 1979 Specification for sampling procedures and charts for inspection by variables for percent defective<br>(Technically equivalent) |

The Technical Committee has reviewed the provisions of IEC 410 : 1973 and IEC 810 : 1986, to which reference is made in the text, and has decided that they are acceptable for use in conjunction with this standard.

A corresponding standard to IEC 810 is in preparation.

**Compliance with a British Standard does not of itself confer immunity from legal obligations.**

\* Since revised as IEC 51 : 1984.



**Amendment No. 1**  
published and effective from 31 May 1991  
to BS 6737 : 1986

**Dimensional, electrical and luminous requirements  
for lamps for road vehicles**

NOTE. This amendment is being published to effect the implementation of CENELEC HD 494 S2.

#### Revised text

**AMD 6706**  
**May 1991**

#### Front cover

Delete the German title and substitute the following:

‘Lampen für Strassenfahrzeuge Masse, elektrische  
und lichttechnische  
Anforderungen’.

**AMD 6706**  
**May 1991**

#### National foreword

Delete paragraph 1 and substitute the following new paragraph 1.

‘This British Standard has been prepared under the direction of the Electrical Illumination Standards Policy Committee. It is identical with IEC 809 : 1985, as amended by Amendment No. 1 : 1987, ‘Lamps for road vehicles – Dimensional, electrical and luminous requirements’ published by the International Electrotechnical Commission (IEC) and implements harmonization document HD 494 S2 : 1990 published by the European Committee for Electrotechnical Standardization (CENELEC).’

**AMD 6706**  
**May 1991**

#### Pages 1 to 12 inclusive

Delete the existing pages 1 to 12 inclusive and substitute the attached new pages 1 to 12 inclusive.

**AMD 6706**  
**May 1991**

#### Data sheets

Delete the following existing data sheets:

809-IEC-2110-1 (pages 1 and 2)  
809-IEC-2120-1 (page 5)  
809-IEC-2310-1 (page 2)  
809-IEC-2330-1 (page 2)  
809-IEC-3110-1 (page 3)  
809-IEC-3340-1

and substitute the following new data sheets:

809-IEC-2110-2 (pages 1 and 2)  
809-IEC-2120-2 (page 5)  
809-IEC-2310-2 (page 2)  
809-IEC-2330-2 (page 2)  
809-IEC-3110-2 (page 3)  
809-IEC-3340-2.

**AMD 6706**  
**May 1991**

#### Appendix D

Delete appendix D.



## CONTENTS

|                                                                                    | Page  |
|------------------------------------------------------------------------------------|-------|
| FOREWORD . . . . .                                                                 | 5     |
| PREFACE . . . . .                                                                  | 5     |
| <b>SECTION ONE – GENERAL</b>                                                       |       |
| Clause                                                                             |       |
| 1.1 Scope . . . . .                                                                | I-2   |
| 1.2 Definitions . . . . .                                                          | I-2   |
| 1.3 Numbering system for lamp data sheets . . . . .                                | I-6   |
| <b>SECTION TWO – SAMPLING</b>                                                      |       |
| 2.1 Type test sample . . . . .                                                     | II-2  |
| 2.2 Sampling for conformity of production check . . . . .                          | II-2  |
| <b>SECTION THREE – REQUIREMENTS AND TEST CONDITIONS</b>                            |       |
| 3.1 General requirements . . . . .                                                 | III-2 |
| 3.2 Lamp marking . . . . .                                                         | III-2 |
| 3.3 Bulbs . . . . .                                                                | III-2 |
| 3.4 Lamp dimensions . . . . .                                                      | III-2 |
| 3.5 Caps and bases . . . . .                                                       | III-4 |
| 3.6 Colour of the bulb . . . . .                                                   | III-4 |
| 3.7 Initial electrical and luminous requirements . . . . .                         | III-4 |
| 3.8 Check on optical quality . . . . .                                             | III-4 |
| <b>SECTION FOUR – CONDITIONS OF COMPLIANCE</b>                                     |       |
| 4.1 Type test . . . . .                                                            | IV-2  |
| 4.2 Conformity of production . . . . .                                             | IV-2  |
| <b>SECTION FIVE – LAMP DATA SHEETS</b>                                             |       |
| 5.1 List of specific lamp types . . . . .                                          | V-1   |
| <b>SECTION SIX – REQUIREMENTS FOR STANDARD (ÉTALON) LAMPS</b>                      |       |
| 6.1 General . . . . .                                                              | VI-2  |
| <b>SECTION SEVEN – DATA SHEETS FOR STANDARD (ÉTALON) LAMPS</b>                     |       |
| 7.1 List of specific lamp types . . . . .                                          | VII-1 |
| APPENDIX A – Filament shape, length and position . . . . .                         | A-2   |
| APPENDIX B – Colour . . . . .                                                      | B-2   |
| APPENDIX C – Test conditions for electrical and luminous characteristics . . . . . | C-2   |

# LAMPS FOR ROAD VEHICLES

## DIMENSIONAL, ELECTRICAL AND LUMINOUS REQUIREMENTS

---

### SECTION ONE — GENERAL

#### 1.1 Scope

This standard covers incandescent lamps to be used in headlamps, fog-lamps and signalling lamps for road vehicles and specifies the technical requirements with methods of test and basic interchangeability (dimensional, electrical and luminous). It applies to those lamps which may be the subject of legislation. In particular it covers those lamps contained in Regulation No. 37 of the Geneva agreement of 20 March 1958 of the United Nations Economic Commission for Europe (ECE) concerning the adoption of uniform conditions of approval and reciprocal recognition of approval for motor vehicle equipment and parts.

The lamp types specified are listed in Section Five.

In countries which legislate for approval under the terms of the aforementioned ECE regulations it is suggested that reference is made to this standard for assessment of compliance.

In this standard details are included of the following:

a) requirements for series production lamps;

*Note.* — Requirements for series production are not intended to apply to all individual lamps. These are in this standard based on 1% defects per characteristic in the yearly production.

b) requirements for type approval;

c) requirements for standard (étalon) lamps.

Performance requirements such as lamp life, lumen maintenance, torsion strength and resistance to vibration and shock are specified in IEC Publication 810: Lamps for Road Vehicles—Performance Requirements.

Information such as temperature limits and maximum lamp outlines is also included in that standard for guidance of lighting equipment design. IEC Publication 810 is not intended for reference by authorities concerning type approval or conformity of production.

#### 1.2 Definitions

##### 1.2.1 Category

This term is used to describe different basic designs of standardized filament lamps.

*Note.* — Each specific designation, for example P21/5W, H4, forms a category.

##### 1.2.2 Type

Lamps of different types are those within the same category which differ in such essential respects as:

- a) trade name or mark \*;
- b) bulb design, insofar as it affects the optical results;
- c) rated voltage.

#### 1.2.3 *Type test*

A 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 specification.

#### 1.2.4 *Type test sample*

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

#### 1.2.5 *Conformity of production*

Assessment of compliance of a series production of a given type, of the same design as the approved type test sample, with the requirements of the relevant specification.

*Note.* — Local regulations may provide for checking conformity of production by a government agency.

#### 1.2.6 *Running test*

A test applied at frequent intervals (e.g. daily) to provide data for assessment of conformity of production.

#### 1.2.7 *Periodic test*

A test, or series of tests, repeated with longer intervals in order to check that the product does not deviate in certain respects from the given design.

*Note.* — This applies only to those cases where a running test is not necessary, for instance when the relevant characteristic is by virtue of the design well within the limits.

#### 1.2.8 *Rated voltage*

The voltage marked on the lamp.

#### 1.2.9 *Rated wattage*

The wattage marked on the lamp and/or the packaging.

#### 1.2.10 *Test voltage*

Voltage at the lamp terminals at which the electrical and photometric characteristics of the lamp are to be tested.

#### 1.2.11 *Objective value*

Value to be aimed at when the lamp is operated at test voltage.

---

\* Lamps bearing the same trade name or mark but produced by different manufacturers are considered as being of different types. Lamps produced by the same manufacturer differing only by the trade name or mark may be considered to be of the same type.

1.2.12 *Reference plane*

A plane defined with reference to the cap or base and with respect to which the positions of certain parts of the lamp are measured.

1.2.13 *Reference axis*

An axis defined with reference to the cap or base and with respect to which the positions of certain parts of the lamp are measured.

1.2.14 *Ageing period*

A period during which unused lamps are operated at their test voltage in order to stabilize their performance.

1.2.15 *Standard lamps (étalon lamps)*

A lamp with colourless bulb and with reduced dimensional tolerances, used for the testing of lighting devices.

*Note.* — Standard lamps are specified in only one voltage rating for each category.

1.2.16 *Measured luminous flux*

Specified value of the luminous flux for testing a lamp in the standard headlamp according to Clause 3.8.

1.2.17 *Reference luminous flux*

Specified luminous flux of a standard (étalon) lamp to which the optical characteristics of a lighting device shall be referred.

1.3 **Numbering system for lamp data sheets**

The first number represents the number of this Publication (809) 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.

In the case of amendments to single pages of a lamp data sheet, these pages are issued with an amended edition number. For example, if only page 1 of lamp data sheet 809-IEC-2110-1 were amended, this page would then be numbered 809-IEC-2110-2. The two remaining pages would retain the number 809-IEC-2110-1.

## SECTION TWO — SAMPLING

**2.1 Type test sample**

Samples shall be supplied for type testing as follows:

- 2.1.1 In the case of lamps with a colourless bulb, five samples.
- 2.1.2 In the case of lamps with a selective-yellow bulb or a selective-yellow outer bulb, two samples with a selective-yellow bulb or selective-yellow outer bulb and, five samples with a colourless bulb, differing from the type submitted for the type test only by the colour of the bulb or the omission of the coloured outer bulb, and two samples of the coloured bulb or coloured outer bulb.
- 2.1.3 In the case of lamps differing only by a selective-yellow bulb, or by the use of a selective-yellow outer bulb, from a colourless type that has already been approved, two samples with a coloured bulb or a coloured outer bulb, and two samples of the coloured bulb or coloured outer bulb.

**2.2 Sampling for conformity of production check**

- 2.2.1 All lamp types for which type approval has been granted shall be subject to conformity checking, according to the details specified below.

*2.2.2 Checking by means of the manufacturer's records*

- a) The manufacturer shall show evidence that all his type approved products comply with the requirements for production lamps in Sections Three and Four of this standard and shall make available on request all of his test results on finished products which are pertinent to these requirements.
- b) The assessment shall in general cover series production from individual factories. However, a manufacturer may group together records concerning the same type from several factories, provided these operate under the same quality control system and quality management.

The assessment for a certain type may then cover all relevant lamps from a nominated group of factories, but the testing authority shall have the right to visit each site and examine local records and quality control procedures in respect of the finished product.

- c) The manufacturer shall carry out tests on randomly selected finished lamps, in quantities of not less than those indicated in column 5 of Table I. Lamps selected for one test need not be used for other tests. These figures are valid for checking by attributes.
- d) In presenting the data the manufacturer may combine results for different lamp types according to column 4 of Table I.

*2.2.3 Checking by means of limited samples*

A quantity of 80 lamps of the type concerned shall be randomly collected from lamps cleared for shipment on the manufacturer's premises. If necessary (see Sub-clause 4.2.2), this is repeated twice at intervals of about two months to achieve a total sample size of 240 lamps representing a production of about six consecutive months. It is of prime importance to recognize that satisfactory operation of the scheme can only be assured when using lamps which are selected to properly represent the production. With the agreement of the manufacturer, the whole sample of 240 lamps may be taken at the same time whilst still ensuring that this quantity is representative of production over a period of at least six months.

## SECTION THREE — REQUIREMENTS AND TEST CONDITIONS

**3.1 General requirements**

Lamps shall be so designed as to be and to remain in good working order when in normal use. They shall moreover exhibit no fault in design or manufacture. For checking conformity of production, see Table I.

**3.2 Lamp marking**

The following information shall be legibly and durably marked on the lamp.

3.2.1 The trade name or mark of the applicant.

3.2.2 The rated voltage.

3.2.3 The international designation of the relevant category.

3.2.4 The rated wattage (in the sequence: main filament/auxiliary filament for dual filament lamps); if space is insufficient the rated wattage may be marked on the packaging only.

3.2.5 Other inscriptions than the above ones may be affixed.

*Note.* — An example of such an inscription is the approval mark conferred by an administration.

3.2.6 If the marking is on the bulb, it shall be legible and durable and shall not adversely affect the luminous characteristics.

Compliance shall be checked by the following:

- a) presence and legibility of the marking—by visual inspection;
- b) durability—by applying the following test on unused lamps.

The area of the marking on the lamp shall be rubbed by hand with a smooth cloth, dampened with water, for a period of 15 s.

After this test the marking shall still be legible.

**3.3 Bulbs**

Lamp bulbs shall exhibit no scores or spots which might impair their optical performance in headlamps, fog-lamps or signalling lamps.

**3.4 Lamp dimensions****3.4.1 Type test**

The lamp dimensions shall be within the limits given in the lamp drawing or in the column “Type test lamps” on the relevant lamp data sheet.

**3.4.2 Conformity of production**

The lamp dimensions shall be within the limits given in the lamp drawing or in the column “Production lamps” on the relevant lamp data sheet.

3.4.3 The definition of and the measuring condition for the filament shape, length and position shall be in accordance with the requirements of Appendix A.

### 3.5 Caps and bases

Lamps shall have standard caps or bases as specified on the relevant lamp data sheet and shall comply with the relevant cap data sheet of IEC Publication 61: Lamp Caps and Holders together with Gauges for the Control of Interchangeability and Safety, as specified on the relevant lamp data sheet.

(Conformity requirements are under consideration.)

### 3.6 Colour of the bulb

The bulb of the lamp shall be colourless, unless otherwise prescribed on the relevant lamp data sheet. For some categories a selective-yellow bulb is allowed.

The colour of the bulb shall be in accordance with the requirements of Appendix B.

### 3.7 Initial electrical and luminous requirements

#### 3.7.1 *Type test*

Lamp wattage and luminous flux shall comply with the limits given in the column "Type test lamps" on the relevant lamp data sheet.

#### 3.7.2 *Conformity of production*

Lamp wattage and luminous flux shall comply with the limits given in the column "Production lamps" on the relevant lamp data sheet.

#### 3.7.3 Compliance shall be checked by the tests specified in Appendix C.

#### 3.7.4 The luminous flux requirements apply only to lamps with colourless bulbs.

### 3.8 Check on optical quality

This requirement applies only to lamps for headlamps emitting passing beams and submitted for the type test.

#### 3.8.1 *12 V lamps*

The sample which most nearly meets the requirements for the standard (étalon) lamp (see Section Six) shall be tested in an appropriate standard passing-beam headlamp and it shall be verified that the assembly comprising the aforesaid headlamp and the lamp being tested meets the approval requirements for headlamps in respect of the light distribution of the passing beam.

#### 3.8.2 *6 V and 24 V lamps*

The sample which most nearly conforms to the nominal values shall be tested in a standard passing-beam headlamp to verify that the assembly comprising the aforesaid headlamp and the lamp being tested meets the light-distribution requirements laid down for the beam in the relevant headlamp standard. Deviations not exceeding 10% of the prescribed values are acceptable.

#### 3.8.3 The check of optical quality shall be carried out at a voltage such that the measured luminous flux is obtained.

#### 3.8.4 Lamps having a double bulb where the outer bulb constitutes a selective-yellow filter are also primarily selected on wattage and dimensions according to Sub-clause 3.8.1 or 3.8.2. The sample which most nearly meets the requirements shall also be tested in a standard headlamp to ensure that the beam pattern complies to at least 85% with the minimum illuminance requirements laid down in the relevant headlamp standard. The maximum illuminance limits remain unchanged. This test shall be carried out at a voltage such that 85% of the measured luminous flux specified in the relevant lamp data sheet is obtained.

TABLE I

*Grouping of test records, sampling and compliance levels*

| (1)<br>Clause<br>number | (2)<br>Tests                            | (3)<br>Type of test <sup>1), 2)</sup> | (4)<br>Grouping of test records<br>between lamp types | (5)<br>Minimum 12-monthly<br>sample per grouping |                            | (6)<br>Non-<br>compliance<br>level per<br>characteristic<br><br>(%) |
|-------------------------|-----------------------------------------|---------------------------------------|-------------------------------------------------------|--------------------------------------------------|----------------------------|---------------------------------------------------------------------|
|                         |                                         |                                       |                                                       | Lamps made<br>most of<br>the year                | Lamps made<br>infrequently |                                                                     |
| 3.2                     | Marking, legibility and durability      | Running                               | All types with same external dimensions               | 240                                              | 50                         | 1                                                                   |
| 3.3                     | Bulb quality                            | Running                               | All types with the same bulb                          | 240                                              | 50                         | 1                                                                   |
| 3.4                     | Lamp dimensions<br>— external           | Running or periodic                   | All types of the same category                        | 240                                              | 50                         | 1                                                                   |
|                         | Lamp dimensions<br>— internal           | Running or periodic                   | Lamps of one type                                     | 160                                              | 50                         | 1                                                                   |
| 3.5                     | Cap or base dimensions                  | Running or periodic                   | All types with same cap/base                          | *                                                | *                          | *                                                                   |
| 3.6                     | Colour of the bulb                      | Running                               | All coloured bulbs of same design                     | 160                                              | 50                         | 1                                                                   |
| 3.7                     | Initial readings<br>— watts<br>— lumens | Running<br>Running                    | All lamps of one type<br>All lamps of one type        | 160<br>160                                       | 50<br>50                   | 1<br>1                                                              |

<sup>1)</sup> Running test: See Sub-clause 1.2.6.

<sup>2)</sup> Periodic test: See Sub-clause 1.2.7. The number of lamps tested and the special characteristics are to be agreed between test authority and manufacturer. The recommended sample size per test is between one unit and the number of units in the type test sample (Clause 2.1).

\* Under consideration.

The check on optical quality specified under Clause 3.8 is a type test only.

Types differing only by the colour of the bulb may be grouped.

## SECTION FOUR — CONDITIONS OF COMPLIANCE

## 4.1 Type test

All units of the complete type test sample submitted shall comply with the requirements of Clauses 3.1 to 3.8 (except Sub-clauses 3.4.2 and 3.7.2).

## 4.2 Conformity of production

The conditions of compliance shall be based on an acceptable defective level of 1% per characteristic and on the tolerances given for production lamps in Section Five, unless otherwise specified in this standard.

4.2.1 *Checking by means of the manufacturer's record*

## 4.2.1.1 Compliance shall be assured by:

- a) the manufacturer's quality control procedures on his finished products satisfying recognized quality assessment practices. Purchased materials and process control procedures are not included.

The testing authority is entitled to verify the accuracy of the manufacturer's record by cross-checking;

- b) non-compliance levels not contravening the limits shown in Table III.

When actual measurements are made (not gauging), the measuring accuracy should be taken into account. This means that, when limits are exceeded, the measured characteristic will be considered as non-conforming only if the excess amount is greater than the measuring accuracy of the testing laboratory.

## 4.2.1.2 For compliance purposes the records should cover the 12 consecutive calendar months immediately preceding the date of review.

## 4.2.1.3 A manufacturer who has met but no longer meets the specified acceptance levels shall be disqualified from claiming compliance with this standard unless he can show that:

- a) action was taken to remedy the situation as soon as the trend was reasonably confirmed from his data and
- b) the specified acceptance level was re-established within a reasonable period.\*

\* The time interval allowed is under consideration.

Re-establishment of the specified acceptance level should be demonstrated by provision of data from a quantity at least equal to the minimum 12-monthly sample collected over a period of two months.

When corrective action has been taken in accordance with Items a) and b) compliance is assessed excluding the test records for the period of non-compliance from the 12 months' summation.

## 4.2.1.4 A manufacturer who has failed to meet the requirements of a clause where grouping of the data is permitted under Item d) of Sub-clause 2.2.2 shall only be disqualified for the faulty type(s), provided he can show by additional testing on all types grouped and on a quantity per type at least equal to the minimum 12-monthly sample that the problem is present in some types only and not in the other types grouped.

If these additional tests indicate that all individual types are satisfactory, the relevant grouping shall not be contested.

4.2.1.5 In the case of a type which has been deleted under Sub-clause 4.2.1.3 it may be reinstated when approval has been granted following a new application.

#### 4.2.2 *Checking by means of limited samples*

Lamps shall be either accepted or rejected according to the values in the table below.

TABLE II

| Sample                                                                                                                          | Accept | Reject |
|---------------------------------------------------------------------------------------------------------------------------------|--------|--------|
| First sample size: 80                                                                                                           | 1      | 8      |
| If the number of non-conforming units is greater than 1 and less than 8 take a second sample size of 80 and assess the 160      | 4      | 8      |
| If the total number of non-conforming units is greater than 4 and less than 8 take a third sample size of 80 and assess the 240 | 7      | 8      |

*Note.* — The proposed scheme is designed to assess the compliance of lamps to a non-compliance level of 1% and is based on the multiple sample plan for normal inspection in IEC Publication 410: Sampling Plans and Procedures for Inspection by Attributes, but modified to suit the prescribed limitations of the test quantities. It is not applicable to those cap base characteristics for which a non-compliance level differing from 1% is specified. Sampling plans for such characteristics are under consideration.

TABLE III

#### *Part I*

| Number of results in manufacturer's records | Qualifying limit for acceptance |
|---------------------------------------------|---------------------------------|
| 50                                          | 1                               |
| 51 80                                       | 2                               |
| 81 125                                      | 3                               |
| 126 160                                     | 4                               |
| 161 200                                     | 5                               |
| 201 260                                     | 6                               |
| 261 315                                     | 7                               |
| 316 370                                     | 8                               |
| 371 435                                     | 9                               |
| 436 500                                     | 10                              |
| 501 570                                     | 11                              |
| 571 645                                     | 12                              |
| 646 720                                     | 13                              |
| 721 800                                     | 14                              |
| 801 860                                     | 15                              |
| 861 920                                     | 16                              |
| 921 990                                     | 17                              |
| 991 1 060                                   | 18                              |
| 1 061 1 125                                 | 19                              |
| 1 126 1 190                                 | 20                              |
| 1 191 1 250                                 | 21                              |

Based on a non-compliance level of 1% per characteristic in accordance with IEC Publication 410.

TABLE III  
Part II

| Number of results in<br>manufacturer's records | Qualifying limit<br>shown as a percentage<br>of results<br>in records |
|------------------------------------------------|-----------------------------------------------------------------------|
| 1 250                                          | 1.68                                                                  |
| 2 000                                          | 1.52                                                                  |
| 4 000                                          | 1.37                                                                  |
| 6 000                                          | 1.30                                                                  |
| 8 000                                          | 1.26                                                                  |
| 10 000                                         | 1.23                                                                  |
| 20 000                                         | 1.16                                                                  |
| 40 000                                         | 1.12                                                                  |
| 60 000                                         | 1.09                                                                  |
| 80 000                                         | 1.08                                                                  |
| 100 000                                        | 1.07                                                                  |
| 1 000 000                                      | 1.02                                                                  |

*Note.* — Table III — Part II — assumes an acceptance probability of 99%. The qualifying limit has been shown as a percentage of results in the records.

Linear interpolation is required to determine the exact limit numbers.

The values shown are consistent with ISO Standard 2859.



**LAMPE POUR VÉHICULES  
ROUTIERS  
FEUILLE DE CARACTÉRISTIQUES**

**CATÉGORIE: R2  
CULOT: P45t-41**

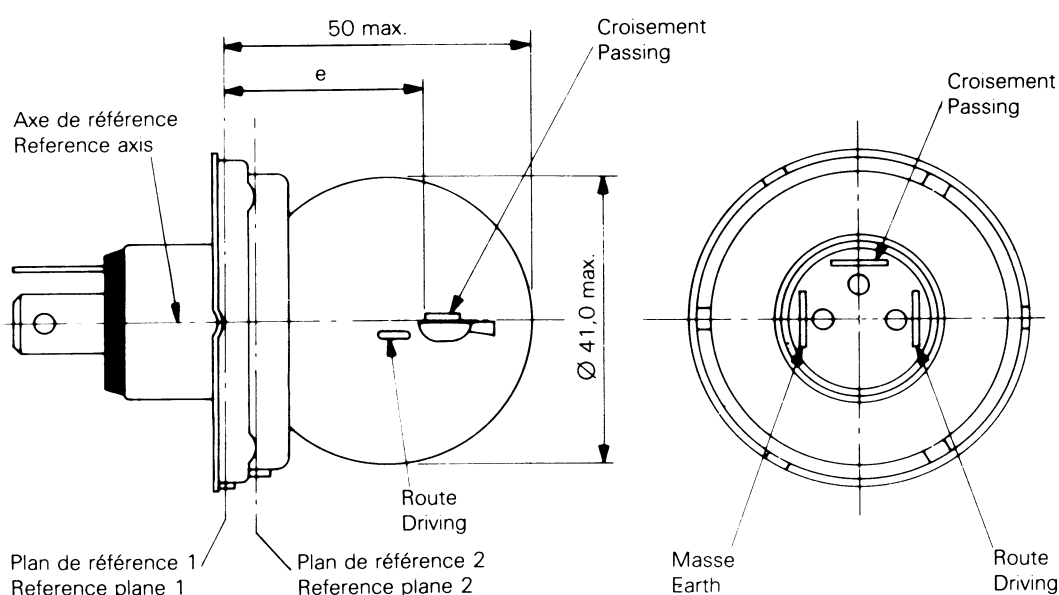
**ROAD VEHICLE  
LAMP  
DATA SHEET**

**CATEGORY: R2  
CAP: P45t-41**

Page 1

| Tension assignée<br>Rated voltage<br>(V) | Puissance assignée<br>Rated wattage<br>(W) |
|------------------------------------------|--------------------------------------------|
| 6                                        | 45/40                                      |
| 12                                       | 45/40                                      |
| 24                                       | 55/50                                      |

Dessin de la lampe — Lamp drawing  
Dimensions en millimètres — Dimensions in millimetres



083/85

*Culot*

Culot P45t-41 suivant Publication 61 de la CEI (feuille 7004-95-).

Aucune partie du culot ne doit, par réflexion de la lumière émise par le filament de croisement, envoyer un rayon montant parasite lorsque la lampe est en position normale de fonctionnement dans le véhicule.

*Ampoule*

(voir annexe B)

L'ampoule doit être incolore ou jaune-sélectif.

*Définition de l'axe de référence*

L'axe de référence est la perpendiculaire au plan de référence 1 et passant par l'intersection de ce plan avec l'axe du cylindre de centrage correspondant.

*Cap*

Cap P45t-41 in accordance with IEC Publication 61 (Sheet 7004-95-).

No part of the cap shall by reflection of light emitted by the passing-beam filament throw any stray rising ray when the lamp is in normal operating position on the vehicle.

*Bulb*

(see Appendix B)

The bulb shall be colourless or selective-yellow.

*Definition of reference axis*

The reference axis is perpendicular to reference plane 1 and passes through the intersection of this plane with the axis of the corresponding centring cylinder.



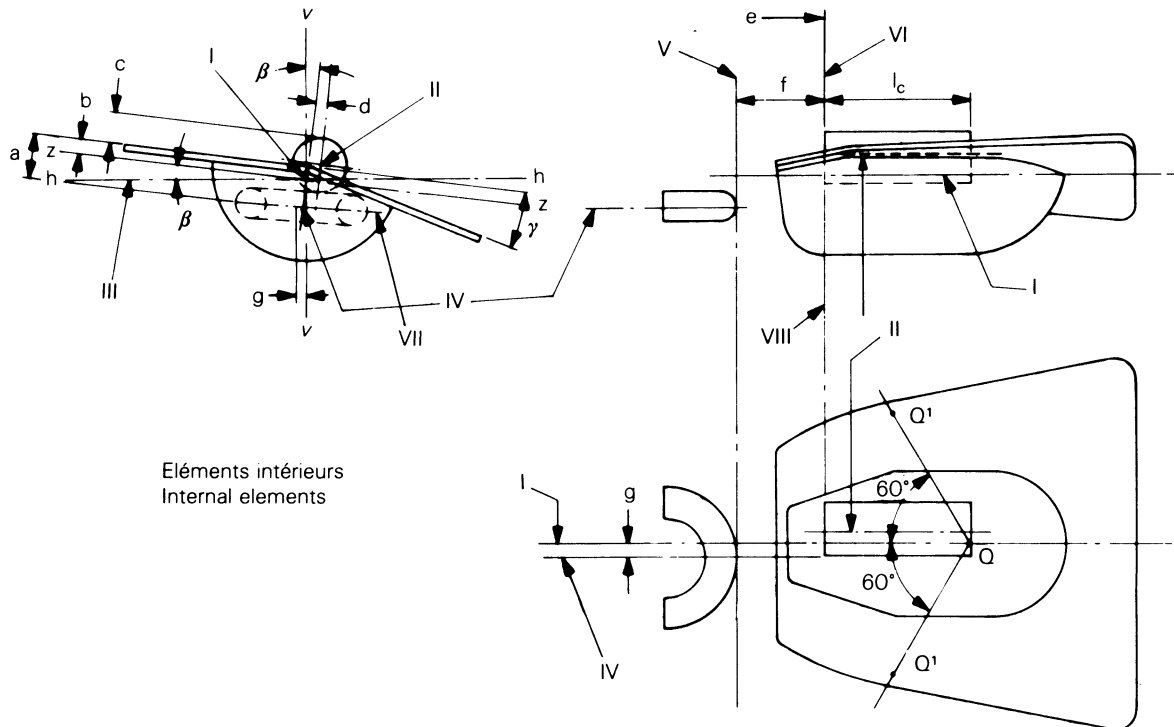
**LAMPE POUR VÉHICULES  
ROUTIERS  
FEUILLE DE CARACTÉRISTIQUES**

**CATÉGORIE: R2  
CULOT: P45t-41**

**ROAD VEHICLE  
LAMP  
DATA SHEET**

**CATEGORY: R2  
CAP: P45t-41**

Page 2



084/85

**Légende**

- I. Axe de référence.
- II. Axe du filament de croisement.
- III. Plan passant par l'axe de référence de la lampe et perpendiculaire au plan médian de l'aillette d'orientation du plan de référence I.
- IV. Axe du filament de route.
- V. Spire extrême du filament de route.
- VI. Première spire brillante du filament de croisement.
- VII. Le plan passant par l'axe du filament de route ne peut être parallèle ni au plan h-h ni au plan z-z.
- VIII. Distance e au plan de référence.

*Note.* — Le dessin n'est pas impératif quant aux détails de la coupelle-écran et des filaments.

**Key**

- I. Reference axis.
- II. Axis of passing-beam filament.
- III. Plane passing through the reference axis of the lamp and perpendicular to the median plane of the positioning lug of reference plane I.
- IV. Axis of driving-beam filament.
- V. Apex of driving-beam filament.
- VI. First bright turn of passing-beam filament.
- VII. The plane passing through the axis of the driving-beam filament need not be parallel either to the plane h-h or to the plane z-z.
- VIII. Distance e from reference plane.

*Note.* — The drawing is not mandatory with respect to the design of the shield and filaments.



**LAMPE POUR VÉHICULES  
ROUTIERS  
FEUILLE DE CARACTÉRISTIQUES**

**CATÉGORIE: H4  
CULOT: P43t-38**

**ROAD VEHICLE  
LAMP  
DATA SHEET**

**CATEGORY: H4  
CAP: P43t-38**

Page 5

*Notes 1.* — Le dessin n'est pas impératif en ce qui concerne la forme de la coupelle-écran.

2. — Les dimensions ci-dessous sont vues de trois directions, A, B, C et mesurées perpendiculairement à ces directions:

A pour les dimensions a, b<sub>1</sub>, c, d, e, f, l<sub>r</sub>, l<sub>c</sub>.

B pour les dimensions g, h, p, q.

C pour les dimensions b<sub>2</sub>.

Les dimensions p et q sont mesurées dans un plan parallèle au plan de référence et à 33 mm de celui-ci.

Les dimensions b<sub>1</sub>, b<sub>2</sub>, c et h sont mesurées dans des plans parallèles au plan de référence et à 29,5 mm (30,0 mm pour la lampe 24 V) et 33 mm de celui-ci.

Les dimensions a et g sont mesurées dans des plans parallèles au plan de référence et à 26,0 mm et 23,5 mm de celui-ci.

3. — e indique la distance du plan de référence au début du filament de croisement.
4. — Les spires extrêmes des filaments sont définies comme étant les première et dernière spires lumineuses qui sont régulièrement spiralées, c'est-à-dire qui suivent l'angle d'enroulement correct. Dans le cas d'un filament bispiralé, les spires sont définies par l'enveloppe des spires primaires.
5. — Pour le filament de croisement, les points qui doivent être mesurés sont les intersections vues dans la direction A, du bord latéral de la coupelle avec la partie extérieure des spires extrêmes définies ci-dessus.
6. — Pour le filament de route, les points qui doivent être mesurés sont les intersections, vues dans la direction A, de la partie extérieure des spires extrêmes comme défini en 4, avec un plan parallèle au plan H-H situé à une distance de 0,8 mm au-dessous de celui-ci.
7. — Le plan V-V est le plan perpendiculaire au plan de référence qui passe par l'axe de référence et par le point d'intersection du cercle de diamètre M et de la ligne médiane de la languette de référence.
8. — Le plan H-H est le plan perpendiculaire au plan de référence et au plan V-V qui passe par l'axe de référence.
9. — Dimension à mesurer à la distance du plan de référence, indiquée en millimètres après la barre.
10. — /29,5 mv ou /30,0 mv signifie la valeur mesurée à la distance de 29,5 mm ou 30,0 mm du plan de référence.
11. — La méthode de mesure est à l'étude.

*Notes 1.* — The drawing is not mandatory with respect to the design of the shield.

2. — The dimensions below are viewed from three directions, A, B, C and measured perpendicular to these viewing directions:

A for dimensions a, b<sub>1</sub>, c, d, e, f, l<sub>r</sub>, l<sub>c</sub>.

B for dimensions g, h, p, q.

C for dimensions b<sub>2</sub>.

Dimensions p and q are measured in planes parallel to and 33 mm away from the reference plane.

Dimensions b<sub>1</sub>, b<sub>2</sub>, c and h are measured in planes parallel to and 29.5 mm (30.0 mm for 24 V lamps) and 33 mm away from the reference plane.

Dimensions a and g are measured in a plane parallel to and 26.0 mm and 23.5 mm away from the reference plane.

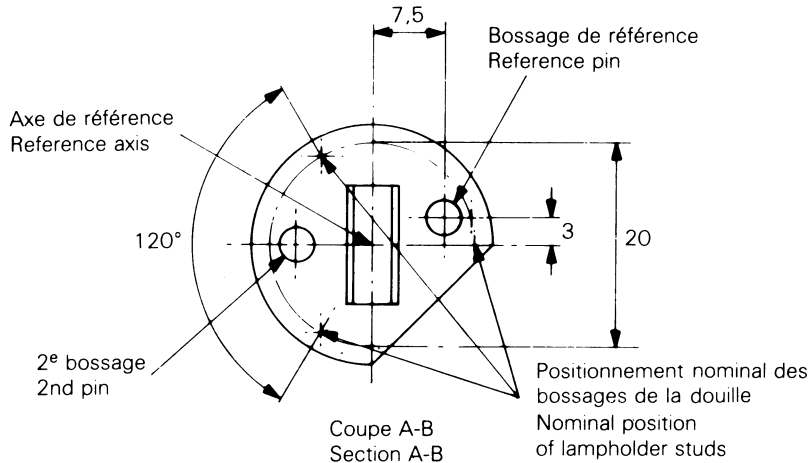
3. — e denotes the distance from the reference plane to the beginning of the passing-beam filament.
4. — The end turns are defined as being the first and last luminous turns that are at substantially the correct helix angle. For coiled-coil filaments, the turns are defined by the envelope of the primary coil.
5. — For the passing-beam filament the points to be measured are the intersections, seen in the direction A of the lateral edge of the shield with the outside of the ends turns as defined above.
6. — For the driving-beam filament, the points to be measured are the intersections, seen in direction A, of the outside of the end turns, as defined under 4, with a plane parallel to plane H-H and situated at a distance of 0.8 mm below it.
7. — Plane V-V is the plane perpendicular to the reference plane and passing through the reference axis and through the intersection of the circle of diameter M with the axis of the reference pin.
8. — Plane H-H is the plane perpendicular to both the reference plane and plane V-V and passing through the reference axis.
9. — Dimension to be measured at the distance from the reference plane indicated in millimetres after the stroke.
10. — /29.5 mv or /30.0 mv means the measured value at a distance of 29.5 mm or 30.0 mm from the reference plane.
11. — The method of measurement is under consideration.



|  |                                                                                                                    |                                                                                    |        |
|--|--------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------|
|  | <b>LAMPE POUR VÉHICULES<br/>ROUTIERS<br/>FEUILLE DE CARACTÉRISTIQUES</b><br><b>CATÉGORIE: H1<br/>CULOT: P14.5s</b> | <b>ROAD VEHICLE<br/>LAMP<br/>DATA SHEET</b><br><b>CATEGORY: H1<br/>CAP: P14.5s</b> | Page 2 |
|--|--------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------|

Définition de l'axe de référence — Definition of reference axis

Dimensions en millimètres — Dimensions in millimetres



089/85

*Culot*

Culot P14.5s suivant Publication 61 de la CEI (feuille 7004-46-).

*Ampoule*

La partie cylindrique de l'ampoule sur la longueur *f* doit être telle que l'image projetée du filament ne soit pas déformée au point d'affecter notablement les résultats optiques.

*Modèle à un pincement*

Lorsque les lampes sont réalisées avec les deux électrodes d'amenée de courant à l'intérieur de l'ampoule, l'électrode la plus longue doit être située au-dessus du filament (la lampe étant vue comme représentée sur le dessin).

La construction interne de la lampe doit alors être telle que les images et les réflexions lumineuses parasites soient aussi réduites que possible, par exemple en fixant des manchons de refroidissement sur les parties non spiralées du filament.

*Cap*

Cap P14.5s according to IEC Publication 61 (Sheet 7004-46-).

*Bulb*

The cylindrical portion of the bulb over length *f* shall be such as not to deform the projected image of the filament to such an extent as appreciably to affect the optical results.

*Design with one pinch*

If both current lead-in electrodes are in the bulb, the longer electrode should be positioned above the filament (the lamp being viewed as shown in the diagram).

The internal design of the lamp shall then be such that stray light images and reflections are reduced to the minimum, for example by fitting cooling jackets over the non-coiled parts of the filament.



**LAMPE POUR VÉHICULES  
ROUTIERS  
FEUILLE DE CARACTÉRISTIQUES**

**CATÉGORIE: H3  
CULOT: PK22s**

**ROAD VEHICLE  
LAMP  
DATA SHEET**

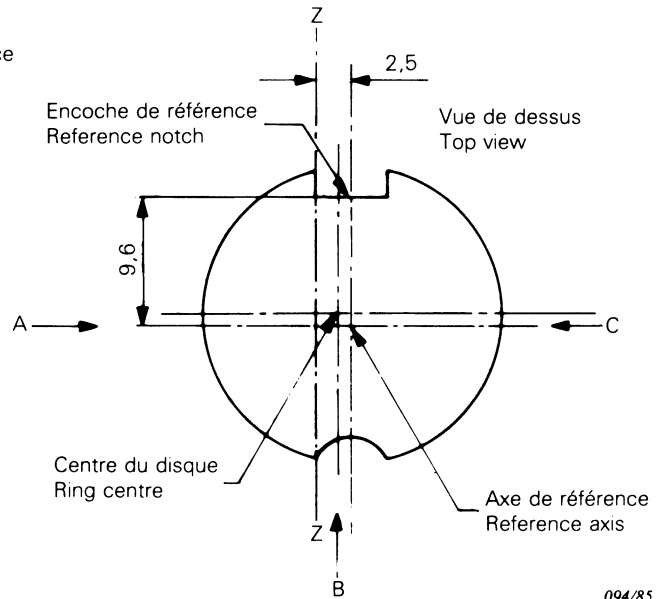
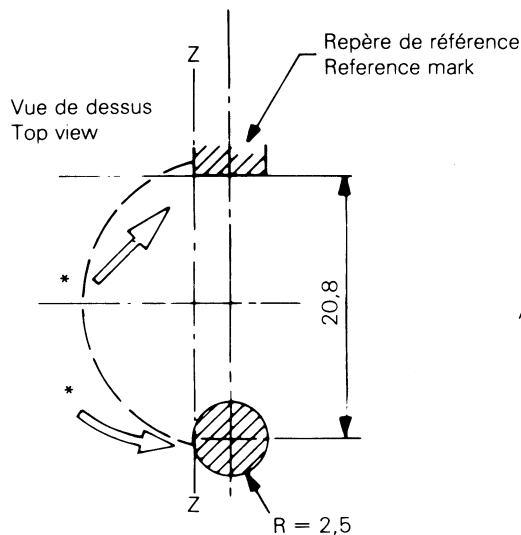
**CATEGORY: H3  
CAP: PK22s**

Page 2

Définition de la ligne Z-Z  
Definition of the Z-Z line

Définition de l'axe de référence  
Definition of reference axis

Dimensions en millimètres — Dimensions in millimetres



094/85

\* Le culot doit être pressé dans ces directions

\* The cap shall be pressed in these directions

**Culot**

Culot PK22s suivant Publication 61 de la CEI (feuille 7004-47-).

La déviation admissible du centre de la collerette par rapport à l'axe de référence est de 0,5 mm dans la direction perpendiculaire à la ligne Z-Z et de 0,05 mm dans la direction parallèle à la ligne Z-Z.

**Ampoule**

La déformation de l'ampoule du côté du culot ne doit pas être visible dans toute direction extérieure à l'angle d'occultation de 80° max. Les écrans ne doivent pas renvoyer d'images parasites. L'angle entre l'axe de référence et le plan de chaque écran, mesuré du côté ampoule, ne doit pas être supérieur à 90°.

**Douille**

Aucune partie du ressort ou élément de la douille ne doit prendre appui sur le disque préfocus mais uniquement à l'extérieur du contour rectangulaire en pointillé dans le dessin de la lampe.

**Cap**

Cap PK22s according to IEC Publication 61 (Sheet 7004-47-).

The permissible deviation of the ring centre from the reference axis is 0.5 mm in the direction perpendicular to the Z-Z line and 0.05 mm in the direction parallel to the Z-Z line.

**Bulb**

The distortion of the base-end portion of the bulb shall not be visible from any direction outside the obscuration angle of 80° max. The shields shall produce no inconvenient reflections. The angle between the reference axis and the plane of each shield, measured on the bulb side, shall not exceed 90°.

**Holder**

No part of the spring and no component of the lamp-holder shall bear on the prefocus ring elsewhere than outside the rectangle shown in the discontinuous outline in the lamp drawing.



|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <div>LAMPE POUR VÉHICULES<br/>ROUTIERS<br/>FEUILLE DE CARACTÉRISTIQUES<br/><br/>CATÉGORIE: P21/5W<br/>CULOT: BAY15d</div> | <div>ROAD VEHICLE<br/>LAMP<br/>DATA SHEET<br/><br/>CATEGORY: P21/5W<br/>CAP: BAY15d</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
| <div>Méthode d'essai et prescriptions</div> <div><div>1. La lampe est placée dans une douille pouvant tourner autour de son axe, cette douille ayant soit un cadran gradué, soit des butées fixes correspondant aux limites tolérées du déplacement angulaire. On fait alors tourner la douille de sorte qu'une vue en bout du filament principal soit obtenue sur l'écran sur lequel l'image du filament est projetée. La vue en bout du filament principal devrait être dans les limites tolérées du déplacement angulaire.</div><div>2. Vue latérale.<br/>La lampe étant placée culot en bas avec l'axe de référence vertical, l'ergot de référence situé à droite et le filament principal vu en bout:<div><div>2.1 La projection du filament principal doit être située entièrement à l'intérieur d'un rectangle de hauteur a et de largeur b dont le centre coïncide avec le centre théorique du filament.</div><div>2.2 La projection du filament auxiliaire doit être située entièrement:<div><div>2.2.1 A l'intérieur d'un rectangle de largeur c et de hauteur d dont le centre est placé à des distances v à droite et u au-dessus de la position théorique du centre du filament principal.</div><div>2.2.2 Au-dessus d'une ligne droite tangente au bord supérieur de la projection du filament principal et montant de la gauche vers la droite suivant un angle <math>\delta</math>.</div><div>2.2.3 A la droite de la projection du filament principal.</div></div></div></div><div>3. Vue frontale.<br/>La lampe étant placée culot en bas, avec l'axe de référence vertical et vue suivant une direction perpendiculaire à l'axe du filament principal:<div><div>3.1 La projection du filament principal doit être située entièrement à l'intérieur d'un rectangle de hauteur a et de largeur h dont le centre coïncide avec le centre théorique du filament.</div><div>3.2 Le centre du filament principal ne doit pas s'écarter de l'axe de référence d'une distance supérieure à k.</div><div>3.3 Le centre du filament auxiliaire ne doit pas être écarté de plus de 2,0 mm de l'axe de référence pour les lampes de l'essai de type et de plus de 3,0 mm pour les lampes de production.</div></div></div></div></div> |                                                                                                                           | <div>Test procedure and requirements</div> <div><div>1. The lamp is placed in a holder capable of being rotated about its axis and having either a calibrated scale or fixed stops corresponding to the angular displacement tolerance limits. The holder is then so rotated that an end view of the main filament is seen on the screen onto which the image of the filament is projected. The end view of the main filament should be within the angular displacement tolerance limits.</div><div>2. Side elevation.<br/>The lamp being placed with the cap down, the reference axis vertical, the reference pin to the right, and the main filament seen end-on:<div><div>2.1 The projection of the main filament shall lie entirely within a rectangle of height a and width b having its centre at the theoretical position of the centre of the filament.</div><div>2.2 The projection of the auxiliary filament shall lie entirely:<div><div>2.2.1 Within a rectangle of width c and height d having its centre at a distance v to the right of and u above the theoretical position of the centre of the main filament.</div><div>2.2.2 Above a straight line tangential to the upper edge of the projection of the main filament and rising from left to right at angle <math>\delta</math>.</div><div>2.2.3 To the right of the main filament.</div></div></div></div><div>3. Front elevation.<br/>The lamp being placed with the cap down and the reference axis vertical, the lamp being viewed in a direction at right angles to the axis of the main filament:<div><div>3.1 The projection of the main filament shall lie entirely within a rectangle of height a and width h having its centre at the theoretical position of the centre of the filament.</div><div>3.2 The centre of the main filament shall not be offset by more than the distance k from the reference axis.</div><div>3.3 The centre of the auxiliary filament shall not be offset from the reference axis by more than 2.0 mm for type test lamps and 3.0 mm for production lamps.</div></div></div></div></div> |  |
| <div>Publication CEI 809<br/>IEC Publication 809</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <div>809-IEC-3110-2</div>                                                                                                 | <div><div>Documents</div><div>AVA</div><div>Date: 1987<br/>Document Sharing Hub</div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |



**LAMPE POUR VÉHICULES  
ROUTIERS  
FEUILLE DE CARACTÉRISTIQUES**

**CATÉGORIE: T4W  
CULOT: BA9s**

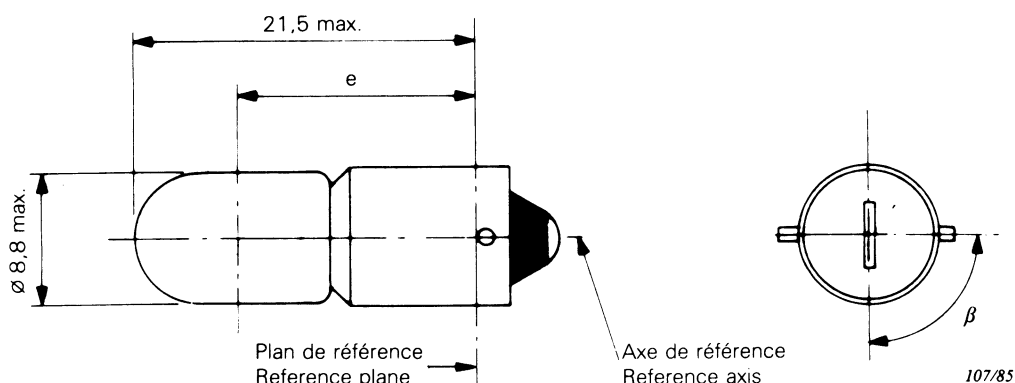
**ROAD VEHICLE  
LAMP  
DATA SHEET**

**CATEGORY: T4W  
CAP: BA9s**

| Tension assignée<br>Rated voltage<br>(V) | Puissance assignée<br>Rated wattage<br>(W) |
|------------------------------------------|--------------------------------------------|
| 6                                        | 4                                          |
| 12                                       | 4                                          |
| 24                                       | 4                                          |

Dessin de la lampe — Lamp drawing

Dimensions en millimètres — Dimensions in millimetres



**Culot**

Culot BA9s suivant Publication 61 de la CEI (feuille 7004-14-).

Le culot ne doit avoir ni des protubérances ni des soudures dépassant le diamètre maximal admissible du culot sur sa longueur totale.

**Ampoule**

Ampoule incolore.

**Cap**

Cap BA9s in accordance with IEC Publication 61 (Sheet 7004-14-).

Over the entire length of the cap there shall be no projections or soldering exceeding the permissible maximum diameter of the cap.

**Bulb**

Bulb colourless.

|                                                  | Lampe d'essai de type<br>Type test lamp |      |            | Lampe de fabrication<br>Production lamp |      |            |
|--------------------------------------------------|-----------------------------------------|------|------------|-----------------------------------------|------|------------|
| Tension d'essai<br>Test voltage (V)              | 6,75                                    | 13,5 | 28,0       | 6,75                                    | 13,5 | 28,0       |
| Puissance<br>Wattage (W)                         | 4<br>± 10%                              |      | 5<br>± 10% | 4<br>± 10%                              |      | 5<br>± 10% |
| Flux lumineux<br>Luminous flux (lm)              | 35<br>± 20%                             |      |            | 35<br>± 25%                             |      |            |
| Dimensions<br>e                                  | 15,0 ± 1,5                              |      |            | 15,0 ± 2,0                              |      |            |
| Ecart latéral<br>Lateral deviation <sup>1)</sup> | ± 1,5                                   |      |            | ± 2,0                                   |      |            |
| $\beta$                                          | 90 ± 45°                                |      |            | 90 ± 60°                                |      |            |

<sup>1)</sup> Ecart latéral maximal du centre du filament par rapport à deux plans réciproquement perpendiculaires contenant l'axe de référence et dont l'un des plans comprend l'axe des ergots.

<sup>1)</sup> Maximum lateral deviation of filament centre from two mutually perpendicular planes both containing the reference axis and one containing the axis of pins.





**Amendment No. 2**  
**published and effective from 15 May 1993**  
**to BS 6737 : 1986**

**Dimensional, electrical and luminous requirements for**  
**lamps for road vehicles**

NOTE. This amendment is being published to effect the implementation of CENELEC HD 494 S3.

### Revised text

**AMD 7653**  
**May 1993**

#### National foreword (as amended by Amendment No. 1)

Delete paragraph 1 and substitute the following new paragraph.

‘This British Standard has been prepared under the direction of the Electrical Illumination Standards Policy Committee. It is identical with IEC 809 : 1985, as amended by Amendment Nos 1 : 1987 and 2 : 1989, ‘Lamps for road vehicles – Dimensional, electrical and luminous requirements’ published by the International Electrotechnical Commission (IEC) and implements harmonization document HD 494 S3 : 1992 published by the European Committee for Electrotechnical Standardization (CENELEC).’

In the cross-references, insert the following in the list of standards.

‘IEC 810 : 1986

BS 6797 : 1986 Lamps for road vehicles – Performance requirements’

Delete ‘and IEC 810 : 1986’ in the text beneath the list of standards.

Delete the penultimate line ‘A corresponding standard to IEC 810 is in preparation’.

**AMD 7653**  
**May 1993**

#### HD title page and foreword

Insert the attached HD title page and foreword in front of page 1 (as amended by Amendment No. 1).

**AMD 7653**  
**May 1993**

#### Page 1

Delete the existing page 1 and substitute the attached new page 1.



AMD 7653  
May 1993

Clause 5.1

Delete the existing clause 5.1 and substitute the attached new clause 5.1.

AMD 7653  
May 1993

Data sheets

Insert the attached new data sheets:

809-IEC-2130-1(5 pages)  
809-IEC-2140-1(3 pages)  
809-IEC-2150-1(3 pages)  
809-IEC-2340-1(3 pages)  
809-IEC-2350-1(3 pages)  
809-IEC-2360-1(2 pages)  
809-IEC-3120-1(3 pages)

AMD 7653  
May 1993

Clause 7.1

Delete the existing clause 7.1 and substitute the attached new clause 7.1.

AMD 7653  
May 1993

Data sheets

Insert the attached new data sheets:

809-IEC-9213-1  
809-IEC-9214-1  
809-IEC-9215-1  
809-IEC-9234-1  
809-IEC-9235-1  
809-IEC-9236-1  
809-IEC-9312-1

AMD 7653  
May 1993

Appendices D and E

Insert the attached new appendices D and E.

AMD 7653  
May 1993

Annex ZA

Insert the attached new annex ZA.



English version

## Lamps for road vehicles — Dimensional, electrical and luminous requirements

(IEC 809 : 1985 + A1 : 1987 + A2 : 1989, modified)

Lampes pour véhicules routiers  
Prescriptions dimensionnelles, électriques  
et lumineuses  
(CEI 809 : 1985 + A1 : 1987  
+ A2 : 1989, modifiés)

Lampen für Straßenfahrzeuge  
Maße, elektrische und lichttechnische  
Anforderungen  
(IEC 809 : 1985 + A1 : 1987 + A2 : 1989,  
modifiziert)

This Harmonization Document was approved by CENELEC on 1992-09-15. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for implementation of this Harmonization Document on a national level.

Up-to-date lists and bibliographical references concerning national implementation may be obtained on application to the Central Secretariat or to any CENELEC member.

This Harmonization Document exists in three official versions (English, French, German).

CENELEC members are the national electrotechnical committees of Austria, Belgium, 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 CENELEC questionnaire procedure, performed for finding out whether or not the International Standard IEC 809 : 1985 and its amendments 1 : 1987 and 2 : 1989 could be accepted without textual changes, has shown that some CENELEC common modifications were necessary for the acceptance as Harmonization Document.

The reference document, together with the common modifications prepared by the CENELEC Central Secretariat, was submitted to the CENELEC members for formal vote.

The text of the draft was approved by CENELEC as HD 494 S3 on 15 September 1992.

The following dates were fixed:

- latest date of announcement  
of the HD at national level (doa) 1993-03-01
- latest date of publication of  
a harmonized national standard (dop) 1993-09-01
- latest date of withdrawal of  
conflicting national standards (dow) 1993-09-01

For products which have complied with HD 494 S2:1990 before 1993-09-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1998-09-01.

Annexes designated 'normative' are part of the body of the standard. In this standard, annex ZA is normative.

## Endorsement notice

The text of the International Standard IEC 809 : 1985 and its amendments 1 : 1987 and 2 : 1989 was approved by CENELEC as a Harmonization Document with agreed common modifications as given below.

## Common modifications

Remove data sheets 809-IEC-2125-1 (3 pages) and 809-IEC-2305-1 (3 pages) and delete the reference thereto on page V-1.

In the following countries ECE Regulation 37 is a legal requirement: Austria, Denmark, France, Germany, Italy, Netherlands, Sweden, United Kingdom. Where differences occur between ECE Regulation 37 and the Harmonization Document, the requirements of the ECE Regulation take precedence.

## CONTENTS

### SECTION ONE — GENERAL

| Clause                                              | Page |
|-----------------------------------------------------|------|
| 1.1 Scope . . . . .                                 | 2    |
| 1.2 Definitions . . . . .                           | 2    |
| 1.3 Numbering system for lamp data sheets . . . . . | 4    |

### SECTION TWO — SAMPLING

|                                                           |   |
|-----------------------------------------------------------|---|
| 2.1 Type test sample . . . . .                            | 5 |
| 2.2 Sampling for conformity of production check . . . . . | 5 |

### SECTION THREE — REQUIREMENTS AND TEST CONDITIONS

|                                                            |   |
|------------------------------------------------------------|---|
| 3.1 General requirements . . . . .                         | 6 |
| 3.2 Lamp marking . . . . .                                 | 6 |
| 3.3 Bulbs . . . . .                                        | 6 |
| 3.4 Lamp dimensions . . . . .                              | 6 |
| 3.5 Caps and bases . . . . .                               | 7 |
| 3.6 Colour of the bulb . . . . .                           | 7 |
| 3.7 Initial electrical and luminous requirements . . . . . | 7 |
| 3.8 Check on optical quality . . . . .                     | 7 |

### SECTION FOUR — CONDITIONS OF COMPLIANCE

|                                        |   |
|----------------------------------------|---|
| 4.1 Type test . . . . .                | 9 |
| 4.2 Conformity of production . . . . . | 9 |

### SECTION FIVE — LAMP DATA SHEETS

|                                 |  |
|---------------------------------|--|
| 5.1 List of specific lamp types |  |
|---------------------------------|--|

### SECTION SIX — REQUIREMENTS FOR STANDARD (ÉTALON) LAMPS

|             |  |
|-------------|--|
| 6.1 General |  |
|-------------|--|

### SECTION SEVEN — DATA SHEETS FOR STANDARD (ÉTALON) LAMPS

|                                 |  |
|---------------------------------|--|
| 7.1 List of specific lamp types |  |
|---------------------------------|--|

|                                                                                                                                                |    |
|------------------------------------------------------------------------------------------------------------------------------------------------|----|
| APPENDIX A — Filament shape, length and position . . . . .                                                                                     | 13 |
| APPENDIX B — Colour . . . . .                                                                                                                  | 17 |
| APPENDIX C — Test conditions for electrical and luminous characteristics . . . . .                                                             | 18 |
| APPENDIX D — Method of measuring internal elements of R2 lamps . . . . .                                                                       | 19 |
| APPENDIX E — Method of measuring internal elements of H4 lamps . . . . .                                                                       | 23 |
| ANNEX ZA (normative) other International Standards quoted in this standard with the references of the relevant European publications . . . . . | 30 |



SECTION CINQ  
FEUILLES DE CARACTÉRISTIQUES  
DES LAMPES

SECTION FIVE  
LAMP DATA SHEETS

5.1 Liste des types particuliers de lampes

5.1 List of specific lamp types

| Feuille N°<br>Sheet No.  | Catégorie<br>Category | Tension<br>Voltage<br>(V) | Puissance<br>Wattage<br>(W) | Culot<br>Cap                  |
|--------------------------|-----------------------|---------------------------|-----------------------------|-------------------------------|
| 809-IEC-2110-            | R2                    | 6<br>12<br>24             | 45/40<br>45/40<br>55/50     | P45t-41<br>P45t-41<br>P45t-41 |
| 809-IEC-2120-            | H4                    | 12<br>24                  | 60/55<br>75/70              | P43t-38<br>P43t-38            |
| <del>809-IEC-2125-</del> | <del>H6</del>         | <del>12</del>             | <del>65/55</del>            | <del>PZ43t</del>              |
| 809-IEC-2130-            | HS1                   | 6<br>12                   | 35/35<br>35/35              | PX43t<br>PX43t                |
| 809-IEC-2140-            | S1                    | 6<br>12                   | 25/25<br>25/25              | BA20d<br>BA20d                |
| 809-IEC-2150-            | S2                    | 6<br>12                   | 35/35<br>35/35              | BA20d<br>BA20d                |
| <del>809-IEC-2305-</del> | <del>H5</del>         | <del>12</del>             | <del>50</del>               | <del>PV43d</del>              |
| 809-IEC-2310-            | H1                    | 6<br>12<br>24             | 55<br>55<br>70              | P14.5s<br>P14.5s<br>P14.5s    |
| 809-IEC-2320-            | H2                    | 6<br>12<br>24             | 55<br>55<br>70              | X511<br>X511<br>X511          |
| 809-IEC-2330-            | H3                    | 6<br>12<br>24             | 55<br>55<br>70              | PK22s<br>PK22s<br>PK22s       |
| 809-IEC-2340-            | HS2                   | 6<br>12                   | 15<br>15                    | PX13.5s<br>PX13.5s            |
| 809-IEC-2350-            | HS3                   | 6                         | 2.4                         | PX13.5s                       |
| 809-IEC-2360-            | S3                    | 6<br>12                   | 15<br>15                    | P26s<br>P26s                  |
| 809-IEC-2510-            | F1                    | 6<br>12<br>24             | 36<br>48<br>44              | P36s<br>P36s<br>P36s (P36d)   |
| 809-IEC-2520-            | F2                    | 6<br>12<br>24             | 35<br>35<br>35              | BA20s<br>BA20s<br>BA20s       |
| 809-IEC-2530-            | F3                    | 6<br>12<br>24             | 45<br>45<br>50              | BA21s<br>BA21s<br>BA21s       |
| 809-IEC-3110-            | P21/5W<br>(P25-2)*    | 6<br>12<br>24             | 21/5<br>21/5<br>21/5        | BAY15d<br>BAY15d<br>BAY15d    |
| 809-IEC-3120-            | P21/4W                | 6<br>12<br>24             | 21/4<br>21/4<br>21/4        | BAZ15d<br>BAZ15d<br>BAZ15d    |

Note. — Les dessins des lampes ont pour seul but d'indiquer les dimensions à contrôler.

\* Désignation de catégories utilisées dans l'édition originale du Règlement 37 de la CEE.

Note. — The lamp drawings are intended only to indicate the dimensions to be checked.

\* The category designation used in the original edition of ECE Regulation 37.



| Feuille N°<br>Sheet No. | Catégorie<br>Category | Tension<br>Voltage<br>(V) | Puissance<br>Wattage<br>(W) | Culot<br>Cap  |
|-------------------------|-----------------------|---------------------------|-----------------------------|---------------|
| 809-IEC-3310-           | P21W<br>(P25-1)*      | 6                         | 21                          | BA15s (BA15d) |
|                         |                       | 12                        | 21                          | BA15s (BA15d) |
|                         |                       | 24                        | 21                          | BA15s (BA15d) |
| 809-IEC-3320-           | R5W<br>(R19/5)*       | 6                         | 5                           | BA15s (BA15d) |
|                         |                       | 12                        | 5                           | BA15s (BA15d) |
|                         |                       | 24                        | 5                           | BA15s (BA15d) |
| 809-IEC-3330-           | R10W<br>(R19/10)*     | 6                         | 10                          | BA15s (BA15d) |
|                         |                       | 12                        | 10                          | BA15s (BA15d) |
|                         |                       | 24                        | 10                          | BA15s (BA15d) |
| 809-IEC-3340-           | T4W<br>(T8/4)*        | 6                         | 4                           | BA9s          |
|                         |                       | 12                        | 4                           | BA9s          |
|                         |                       | 24                        | 4                           | BA9s          |
| 809-IEC-4110-           | C5W<br>(C11)*         | 6                         | 5                           | SV8.5         |
|                         |                       | 12                        | 5                           | SV8.5         |
|                         |                       | 24                        | 5                           | SV8.5         |
| 809-IEC-4120-           | C21W<br>(C15)*        | 12                        | 21                          | SV8.5         |
| 809-IEC-4310-           | W3W<br>(W10/3)*       | 6                         | 3                           | W2.1x9.5d     |
|                         |                       | 12                        | 3                           | W2.1x9.5d     |
|                         |                       | 24                        | 3                           | W2.1x9.5d     |
| 809-IEC-4320-           | W5W<br>(W10/5)*       | 6                         | 5                           | W2.1x9.5d     |
|                         |                       | 12                        | 5                           | W2.1x9.5d     |
|                         |                       | 24                        | 5                           | W2.1x9.5d     |

*Note.* — Les dessins des lampes ont pour seul but d'indiquer les dimensions à contrôler.

\* Désignation de catégories utilisées dans l'édition originale du Règlement 37 de la CEE.

*Note.* — The lamp drawings are intended only to indicate the dimensions to be checked.

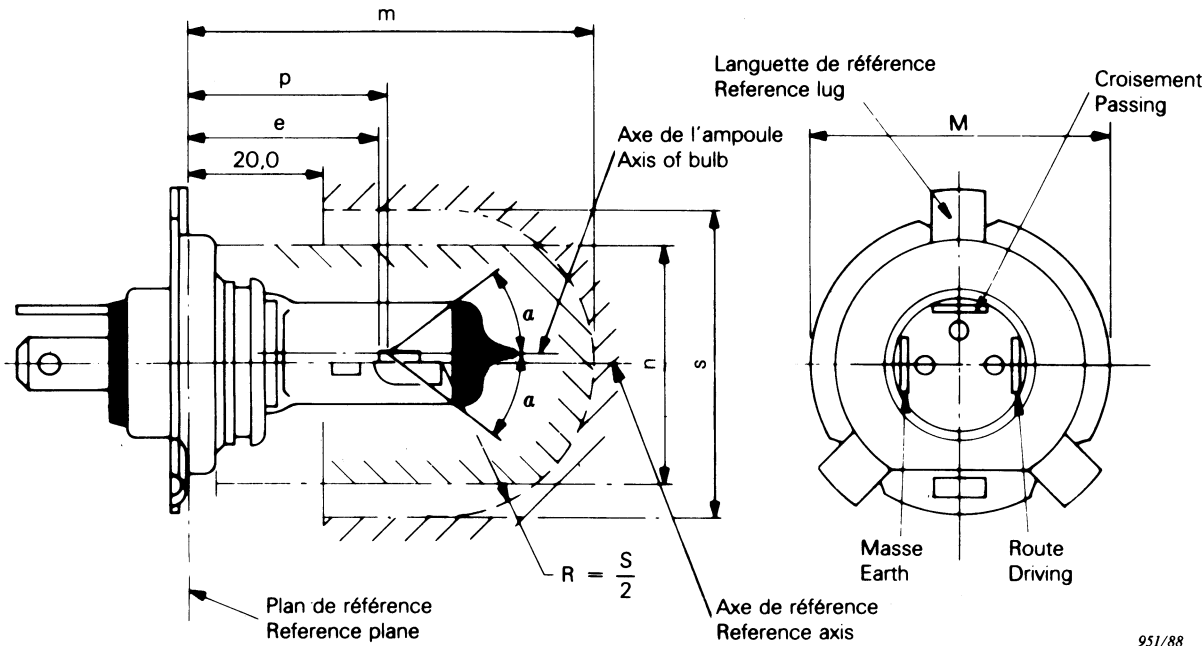
\* The category designation used in the original edition of ECE Regulation 37.



|  |                                                                                                              |                                                                              |        |
|--|--------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|--------|
|  | <b>LAMPE POUR VÉHICULES<br/>ROUTIERS<br/>FEUILLE DE CARACTÉRISTIQUES<br/>CATÉGORIE: HS1<br/>CULOT: PX43t</b> | <b>ROAD VEHICLE<br/>LAMP<br/>DATA SHEET<br/>CATEGORY: HS1<br/>CAP: PX43t</b> | Page 1 |
|--|--------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|--------|

| Tension assignée<br>Rated voltage<br>(V) | Puissance assignée<br>Rated wattage<br>(W) |
|------------------------------------------|--------------------------------------------|
| 6                                        | 35/35                                      |
| 12                                       | 35/35                                      |

Dessin de la lampe — Lamp drawing  
Dimensions en millimètres — Dimensions in millimetres



*Culot*  
Culot PX43t-38 suivant Publication CEI 61 (feuille 7004-34-).

*Encombrement de la lampe*  
Il doit être possible d'introduire la lampe à l'intérieur d'un cylindre ayant un diamètre «s», concentrique à l'axe de référence et limité à l'une de ses extrémités par un plan parallèle au plan de référence à une distance de 20 mm de celui-ci et à l'autre extrémité par une demi-sphère de rayon  $\frac{s}{2}$ .

*Axe de référence*  
L'axe de référence est la perpendiculaire au plan de référence qui passe par le centre du cercle de diamètre M.

*Cap*  
Cap PX43t-38 in accordance with IEC Publication 61 (Sheet 7004-34-).

*Lamp outline*  
It shall be possible to insert the lamp into a cylinder of diameter "s" concentric with the reference axis and limited at one end by a plane parallel to and 20 mm distant from the reference plane and at the other end by a hemisphere of radius  $\frac{s}{2}$ .

*Reference axis*  
The reference axis is perpendicular to the reference plane and passes through the centre of the circle of diameter M.



**LAMPE POUR VÉHICULES  
ROUTIERS  
FEUILLE DE CARACTÉRISTIQUES  
CATÉGORIE: HS1  
CULOT: PX43t**

**ROAD VEHICLE  
LAMP  
DATA SHEET  
CATEGORY: HS1  
CAP: PX43t**

Page 2

*Dimensions en millimètres**Ampoule*

Ampoule incolore ou jaune-sélectif.

Lorsqu'une ampoule extérieure jaune est employée, m et n indiquent les dimensions maximales de cette ampoule; lorsqu'il n'y a pas d'ampoule extérieure, m indique la longueur maximale de l'ampoule.

Le noircissement doit être réalisé au moins jusqu'à la partie cylindrique de l'ampoule. Il doit, de plus, chevaucher la coupelle interne lorsque celle-ci est vue dans une direction perpendiculaire à l'axe de référence. L'effet recherché par le noircissement peut également être obtenu par d'autres moyens.

*Dimensions in millimetres**Bulb*

Colourless or selective-yellow bulb.

Where a yellow outer bulb is used, m and n denote the maximum dimensions of this bulb; where there is no outer bulb m denotes the maximum length of the bulb.

The obscuration shall extend at least as far as the cylindrical part of the bulb. It shall also overlap the internal shield when the latter is viewed in a direction perpendicular to the reference axis. The effect sought by the obscuration may also be achieved by other means.

|                                                      | Lampe d'essai de type<br>Type test lamp |                | Lampe de fabrication<br>Production lamp |      |
|------------------------------------------------------|-----------------------------------------|----------------|-----------------------------------------|------|
| Tension d'essai<br>Test voltage (V)                  | 6,3                                     | 13,2           | 6,3                                     | 13,2 |
| Puissance normale<br>Objective wattage (W)           |                                         |                |                                         |      |
| Filament de route<br>Driving-beam filament           | 36,75<br>max.*                          | 36,75<br>max.* | *                                       | *    |
| Filament de croisement<br>Passing-beam filament      | 36,75<br>max.*                          | 36,75<br>max.* | *                                       | *    |
| Flux lumineux normal<br>Objective luminous flux (lm) |                                         |                |                                         |      |
| Filament de route<br>Driving-beam filament           | 700<br>± 15%                            | 825<br>± 15%   | *                                       | *    |
| Filament de croisement<br>Passing-beam filament      | 440<br>± 15%                            | 525<br>± 15%   | *                                       | *    |
| Dimensions                                           |                                         |                |                                         |      |
| e                                                    | 28,5 <sup>+0,45</sup> <sub>-0,25</sub>  |                | *                                       |      |
| p                                                    | 28,95                                   |                | *                                       |      |
| m                                                    | 60 max.                                 |                | *                                       |      |
| n                                                    | 34,5 max.                               |                | *                                       |      |
| s                                                    | 45                                      |                | *                                       |      |
| α                                                    | 40° max.                                |                | *                                       |      |

\* A l'étude.

\* Under consideration.

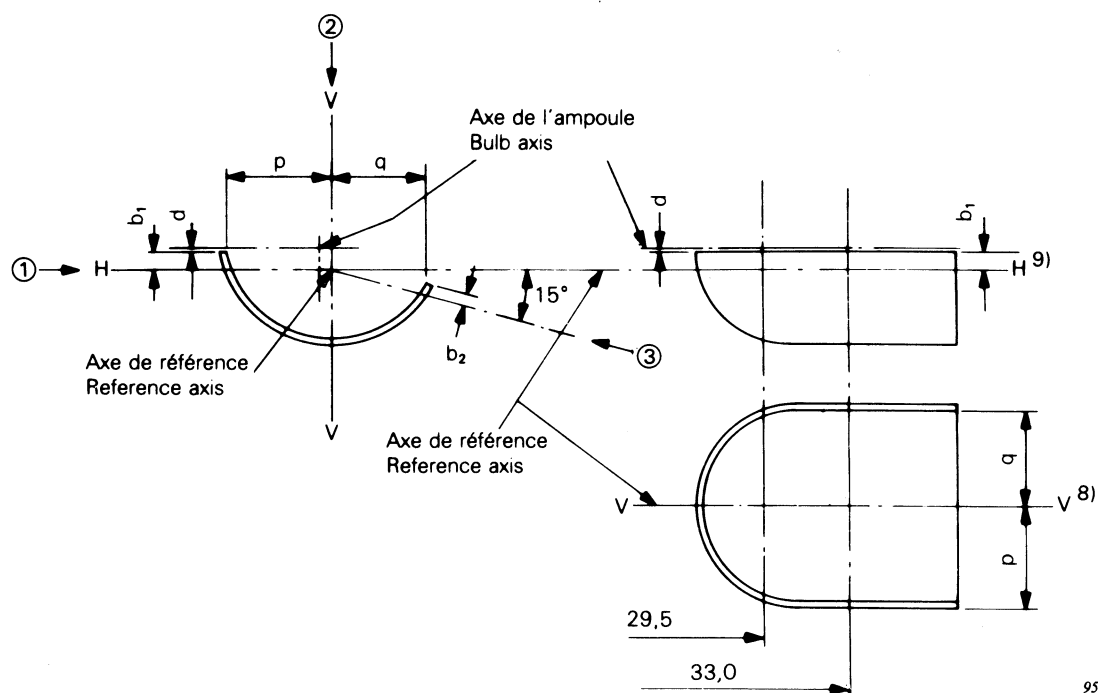


**LAMPE POUR VÉHICULES  
ROUTIERS  
FEUILLE DE CARACTÉRISTIQUES  
CATÉGORIE: HS1  
CULOT: PX43t**

**ROAD VEHICLE  
LAMP  
DATA SHEET  
CATEGORY: HS1  
CAP: PX43t**

Page 3

Position de la coupelle-écran — Position of shield  
Dimensions en millimètres — Dimensions in millimetres



952/88

*Explications aux pages 3 et 4.*

- 1) Le dessin n'est pas impératif en ce qui concerne la forme de la coupelle-écran.
- 2) La méthode de mesure est à l'étude.
- 3) Les dimensions ci-dessous sont vues de trois directions, ① ② ③ et mesurées perpendiculairement à ces directions:

- ① pour les dimensions a, b<sub>1</sub>, c, d, e, f, l<sub>r</sub>, l<sub>c</sub>.
- ② pour les dimensions g, h, p, q.
- ③ pour les dimensions b<sub>2</sub>.

Les dimensions p et q sont mesurées dans un plan parallèle au plan de référence et à 33 mm de celui-ci.

Les dimensions b<sub>1</sub> et b<sub>2</sub> sont mesurées dans des plans parallèles au plan de référence et à 29,5 mm et 33,0 mm de celui-ci.

Les dimensions a et g sont mesurées dans des plans parallèles au plan de référence et à 25,0 mm et 26,0 mm de celui-ci.

Les dimensions c et h sont mesurées dans des plans parallèles au plan de référence et à 29,5 mm et 31,0 mm de celui-ci.

<sup>4)</sup> e indique la distance du plan de référence au début du filament de croisement.

*Explanations for pages 3 and 4.*

- 1) The drawing is not mandatory with respect to the design of the shield.
- 2) The method of measurement is under consideration.
- 3) The dimensions below are viewed from three directions, ① ② ③ and measured perpendicular to these viewing directions:

- ① for dimensions a, b<sub>1</sub>, c, d, e, f, l<sub>r</sub>, l<sub>c</sub>.
- ② for dimensions g, h, p, q.
- ③ for dimensions b<sub>2</sub>.

Dimensions p and q are measured in planes parallel to and 33 mm away from the reference plane.

Dimensions b<sub>1</sub> and b<sub>2</sub> are measured in planes parallel to and 29.5 mm and 33.0 mm away from the reference plane.

Dimensions a and g are measured in planes parallel to and 25.0 mm and 26.0 mm away from the reference plane.

Dimensions c and h are measured in planes parallel to and 29.5 mm and 31.0 mm away from the reference plane.

<sup>4)</sup> e denotes the distance from the reference plane to the beginning of the passing-beam filament.

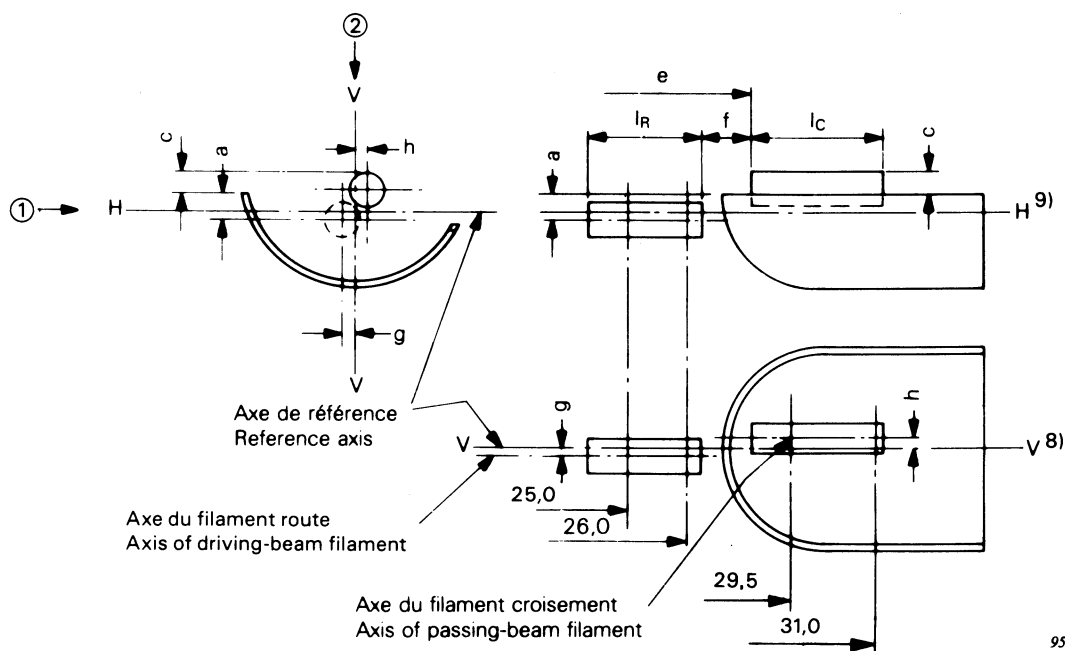


**LAMPE POUR VÉHICULES  
ROUTIERS  
FEUILLE DE CARACTÉRISTIQUES  
CATÉGORIE: HS1  
CULOT: PX43t**

**ROAD VEHICLE  
LAMP  
DATA SHEET  
CATEGORY: HS1  
CAP: PX43t**

Page 4

Position des filaments — Position of filaments  
Dimensions en millimètres — Dimensions in millimetres



953/88

5) Les spires extrêmes des filaments sont définies comme étant les première et dernière spires lumineuses qui sont régulièrement spiralées, c'est-à-dire qui forment l'angle d'enroulement correct. Dans le cas d'un filament bispiralé, les spires sont définies par l'enveloppe des spires primaires.

6) Pour le filament-croisement, les points qui doivent être mesurés sont les intersections, vues dans la direction ① du bord latéral de la coupelle, avec la partie extérieure des spires extrêmes définies ci-dessus.

7) Pour le filament de route, les points qui doivent être mesurés sont les intersections, vues dans la direction ① d'un plan parallèle au plan HH et situé à une distance de 0,8 mm au-dessous de celui-ci, avec les spires extrêmes.

8) Le plan VV est le plan perpendiculaire au plan de référence et passant par l'axe de référence et par le point d'intersection du cercle de diamètre M et de la ligne médiane de la languette de référence.

9) Le plan HH est le plan perpendiculaire au plan de référence et au plan VV et passant par l'axe de référence.

5) The end turns are defined as being the first and last luminous turns that are at substantially the correct helix angle. For coiled-coil filaments, the turns are defined by the envelope of the primary coil.

6) For the passing-beam filament the points to be measured are the intersections, seen in the direction ① of the lateral edge of the shield, with the outside of the end turns as defined above.

7) For the driving-beam filament, the points to be measured are the intersections, seen in direction ① of a plane parallel to plane HH and situated at a distance of 0.8 mm below it, with the end turns.

8) Plane VV is the plane perpendicular to the reference plane and passing through the reference axis and through the intersection of the circle of diameter M with the axis of the reference lug.

9) Plane HH is the plane perpendicular to both the reference plane and plane VV and passing through the reference axis.

