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**ECONOMIC COMMISSION FOR EUROPE**

**INLAND TRANSPORT COMMITTEE**

World Forum for Harmonization of Vehicle Regulations

Working Party on Lighting and Light-Signalling

Sixty-second session  
Geneva, 6 - 9 October 2009  
Item 3 of the provisional agenda

**REGULATION No. 37**  
**(Filament lamps)**

**Proposal for Supplement 35 to the 03 series of amendments to Regulation No. 37 \*/**

**Submitted by the expert from the Working Party "Brussels 1952"**

The text reproduced below was prepared by the expert from the Working Party "Brussels 1952" (GTB) in order to introduce into Regulation No. 37 the provisions for new categories of filament light sources PW13W, PW16W, PWY16W, PWR16W, PW19W, PWY19W, PWR19W, PW24W, PWY24W, and PWR24W. The modifications to the existing text of the Regulation, including draft Supplement 34 to the 03 series of amendments, are marked in bold characters.

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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.

A. PROPOSAL

Annex 1,

The list of categories of filament lamps and their sheets, amend to read:

"

Group 2:

Only for use in signalling lamps, cornering lamps, reversing lamps and rear registration plate lamps:

<u>Category</u>	<u>Sheet number(s)</u>
C5W	C5W/1
...	
...	
<b>PSY24W</b>	<b>PSY24W/1 to 3</b>
<b>PW13W</b>	<b>P13W/1 to 3</b>
<b>PW16W</b>	<b>PC16W/1 to 3</b>
<b>PWR16W</b>	<b>PC16W/1 to 3</b>
<b>PWY16W</b>	<b>PC16W/1 to 3</b>
<b>PW19W</b>	<b>P19W/1 to 3</b>
<b>PWR19W</b>	<b>P19W/1 to 3</b>
<b>PWY19W</b>	<b>P19W/1 to 3</b>
<b>PW24W</b>	<b>P24W/1 to 3</b>
<b>PWR24W</b>	<b>P24W/1 to 3</b>
<b>PWY24W</b>	<b>P24W/1 to 3</b>
<b>PY19W</b>	<b>PY19W/1 to 3</b>

...

"

Sheets P13W/1 to P13W/3 (existing), replace by the new sheets P13W/1 to P13W/3, to read (see below):

Sheets PC16W/1 to PC16W/3 (existing), replace by the new sheets PC16W/1 to PC16W/3, to read (see below):

Sheets P19W/1 to P19W/3 (existing), replace by the new sheets P19W/1 to P19W/3, to read (see below):

Sheets P24W/1 to P24W/3 (existing), replace by the new sheets P24W/1 to P24W/3, to read (see below):

CATEGORIES P13W and PW13W

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

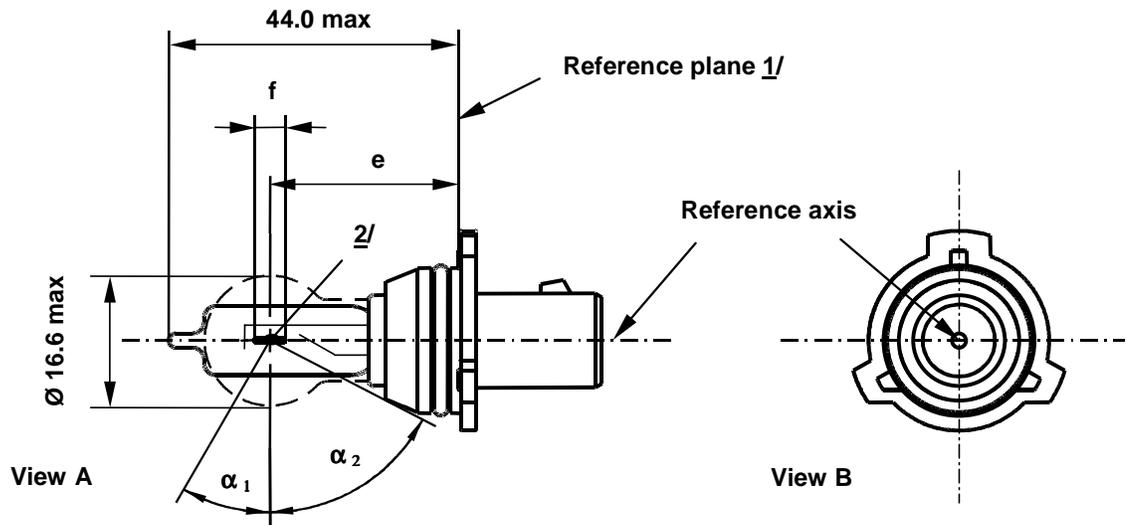


Figure 1 – Main drawing P13W

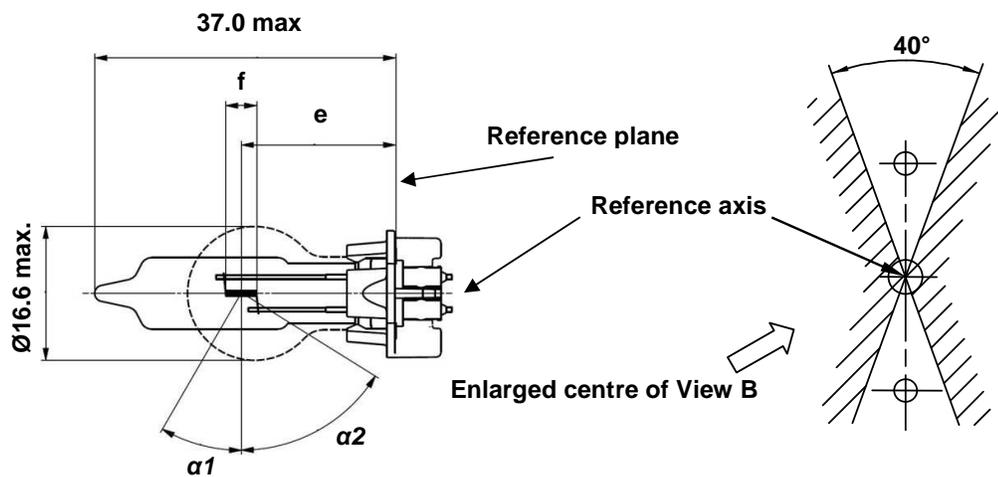


Figure 2 – Metal free zone 3/

Figure 3 – Main drawing PW13W

- 1/ The reference plane is defined by the meeting points of the cap-holder fit.
- 2/ No actual filament diameter restrictions apply but the objective is  $d_{max.} = 1.0$  mm.
- 3/ No opaque parts other than filament turns shall be located in the shaded area indicated in Figure 2. This applies to the rotational body within the angles  $\alpha_1 + \alpha_2$ .

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**CATEGORIES P13W and PW13W**


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Dimensions in mm		Filament lamps of normal production		Standard filament lamp	
e	<u>5/</u>	<b>P13W</b>	25.0	<u>4/</u>	25.0 ± 0.25
		<b>PW13W</b>	<b>19.25</b>	<u>4/</u>	<b>19.25 ± 0.25</b>
f	<u>5/</u>		4.3	<u>4/</u>	4.3 ± 0.25
$\alpha_1$	<u>6/</u>		30.0° min.		30.0° min.
$\alpha_2$	<u>6/</u>		58.0° min.		58.0° min.
P13W	Cap PG18.5d-1	in accordance with IEC Publication 60061 (sheet 7004-147-1)			
<b>PW13W</b>	<b>Cap WP3.3x14.5-7</b>	<b>in accordance with IEC Publication 60061 (sheet 7004-xxx-x)</b>			
ELECTRICAL AND PHOTOMETRIC CHARACTERISTICS					
Rated values	Voltage	V	12		12
	Wattage	W	13		13
Test voltage		V	13.5		13.5
Objective values	Wattage	W	19 max.		19 max.
	Luminous flux	lm	250		
		±	+15% / -20%		
Reference luminous flux at approximately 13.5V					250 lm

4/ To be checked by means of a "Box-System"; sheet P13W/3.

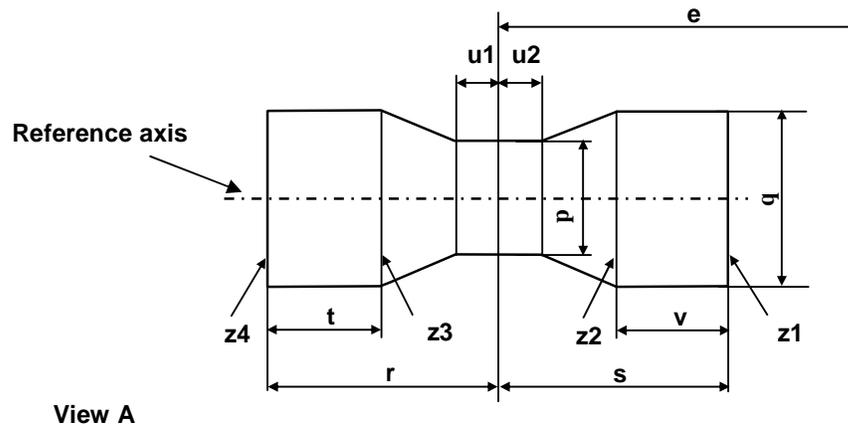
5/ The ends of the filament are defined as the points where, when the viewing direction is perpendicular to the plane through the filament lead-in wires, the projection of the outside of the end turns crosses the filament axis.

6/ No part of the cap beyond the reference plane shall interfere with angle  $\alpha_2$  as shown in Figure 1 on sheet P13W/1. The bulb shall be optically distortion free within the angles  $\alpha_1 + \alpha_2$ . These requirements apply to the whole bulb circumference.

CATEGORIES P13W and PW13W

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.



	p	q	u1,u2	r,s	t,v
Filament lamps of normal production	1.7	1.9	0.3	2.6	0.9
Standard filament lamps	1.5	1.7	0.25	2.45	0.6

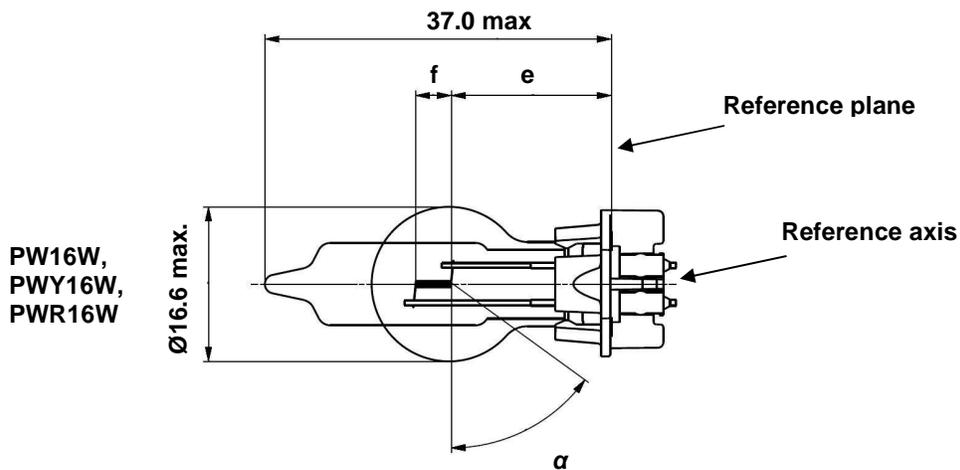
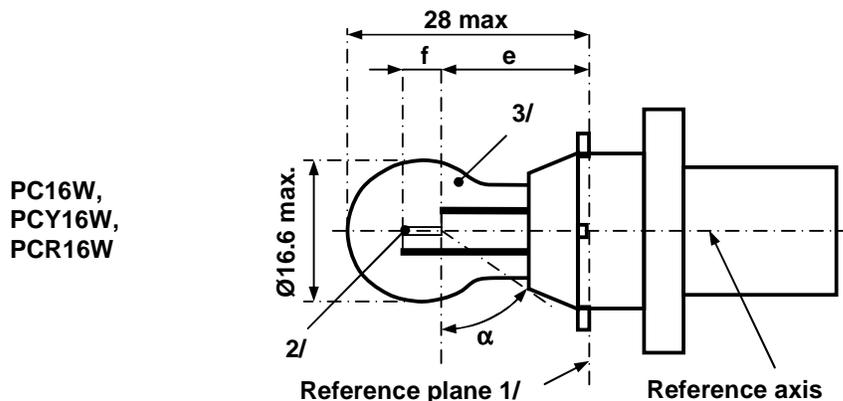
The filament position is checked in two mutually perpendicular planes, one of them being the plane through the lead-in wires.

The ends of the filament as defined on sheet P13W/2, note 4/, shall lie between Z1 and Z2 and between the lines Z3 and Z4.

The filament shall lie entirely within the limits shown.

**CATEGORIES PC16W, PCY16W, PCR16W, PW16W, PWY16W and PWR16W**

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



- 1/ The reference plane is defined by the meeting points of the cap-holder fit.
- 2/ No actual filament diameter restrictions apply but the objective is  $d_{max} = 1.1$  mm.
- 3/ The light emitted from normal production lamps shall be white for category PC16W and PW16W; amber for category PCY16W and PWY16W; red for category PCR16W and PWR16W. (see also note 7/).

**CATEGORIES PC16W, PCY16W, PCR16W, PW16W, PWY16W and PWR16W**

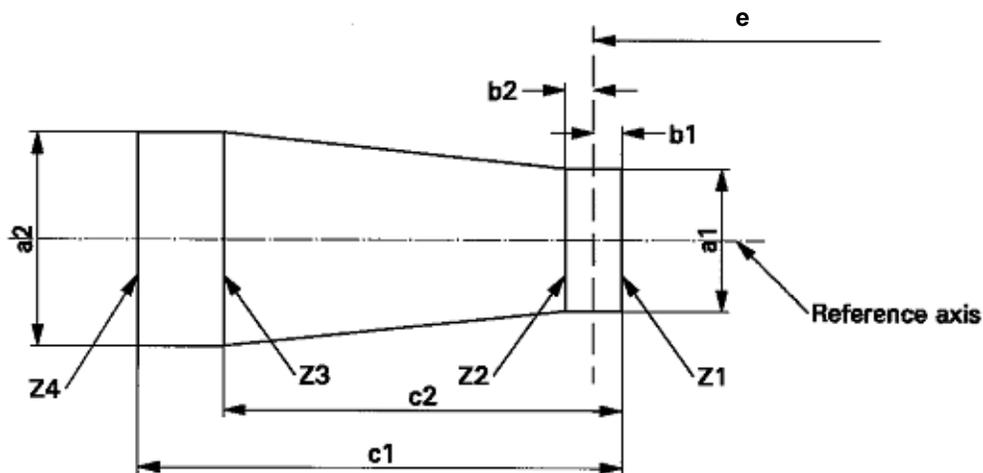
Dimensions in mm		Filament lamps of normal production			Standard filament lamp
		min.	nom.	max.	<u>7/</u>
e	PC16W PCY16W PCR16W		18.5		18.5
	PW16W PWY16W PWR16W		<b>17.1</b>		<b>17.1</b>
f		<u>4/ 5/</u>	4.0		4.0 ± 0.2
α		<u>6/</u>	54°		54° min.
PC16W	Cap PU20d-1	in accordance with IEC Publication 60061 (sheet 7004-157-1)			
PCY16W	Cap PU20d-2				
PCR16W	Cap PU20d-7				
PW16W	Cap WP3.3x14.5-8	in accordance with IEC Publication 60061 (sheet 7004-XXX-X)			
PWY16W	Cap WP3.3x14.5-9				
PWR16W	Cap WP3.3x14.5-10				
ELECTRICAL AND PHOTOMETRIC CHARACTERISTICS					
Rated values	Volts		12		12
	Watts		16		16
Test voltage	Volts		13.5		13.5
Objective values	Watts		17 max.		17 max.
	Luminous flux	PC16W <b>PW16W</b>	300 ± 15 %		
		PCY16W <b>PWY16W</b>	180 ± 20 %		
		PCR16W <b>PWR16W</b>	70 ± 20 %		
Reference luminous flux at approximately			13.5 V		White: 300 lm Amber: 180 lm Red: 70 lm

- 4/ The filament position is checked by means of a "Box-System"; sheet PC16W/3.
- 5/ The ends of the filament are defined as the points where, when the viewing direction is perpendicular to the plane through the filament lead-in wires as showed in the drawing on sheet PC16W/1, the projection of the outside of the end turns crosses the filament axis.
- 6/ No part of the cap beyond the reference plane shall interfere with angle α. The bulb shall be optically distortion free within the angle 2α + 180°.
- 7/ The light emitted from standard filament lamps shall be white for category PC16W **and PW16W**; white or amber for category PCY16W **and PWY16W**; white or red for category PCR16W **and PWR16W**.

**CATEGORIES PC16W, PCY16W, PCR16W, PW16W, PWY16W and PWR16W**

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.



<b>PC16W, PCY16W, PCR16W</b>	a1	a2	b1, b2	c1	c2
Filament lamps of normal production	2.9	3.9	0.5	5.2	3.8
Standard filament lamps	1.5	1.7	0.25	4.7	3.8

<b>PW16W, PWY16W and PWR16W</b>	a1	a2	b1, b2	c1	c2
<b>Filament lamps of normal production</b>	<b>2.5</b>	<b>2.5</b>	<b>0.4</b>	<b>5.2</b>	<b>3.8</b>
<b>Standard filament lamps</b>	<b>1.5</b>	<b>1.7</b>	<b>0.25</b>	<b>4.7</b>	<b>3.8</b>

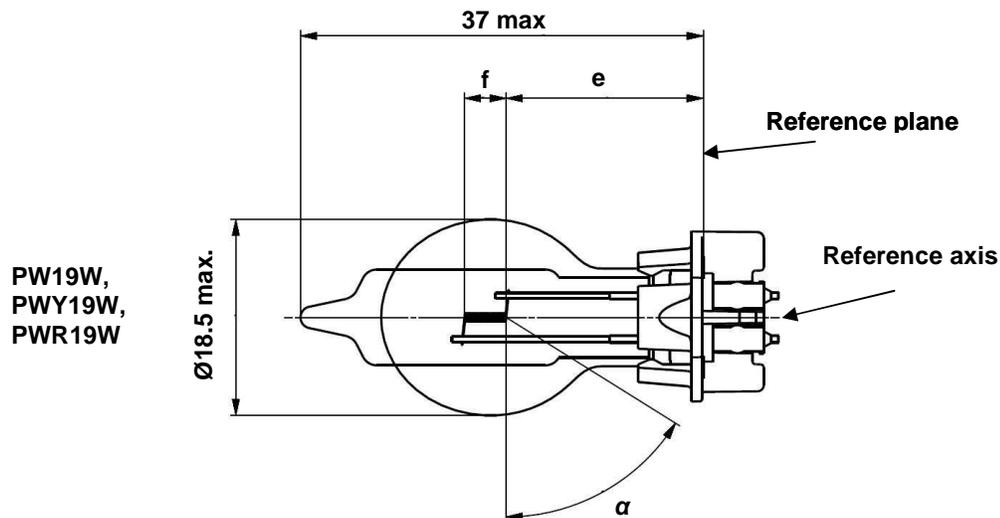
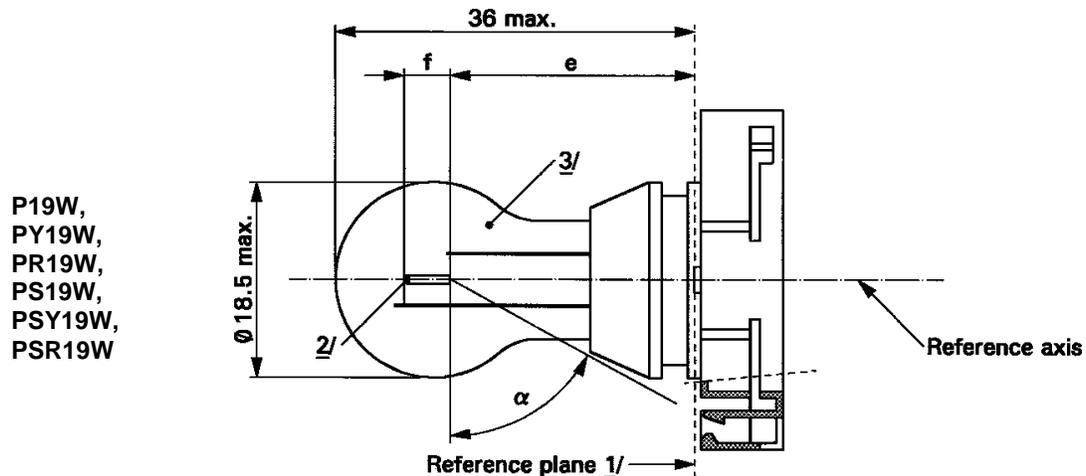
The filament position is checked in two mutually perpendicular planes, one of them being the plane through the lead-in wires.

The ends of the filament as defined on sheet PC16W/2, note 5/, shall lie between Z1 and Z2 and between the lines Z3 and Z4.

The filament shall lie entirely within the limits shown.

**CATEGORIES P19W, PY19W, PR19W, PS19W, PSY19W, PSR19W, PW19W, PWY19W and PWR19W**

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



- 1/ The reference plane is defined by the meeting points of the cap-holder fit.
- 2/ No actual filament diameter restrictions apply but the objective is  $d \text{ max.} = 1.1 \text{ mm}$ .
- 3/ The light emitted from normal production lamps shall be white for categories P19W, PS19W and **PW19W**; amber for categories PY19W, PSY19W and **PWY19W**; red for categories PR19W, PSR19W and **PWR19W**. (see also note 8/).

**CATEGORIES P19W, PY19W, PR19W, PS19W, PSY19W, PSR19W, PW19W, PWY19W and PWR19W**

Dimensions in mm		Filament lamps of normal production			Standard filament lamp	
		min.	nom.	max.	8/	
e	4/		24.0		24.0	
	5/ 6/		18.1		18.1	
f	5/ 6/		4.0		4.0 ± 0.2	
α	7/	58°			58° min.	
P19W	Cap PGU20-1	in accordance with IEC Publication 60061 (sheet 7004-127-2)				
PY19W	Cap PGU20-2					
PR19W	Cap PGU20-5					
PS19W	Cap PG20-1					
PSY19W	Cap PG20-2					
PSR19W	Cap PG20-5					
<b>PW19W</b>	<b>Cap WP3.3x14.5-1</b>	in accordance with IEC Publication 60061 (sheet 7004-xxx-x)				
<b>PWY19W</b>	<b>Cap WP3.3x14.5-2</b>					
<b>PWR19W</b>	<b>Cap WP3.3x14.5-5</b>					
ELECTRICAL AND PHOTOMETRIC CHARACTERISTICS						
Rated values	Volts	12			12	
	Watts	19			19	
Test voltage	Volts	13.5			13.5	
Objective values	Watts	20 max.			20 max.	
	Luminous flux	P19W PS19W <b>PW19W</b>	350 ± 15 %			
		PY19W PSY19W <b>PWY19W</b>	215 ± 20 %			
		PR19W PSR19W <b>PWR19W</b>	80 ± 20 %			
Reference luminous flux at approximately 13.5 V					White: 350 lm Amber: 215 lm Red: 80 lm	

4/ For categories PS19W, PSY19W and PSR19W, dimensions shall be checked with O-ring removed.

5/ The filament position is checked by means of a "Box-System"; sheet P19W/3.

6/ The ends of the filament are defined as the points where, when the viewing direction is perpendicular to the plane through the filament lead-in wires as showed in the drawing on sheet P19W/1, the projection of the outside of the end turns crosses the filament axis.

7/ No part of the cap beyond the reference plane shall interfere with angle α. The bulb shall be optically distortion free within the angle 2α + 180°.

8/ The light emitted from standard filament lamps shall be white for categories P19W, PS19W and **PW19W**; white or amber for categories PY19W, PSY19W and **PWY19W**; white or red for categories PR19W, PSR19W and **PWR19W**.

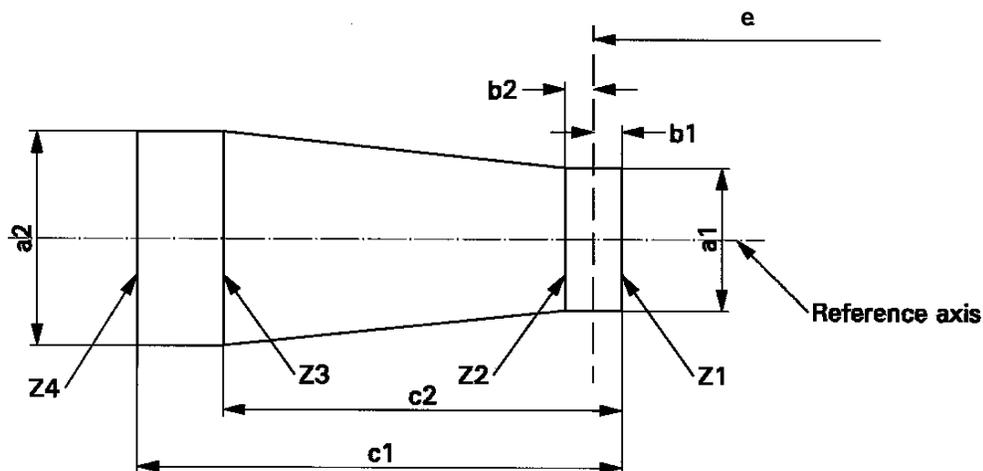
**Sheet P19W/3**

**CATEGORIES P19W, PY19W, PR19W, PS19W, PSY19W, PSR19W, PW19W, PWY19W and PWR19W**

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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.



<b>P19W, PY19W, PR19W, PS19W, PSY19W, PSR19W</b>	<b>a1</b>	<b>a2</b>	<b>b1, b2</b>	<b>c1</b>	<b>c2</b>
Filament lamps of normal production	2.9	3.9	0.5	5.2	3.8
Standard filament lamps	1.5	1.7	0.25	4.7	3.8

<b>PW19W, PWY19W and PWR19W</b>	<b>a1</b>	<b>a2</b>	<b>b1, b2</b>	<b>c1</b>	<b>c2</b>
<b>Filament lamps of normal production</b>	<b>2.5</b>	<b>2.5</b>	<b>0.4</b>	<b>5.2</b>	<b>3.8</b>
<b>Standard filament lamps</b>	<b>1.5</b>	<b>1.7</b>	<b>0.25</b>	<b>4.7</b>	<b>3.8</b>

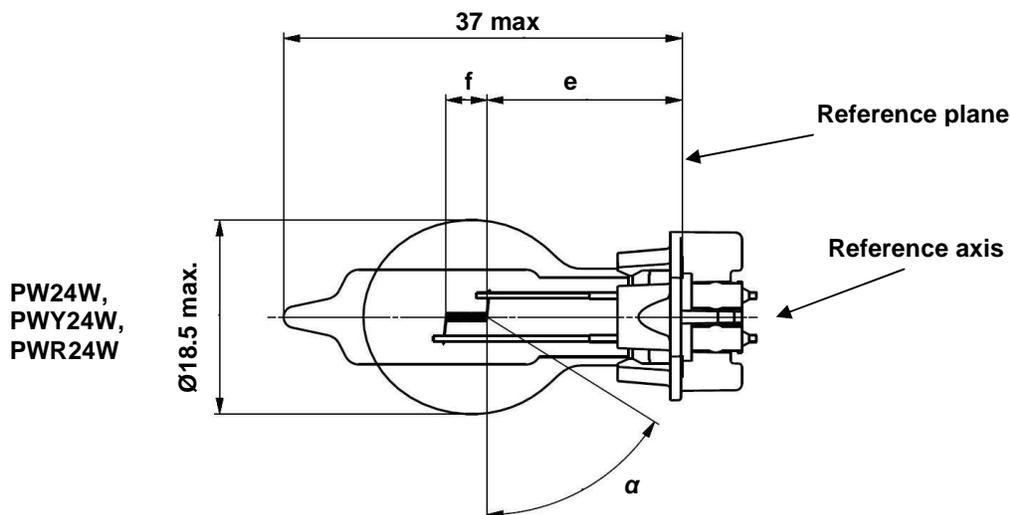
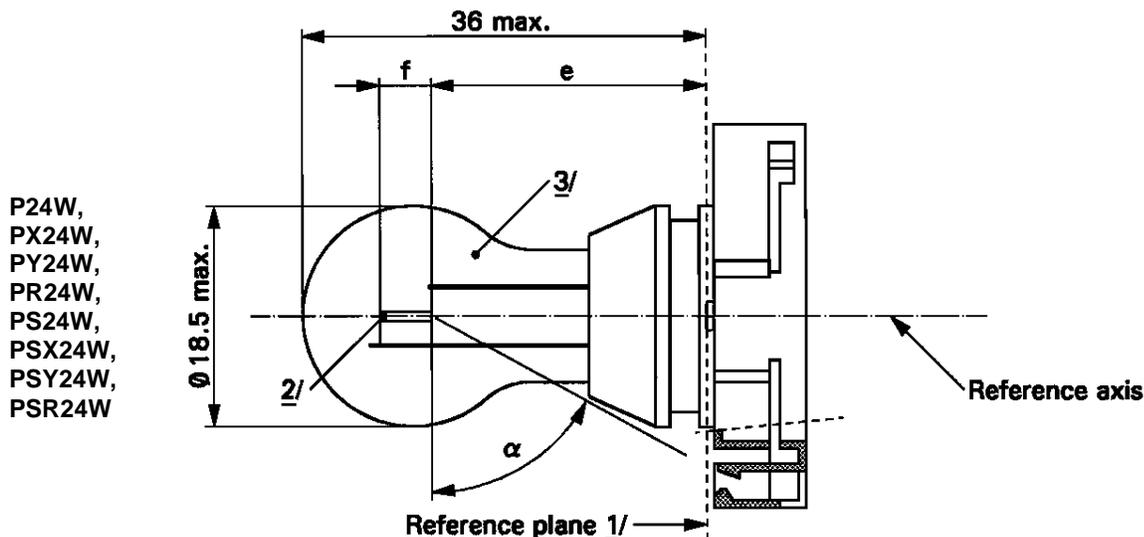
The filament position is checked in two mutually perpendicular planes, one of them being the plane through the lead-in wires.

The ends of the filament as defined on sheet P19W/2, note 6/, shall lie between  $Z_1$  and  $Z_2$  and between the lines  $Z_3$  and  $Z_4$ .

The filament shall lie entirely within the limits shown.

**CATEGORIES P24W, PX24W, PY24W, PR24W, PS24W, PSX24W, PSY24W, PSR24W, PW24W, PWY24W and PWR24W**

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



- 1/ The reference plane is defined by the meeting points of the cap-holder fit.
- 2/ No actual filament diameter restrictions apply but the objective is  $d_{max.} = 1.1 \text{ mm}$ .
- 3/ The light emitted from normal production lamps shall be white for categories P24W, PX24W, PS24W, PSX24W **and PW24W**; amber for categories PY24W, PSY24W **and PWY24W**; red for categories PR24W, PSR24W **and PWR24W**. (See also note 8/)

## Sheet P24W/2

**CATEGORIES P24W, PX24W, PY24W, PR24W, PS24W, PSX24W, PSY24W, PSR24W, PW24W, PWY24W and PWR24W**

Dimensions in mm		4/	Filament lamps of normal production			Standard filament lamp
			min.	nom.	max.	8/
e	5/ 6/	<b>P24W, PY24W, PR24W, PS24W, PSY24W, PSR24W, PX24W, PSX24W</b>		24.0		24.0
			<b>PW24W, PWY24W, PWR24W</b>		<b>18.1</b>	
f	5/,6/	<b>P24W, PY24W, PR24W, PS24W, PSY24W, PSR24W, PW24W, PWY24W, PWR24W</b>		4.0		4.0
			<b>PX24W, PSX24W</b>		4.2	
$\alpha$		7/	58.0 °			58.0° min.
P24W	Cap PGU20-3	in accordance with IEC Publication 60061 (sheet 7004-127-2)				
PX24W	Cap PGU20-7					
PY24W	Cap PGU20-4					
PR24W	Cap PGU20-6					
PS24W	Cap PG20-3					
PSX24W	Cap PG20-7					
PSY24W	Cap PG20-4					
PSR24W	Cap PG20-6					
<b>PW24W</b>	<b>Cap WP3.3x14.5-3</b>	in accordance with IEC Publication 60061 (sheet 7004-XXX-X)				
<b>PWY24W</b>	<b>Cap WP3.3x14.5-4</b>					
<b>PWR24W</b>	<b>Cap WP3.3x14.5-6</b>					
<b>ELECTRICAL AND PHOTOMETRIC CHARACTERISTICS</b>						
Rated values	Volts	12			12	
	Watts	24			24	
Test voltage	Volts	13.5			13.5	
Objective values	Watts	25 max.			25 max.	
	Luminous Flux	P24W PS24W <b>PW24W</b>	500 +10/-20 %			
		PX24W PSX24W	500 +10/-15 %			
		PY24W PSY24W <b>PWY24W</b>	300 +15/-25 %			
		PR24W PSR24W <b>PWR24W</b>	115 +15/-25 %			
Reference luminous flux at approximately				12 V	White: 345 lm	
				13.2 V	White: 465 lm	
				13.5 V	White: 500 lm Amber: 300 lm Red: 115 lm	

4/ For categories PS24W, PSX24W, PSY24W and PSR24W, dimensions shall be checked with O-ring removed.

5/ The filament position is checked by means of a "box-system"; sheet P24W/3.

6/ The ends of the filament are defined as the points where, when the viewing direction is perpendicular to the plane through the filament lead-in wires as showed in the drawing on sheet P24W/1, the projection of the outside of the end turns crosses the filament axis.

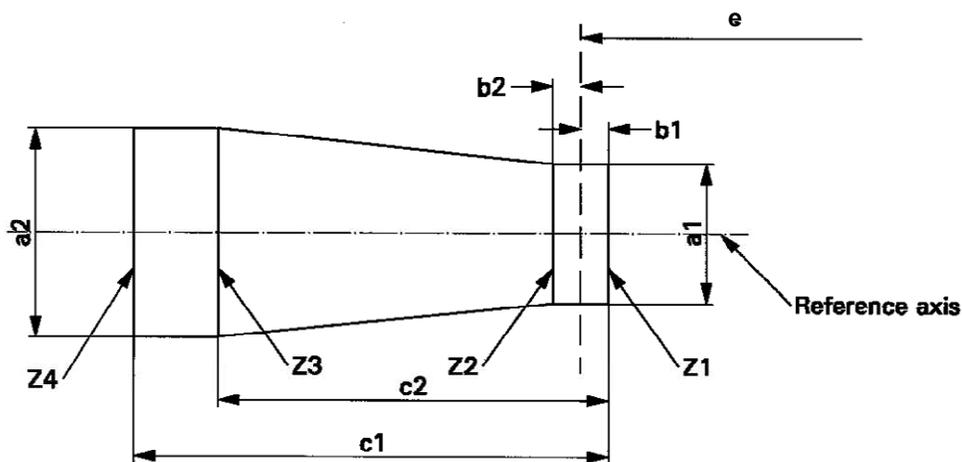
7/ No part of the cap beyond the reference plane shall interfere with angle  $\alpha$ . The bulb shall be optically distortion free within the angle  $2\alpha + 180^\circ$ .

8/ The light emitted from standard filament lamps shall be white for categories P24W, PX24W, PS24W, PSX24W and **PW24W**; white or amber for categories PY24W, PSY24W and **PWY24W**; white or red for categories PR24W, PSR24W and **PWR24W**.

**CATEGORIES P24W, PX24W, PY24W, PR24W, PS24W, PSX24W, PSY24W, PSR24W, PW24W, PWY24W and PWR24W**

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.



P24W, PY24W, PR24W, PS24W, PSY24W, PSR24W	a1	a2	b1, b2	c1	c2
Filament lamps of normal production	2.9	3.9	0.5	5.2	3.8
Standard filament lamps	1.5	1.7	0.25	4.7	3.8

<b>PW24W, PWY24W, PWR24W</b>	<b>a1</b>	<b>a2</b>	<b>b1, b2</b>	<b>c1</b>	<b>c2</b>
<b>Filament lamps of normal production</b>	<b>2.5</b>	<b>2.5</b>	<b>0.4</b>	<b>5.0</b>	<b>3.8</b>
<b>Standard filament lamps</b>	<b>1.5</b>	<b>1.7</b>	<b>0.25</b>	<b>4.7</b>	<b>3.8</b>

PX24W, PSX24W	a1	a2	b1, b2	c1	c2
Filament lamps of normal production	1.9	1.9	0.35	5.0	4.0
Standard filament lamps	1.5	1.5	0.25	4.7	4.0

The filament position is checked in two mutually perpendicular planes, one of them being the plane through the lead-in wires.

The ends of the filament as defined on sheet P24W/2, note 6/, shall lie between Z1 and Z2 and between the lines Z3 and Z4.

The filament shall lie entirely within the limits shown.

## B. JUSTIFICATION

Carmakers and set makers expressed the need for:

- (a) A simpler connectivity / mounting solution of the existing categories for light signalling of P13W and families Pxx16W, Pxx19W and Pxx24W;
- (b) Other interfaces than those specified so far by Regulation No. 37;
- (c) A simpler and more flexible cap/interface to enable carmaker/setmakers in-house connector standards.
- (d) Accurate signalling light sources.

This proposal is to satisfy those needs.

These are all versions based on existing light source categories but with another (plastic wedge base) cap that is being standardized by IEC. As the cap will be mainly used with an adapter, the tolerances have been tightened to compensate for tolerances in the adapter.

