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**ECONOMIC COMMISSION FOR EUROPE**

**INLAND TRANSPORT COMMITTEE**

World Forum for Harmonization of Vehicle Regulations

One-hundred-and-fiftieth session  
Geneva, 9-12 March 2010  
Item 4.2.33 of the provisional agenda

**1958 AGREEMENT**

Consideration of draft amendments to existing Regulations

Proposal for Supplement 6 to Regulation No. 99  
(Gas-discharge light sources)

Submitted by the Working Party on Lighting and Light-Signalling \*/

The text reproduced below was adopted by the Working Party on Lighting and Light-Signalling (GRE) at its sixty-second session. It is based on ECE/TRANS/WP.29/GRE/2009/58, not amended. It is submitted to the World Forum for Harmonization of Vehicle Regulations (WP.29) and to the Administrative Committee (AC.1) for consideration (ECE/TRANS/WP.29/GRE/62, para. 29).

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\*/ In accordance with the programme of work of the Inland Transport Committee for 2006-2010 (ECE/TRANS/166/Add.1, programme activity 02.4), the World Forum will develop, harmonize and update Regulations in order to enhance performance of vehicles. The present document is submitted in conformity with that mandate.

Paragraph 3.10., amend to read:

"3.10. UV radiation

The UV radiation of the gas-discharge light source shall be such that the gas discharge light source is of the low UV type complying with:

$$k_{UV} = \frac{\int_{\lambda=250 \text{ nm}}^{400 \text{ nm}} E_e(\lambda) \cdot S(\lambda) \cdot d\lambda}{k_m \cdot \int_{\lambda=380 \text{ nm}}^{780 \text{ nm}} E_e(\lambda) \cdot V(\lambda) \cdot d\lambda} \leq 10^{-5} \text{ W/lm}$$

where...."

Annex 1.

List of sheets for gas-discharge light sources and their sequence in this annex, amend to read:

$$\frac{\text{Sheet numbers}}{\text{DxR/1 to 7} \quad \text{(Sheet DxR/6: two pages)}} \\ \text{DxS/1 to 6}$$

Sheets DxR/1 to 3 and DxR/6, replace by new sheets, to read (see next pages):

Sheets DxS/1 to 3 and DxS/6, replace by new sheets, to read (see next pages):

**CATEGORIES D1R, D2R, D3R AND D4R**

**Sheet DxR/1**

The drawings are intended only to illustrate the essential dimensions (in mm)  
of the gas-discharge light source

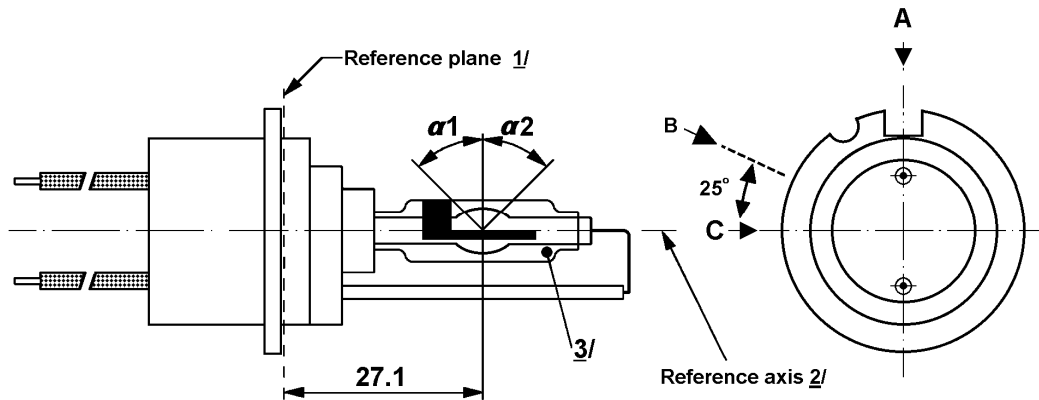


Figure 1 - Category D1R - Type with cables - Cap PK32d-3

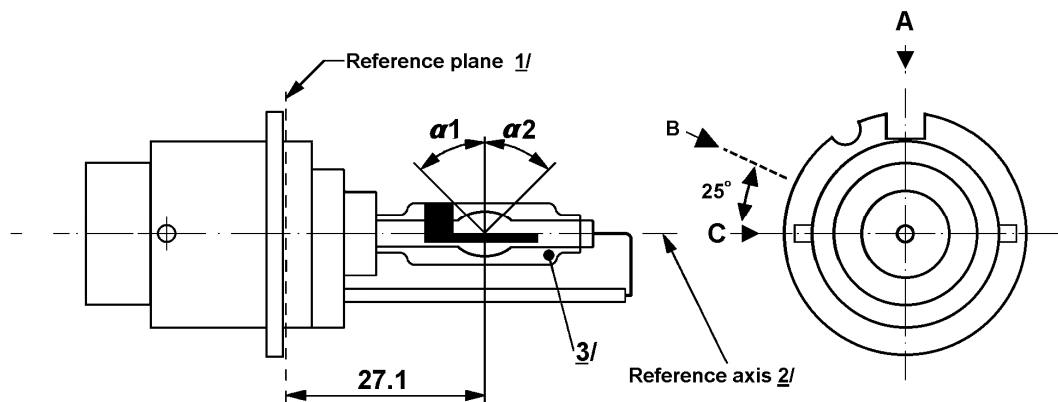


Figure 2 - Category D2R - Type with connector - Cap P32d-3

- 1/ The reference plane is defined by the positions on the surface of the holder on which the three supporting bosses of the cap ring will rest.
- 2/ See sheet DxR/3.
- 3/ With respect to the reference axis, when measured at a distance of 27.1 mm from the reference plane the eccentricity of the outer bulb shall be less than  $\pm 0.5$  mm in direction C and less than  $- 1$  mm /+ 0.5 mm in direction A.

**CATEGORIES D1R, D2R, D3R AND D4R**

The drawings are intended only to illustrate the essential dimensions (in mm)  
of the gas-discharge light source

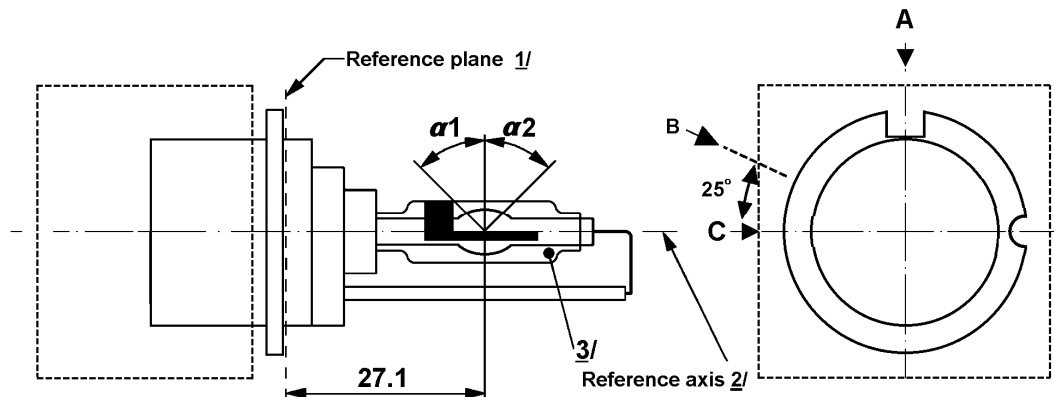


Figure 3 – Category D3R - Type with starter – Cap PK32d-6

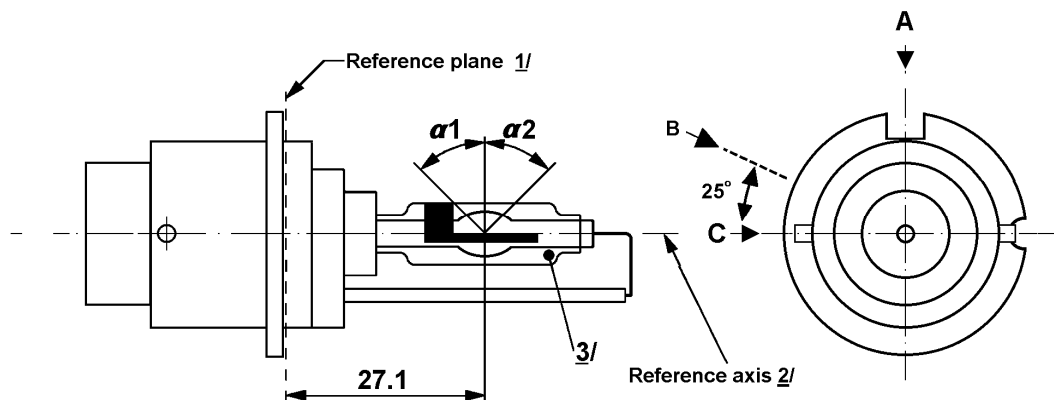


Figure 4 - Category D4R - Type with connector – Cap P32d-6

- 1/ The reference plane is defined by the positions on the surface of the holder on which the three supporting bosses of the cap ring will rest.
- 2/ See sheet DxR/3.
- 3/ With respect to the reference axis, when measured at a distance of 27.1 mm from the reference plane the eccentricity of the outer bulb shall be less than  $\pm 0.5$  mm in direction C and less than  $- 1$  mm /+ 0.5 mm in direction A.

Figure 5  
Definition of reference axis 1/

The cap shall be pushed in this direction

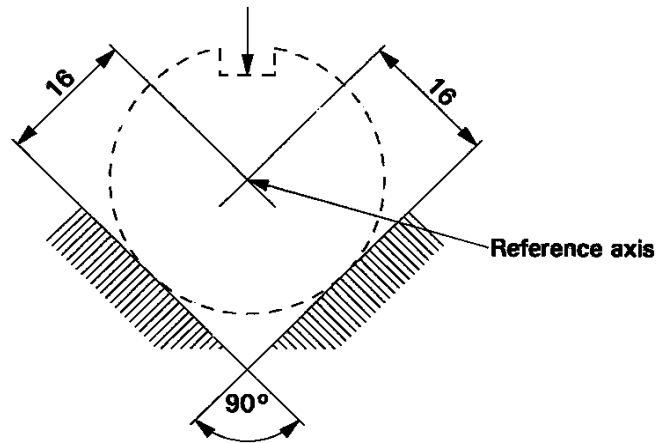
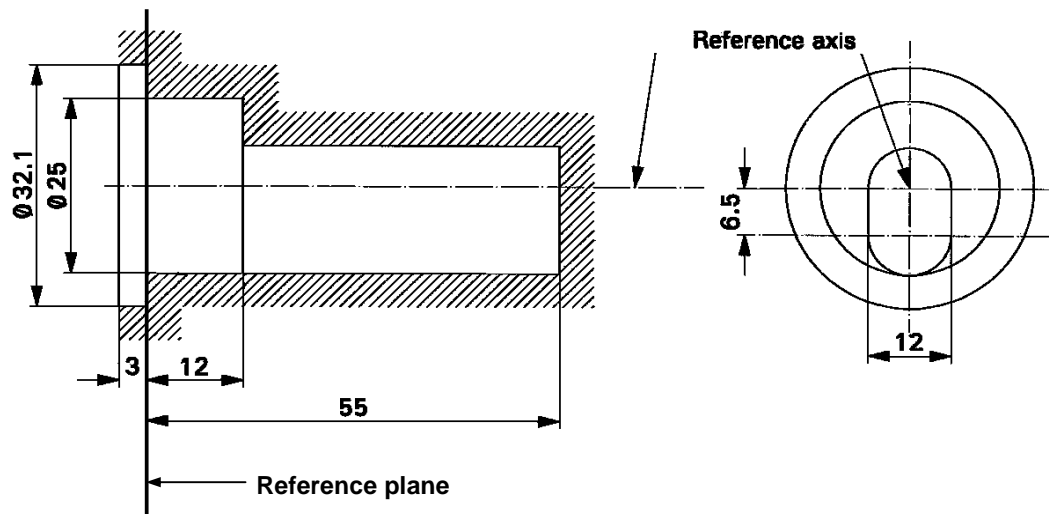


Figure 6  
Maximum lamp outline 2/

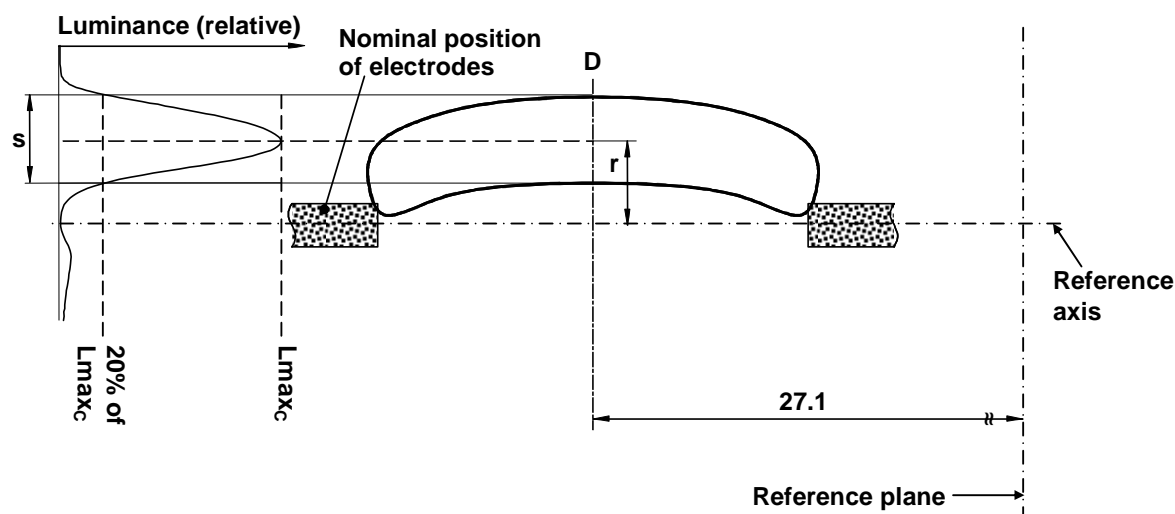


- 1/ The reference axis is perpendicular to the reference plane and crosses the intersection of the two parallel lines as indicated in figure 5.
- 2/ Glass bulb and supports shall not exceed the envelope, as indicated in figure 6. The envelope is concentric with the reference axis.

Position and form of the arc

This test is used to determine the form and sharpness of the arc and its position relative to the reference axis and plane by determining its bending and diffusion; by measuring the luminance in the central cross section D, where  $L_{max_C}$  is the maximum luminance of the arc measured from viewing direction C; see sheet D<sub>x</sub>R/2.

$L_{max_C}$



Relative luminance distribution in the central cross section D.

The form of the arc is for illustration purpose only.

Measuring direction C as defined on sheet D<sub>x</sub>R/7.

When measuring the relative luminance distribution in the central cross section D as indicated in the drawing above, the maximum value  $L_{max_C}$  has the distance  $r$  from the reference axis. The points of 20% of  $L_{max_C}$  have the distance  $s$ , as shown in the drawing above.

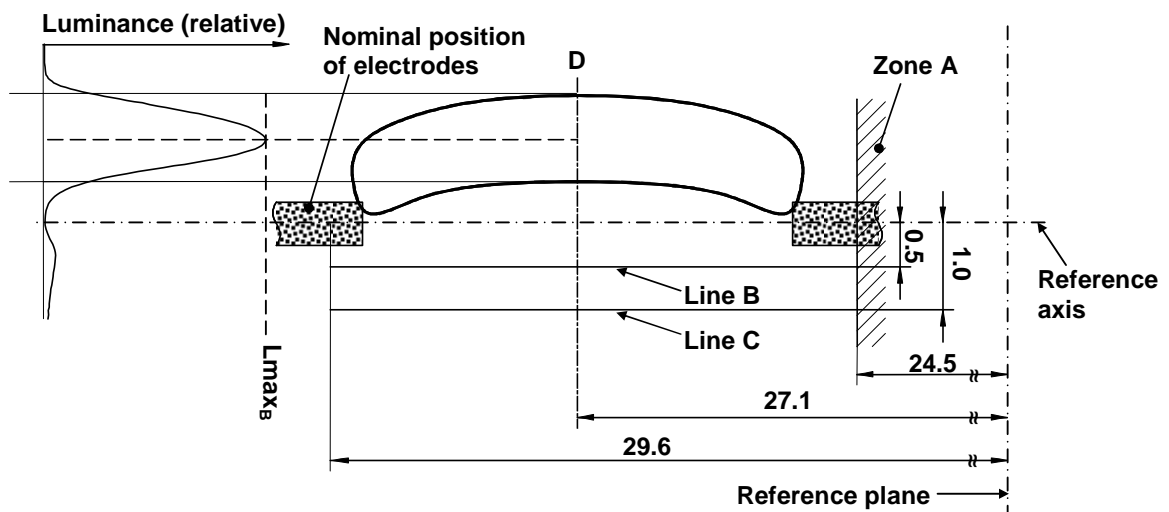
Dimension in mm	Production light sources		Standard light sources
	D1R/D2R	D3R/D4R	
$r$ (arc bending)	$0.50 \pm 0.25$	$0.50 \pm 0.25$	$0.50 \pm 0.20$
$s$ (arc diffusion)	$1.10 \pm 0.25$	$1.10 + 0.25/-0.40$	$1.10 \pm 0.25$

**CATEGORIES D1R, D2R, D3R AND D4R**

**Stray light**

This test is used to determine unwanted reflected stray light by measuring the luminance in Zone A and at lines B and C, where  $L_{max_B}$  is the maximum luminance of the arc measured from viewing direction B; see sheet DxR/2.

**$L_{max_B}$**



**Relative luminance distribution in the central cross section D.**

**The form of the arc is for illustration purpose only.**

**Measuring direction B as defined on sheet DxR/7.**

When measuring the luminances from measuring direction B as defined on sheet DxR/7 with a set-up as outlined in annex 5, however with a circular field of 0.2M mm diameter, the relative luminance expressed as a percentage of  $L_{max_B}$  (at cross section D) shall be:

Zone A	$\leq 4.5 \%$
Line B	$\leq 15 \%$
Line C	$\leq 5.0 \%$

The area of zone A is defined by the black coating, the outer bulb and a plane at 24.5 mm from the reference plane.

The drawings are intended only to illustrate the essential dimensions (in mm)  
of the gas-discharge light source

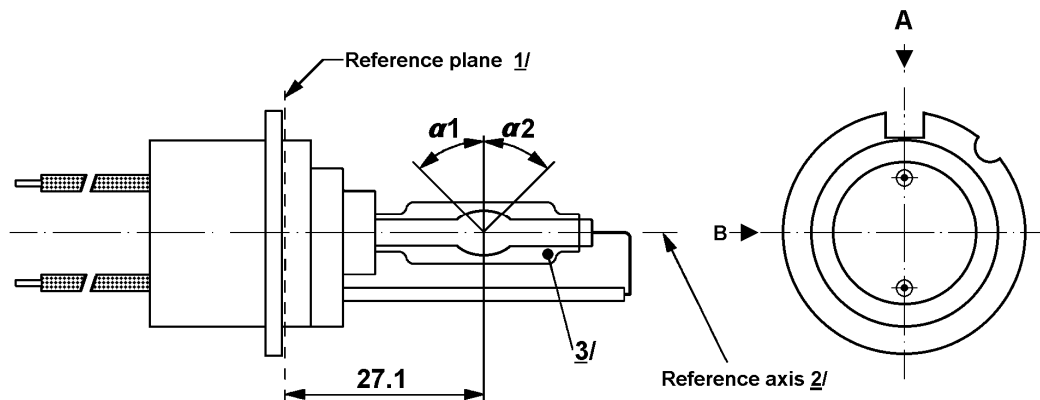


Figure 1 - Category D1S - Type with cables - Cap PK32d-2

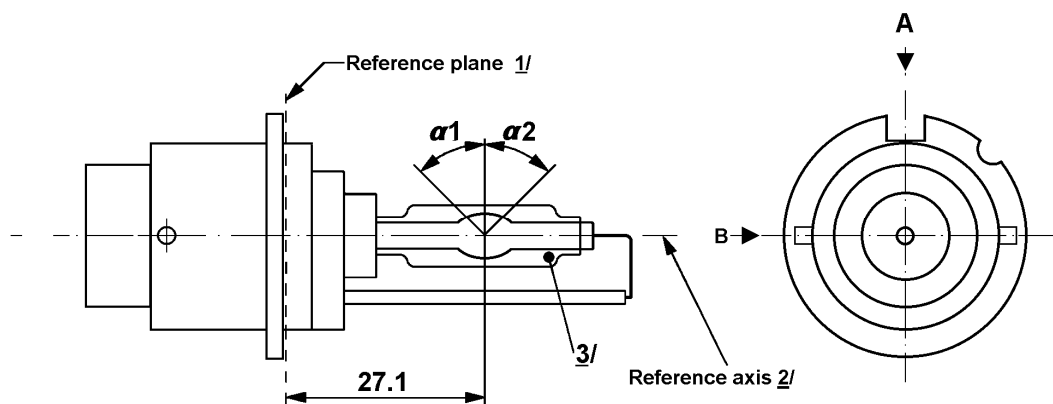


Figure 2 - Category D2S - Type with connector - Cap P32d-2

- 1/ The reference plane is defined by the positions on the surface of the holder on which the three supporting bosses of the cap ring will rest.
- 2/ See sheet DxS/3.
- 3/ When measured at a distance of 27.1 mm from the reference plane and with respect to the mid-point of the inner bulb, the outer bulb shall have an eccentricity of 1 mm max.



**CATEGORIES D1S, D2S, D3S AND D4S**

**Sheet DxS/2**

The drawings are intended only to illustrate the essential dimensions (in mm)  
of the gas-discharge light source

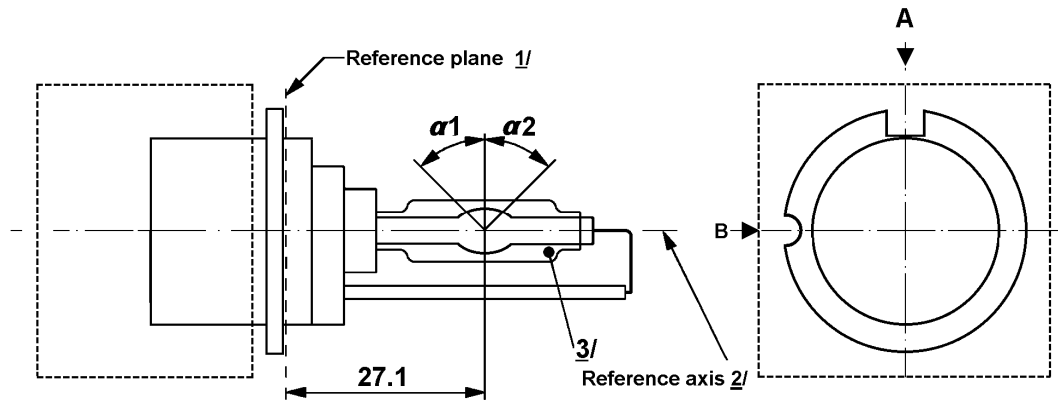


Figure 3 - Category D3S - Type with starter - Cap PK32d-5

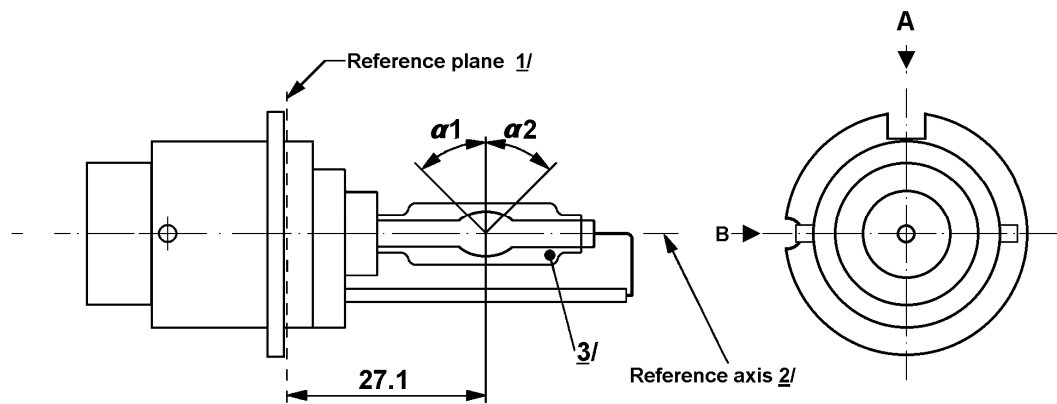


Figure 4 - Category D4S - Type with connector - Cap P32d-5

- 1/ The reference plane is defined by the positions on the surface of the holder on which the three supporting bosses of the cap ring will rest.
- 2/ See sheet DxS/3.
- 3/ When measured at a distance of 27.1 mm from the reference plane and with respect to the mid-point of the inner bulb, the outer bulb shall have an eccentricity of 1 mm max.

Figure 5  
Definition of reference axis 1/

The cap shall be pushed in this direction

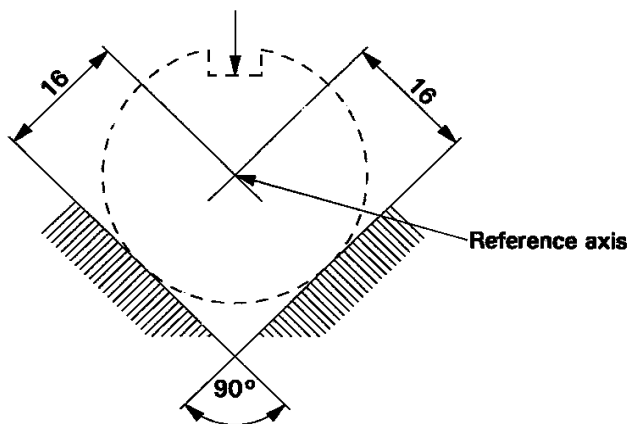
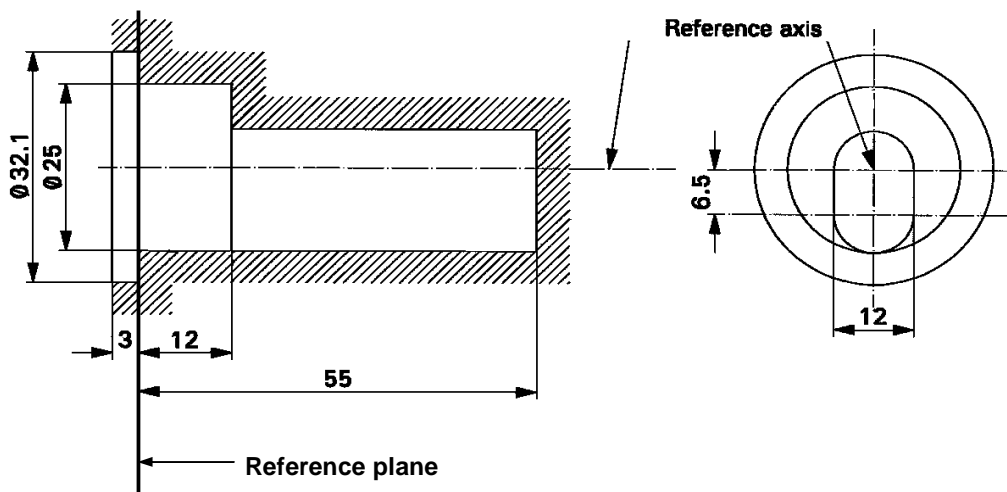


Figure 6  
Maximum lamp outline 2/



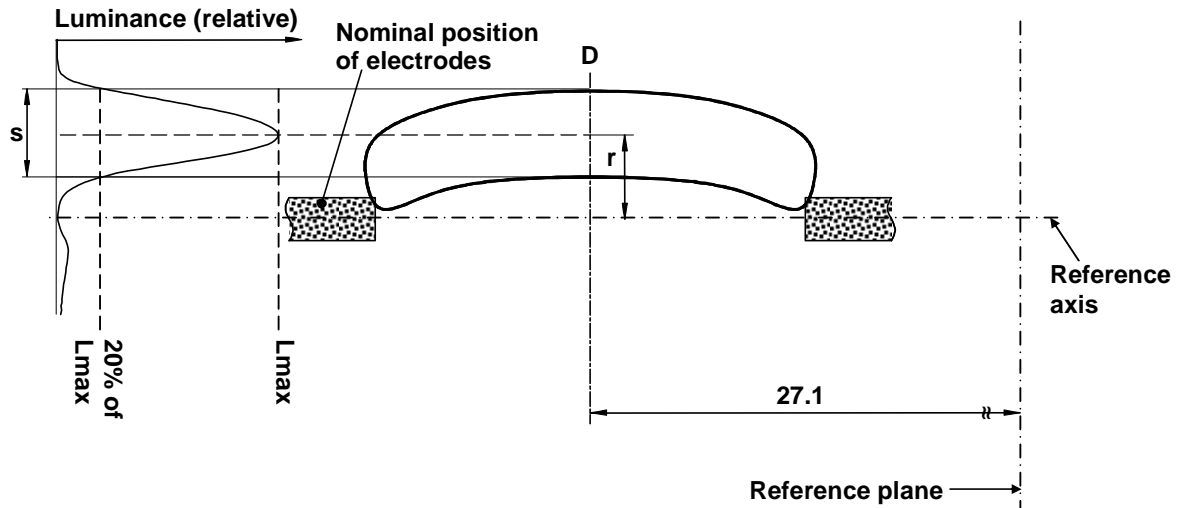
- 1/ The reference axis is perpendicular to the reference plane and crosses the intersection of the two parallel lines as indicated in figure 5.
- 2/ Glass bulb and supports shall not exceed the envelope, as indicated in figure 6. The envelope is concentric with the reference axis.

**CATEGORIES D1S, D2S, D3S AND D4S**

**Sheet D<sub>x</sub>S/6**

Position and form of the arc

This test is used to determine the form of the arc and its position relative to the reference axis and the reference plane by measuring its bending and diffusion in the cross section at a distance 27.1 mm from the reference plane.



**Relative luminance distribution in the central cross section D.**

**The form of the arc is for illustration purpose only.**

**Measuring direction B: light source side view**

When measuring the relative luminance distribution in the central cross section as indicated in the drawing above, the maximum value shall be located within the distance  $r$  from the reference axis. The point of 20% of the maximum value shall be within  $s$ :

Dimension in mm	Production light sources	Standard light sources
$r$ (arc bending)	$0.50 \pm 0.40$	$0.50 \pm 0.20$
$s$ (arc diffusion)	$1.10 \pm 0.40$	$1.10 \pm 0.25$

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