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INLAND TRANSPORT COMMITTEE

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(One-hundred-and-thirty-second session, 9-12 March 2004,  
agenda item 4.2.8.)

PROPOSAL FOR DRAFT SUPPLEMENT 24 TO  
THE 03 SERIES OF AMENDMENTS TO REGULATION No. 37

(Filament lamps)

Transmitted by the Working Party on Lighting and Light-Signalling (GRE)

Note: The text reproduced below was adopted by GRE at its fifty-first session, and is transmitted for consideration to WP.29 and to AC.1. It is based on documents TRANS/WP.29/GRE/2003/27 and TRANS/WP.29/GRE/2003/42 (TRANS/WP.29/GRE/51, para. 22).

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<http://www.unece.org/trans/main/welcwp29.htm>

Text of the Regulation,

Paragraph 3.9.4., amend to read:

"3.9.4. Filament lamps emitting selective-yellow light shall be tested...

...

... same type of filament lamp emitting white light. This test shall be left out if the approval is also given to the same type of filament lamp emitting white light."

Annex 1,

List of categories of filament lamps, amend to read (footnote \*\*/ not amended):

"	Category	Sheet number(s)
...		...
	H7	H7/1 to 4
	H8	H8/1 to 4
	H8B	H8/1 to 4
	H9	H9/1 to 4
	H9B	H9/1 to 4
	H10	H10/1 to 3
	H11	H11/1 to 4
	H11B	H11/1 to 4
	H12	H12/1 to 3
...		...

"	Category	Sheet number(s)
	Only for signalling lamps:	
.....	WR5W <u>**/</u>	W5W/1
	WR21/5W <u>**/</u>	WR21/5W/1            (W21/5W/2 to 3)
	WY2.3W	WY2.3W/1
....."		

List of sheets for filament lamps, amend to read:

"	Sheet number(s)
.....	
	WP21W/1 to 2
	WR21/5W/1
	WY2.3W/1
....."	

Sheet H7/3, the table, the IEC Publication sheet number, amend to read "(sheet 7004-5-6)".

Sheets H8/1 to 4, replace by new sheets H8/1 to 4; (see next pages).

Sheets H9/1 to 4, replace by new sheets H9/1 to 4; (see next pages).

Sheets H11/1 to 4, replace by new sheets H11/1 to 4; (see next pages).

Sheet H13/4, the table, the IEC Publication sheet number, amend to read "(sheet 7004-128-2)".

Sheet H14/3, the table, the IEC Publication sheet number, amend to read "(sheet 7004-133-1)".

Sheets HIR2/1 to 3, replace by the new sheets HIR2/1 to 3; (see next pages)

Sheet HS5/3, the table, the IEC Publication sheet number, amend to read "(sheet [7004-138-1])".

Sheet P19W/2, the table, the IEC Publication sheet number, amend to read "(sheet 7004-127-2)".

Sheet P21/4W/1, the table, the IEC Publication sheet number, amend to read "(sheet 7004-11C-3)".

Sheet P24W/2, the table, the IEC Publication sheet number, amend to read "(sheet 7004-127-2)".

Sheet PY21W/1, the table, the IEC Publication sheet number, amend to read "(sheet 7004-19-2)".

Sheet R10W/1, the table, the IEC Publication sheet number for category RY10W, amend to read "(sheet 7004-19-2)".

Sheet W21/5W/1, the table, the IEC Publication sheet number, amend to read "(sheet 7004-106-2)".

Insert new sheet WR21/5W/1 (between sheet WP21W/2 and sheet WY2.3W/1 as indicated in the list of sheets above), to read: (see next pages).

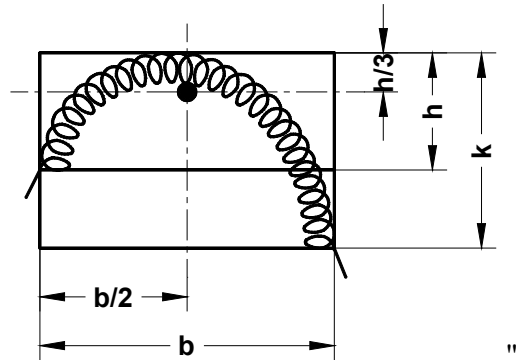
Sheet WY5W/1, should be deleted.

Sheet WY21W/1, footnote 2, amend to read: "The light emitted from filament lamps of normal production shall be amber. (See also note 4/)."

Annex 4,

The drawing of filament shape No. 3, correct to read (replace by new drawing):

"



"

Add at the end of the text, to read:

" ..... intersection of the dash-dot lines.

The drawings are intended only to demonstrate the essential dimensions."

\* \* \*

## CATEGORIES H8 AND H8B

Sheet H8/1

The drawings are intended only to illustrate the essential dimensions (in mm) of the filament lamp

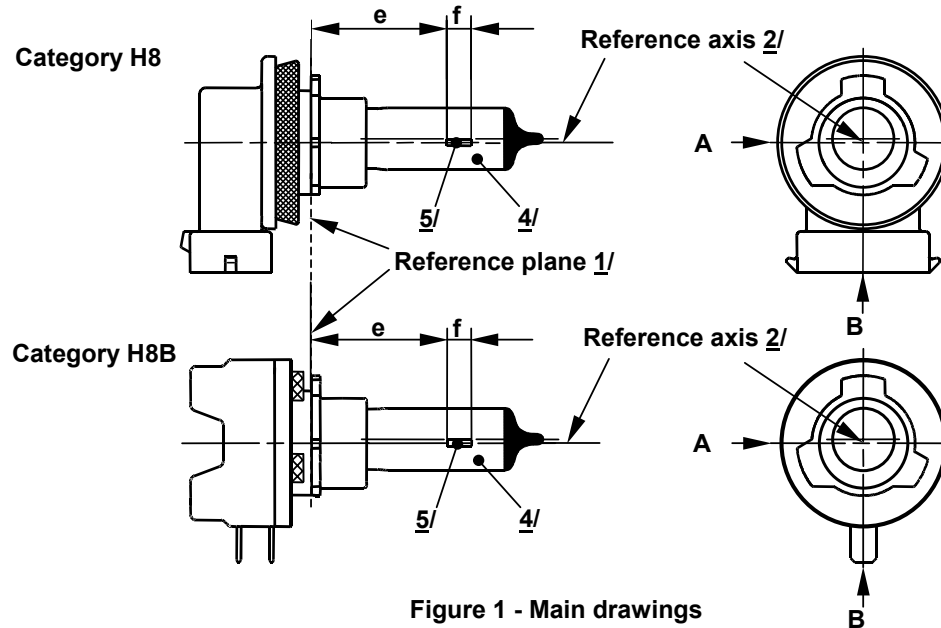
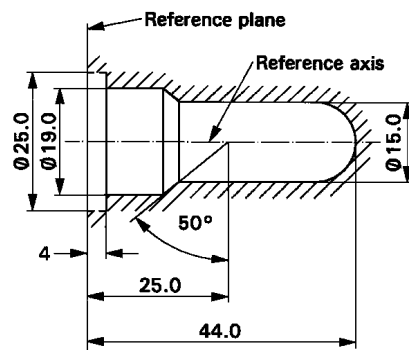
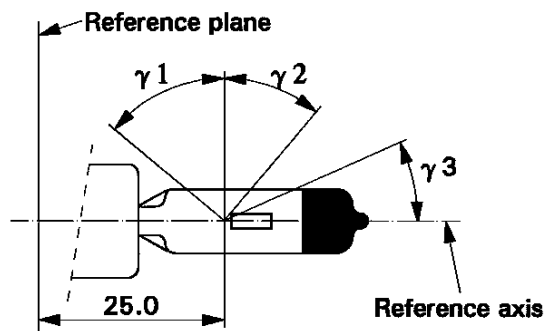


Figure 1 - Main drawings

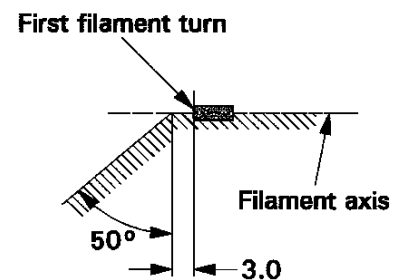
Figure 2 - Maximum lamp outline 3/

- 1/ The reference plane is the plane formed by the underside of the bevelled lead-in flange of the cap.
- 2/ The reference axis is perpendicular to the reference plane and passing through the centre of the 19 mm cap diameter.
- 3/ Glass bulb and supports shall not exceed the envelope as indicated in figure 2. The envelope is concentric to the reference axis.
- 4/ The light emitted shall be white or selective yellow.
- 5/ Notes concerning the filament diameter.
- No actual diameter restrictions apply but the objective for future developments is to have  $d_{max.} = 1.2$  mm.
  - For the same manufacturer, the design diameter of standard (étalon) filament lamp and filament lamp of normal production shall be the same.



View B

Figure 3  
Distortion free area 6/ and black top 7/



View A

Figure 4  
Metal free zone 8/

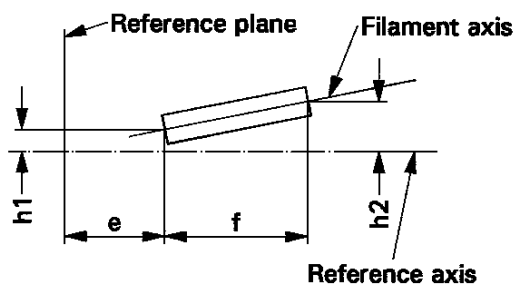
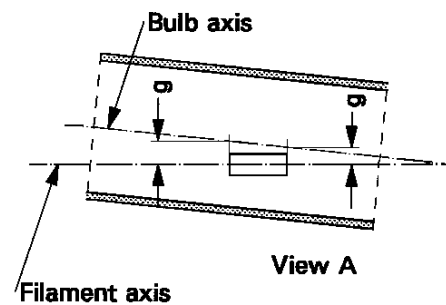


Figure 5

Permissible offset of filament axis 9/  
(for standard filament lamps only)



View A

Figure 6  
Bulb eccentricity 10/

- 6/ Glass bulb shall be optically distortion free within the angles  $\gamma_1$  and  $\gamma_2$ . This requirement applies to the whole bulb circumference within the angles  $\gamma_1$  and  $\gamma_2$ .
- 7/ The obscuration shall extend at least to angle  $\gamma_3$  and shall extend at least to the cylindrical part of the bulb on the whole bulb top circumference.
- 8/ The internal design of the lamp shall be such that stray light images and reflections are only located above the filament itself seen from the horizontal direction (view A as indicated in figure 1 on sheet H8/1). No metal parts other than filament turns shall be located in the shaded area as seen in figure 4.
- 9/ The offset of the filament with respect to the reference axis is measured only in viewing directions A and B as shown in figure 1 in sheet H8/1. The points to be measured are those where the projection of the outside of the end turns nearest to or furthest from the reference plane crosses the filament axis.
- 10/ Offset of filament in relation to bulb axis measured in two planes parallel to the reference plane where the projection of the outside of the end turns nearest to or furthest from the reference plane crosses the filament axis.

## CATEGORIES H8 AND H8B

Sheet H8/3

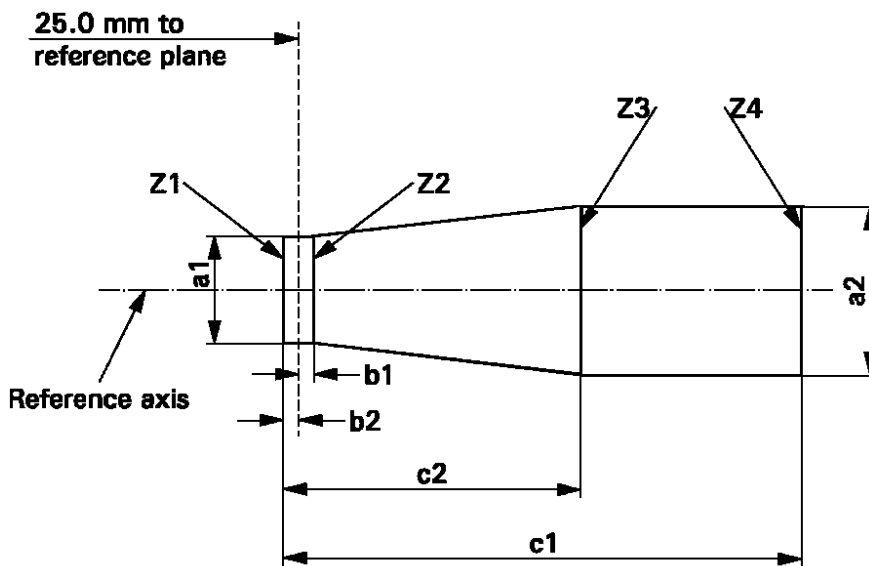
Dimensions in mm	Filaments lamps of normal production		Standard filament lamp
	12 V		12 V
e	<u>11/</u>	25.0 <u>12/</u>	25.0 ± 0.1
f	<u>11/</u>	3.7 <u>12/</u>	3.7 ± 0.1
g		0.5 min.	u.c.
h1		0 <u>12/</u>	0 ± 0.1
h2		0 <u>12/</u>	0 ± 0.15
γ1		50° min.	50° min.
γ2		40° min.	40° min.
γ3		30° min.	30° min.
Cap:	H8: PGJ19-1 H8B: PGJY19-1	in accordance with IEC Publication 60061 (sheet 7004-110-2) in accordance with IEC Publication 60061 (sheet 7004-...)	
ELECTRICAL AND PHOTOMETRIC CHARACTERISTICS			
Rated values	Volts	12	12
	Watts	35	35
Test voltage	Volts	13.2	13.2
Objective values	Watts	43 max.	43 max.
	Luminous flux	800 ± 15 %	
Reference luminous flux: 600 lm at approximately 12 V			

11/ The ends of the filament are defined as the points where, when the viewing direction is direction A as shown in figure 1 on sheet H8/1, the projection of the outside of the end turns crosses the filament axis.

12/ To be checked by means of a "Box System"; sheet H8/4.

Screen projection requirements

This test is used to determine, by checking whether the filament is correctly positioned relative to the reference axis and reference plane, whether a filament complies with the requirements.



a1	a2	b1	b2	c1	c2
$d + 0.50$	$d + 0.70$	0.25		4.6	3.5

d = diameter of filament

The filament position is checked solely in directions A and B as shown on sheet H8/1, figure 1.

The filament shall lie entirely within the limits shown.

The ends of the filament as defined on sheet H8/3, note 11/, shall lie between lines Z1 and Z2 and between Z3 and Z4.



CATEGORIES H9 AND H9B

Sheet H9/1

The drawings are intended only to illustrate the essential dimensions (in mm) of the filament lamp

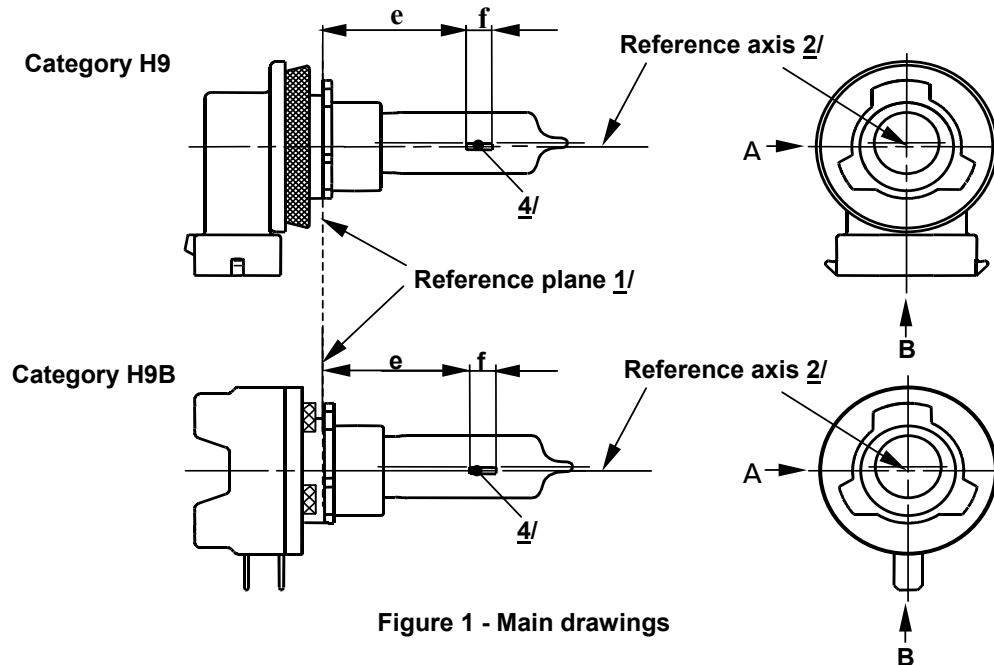


Figure 1 - Main drawings

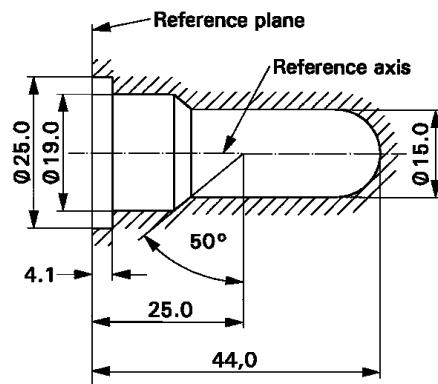


Figure 2 - Maximum lamp outline 3/

- 1/ The reference plane is the plane formed by the underside of the bevelled lead-in flange of the cap.
- 2/ The reference axis is perpendicular to the reference plane and passing through the centre of the 19 mm cap diameter.
- 3/ Glass bulb and supports shall not exceed the envelope as indicated in figure 2. The envelope is concentric to the reference axis.
- 4/ Notes concerning the filament diameter.
  - No actual diameter restrictions apply but the objective for future developments is to have  $d_{max.} = 1.4$  mm.
  - For the same manufacturer, the design diameter of standard (étalon) filament lamp and filament lamp of normal production shall be the same.

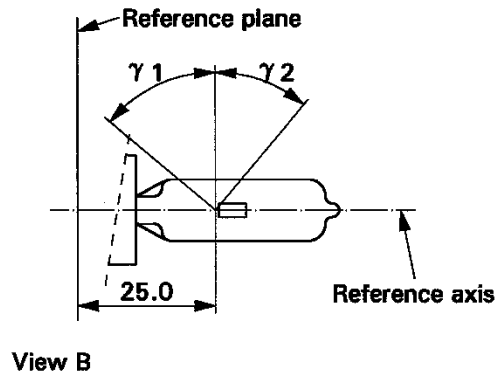


Figure 3  
Distortion free area 5/

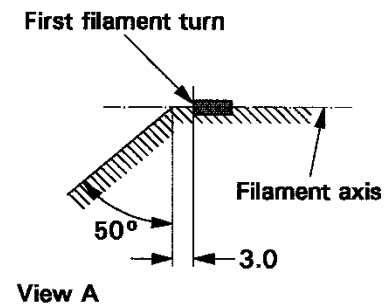


Figure 4  
Metal free zone 6/

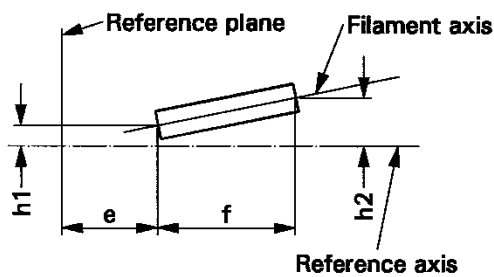


Figure 5  
Permissible offset of filament axis 7/  
(for standard filament lamps only)

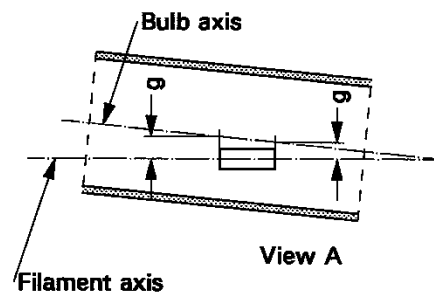


Figure 6  
Bulb eccentricity 8/

- 5/ Glass bulb shall be optically distortion free within the angles  $\gamma_1$  and  $\gamma_2$ . This requirement applies to the whole bulb circumference within the angles  $\gamma_1$  and  $\gamma_2$ .
- 6/ The internal design of the lamp shall be such that stray light images and reflections are only located above the filament itself seen from the horizontal direction (view A as indicated in figure 1, sheet H9/1). No metal parts other than filament turns shall be located in the shaded area as seen in figure 4.
- 7/ The offset of the filament with respect to the reference axis is measured only in viewing directions A and B as shown in figure 1 on sheet H9/1. The points to be measured are those where the projection of the outside of the end turns nearest to or furthest from the reference plane crosses the filament axis.
- 8/ Offset of filament in relation to bulb axis measured in two planes parallel to the reference plane where the projection of the outside of the end turns nearest to or furthest from the reference plane crosses the filament axis.

## CATEGORIES H9 AND H9B

## Sheet H9/3

Dimensions in mm		Tolerances		
		Filament lamps of normal production	Standard filament lamp	
		12 V	12 V	
e	<u>9/</u> <u>10/</u>	25	<u>11/</u>	± 0.10
f	<u>9/</u> <u>10/</u>	4.8	<u>11/</u>	± 0.10
g	<u>9/</u>	0.7	± 0.5	± 0.30
h1		0	<u>11/</u>	± 0.10 <u>12/</u>
h2		0	<u>11/</u>	± 0.15 <u>12/</u>
γ1		50° min.	-	-
γ2		40° min.	-	-
Cap:	H9: PGJ19-5 H9B: PGJY19-5	in accordance with IEC Publication 60061 (sheet 7004-110-2) in accordance with IEC Publication 60061 (sheet 7004-...)		
ELECTRICAL AND PHOTOMETRIC CHARACTERISTICS				
Rated values	Volts		12	12
	Watts		65	65
Test voltage	Volts		13.2	13.2
Objective values	Watts		73 max.	73 max.
	Luminous flux		2100 ± 10%	
Reference luminous flux: 1500 lm at approximately 12 V				

9/ The viewing direction is direction A as shown in figure 1 on sheet H9/1.

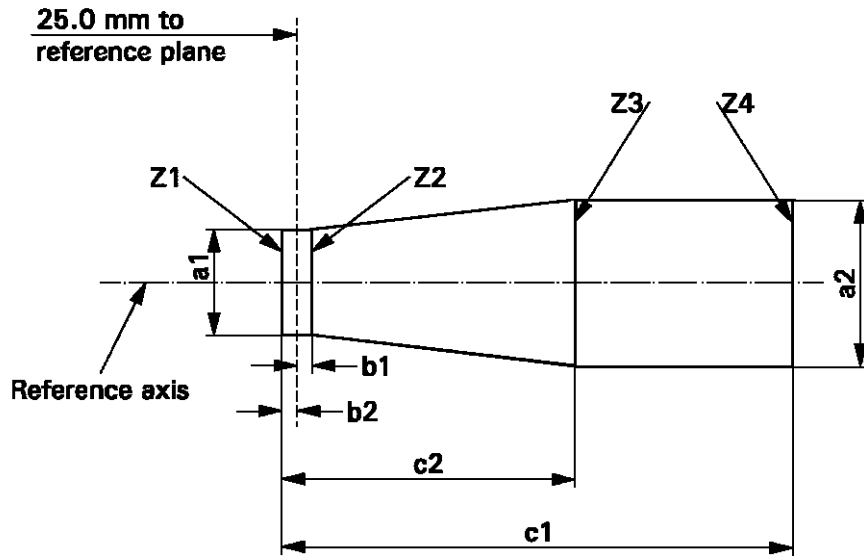
10/ The ends of the filament are defined as the points where, when the viewing direction is as defined in note 9/ above, the projection of the outside of the end turns crosses the filament axis.

11/ To be checked by means of a "Box System"; sheet H9/4.

12/ The eccentricity is measured only in viewing directions A and B as shown in figure 1 on sheet H9/1. The points to be measured are those where the projection of the outside of the end turns nearest or furthest from the reference plane crosses the filament axis.

Screen projection requirements

This test is used to determine, by checking whether the filament is correctly positioned relative to the reference axis and reference plane, whether a filament complies with the requirements.



a1	a2	b1	b2	c1	c2
$d + 0.4$	$d + 0.7$	0.25		5.7	4.6

d = diameter of filament

The filament position is checked solely in directions A and B as shown on sheet H9/1, figure 1.

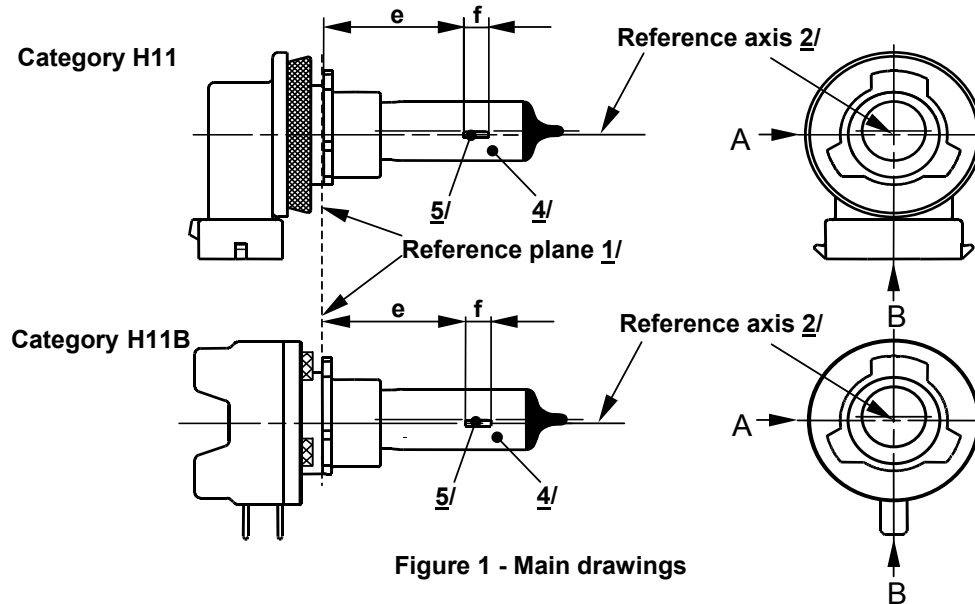
The filament shall lie entirely within the limits shown.

The ends of the filament as defined on sheet H9/3, note 10/, shall lie between lines Z1 and Z2 and between Z3 and Z4.

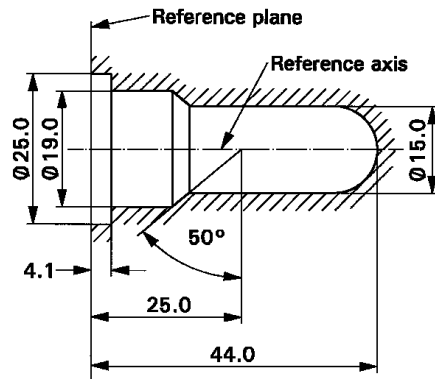
**CATEGORIES H11 AND H11B**

**Sheet H11/1**

The drawings are intended only to illustrate the essential dimensions (in mm) of the filament lamp

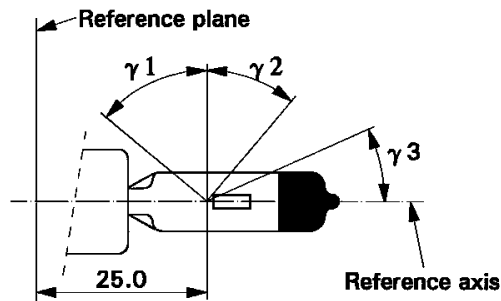


**Figure 1 - Main drawings**



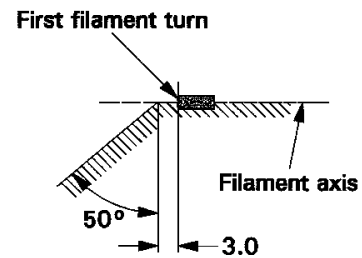
**Figure 2 - Maximum lamp outline 3/**

- 1/ The reference plane is the plane formed by the underside of the bevelled lead-in flange of the cap.
- 2/ The reference axis is perpendicular to the reference plane and passing through the centre of the 19 mm cap diameter.
- 3/ Glass bulb and supports shall not exceed the envelope as indicated in figure 2. The envelope is concentric to the reference axis.
- 4/ The light emitted shall be white or selective yellow.
- 5/ Notes concerning the filament diameter.
  - No actual diameter restrictions apply but the objective for future developments is to have  $d_{max.} = 1.4$  mm.
  - For the same manufacturer, the design diameter of standard (étalon) filament lamp and filament lamp of normal production shall be the same.



View B

Figure 3  
Distortion free area 6/ and black top 7/



View A

Figure 4  
Metal free zone 8/

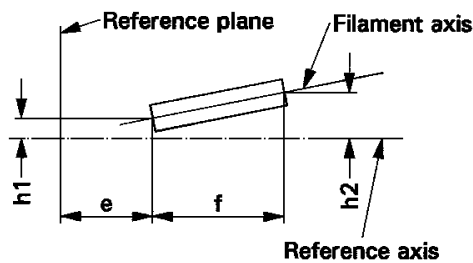
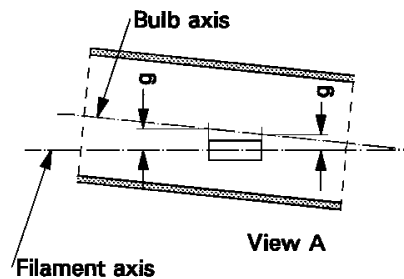


Figure 5

Permissible offset of filament axis 9/  
(for standard filament lamps only)



View A

Figure 6

Bulb eccentricity 10/

- 6/ Glass bulb shall be optically distortion free within the angles  $\gamma_1$  and  $\gamma_2$ . This requirement applies to the whole bulb circumference within the angles  $\gamma_1$  and  $\gamma_2$ .
- 7/ The obscuration shall extend at least to angle  $\gamma_3$  and shall extend at least to the cylindrical part of the bulb on the whole bulb top circumference.
- 8/ The internal design of the lamp shall be such that stray light images and reflections are only located above the filament itself seen from the horizontal direction (view A as indicated in figure 1 on sheet H11/1). No metal parts other than filament turns shall be located in the shaded area as seen in figure 4.
- 9/ The offset of the filament with respect to the reference axis is measured only in viewing directions A and B as shown in figure 1 on sheet H11/1. The points to be measured are those where the projection of the outside of the end turns nearest to or furthest from the reference plane crosses the filament axis.
- 10/ Eccentricity of bulb axis with respect to filament axis measured in two planes parallel to the reference plane where the projection of the outside of the end turns nearest to or furthest from the reference plane crosses the filament axis.

**CATEGORIES H11 AND H11B**

**Sheet H11/3**

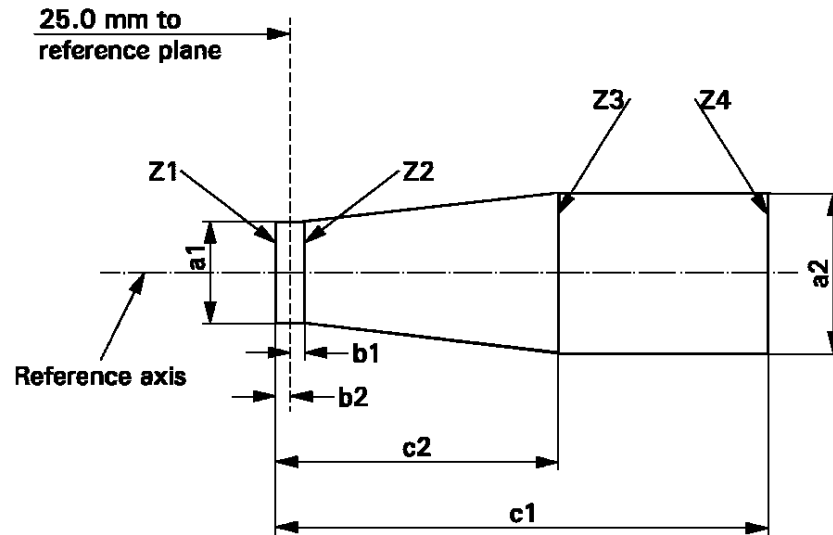
Dimensions in mm	Filaments lamps of normal production			Standard filament lamp
	12 V	24 V		12 V
e	<u>11/</u>	25.0	<u>12/</u>	25.0 ± 0.1
f	<u>11/</u>	4.5	5.3 <u>12/</u>	4.5 ± 0.1
g	0.5 min.			u.c.
h1		0	<u>12/</u>	0 ± 0.1
h2		0	<u>12/</u>	0 ± 0.15
γ1	50° min.			50° min.
γ2	40° min.			40° min.
γ3	30° min.			30° min.
Cap:	H11: PGJ19-2	in accordance with IEC Publication 60061 (sheet 7004-110-2)		
	H11B: PGJY19-2	in accordance with IEC Publication 60061 (sheet 7004-...)		
<b>ELECTRICAL AND PHOTOMETRIC CHARACTERISTICS</b>				
Rated values	Volts	12	24	12
	Watts	55	70	55
Test voltage	Volts	13.2	28.0	13.2
Objective values	Watts	62 max.	80 max.	62 max.
	Luminous flux	1350 ± 10 %	1600 ± 10 %	
Reference luminous flux: 1000 lm at approximately 12 V				

11/ The ends of the filament are defined as the points where, when the viewing direction is view A as shown in figure 1 on sheet H11/1, the projection of the outside of the end turns crosses the filament axis.

12/ To be checked by means of a "Box System"; sheet H11/4.

Screen projection requirements

This test is used to determine, by checking whether the filament is correctly positioned relative to the reference axis and reference plane, whether a filament complies with the requirements.



	a1	a2	b1	b2	c1	c2
12 V	$d + 0.3$	$d + 0.5$	0.2		5.0	4.0
24 V	$d + 0.6$	$d + 1.0$	0.25		6.3	4.6

d = diameter of filament

The filament position is checked solely in directions A and B as shown on sheet H11/1, figure 1.

The filament shall lie entirely within the limits shown.

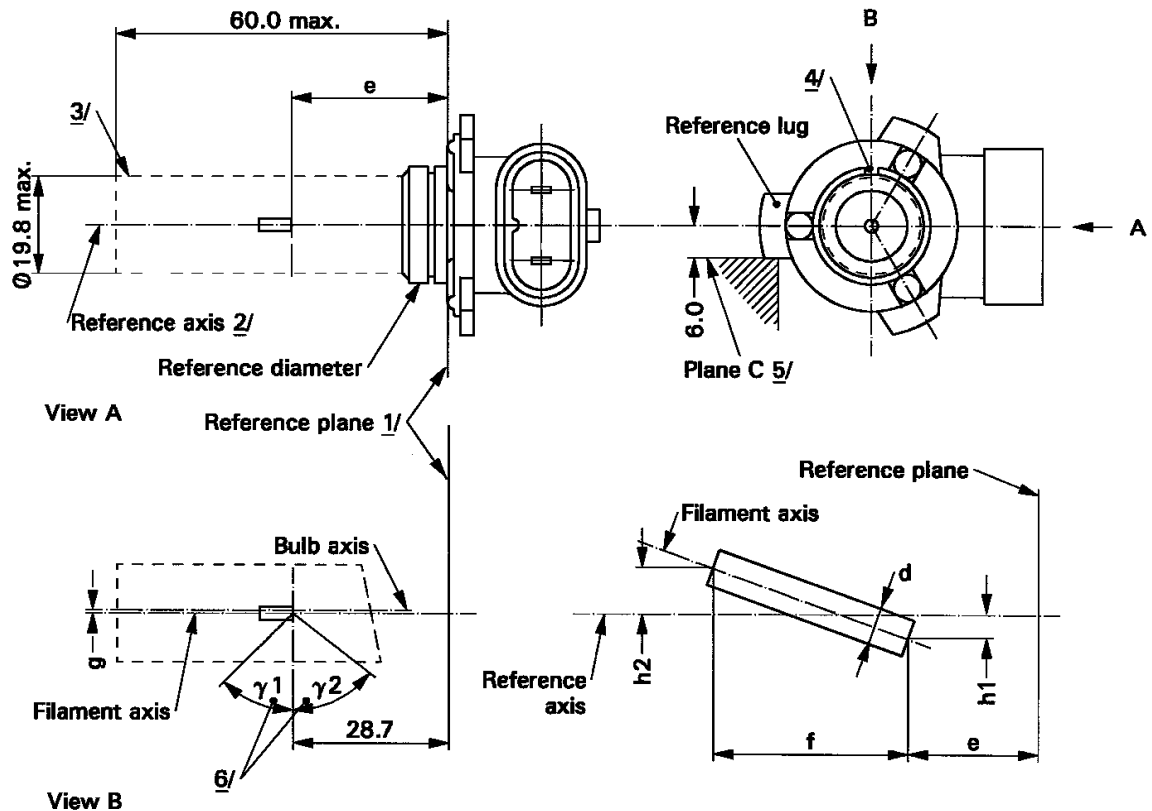
The ends of the filament as defined on sheet H11/3, note 11/, shall lie between lines Z1 and Z2 and between Z3 and Z4.



## CATEGORY HIR2

## Sheet HIR2/1

The drawings are intended only to illustrate the essential dimensions (in mm) of the filament lamp



- 1/ The reference plane is the plane defined by the three meeting points of the cap holder fit.
- 2/ The reference axis is perpendicular to the reference plane and passes through the centre of the reference diameter of the cap.
- 3/ Glass bulb and supports shall not exceed the envelope. The envelope is concentric to the reference axis.
- 4/ The keyway is mandatory.
- 5/ The filament lamp shall be rotated in the measuring holder until the reference lug contacts plane C of the holder.
- 6/ Glass bulb periphery shall be optically distortion-free axially within the angles  $\gamma_1$  and  $\gamma_2$ . This requirement applies to the whole bulb circumference within the angles  $\gamma_1$  and  $\gamma_2$ .

## CATEGORY HIR2

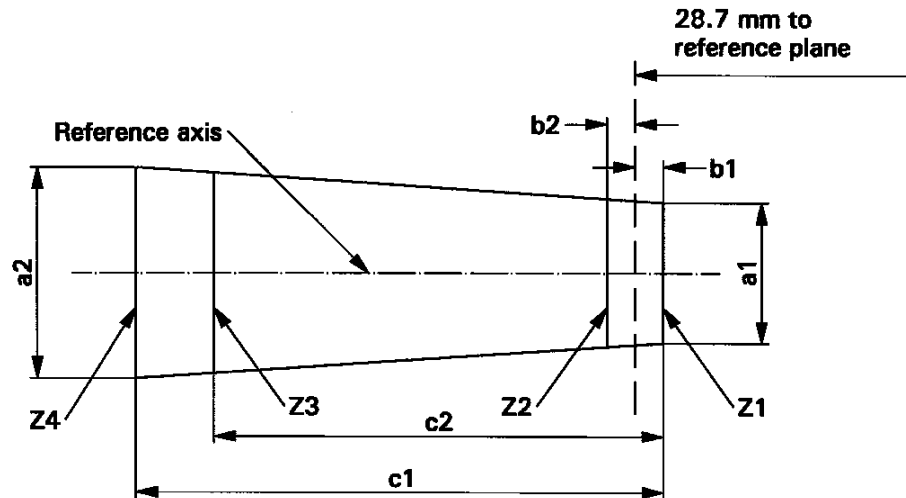
## Sheet HIR2/2

Dimensions in mm <u>11/</u>		Tolerances		
		Filament lamps of normal production	Standard filament lamp	
e	<u>8/ 10/</u>	28.7	<u>9/</u>	± 0.16
f	<u>8/ 10/</u>	5.3	<u>9/</u>	± 0.16
g	<u>8/</u>	0	+ 0.7 / - 0.0	+ 0.4 / - 0.0
h1, h2		0	<u>9/</u>	± 0.15 <u>7/</u>
d		1.6 max.	-	-
γ1		50° min.	-	-
γ2		50° min.	-	-
Cap PX22d in accordance with IEC Publication 60061 (sheet 7004-32-2)				
ELECTRICAL AND PHOTOMETRIC CHARACTERISTICS				
Rated values	Volts		12	12
	Watts		55	55
Test voltage	Volts		13.2	13.2
Objective values	Watts		63 max.	63 max.
	Luminous flux		1875 ± 15 %	
Reference luminous flux: 1355 lm at approximately 12 V				

- 7/ The eccentricity is measured only in viewing directions A and B as shown in the figure on sheet HIR2/1. The points to be measured are those where the projection of the outside of the end turns nearest to or furthest from the reference plane crosses the filament axis.
- 8/ The viewing direction is direction B as shown in the figure on sheet HIR2/1.
- 9/ To be checked by means of a "Box-System"; sheet HIR2/3.
- 10/ The ends of the filament are defined as the points where, when the viewing direction is defined in note 8/ above, the projection of the outside of the end turns crosses the filament axis.
- 11/ Dimensions shall be checked with O-ring removed.

Screen projection requirements

This test is used to determine, by checking whether the filament is correctly positioned relative to the



reference axis and reference plane, whether a filament lamp complies with the requirements.

	a1	a2	b1	b2	c1	c2
12 V	$d + 0.4$	$d + 0.8$	0.35		6.6	5.7

d = diameter of filament

The filament position is checked solely in directions A and B as shown on sheet HIR2/1.

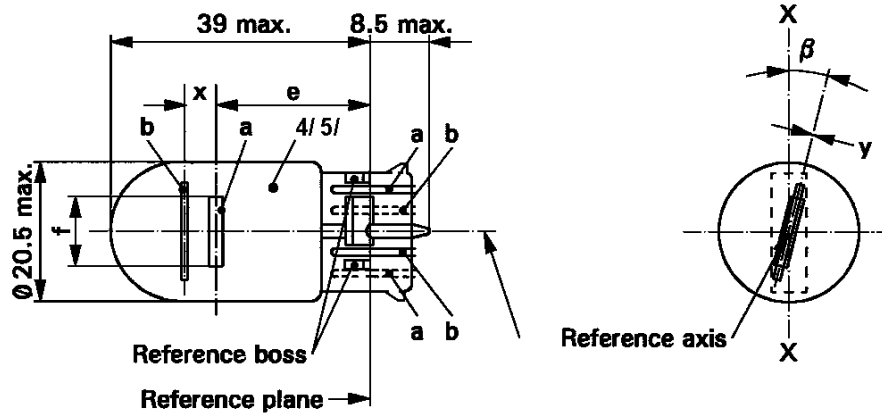
The ends of the filament as defined on sheet HIR2/2 note 10/ shall lie between lines Z1 and Z2 and between lines Z3 and Z4.

CATEGORY WR21/5W

Sheet WR21/5W/1

The drawings are intended only to illustrate the essential dimensions (in mm) of the filament lamp

a= major (high wattage) filament  
b= minor (low wattage) filament



Dimensions in mm	Filament lamps of normal production			Standard filament lamp	
	min.	nom.	max.		
e		25.0 <sup>1/</sup>		25.0 ± 0.3	
f			7.5	7.5 + 0/ - 2	
Lateral deviation <sup>2/</sup>			<sup>1/</sup>	0.3 max.	
x <sup>3/</sup>		2.8 <sup>1/</sup>		2.8 ± 0.3	
y <sup>3/</sup>		0.0 <sup>1/</sup>		0.0 ± 0.3	
β	-15° <sup>1/</sup>	0°	+15° <sup>1/</sup>	0° ± 5°	
Cap WY3x16q in accordance with IEC Publication 60061 (sheet [7004-...-1])					
ELECTRICAL AND PHOTOMETRIC CHARACTERISTICS					
Rated values	Volts	12		12	
	Watts	21	5	21	5
Test voltage	Volts	13.5		13.5	
Objective values	Watts	26.5 max.	6.6 max.	26.5 max.	6.6 max.
	Luminous flux	105 ± 20 %	8 ± 25 %		
Reference luminous flux at approximately 13.5 V		White: 440 lm and 35 lm Red: 105 lm and 8 lm			

<sup>1/</sup> To be checked by means of a "Box-System"; sheets W21/5W/2 and 3.

<sup>2/</sup> Maximum lateral deviation of filament centre from two mutually perpendicular planes both containing the reference axis and one containing axis X-X.

<sup>3/</sup> "x" and "y" denote the offset of the axis of the minor filament with respect to the axis of the major filament.

<sup>4/</sup> The light emitted from normal production lamps shall be red (see also note <sup>5/</sup>).

<sup>5/</sup> The light emitted from standard filament lamps shall be white or red.