IEC 60598-2-8

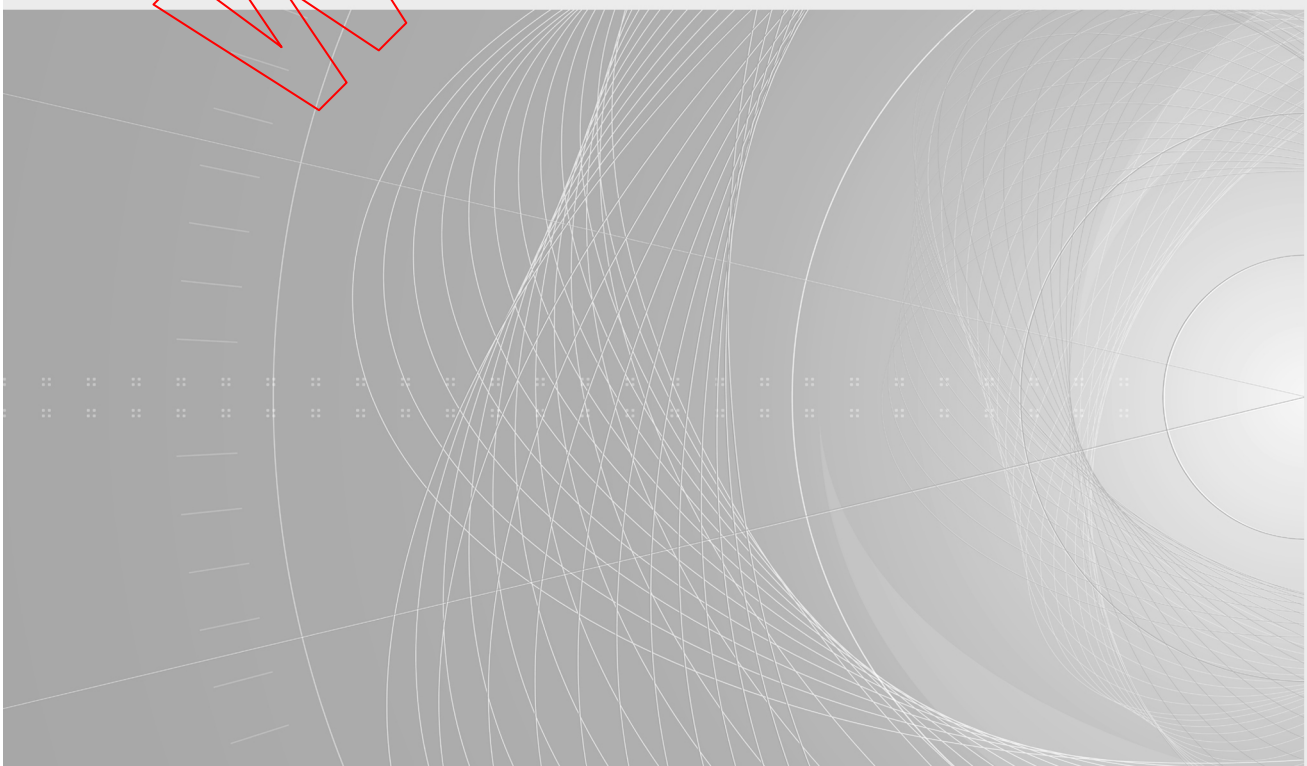
Edition 2.2 2007-07

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Luminaires –
Part 2-8: Particular requirements – Handlamps

Luminaires –
Partie 2-8: Règles particulières – Baladeuses



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International Standard IEC 60598-2-8 has been prepared by subcommittee 34D: Luminaires, of IEC technical committee 34: Lamps and related equipment.

This consolidated version of IEC 60598-2-8 consists of the second edition (1996) [documents 34D/397/FDIS and 34D/427/RVD], its amendment 1 (2000) [documents 34D/472/FDIS and 34D/482/RVD] and its amendment 2 (2007) [documents 34D/875/FDIS and 34D/877/RVD].

The technical content is therefore identical to the base edition and its amendment(s) and has been prepared for user convenience.

It bears the edition number 2.2.

A vertical line in the margin shows where the base publication has been modified by amendments 1 and 2.

The committee has decided that the contents of the base publication and its amendments will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

LUMINAIRES –

Part 2-8: Particular requirements – Handlamps

8.1 Scope

This Part 2-8 of IEC 60598 specifies requirements for handlamps and similar portable luminaires which are held in the hand, hooked up or resting on a surface for use with electric light sources on supply voltages not exceeding 250 V. It is to be read in conjunction with those sections of Part 1 to which reference is made.

Handlamps which can be fixed to a support by means of a wing screw, clip or magnet, and luminaires intended for inspection of the interior of barrels, are within the scope of this section.

8.2 General test requirements

8.2.1 The provisions of section 0 of IEC 60598-1 apply together with the requirements of 8.2.2. The tests described in each appropriate section of Part 1 shall be carried out in the order listed in this Part 2-8.

8.2.2 The requirements of the third paragraph of 0.4.2 of section 0 of IEC 60598-1 do not apply.

In general, four samples are necessary for the tests, three of which are subjected to the tests of 8.6.6, the fourth sample being subjected to the other tests.

All four samples shall be subjected as well to the test for rough service luminaires of 4.13.4 b) of Part 1.

For handlamps provided with a rubber protection cover, an additional sample is necessary for the test of 8.12.1.

Where a range of similar handlamps is involved, the specified tests are made on a representative complete set from the range. This set shall include handlamps, together with any attachments, which represents the most unfavourable combination.

8.3 Definitions

The definitions of Section 1 of IEC 60598-1 apply, together with the following definitions:

1) *Handlamp*

   A luminaire with a handle and a flexible cable or cord, intended to be moved frequently while connected to the supply.

2) *Rewirable handlamp*

   A handlamp with a type X or Y attachment.

3) *Non-rewirable handlamp*

   A handlamp with a type Z attachment

4) *Sealed handlamp*

A handlamp of which all protective covers are sealed and which makes it impossible to replace the lamp without destroying the handlamp.

8.4 Classification of luminaires

Luminaires shall be classified in accordance with the provisions of Section 2 of IEC 60598-1 together with the requirements of 8.4.1. 8.4.2 and 8.4.3.

8.4.1 According to the type of protection against electric shock, handlamps shall be classified as class II or class III.

8.4.2 According to the method of connecting the cable or cord, handlamps shall be classified as:

"rewirable handlamps", or

"non-rewirable handlamps".

8.4.3 According to the circumstances of use, handlamps shall be classified as rough service luminaires.

8.5 Marking

The provisions of Section 3 of IEC 60589-1 apply, together with the requirements of 8.5.1, 8.5.2 and 8.5.3.

8.5.1 The symbol for class II or class III, the marking for rated voltage of class III handlamps and the symbol for the degree of protection against dust and moisture shall be on the outside of the handlamp.

NOTE This requirement is met if the marking is visible from the outside through a translucent cover.

The marking for maximum rated wattage shall not be in paint or ink, even when protected by varnish.

Compliance shall be checked by inspection and by the test described in section 3 of IEC 60598-1.

8.5.2 The symbol for rough service luminaries is optional for handlamps.

8.5.3 For handlamps with replaceable lamps and with type X attachment, the method instructing how to open and close the luminaire shall be marked on the protective cover and shall remain visible during and after use.

8.6 Construction

The provision of Section 4 of IEC 60598-1 apply, together with the requirements of 8.6.1 to 8.6.6.

8.6.1 The shell and handle, and other protective covers of handlamps shall be of insulating material.

8.6.2 The lamp shall be protected against accidental damage by a protective grid, translucent cover or similar protective means. These devices shall be rigidly fixed to the body of the handlamp and it shall not be possible to remove the device by hand.

The protective device shall remain attached to the handlamp during the lamp replacement, e.g. by a hinge, chain or equal effective device.

For handlamps for tubular fluorescent lamps, the removal of the protective device shall be so arranged that the opening occurs at the end of the lamp where the lamp holder is connected to the ballast.

If the protective device is of metal, it shall be so positioned or protected by insulation that it is not likely to be inadvertently touched when holding the handle. The distance between the glass of the tungsten filament lamp or the tubular fluorescent lamp or any protective glass and a plane through the outside of two adjacent bars of a protective grid or a protective cover, shall be at least 3 mm.

Suspension hooks, if any, shall be securely fixed to the handlamp.

Compliance is checked by inspection, by measurement and by loading the hook to a weight which is twice the weight of the luminaire, including the total weight of the attached cable, cord, ballast or transformer. The hook shall not deform such that the luminaire slips from the means of suspension which for testing purposes, is a 1 mm ∅ metal bar.

8.6.3 Handlamps shall not use resistive ballasts or resistive cables to limit the current in discharge lamps.

8.6.4 Lampholders for tungsten filament lamps shall be locked against rotation by at least two independent means, at least one of which shall be operable only with the aid of a tool. The means of fixing shall not serve to fix any other part.

Compliance shall be checked by inspection and by manual test.

8.6.5 Ballasts or transformers where connected in the flexible cable or cord shall be at a distance not greater than 1 m from the plug and equipped with a suspension hook.

Compliance shall be checked by inspection, by manual test and by measurement.

8.6.6 The test for mechanical strength described in 4.13 of Section 4 of IEC 60598-1 does not apply, except the test of 4.13.4 b) as mentioned in 8.2.2. In addition, the mechanical strength shall be checked by the test described in 8.6.6.1, if applicable, and by the test described in 8.6.6.2.

8.6.6.1 The grid, translucent covers and protective covers shall be firmly fixed.

Compliance is checked by a pull of 100 N for 1 h, applied to the parts of the body of the handlamp which, when loose, would allow to touch current-carrying parts.

For handlamps containing tubular fluorescent lamps this is likely along its longitudinal axis.

For sealed handlamps, in addition a torque test of 10 Nm shall be applied to the parts which, when loose, would allow to touch current-carrying parts.

The grid or protective covers shall remain in position during and after the test.

8.6.6.2 The handlamp, fitted with a flexible cable or cord in accordance with the requirements of 8.10.2 and of suitable length, is subjected to two impact tests in which it is caused to swing against a steel bar which is mounted on a solid wall of brick, stone, concrete or similar material, as shown in figure 1.

The bar is of 40 mm × 40 mm × 5 mm right-angle section with the corner rounded to a radius of 5 mm. It is mounted in contact with the wall or, if necessary, in contact with a steel packing block which is in contact with the wall.

The handlamp, without lamp, is suspended by its flexible cable or cord so that the point "a", indicated in figure 1, rests against the corner of the bar, the point of suspension being 400 mm above the bar. It is then drawn away from the bar in a plane perpendicular to the wall until the cable or cord is horizontal.

The sample is allowed to fall against the bar three times in this way. It is then suspended so that the impact is at the point "b", and caused to fall similarly three times, followed by three falls against the point "c".

After this first test, the sample shall show no damage impairing its safety or further use. The whole of the above test is then repeated but with the point of suspension 1 m above the bar.

After this second test, the sample shall show no damage impairing its safety or further use. The means protecting the lamp against damage shall not have loosened, even if it has become deformed. Breakage of the protective glass of translucent cover, if any, is neglected, if it is not the sole means protecting the lamp against damage.

NOTE The steel packing block is necessary only if the shape of the handlamp is such that, without it, the handlamp does not hit the bar.

8.7 Creepage distance and clearance

The provisions of section 11 of IEC 60598-1 apply.

8.8 Provision for earthing

The provisions of section 7 of IEC 60598-1 do not apply.

8.9 Terminals

The provisions of sections 14 and 15 of IEC 60598-1 apply, together with the requirements of 8.9.1.

8.9.1 Terminals for supply connection shall be suitable for the connection of conductors having nominal cross-sectional areas from 0,75 mm² to 1,5 mm².

Compliance shall be checked by fitting conductors of the smallest and largest cross-sectional areas specified.

8.10 External and internal wiring

The provisions of section 5 of IEC 60598-1 apply, together with the requirements of 8.10.1 to 8.10.6.

8.10.1 Rewirable handlamps shall be equipped with type X attachment.

Non-rewirable handlamps shall be equipped with type Y or Z attachment.

Handlamps shall not be provided with socket-outlets.

Handlamps other than ordinary shall not be provided with appliance inlets. Where ordinary handlamps are provided with appliance inlets, they shall have mechanical locking.

Compliance shall be checked by inspection.

8.10.2 Flexible cables or cords shall be not lighter than the following types specified in IEC 60245.

Flexible cable and cords shall be polychloroprene sheathed.

The nominal cross-sectional area of the conductors shall be not less than:

0,75 mm² for ordinary handlamps;

1 mm² for other handlamps.

Compliance shall be checked by inspection.

8.10.3 Handlamps shall have only one cable entry.

Compliance shall be checked by inspection.

8.10.4 The requirements of 5.2.7 and 5.2.8 of section 5 of IEC 60598-1 do not apply.

Flexible cable and cords shall be protected against excessive bending at the inlet opening of the handlamp and the plug-ballast/transformer (where applicable) by means of a cord guard of insulating material or a suitably shaped inlet opening.

For cord guards,

- they shall not be integral with the flexible cable or cord, for rewirable handlamps;
- they shall be fixed in a reliable manner so that they cannot readily be lost;
- they shall project outside the handlamp for a distance of at least 25 mm beyond the inlet opening;
- they shall have adequate mechanical strength and elasticity.

Compliance shall be checked by inspection, by measurement and by the tests described in 8.10.4.1.

8.10.4.1 *For non-rewirable handlamps and for rewirable handlamps, the part of the handlamp carrying the cable entry is fixed to the oscillating member of an apparatus similar to that shown in figure 2, so that when this is at the middle of its travel the axis of the flexible cable or cord, where it enters the sample, is vertical and passes through the axis of oscillation.*

The cable or cord is loaded with a weight such that the force applied is 20 N.

A current, the value of which is derived from the maximum rated wattage and the rated voltage, is passed through the conductors, the voltage between the contacts of the lampholder being equal to the rated voltage.

The oscillating member is moved backwards and forwards through an angle of 90° (45° on either side of the vertical), the number of flexings being 20 000 and the rate of flexing 60 per minute.