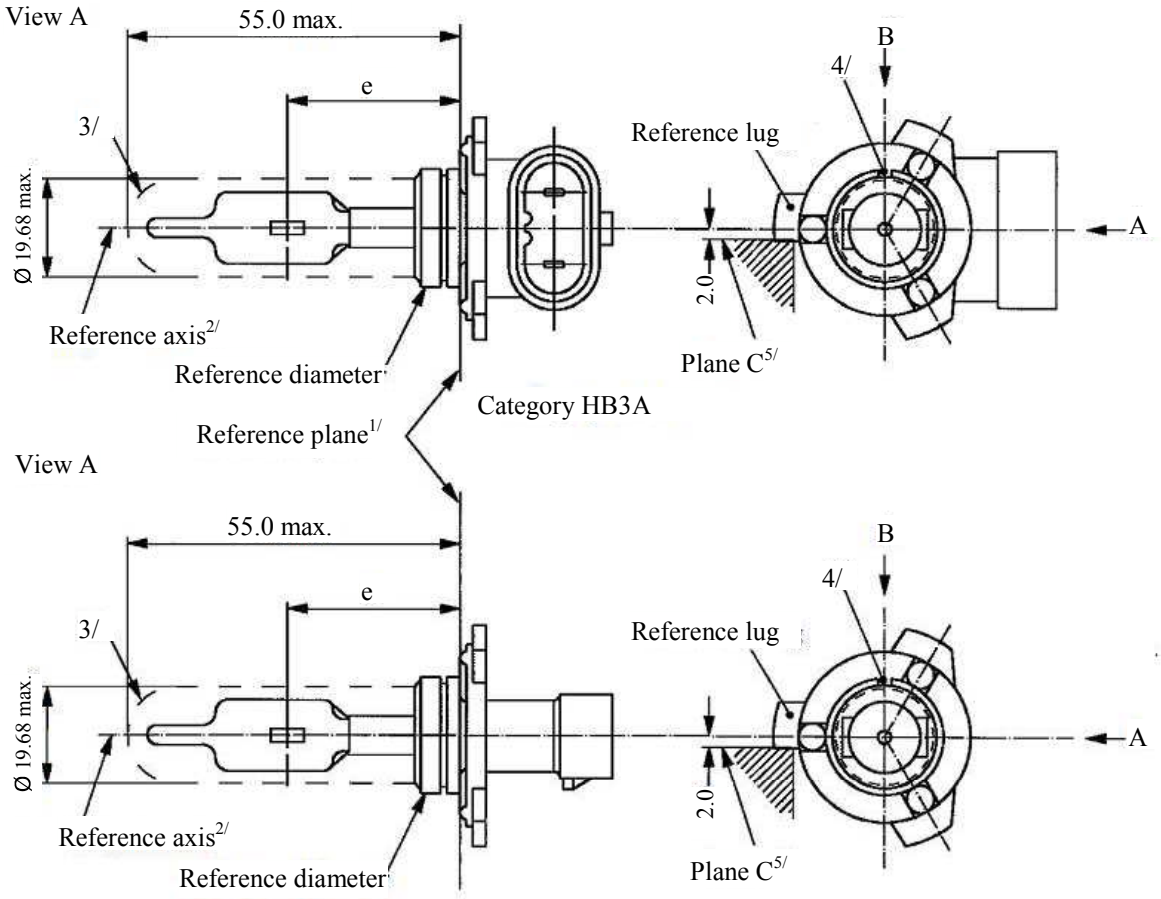
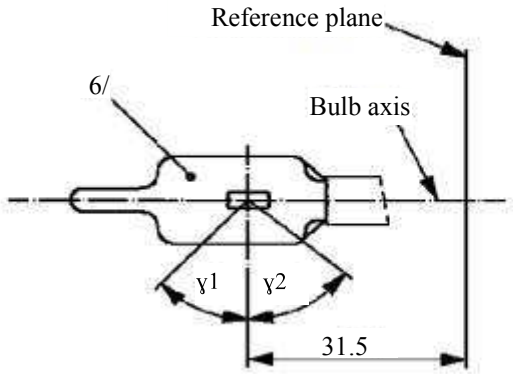
**Categories HB3 and HB3A** **Sheet HB3/1**

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

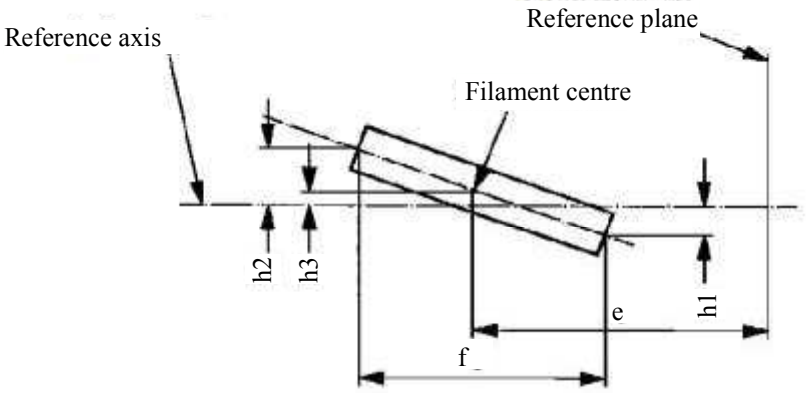
Category HB3




1/ The reference plane is the plane defined by the meeting points of cap-holder fit.
2/ The reference axis is perpendicular to the reference plane and concentric with the reference diameter of the cap.
3/ Glass bulb and supports shall not exceed the envelope and shall not interfere with insertion past the lamp key.
4/ The keyway is mandatory for category HB3A and optional for category HB3.
5/ The filament lamp shall be rotated in the measuring holder until the reference lug contacts plane C of the holder.




Distorsion free area[7/]




Filament position and dimensions

6/ The colour of the light emitted shall be white or selective-yellow.

7/ Glass bulb periphery shall be optically distortion-free axially within the angles γ1 and γ2. This requirement applies to the whole bulb circumference within the angles γ1 and γ2.

**Categories HB3 and HB3A** **Sheet HB3/3**

| *Dimensions in mm* [12/] | | *Tolerance* | |
|---|---|---|---|
| | | *Filament lamps of normal production* | *Standard filament lamp* |
| e [9/, 11/] | 31.5 | [10/] | ±0.16 |
| f [9/, 11/] | 5.1 | [10/] | ±0.16 |
| h1, h2 | 0 | [10/] | ±0.15 [8/] |
| h3 | 0 | [10/] | ±0.08 [8/] |
| γ1 | 45° min. | - | - |
| γ2 | 52° min. | - | - |
| Cap P20d in accordance with IEC Publication 60061 (sheet 7004-31-2) [13/] | | | |
| Electrical and photometric characteristics | | | |
| Rated values | Volts | 12 | 12 |
| | Watts | 60 | 60 |
| Test voltage | Volts | 13.2 | 13.2 |
| Objective values | Watts | 73 max. | 73 max. |
| | Luminous flux | 1,860 ± 12 % | |
| Reference luminous flux at approximately | | 12 V | 1,300 |
| | | 13.2 V | 1,860 |

[8/] The eccentricity is measured only in viewing directions* A and B as shown in the figure on sheet HB3/1. 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.

[9/] The viewing direction is direction* B as shown in the figure on sheet HB3/1.

[10/] To be checked by means of a "Box system"; sheet HB3/4*.

[11/] The ends of the filament are defined as the points where, when the viewing direction* as defined in footnote 9/ above, the projection of the outside of the end turns crosses the filament axis.

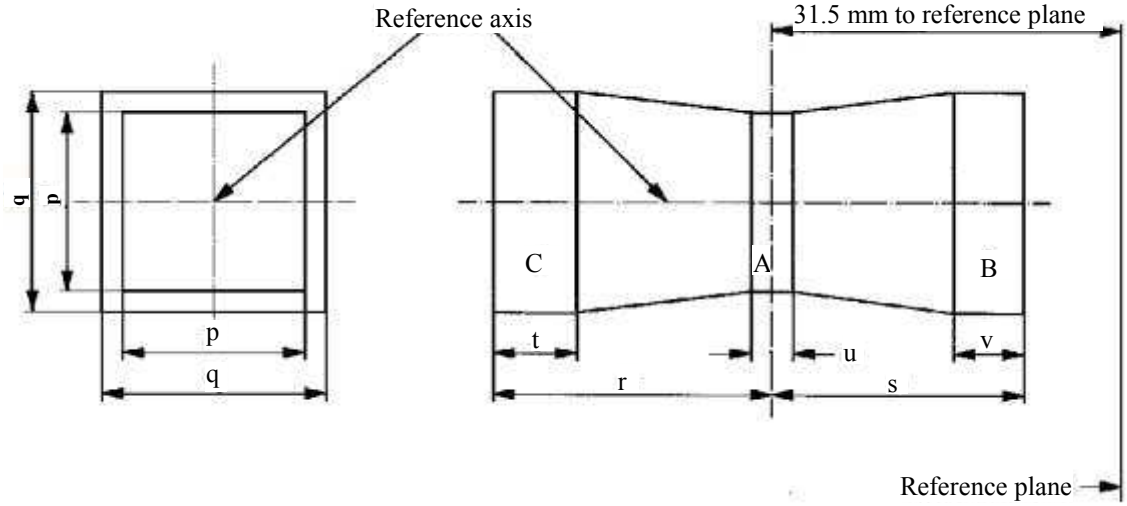
[12/] Dimensions shall be checked with O-ring removed.

[13/] Filament lamp HB3 shall be equipped with the right-angle cap and filament lamp HB3A with the straight cap.

* Manufacturers may choose another set of perpendicular viewing directions. The viewing directions specified by the manufacturer are to be used by the testing laboratory when checking filament dimensions and position.

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* | *r* | *s* | *t* | *u* | *v* |
|---|---|---|---|---|---|---|---|
| 12 V | 1.3 d | 1.6 d | 3.0 | 2.9 | 0.9 | 0.4 | 0.7 |

d = diameter of filament

The filament position is checked solely in directions A and B as shown on sheet HB3/1.

The filament shall lie entirely within the limits shown.

The beginning of the filament, as defined on sheet HB3/3, footnote 11/, shall lie in volume "B" and the end of the filament in volume "C".

Volume "A" does not involve any filament centre requirement.