

TC 22

INTERNATIONAL STANDARD



4148

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

● **Road vehicles — Special warning lights — Dimensions**

Véhicules routiers — Feux spéciaux d'alarme — Dimensions

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 4148 was developed by Technical Committee ISO/TC 22, *Road vehicles*, and was circulated to the member bodies in June 1978.

It has been approved by the member bodies of the following countries :

| | | |
|-----------|------------------------|----------------|
| Australia | Korea, Dem. P. Rep. of | Sweden |
| Austria | Korea, Rep. of | Switzerland |
| Belgium | Netherlands | Turkey |
| Bulgaria | New Zealand | United Kingdom |
| France | Poland | U.S.S.R. |
| Iran | Romania | Yugoslavia |
| Italy | South Africa, Rep. of | |
| Japan | Spain | |

The member bodies of the following countries expressed disapproval of the document on technical grounds :

Brazil
Czechoslovakia

Road vehicles — Special warning lights — Dimensions

1 SCOPE

This International Standard specifies the dimensions of special warning lights to ensure interchangeability and accurate positioning, bearing in mind the rapid change of light intensity from such devices in a vertical cross-section of the projected beam.

2 FIELD OF APPLICATION

This International Standard applies to special warning lights intended for use on road vehicles.

3 TYPES OF SPECIAL WARNING LIGHTS

This International Standard defines four types of special warning lights :

Type A : Tube mounted (see figures 1 to 3)

Type B : Flat base mounted (see figure 4)

Type C : Single stem mounted (see figure 5).

Type D : Magnetic (see figure 6)

4 INTERMEDIATE QUICK-RELEASE DEVICES

An intermediate quick-release device may be used if it accepts warning lights of types A, B or C, and yields the desired accuracy.

5 MOUNTING SPECIFICATIONS

5.1 Interchangeability

The warning lights shall comply with the requirements of figures 1 to 6, as appropriate.

5.2 Mounting accuracy

When mounted appropriately, each device shall be within 1° of the specified position. In the case of intermediate quick-release devices, the mounting shall be made on a fixture representing the fixing zone for which it is intended. To check mounting accuracy, the device shall be mounted five times on an appropriate test fixture, and its attitude determined. In no case shall the inclination vary by more than 1° from the mounting plane for types B, C and D, or from a plane perpendicular to the mounting for type A.

5.3 Geometric visibility

The centre of the luminous source shall be visible :

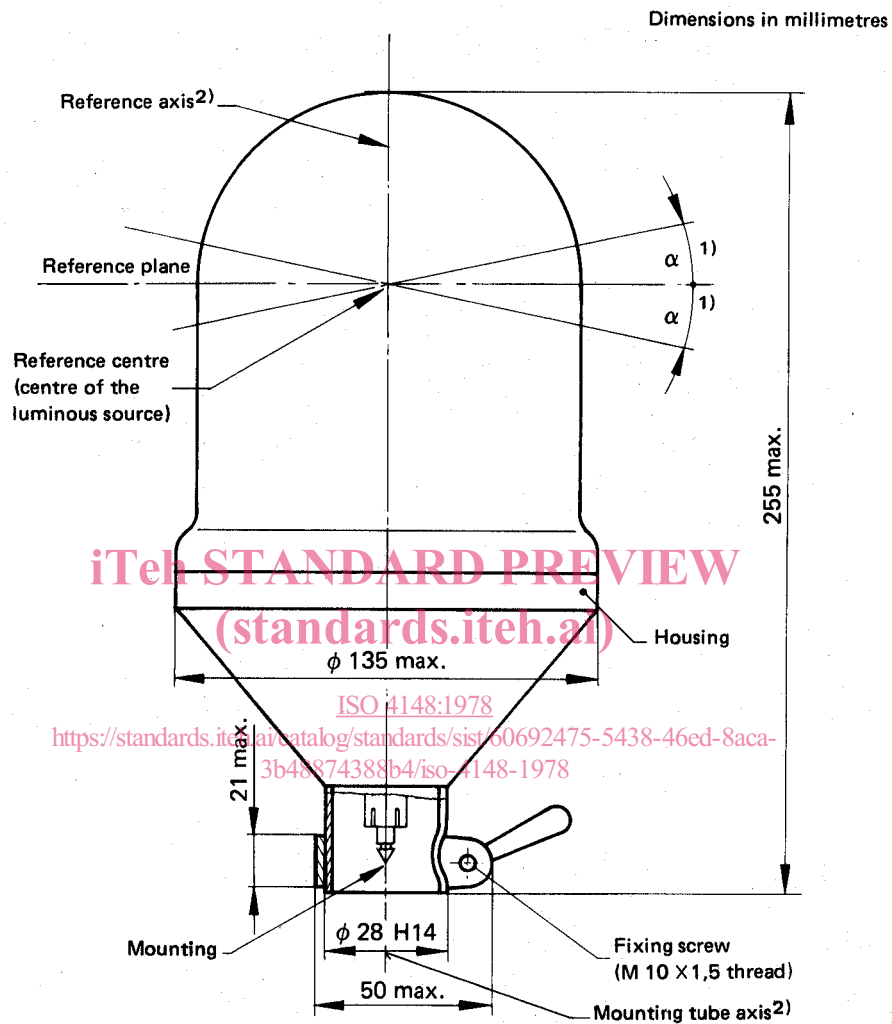
- a) at all *horizontal angles*;
- b) at the following *vertical angles* :
 - 1) for blue lights :
 - from 4° above to 4° below the horizontal plane passing through the centre of the source;
 - 2) for amber lights :
 - from 8° above to 8° below the horizontal plane passing through the centre of the source;

This requirement can be met by fitting more than one lamp. In addition the reference centre (the centre of the luminous source) of at least one of the devices fitted shall be visible at a distance of at least 20 m from the vehicle from the same height as the lamp down to the ground.

6 IDENTIFICATION

Identification shall include the following :

- a) the manufacturer's name, the model number and the type of device;
- b) the colour and any special conditions (for example insulated return, ADR. . .).



- 1) Angle within which intensities are specified. For blue special warning lights, this angle is 4° , for amber special warning lights 8° .
- 2) When mounted on the vehicle, the reference axis shall be :
 - perpendicular to the surface on which the vehicle is standing (vehicle unladen);
 - parallel to the mounting tube axis.

FIGURE 1 — Tube mounted special warning light (type A)

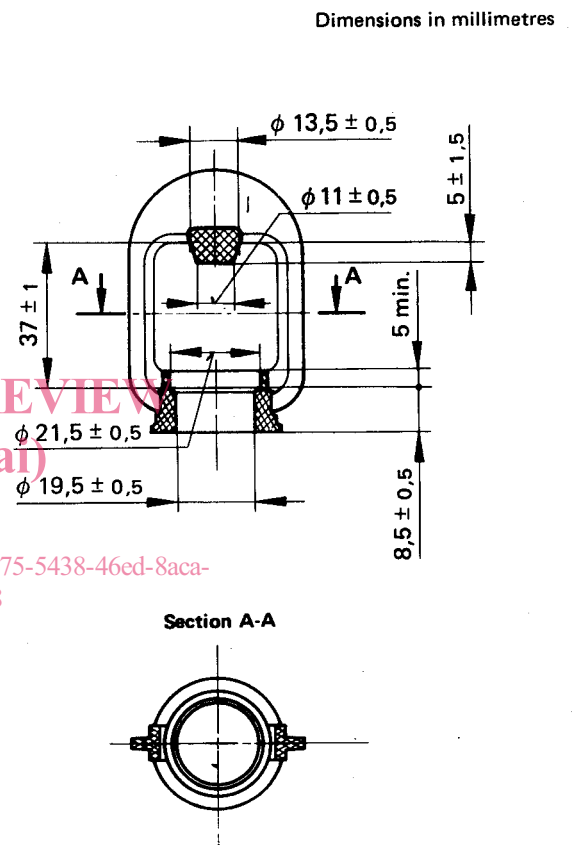
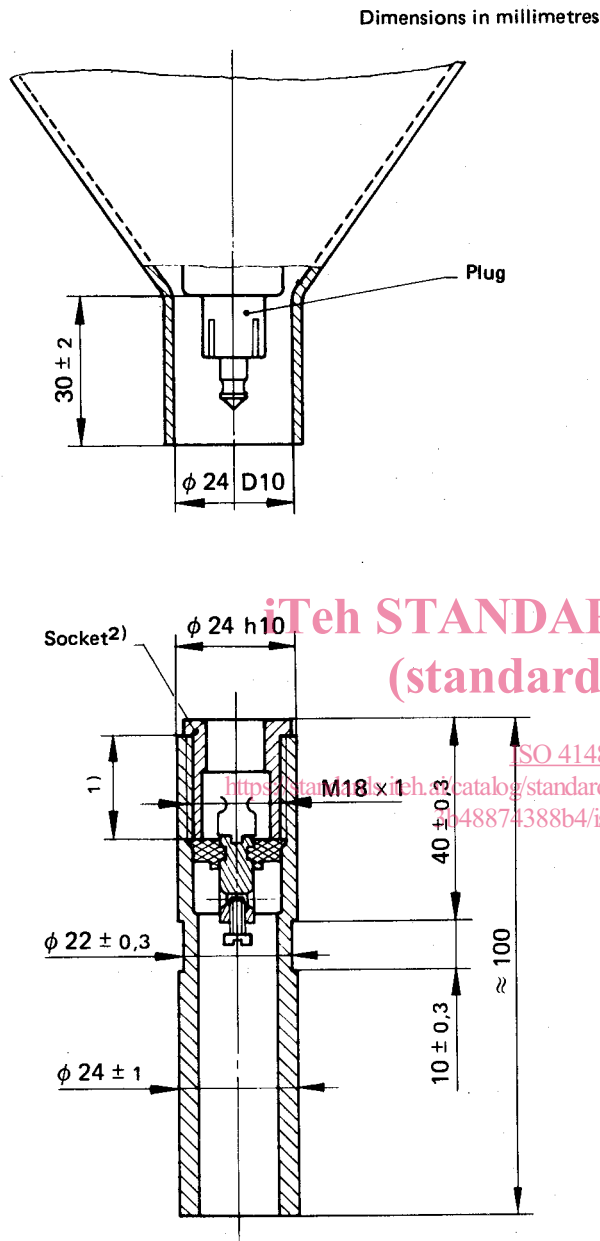
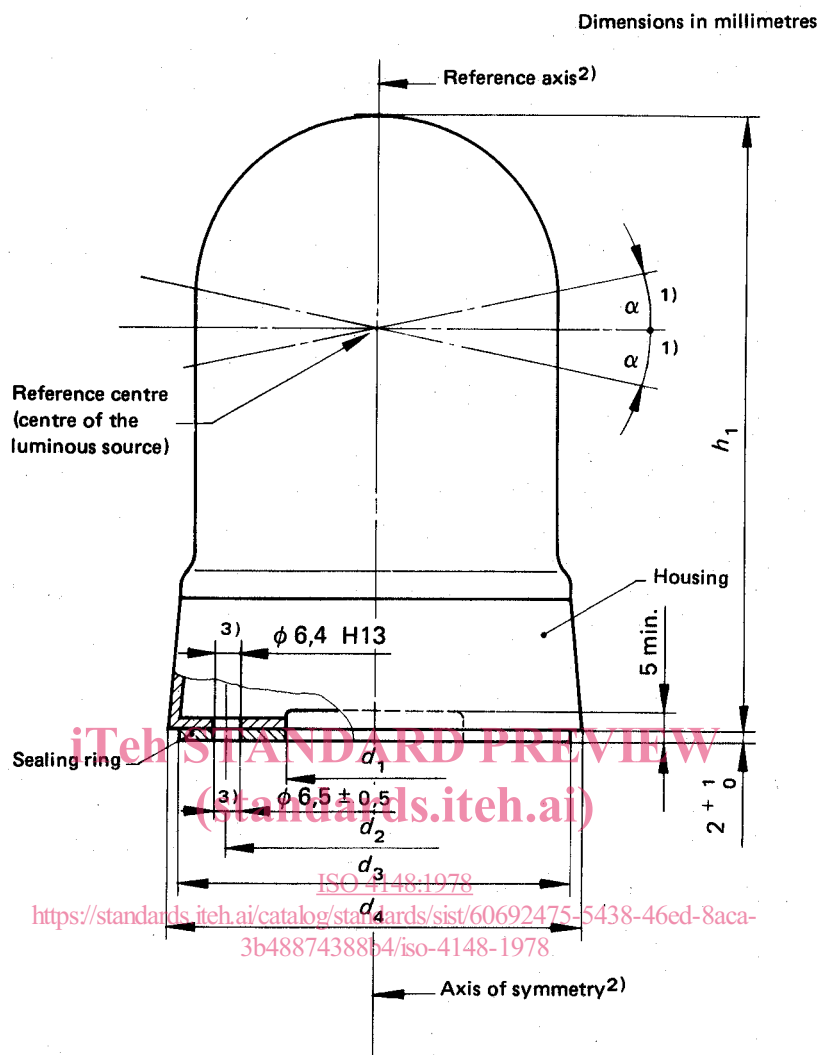


FIGURE 3 – Rubber cover for use when the special warning light type A is not mounted

- 1) Internal thread reach 18 mm min.
- 2) Rubber cover to be used when the special warning light is not mounted (see figure 3).

NOTE – An International Standard for other dimensions of the connector is in preparation.

FIGURE 2 – Tube mounted special warning light (type A) – Plug and socket dimensions



- 1) Angle within which luminous intensities are specified. For blue special warning lights, this angle is 4°, for amber special warning lights 8°.
- 2) When mounted on the vehicle, the reference axis shall be :
 - perpendicular to the surface on which the vehicle is standing (vehicle unladen);
 - parallel to the axis of symmetry.
- 3) Three holes, mutual displacement 120°.

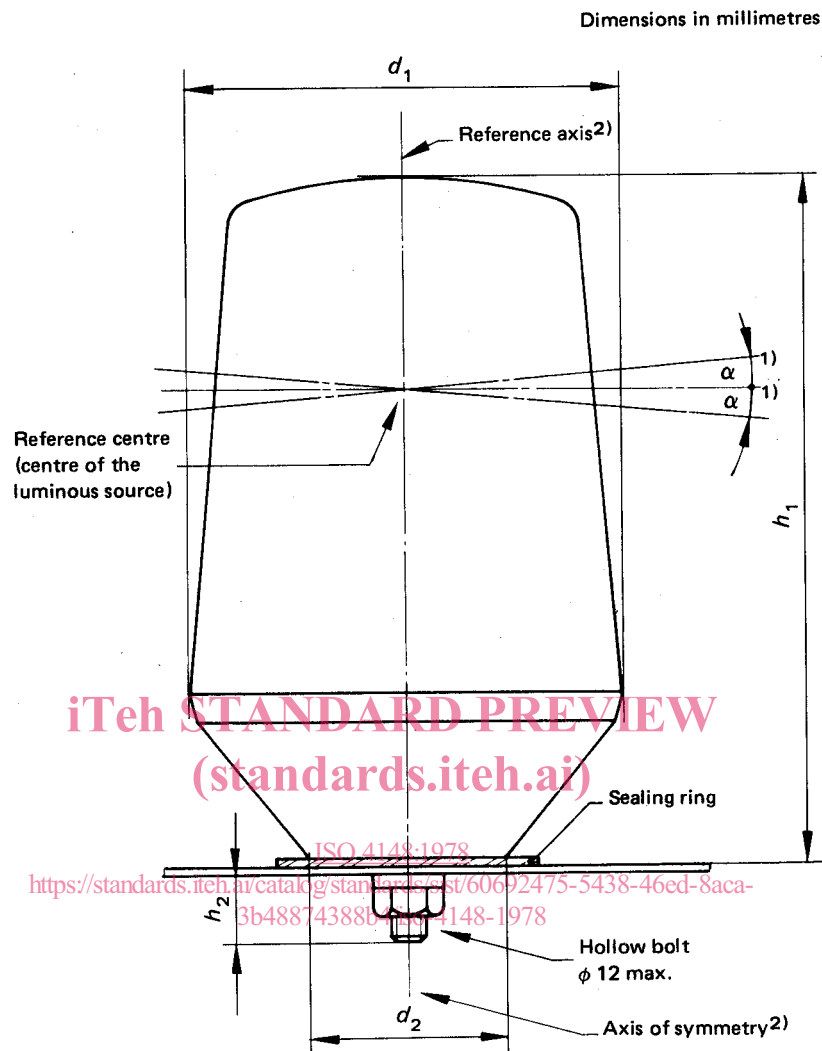
NOTE – Dimension d_1 , in relation to the body, defines a free space at least 5 mm high.

Dimension d_3 , the thickness $2 \begin{smallmatrix} + \\ 0 \end{smallmatrix} 1$ and the hole diameter $6,5 \pm 0,5$ are only applicable to separate sealing rings and are not applied when considering designs with sealing means integral with the body.

| Size | d_1 min. | d_2^* | d_3 min. | d_4 max. | h_1 max. |
|------|---------------|---------|---------------|---------------|---------------|
| 1 | 108 | 130 | 145 | 190 | 235 |
| 2 | 170 | 200 | 220 | 240 | 255 |

* Tolerance for the housing $\pm 0,3$; for a separate sealing ring ± 1 .

FIGURE 4 – Flat base mounted special warning light (type B)



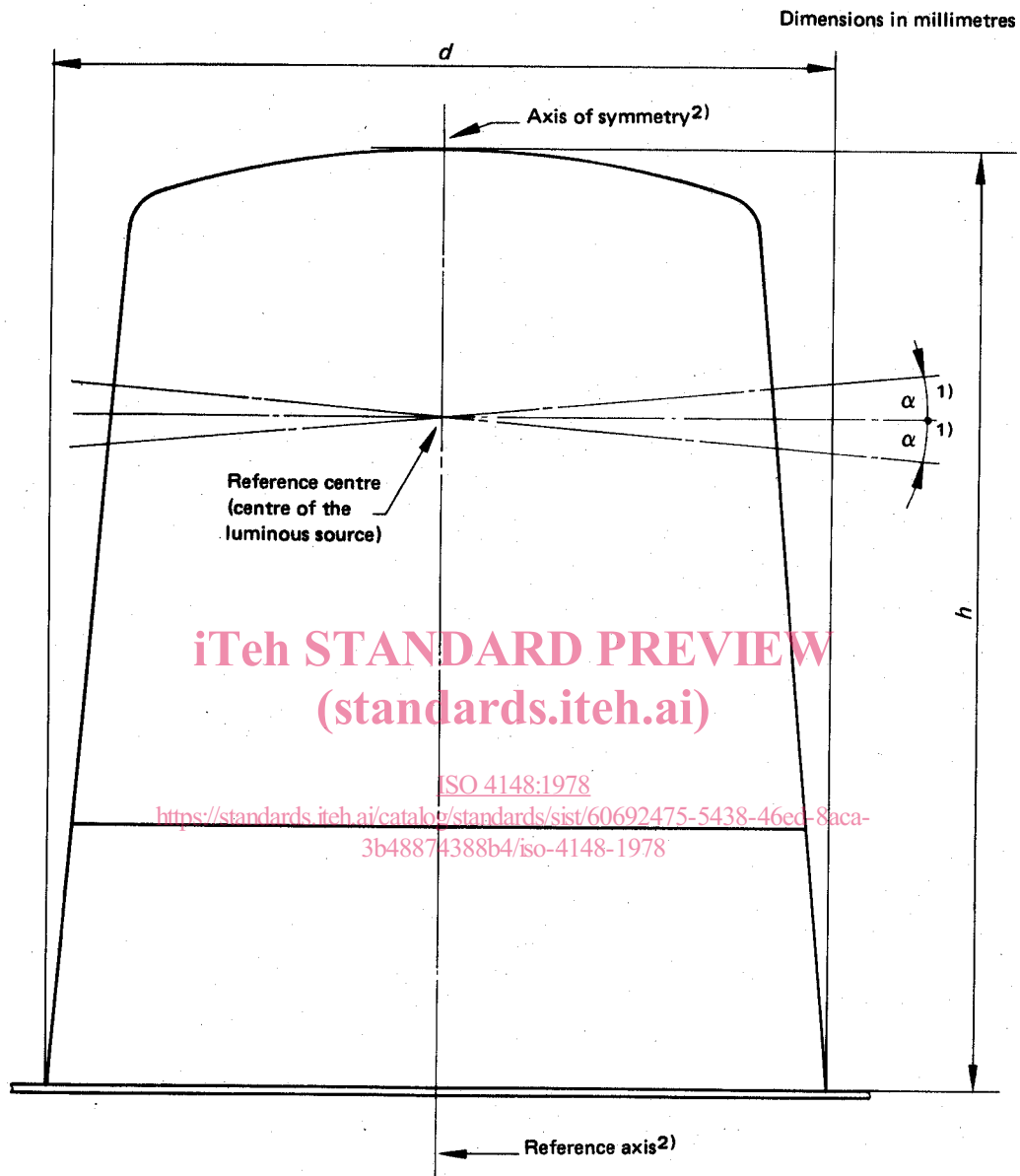
- 1) Angle within which luminous intensities are specified. For blue special warning lights, this angle is 4° , for amber special warning lights 8° .
- 2) When mounted on the vehicle, the reference axis shall be :
 - perpendicular to the surface on which the vehicle is standing (vehicle unladen);
 - parallel to the axis of symmetry.

NOTE – Dimension d_2 , the maximum diameter of the seating surface, will be the outer diameter of the sealing ring or the flat base of the device, whichever is the smaller.

Dimension h_2 applies with the device mounted in a 1 mm thick flat plate.

| d_1 | d_2 | h_1 | h_2 |
|----------|--------------------|----------|--------------------|
| 135 max. | 60 max. 50 min. | 200 max. | 23 max. 17 min. |

FIGURE 5 – Single stem mounted special warning light (type C)



- 1) Angle within which luminous intensities are specified. For blue special warning lights this angle is 4° , for amber special warning lights 8° .
- 2) When mounted on the vehicle, the reference axis shall be :
 - perpendicular to the surface on which the vehicle is standing (vehicle unladen);
 - parallel to the axis of symmetry.

| | |
|-----|----------|
| h | 235 max. |
| d | 190 max. |

FIGURE 6 — Magnetic special warning light (type D)