



Test Report issued under the responsibility of:



TEST REPORT
IEC 60238
Edison screw lampholders

Report Number.: T211-0649/14 C20141425
Date of issue: 2014-12-09
Total number of pages.....: 37

Applicant's name: Aling-Conel d.o.o.
Address: Železnička 10, RS-21432 Gajdobra, Serbia

Test specification:
Standard: IEC 60238 (Eighth Edition): 2004 + A1: 2008 + A2:2011
Test procedure.....: CB Scheme
Non-standard test method.....: N/A

Test Report Form No......: IEC60238F
Test Report Form(s) Originator.....: CQC
Master TRF: 2011-12

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Test item description: Edison screw lampholder E27 for luminaires
Trade Mark: ALING-CONEL
Manufacturer.....: Aling-Conel d.o.o.
Železnička 10, RS-21432 Gajdobra, Serbia
Model/Type reference: 1201; 1202; 1203; 1204
(See general product information)
Ratings: 4A / 250 V; T180°C / T210°C; threaded entry M10x1

| | | |
|--|----------------------------------|---|
| Testing procedure and testing location: | | |
| <input checked="" type="checkbox"/> | CB Testing Laboratory: | SIQ Ljubljana <i>Testing Laboratory is accredited by Slovenian Accreditation, Reg. No.: LP-009</i> |
| Testing location/ address | | Tržaška c.2, SI-1000 Ljubljana, Slovenia |
| <input type="checkbox"/> | Associated CB Laboratory: | |
| Testing location/ address | | |
| Tested by (name + signature).....: | | Igor Smrke |
| Approved by (name + signature)....: | | Tomaž Knez |
| <input type="checkbox"/> | Testing procedure: TMP | |
| Testing location/ address | | |
| Tested by (name + signature).....: | | |
| Approved by (name + signature)....: | | |
| <input type="checkbox"/> | Testing procedure: WMT | |
| Testing location/ address | | |
| Tested by (name + signature).....: | | |
| Witnessed by (name + signature)..: | | |
| Approved by (name + signature)....: | | |
| <input type="checkbox"/> | Testing procedure: SMT | |
| Testing location/ address | | |
| Tested by (name + signature).....: | | |
| Approved by (name + signature)....: | | |
| Supervised by (name + signature): | | |
| <input type="checkbox"/> | Testing procedure: RMT | |
| Testing location/ address | | |
| Tested by (name + signature).....: | | |
| Approved by (name + signature)....: | | |
| Supervised by (name + signature): | | |

List of Attachments (including a total number of pages in each attachment):

ATTACHMENT 1 - Photo documentation on pages from 29 to 37.

Summary of testing:

Tests performed (name of test and test clause):

Type test - all applicable clauses according to IEC 60238 (8th Ed.): 2004 + A1:2008 + A2:2011

Testing location:

SIQ Ljubljana
Tržaška c.2,
SI-1000 Ljubljana, Slovenia

Summary of compliance with National Differences:

No national deviations.

☒ **The product fulfils the requirements of IEC 60238 (8th Ed.): 2004 + A1:2008 + A2:2011**

Copy of marking plate

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.



| | |
|---|---|
| Test item particulars | |
| Type of lampholder: | E27 |
| - insulated lampholder: | Yes |
| - metal lampholder: | No |
| - ordinary lampholder: | Yes |
| - drip-proof lampholder: | No |
| - threaded entry lampholder: | Yes |
| - cord-grip lampholder: | No |
| - backplate lampholder: | Yes (type 1201 art. 12013;12015; 12014;12016) |
| - other lampholder: | No |
| - E5 lampholder: | No |
| - E10 lampholder: | No |
| - E14 lampholder: | No |
| - E27 lampholder: | Yes |
| - E40 lampholder: | No |
| - switched lampholder: | No |
| - unenclosed lampholder: | No |
| - enclose lampholder: | Yes |
| - independent lampholder: | No |
| - partly reinforced insulated lampholder: | No |
| - enclosed reinforced insulated lampholder: | No |
| Rated operating temperature (°C) (T marked lampholder) | T180 T210 |
| Classification of installation and use Edison screw lampholders for luminaires | |
| Supply Connection Spring terminal | |
| Possible test case verdicts: | |
| - test case does not apply to the test object : N/A | |
| - test object does meet the requirement..... : P (Pass) | |
| - test object does not meet the requirement : F (Fail) | |
| Testing..... | |
| Date of receipt of test item..... 2014-07-03 and 2014-11-03 | |
| Date (s) of performance of tests From 2014-07-03 to 2014-12-02 | |

General remarks:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

"(see Enclosure #)" refers to additional information appended to the report.

"(see appended table)" refers to a table appended to the report.

Throughout this report a ☒ comma / ☐ point is used as the decimal separator.

Manufacturer's Declaration per sub-clause 6.2.5 of IEC60335-1:

The application for obtaining a CB Test Certificate ☐ Yes
includes more than one factory location and a ☒ Not applicable
declaration from the Manufacturer stating that the
sample(s) submitted for evaluation is (are)
representative of the products from each factory
has been provided

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies) : Aling-Conel d.o.o.
Železnička 10, RS-21432 Gajdobra, Serbia

General product information:

Lampholders with Edison screw E27 indented for use in luminaires.

Type reference and ratings:

Lampholders E27 with same contacts and body, with different installation for temperature T180°C

| Type | Description | Art. No - additional description |
|------|---|--|
| 1201 | Lampholder E27 4 A/250 V hanging without outer thread | art.12011.x - Lampholder E27 with threaded entry M10x1; T180 |
| | | art.12013.x - Backplate lampholder E27 (flat); T180 |
| | | art.12015.x - Backplate lampholder E27 (oblique); T180 |
| 1202 | Lampholder E27 4 A/250 V hanging with outer thread | art.12021.x - Lampholder E27 with threaded entry M10x1; T180 art.12023.x - Lampholder E27 with rim and threaded entry M10x1; T180 |
| 1203 | Lampholder E27 4 A/250 V hanging with shorter outer thread and flange | art.12031.x - Lampholder E27 with threaded entry M10x1; T180 |
| 1204 | Lampholder E27 4 A/250 V with bracket | art.12041.x - Lampholder E27 with snap-on outer shell and screw fixing; T180 |
| | | art.12043.x - Lampholder E27 with snap-on outer shell and screwless fixing; T180 |

Lampholders E27 with same contacts and body, with different installation for temperature T210°C

| Type | Description | Art. No - additional description |
|------|---|--|
| 1201 | Lampholder E27 4 A/250 V hanging without outer thread | art.12012.x - Lampholder E27 with threaded entry M10x1; T210 |
| | | art.12014.x - Backplate lampholder E27 (flat); T210 |
| | | art.12016.x - Backplate lampholder E27 (oblique); T180 |
| 1202 | Lampholder E27 4 A/250 V hanging with outer thread | art.12022.x - Lampholder E27 with threaded entry M10x1; T210 art.12024.x - Lampholder E27 with rim and threaded entry M10x1; T210 |
| 1203 | Lampholder E27 4 A/250 V hanging with shorter outer thread and flange | art.12032.x - Lampholder E27 with threaded entry M10x1; T210 |
| 1204 | Lampholder E27 4 A/250 V with bracket | art.12042.x - Lampholder E27 with snap-on outer shell and screw fixing; T210 |
| | | art.12044.x - Lampholder E27 with snap-on outer shell and screwless fixing; T210 |

Explanation of suffixes:

x.....commercial colour code of lampholder where:

0 - white

E - black

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|-----------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
|-----------|---|--------------|----------|
| 5 | STANDARD RATINGS (Sample 1, 2 and 3) | | P |
| 5.1 | Rated voltage in accordance with required values | 250 V | P |
| 5.2 & 5.3 | Rated current in accordance with required values | 4 A | P |
| 5.4 | Rated operating temperature for T marked lampholders not less than minimum values | T180 T210 | P |

| | | | |
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| 6 | CLASSIFICATION (See front page) (Sample 1, 2 and 3) | | P |
|----------|--|--|----------|

| | | | |
|----------|---|---------------------------------|----------|
| 7 | MARKING (Sample 1, 2 and 3) | | P |
| 7.1 | Lampholders, other than E5 and E10, marked with: | | P |
| | - rated current | 4 A | P |
| | - rated wattage stated in the manufacturer's instructions | | N/A |
| | - rated voltage | 250 V | P |
| | - rated pulse voltage (kV) | | N/A |
| | - symbol for nature of current | | N/A |
| | - mark of origin | ALING-CONEL | P |
| | - type reference | see general product information | P |
| | - IP number | | N/A |
| | - rated max. operating temperature T(°C) | T180 T210 | P |
| | - alternatively, max. operating temperature stated in manufacturer's instructions | | N/A |
| | - the distances for impulse withstand category II or III stated in manufacturer's instructions or the like. | | N/A |
| | The information that lampholder for use in class II applications is indicated in the manufacturer's catalogue or the like. | | N/A |
| | Enclosed reinforced insulated lampholders offer an adequate level of protection for use in luminaires where they are accessible in normal use. This information is indicated in the manufacturer's catalogue or the like. | | N/A |

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|-----------|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | For partly reinforced insulated lampholders, sufficient creepage distances and clearances to outer accessible surfaces will require additional protection to some parts of the lampholder by the luminaire design or by use of additional attachment(s) or cover(s). This information is indicated in the manufacturer's catalogue or the like. | | N/A |
| | Lampholders E10 marked with: | | N/A |
| | - rated voltage | | N/A |
| | - mark of origin | | N/A |
| | - type reference | | N/A |
| | - IP number | | N/A |
| | Lampholders E5 marked with: | | N/A |
| | - mark of origin | | N/A |
| | - type reference | | N/A |
| 7.2 | Required symbol used: | | P |
| | - for current | | P |
| | - for voltage | | P |
| | - for direct current | | N/A |
| | - IP number | | N/A |
| | - for temperature | | P |
| 7.3 | IP number on the outside of the lampholder | | N/A |
| 7.4 | Earthing terminal (if any) indicated by the symbol | | N/A |
| | The symbol not placed on screws, removable washers or other removable parts | | N/A |
| 7.5 | The marking durable and legible after the test of Chapter 19 and: | | P |
| | - after test with water, 15 s | | P |
| | - after test with petroleum spirit, 15 s | | P |

| | | |
|----------|---|----------|
| 8 | DIMENSIONS (Sample 1, 2 and 3) | P |
| 8.1 | Distance from outer end of screwed shell to central contact, measured according to Standard Sheet 7005-20 | P |
| | Compliance with gauges according to IEC 60061: | P |
| | - for E10, E14, and E40 ("Go"-gauge, 7006-25) | N/A |
| | - for E27 ("Go"-gauge, 7006-25A) | P |
| | - for E10, E14, E27, and E40 ("Not go"-gauge, 7006-26) | P |

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|-----------|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | - Lampholders designed with a barrel thread for shade holder rings and shade holder rings comply with IEC 60399 | | N/A |
| 8.2 | Lampholders shall allow insertion of all corresponding lamps so as to make contact. Compliance with gauges according to IEC 60061-3: | | P |
| | - for E14, 7006-30 and 7006-31 | | N/A |
| | - for E14, candle, 7006-30A and 7006-31 | | N/A |
| | - for E27, 7006-21 and 7006-22A | | P |
| | - for E40, 7006-23 and 7006-24 | | N/A |
| | E5 and E10 lampholders checked by means of the corresponding lamp delivered by the manufacturer | | N/A |
| | For lampholders use in appliances other than luminaries only: | | N/A |
| | Check maximum lamp outlines according to IEC 60630 | | N/A |
| | Following this checking, the contact-making gauge applied | | N/A |
| 8.3 | Minimum thickness of screwed shell according to table 1: | | P |
| | - unsupported | | N/A |
| | - supported | | N/A |
| | Minimum thickness of resilient side or central contacts | 0,65 mm | P |
| 8.4 | Minimum length of screw engagement of shell and dome according to table 2 (not applicable for lampholders E5 and E10): | | N/A |
| | - metal lampholder: rolled thread | | N/A |
| | - metal lampholder: cut thread | | N/A |
| | - lampholder of insulating material | | N/A |
| | - or at least two turns and complying with the test of 15.3 | | N/A |
| 8.5 | Threaded entry lampholder provided with the following screw threads (fig. 1a or 1b) (not applicable for lampholders E5 and E10): | | P |
| | - for E14: M10x1 | | N/A |
| | - for E27: M10x1, M13x1 or M16x1 | M10x1 | P |
| | - for E40: M13x1, M16x1 (or G3/8A) | | N/A |
| | Compliance with gauges according to fig. 2a or 2b. | | P |
| 8.6 | Dimensions of threaded entries and set screws in accordance with table 3 (not applicable for lampholders E5 and E10): | | P |
| | - length of thread, metal | | N/A |
| | - length of thread, insulating material | 6,6 mm | P |

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|-----------|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | - diameter of set screw with head | | N/A |
| | - diameter of set screw without head: one screw | | N/A |
| | - diameter of set screw without head: two or more screws | | N/A |
| 8.7 | The lampholder does not interfere with proper engagement or disengagement of lamps, the contacts do not present a cutting edge to the lamp cap: | | P |
| | - for E27, compliance with gauge 7006-22B | | P |
| | - other lampholders checked by inspection | | N/A |

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| 9 | PROTECTION AGAINST ELECTRIC SHOCK (Sample 1, 2 and 3) | | P |
| 9.1 | Lamp caps not accessible during insertion in lampholders E5, E10, E14, and E27. Lamp cap not accessible when fully inserted in lampholder E40: | | P |
| | - for E10, compliance checked by means of corresponding lamp and standard test finger | | N/A |
| | - for E14, compliance with gauge 7006-31 | | N/A |
| | - for E27, compliance with gauge 7006-22A | | P |
| | - for E40, compliance with gauge 7006-24 | | N/A |
| 9.2 | External parts of enclosed and independent lampholders so designed that live parts are not accessible | | P |
| | Candle lampholder tested with/without decorative cover | | N/A |
| | Compliance checked with standard test finger | | P |
| 9.3 | Parts providing protection against accidental contact reliably secured so that they will not become detached when a tightly fitting lamp is removed or when a shade is rotated | | P |
| | Torque test with test cap according to fig. 13 (test cap B) or fig. 14 : | | P |
| | - E14 with a torque of 1 Nm | | N/A |
| | - E27 with a torque of 2 Nm | | P |
| | Not possible to dismantle lampholders E5 and E10 without the aid of a tool | | N/A |
| 9.4 | Provisions for attaching a shade to the lampholder, e.g. a shade ring | | P |
| | The shade not to be fixed between parts providing protection against electric shock | not fixed between parts providing protection against electric shock | P |
| 9.5 | External parts made of insulating material for: | | N/A |
| | - drip-proof lampholders | | N/A |
| | - lampholders with a rated voltage of more than 250 V | | N/A |

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|-----------|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | - switched lampholders | | N/A |
| | - E5 and E10 lampholders | | N/A |
| | If not of insulating material, these parts cannot become live even in the event of a fault | | N/A |
| | Lacquer or enamel not used to provide adequate protection | | N/A |

| | | | |
|-------------------|--|---------------------------|----------|
| 10 | TERMINALS (Sample 1, 2 and 3) | | P |
| 10.1 | Terminals suitable for the connection of: | | P |
| | - for lampholders E10: 0,5 to 0,75 mm ² | | N/A |
| | - for lampholders E14 and E27 with M10x1 threaded entry: 0,5 to 1,0 mm ² | 0,5 - 2,5 mm ² | P |
| | - for other lampholders E27: 0,5 to 2,5 mm ² | | N/A |
| | - for lampholders E40 with a rated current of 16 A: 1,5 to 4 mm ² | | N/A |
| | - for lampholders E40 with a rated current of 32 A: 2,5 to 6 mm ² | | N/A |
| 10.2.1 and 10.2.2 | The lampholder provided with at least one of the following means of connection: | | P |
| | - screw terminals complying with 10.3 to 10.6 and 10.8 | | N/A |
| | - screwless terminals complying with Section 15 of IEC 60598-1, provided that heating test is carried out at the rated operating temperature of the lampholder $\pm 5^{\circ}\text{C}$ | (see Annex) | P |
| | - tabs or pins for push-on connections complying with Section 15 of IEC 60598-1 | | N/A |
| | - posts for wire wrapping complying with IEC 60352-1 | | N/A |
| | - soldering lugs complying with requirements for good solderability (e.g. IEC 60068-2-20) | | N/A |
| | - connecting leads (tails) complying with the requirements prescribed in 10.10 | | N/A |
| | Terminal screws have a metric or comparable thread | | N/A |
| | For E5, E10 and similar small lampholders, connections are alternatively made by: | | N/A |
| | - soldering | | N/A |
| | - welding | | N/A |
| | - crimping | | N/A |
| | - or equally effective means | | N/A |

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|-----------|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | The screwless terminals satisfactory with both rigid conductors and flexible cables or cords, unless untended for sale to luminaire or equipment manufacturers | | P |
| 10.3 | Terminals fixed in such a way that they will not work loose | | P |
| | Torque test with fastening and loosening ten times according to Section 14 of IEC 60598-1 | | N/A |
| 10.4 | Inspection after the tests of 10.1 and 19.3 shows: | | N/A |
| | - conductor clamped between metal surfaces | | N/A |
| | - no damage to the conductor | | N/A |
| | - conductor prevented from slipping out | | N/A |
| | - no special preparation of the conductor necessary | | N/A |
| 10.5 | Dimension of terminals of the pillar type according to table 4: | | N/A |
| | - nominal thread diameter | | N/A |
| | - diameter of the hole for conductor | | N/A |
| | - length of thread in pillar | | N/A |
| | - difference between diameter of the hole and diameter of the screw, max. 0,6 mm | | N/A |
| | - length of threaded part of the terminal screw | | N/A |
| 10.6 | Dimensions of terminals of the screw type according to table 5: | | N/A |
| | - nominal thread diameter | | N/A |
| | - length of thread under the head | | N/A |
| | - length of thread in the nut | | N/A |
| | - nominal difference between diameter of head and shank of the screw | | N/A |
| | - height of head of the screw | | N/A |
| | - length of the screw in case of a washer or pressure plate | | N/A |
| 10.7 | Terminals so located that there is no risk of accidental contact between live parts and accessible parts during test with a 4 mm long escaped wire from a stranded conductor | | P |
| 10.8 | The conductor in pillar terminal visible, or | | N/A |
| | the length of the hole beyond the terminal screw is at least equal to half the value of the diameter of the screw or 2,5 mm, whichever is the higher. | | N/A |
| 10.9 | Floating terminals: | | N/A |
| | - have no appreciable lateral play | | N/A |

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|-----------|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | - do not move longitudinally more than 3 mm when a lamp is removed or inserted | | N/A |
| 10.10 | The requirements of 10.2 to 10.6 and 10.8 do not apply to lampholders which are intended to be factory-mounted in luminaries and which are provided with connecting leads (tails) | | N/A |
| | Lampholders intended to be factory-mounted provided with: | | N/A |
| | - connecting leads (tails) | | N/A |
| | - tab-terminals | | N/A |
| | - other equally effective means | | N/A |
| | Heat resistant leads connected by: | | N/A |
| | - soldering | | N/A |
| | - welding | | N/A |
| | - crimping | | N/A |
| | - by other at least equivalent method | | N/A |
| | Test: see 19.2 | | N/A |
| | After the test, the lampholders show no damage within the meaning of this standard. | | N/A |

| | | | |
|-----------|--|--|------------|
| 11 | PROVISION FOR EARTHING (Sample 1, 2 and 3) | | N/A |
| 11.1 | Threaded entry lampholders, cord grip lampholders and backplate lampholders with provisions for earthing provided with at least one internal earthing terminal | | N/A |
| | Other lampholders without threaded entry, provided with an external earthing terminal | | N/A |
| 11.2 | Accessible metal parts of lampholders without earthing terminal allow reliable earthing | | N/A |
| | Earth continuity between metal dome and outer shell if not separated from live parts by double or reinforced insulation | | N/A |
| | Test: see 14.3 | | N/A |
| | The resistance between the means of earthing and the dome(or the outer shell as appropriate) is measured, shall not exceed 0,1Ω.. | | N/A |
| 11.3 | Earthing terminal complies with clause 10 | | N/A |
| | Clamping means adequately locked against accidental loosening | | N/A |
| | Screw terminals not possible to loosen by hand | | N/A |

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|-----------|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Screwless terminals not possible to loosen unintentionally by hand | | N/A |
| 11.4 | No risk of corrosion resulting from contact with the copper conductor | | N/A |
| | The screw or the body of the earthing terminal made of brass or other metal no less resistant to corrosion | | N/A |
| | Contact surfaces are bare metal | | N/A |
| 11.5 | Metal parts of cord anchorage, including clamping screws, insulated from earthing circuit | | N/A |

| | | | |
|-----------|--|--|----------|
| 12 | CONSTRUCTION (Sample 1, 2 and 3) | | P |
| 12.1 | The lampholder provided with a screw thread of Edison form for holding the lamp | | P |
| | Screw shell made of metal | | N/A |
| | Metal thread is continuous over a length not less than specified in Standard Sheet 7005-20 of IEC60061-2 | | N/A |
| | Screw shell made of other material and so designed and with such tolerances that proper engagement with relevant gauges is ensured throughout the life of the holder | | P |
| | Terminal/contact assembly and the screw shell are so constructed and located as to prevent canting or rotation which may impair the use of the lampholder | | P |
| | Deviation from the requirement for a continuous thread is made to provide a technical advantage | | N/A |
| | The lampholder complies with the feeler gauge of 0,08 x 5,0 mm | | P |
| | The lampholder does not score the neck of the bulb of a normal standard lamp | | P |
| | The male screw thread of an adapter is of the same size or larger than its female screw thread | | N/A |
| 12.2 | The space in the dome is ample for fitting a flexible cable or cord with specified cross-sectional area | | N/A |
| | No sharp edges or a shape likely to damage the insulation of the conductors | | N/A |
| | Test with lampholder screwed onto a conduit of 10 cm length | | N/A |
| | After dismantling, cables or cord not damaged | | N/A |
| | The threaded entry provided with means to prevent the conduit from entering too far | | N/A |
| | The dome screwed onto a steel conduit with the specified torque | | N/A |

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|-----------|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | The conduit does not enter the space for the supply wires in the dome | | N/A |
| | The lampholder does not show any change impairing its further use | | N/A |
| 12.3 | Accessible parts of switched lampholders made of insulating material unless a loose wire or screw cannot bridge accessible parts and live parts | | N/A |
| 12.4 | Contact between metal screw shell and metal outer shell is prevented by an insulating ring which cannot be separated by hand | | N/A |
| 12.5 | It is possible to lock the threaded entry on the conduit | | P |
| | It is possible to operate the locking device from the inside, if provided as part of the lampholder (except for E5 and E10 lampholders) | | P |
| | For lampholders having an integral locking device, by the test of 15.4 | | P |
| 12.6 | Cord anchorage relieves the conductor from strain and prevents twisting | | N/A |
| | The outer covering of the cord is gripped in the lampholder | | N/A |
| | The outer covering of the cord is protected from abrasion | | N/A |
| | It is clear how relief from strain and prevention from twisting shall be effected | | N/A |
| | Not possible to push the cord into the lampholder to such an extent that the cord is subjected to undue mechanical or thermal stress | | N/A |
| | Methods such as tying the cord into a knot or tying the ends with strings are not permissible | | N/A |
| | Cord anchorage made of insulating material or provided with a fixed insulating lining if an insulation fault on the cord can make accessible metal parts live | | N/A |
| | Cord anchorage is so designed that: | | N/A |
| | - at least one part is fixed to or integral with the lampholder | | N/A |
| | - it is suitable for the different types of flexible cord which may be connected to the lampholder | | N/A |
| | - it does not exert excessive pressure on the cord | | N/A |
| | - it is unlikely to be damaged when tightened or loosened as in normal use | | N/A |
| | Cord anchorage suitable for flexible cords of the following types: | | N/A |

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|-----------|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | - 60245 IEC 51 | | N/A |
| | - 60245 IEC 53 or the like | | N/A |
| | - 60227 IEC 52 | | N/A |
| | Not possible to push the cord further into the lampholder after connection | | N/A |
| | Pull test 100 times and torque test according to table 6 | | N/A |
| | Test repeated with specified types of cord and cross-sectional area | | N/A |
| | Pull test 50 times, 30 N for lampholders designed for chain connection | | N/A |
| | No damage to the flexible cord during the test | | N/A |
| | After the test: | | N/A |
| | - no displacement of cord by more than 2 mm | | N/A |
| | - no noticeable movement at the end of the conductors in the terminals | | N/A |
| 12.7 | Suspending devices shall have no accessible metal parts which can become alive, even in the event of a fault in the lampholder | | N/A |
| | Suspending devices intended to be screwed into a threaded entry lampholder comply with the requirements of 12.2 | | N/A |
| 12.8 | Backplate lampholder not specifically intended for building-in provided with a recess for supply wires | | P |
| | This recess have following minimum dimensions (not applicable for lampholders E5 and E10) | | P |
| | - height 7mm; | | P |
| | - length equal to diameter or width of the base; | | P |
| | - width 16mm enlarged to a circular space 23mm in diameter in the centre. | | P |
| 12.9 | Backplate lampholder, other than those intended for building-in provided with holes for fixing screws (not applicable for lampholders E5 and E10) | | P |
| | Holes for the fixing screws comply with gauge (fig. 3) | | P |
| | The bush enters the recess for the screw head | | N/A |
| 12.10 | Backplate lampholder provided with cable entries on accessible external surface | | N/A |
| | The cable entries allow the introduction of cable covering, conduit or trunking etc. so far as to afford complete mechanical protection for a distance of min. 1 mm | | N/A |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| 12.11 | The contacts so designed and constructed so as to ensure effective and reliable electrical contact | | P |
| | The function of the contacts independent of the function of an optional locking device between dome and outer shell | | N/A |
| | E40 lampholder of the contact-making shell type | | N/A |
| 12.12 | The lampholder not fitted with a socket-outlet | | P |
| 12.13 | Device for bridging the lamp filament not integral with the lampholder | | P |
| 12.14 | Lampholders with a retention device can withstand a certain unscrewing torque. | | N/A |
| | Removal torque.....: | | N/A |

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| 13 | SWITCHED-LAMPHOLDERS (Sample 10, 11 and 12) | | N/A |
| 13.1 | Other lampholders than ordinary lampholders E14 and E27 with a rated voltage 250 V not provided with switches | | N/A |
| 13.2 | Compliance with 12.3 and the additional requirements of 13.3 to 13.5, or the relevant requirements in IEC 61058-1 | | N/A |
| 13.3 | Capable of making and breaking a load comprising a filament lamp or self-ballasted lamp for general lighting service (GLS) | | N/A |
| | Operating temperature T: | | N/A |
| | 200 operations at 1,1 x Un, 1,25 x Rated current and cosφ = 0,6±0.05: | | N/A |
| | 20 000 operations at Un, Rated current and cosφ= 1: | | N/A |
| | Test for insulation resistance (14.4) | | N/A |
| | Test for electric strength (14.4) | | N/A |
| 13.4 | No accidental contact between supply wires and moving parts of the switch | | N/A |
| 13.5 | The switch-operating member is effectively insulated from live parts and does not expose live parts | | N/A |
| 13.6 | Switches in lampholders for refrigerators and food freezers tested according to lamp's rated wattage | | N/A |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| 14 | MOISTURE RESISTANCE, INSULATION RESISTANCE AND ELECTRIC STRENGTH (Sample 1, 2 and 3) | | P |
| 14.1 | Drip-proof construction provides the necessary degree of protection against ingress of water | | N/A |
| | Electric strength test as specified in 14.4 | | N/A |
| | Inspection shows that no water has entered to an appreciable extent | | N/A |
| 14.2 | Inlet openings of drip-proof lampholders allow connections such that they prevent drops of water from reaching the inside of the lampholder | | N/A |
| 14.3 | Humidity treatment: | | P |
| | - 48 h for ordinary lampholders | | P |
| | - 168 h for IPX1 drip-proof lampholders | | N/A |
| | No damage to the lampholder | | P |
| 14.4 | a) Minimum insulation resistance at 500 V d.c.: between live parts of different polarity (2 MΩ): | | P |
| | - with test cap (fig. 11) | $\geq 2,0 \times 10^3 \text{ M}\Omega$ | P |
| | - on the empty lampholder | $\geq 1,0 \times 10^8 \text{ M}\Omega$ | P |
| | b) Minimum insulation resistance at 500 V d.c.: between live parts connected together and the body (4 MΩ): | | P |
| | - with test cap (fig. 11) | $\geq 2,0 \times 10^4 \text{ M}\Omega$ | P |
| | - on the empty lampholder | $\geq 1,0 \times 10^8 \text{ M}\Omega$ | P |
| | c) Minimum insulation resistance at 500 V d.c.: between accessible metal parts and metal foil on the inside of insulating lining, if any (4 MΩ) | | N/A |
| | Electric strength test for 1 min: | | P |
| | - between live parts of different polarity (2U + 1000 V or 500 V for E5 and E10) | 1500 V | P |
| | - between live parts connected together and the body (2U + 1000 V) | 1500 V | P |
| | - between accessible metal parts and metal foil on the inside of insulating lining, if any (2U + 1000 V) | | N/A |
| | - between live parts and other metal parts in switched lampholders (switch closed and open) (2U + 1000 V) | | N/A |
| | For enclosed and unenclosed reinforced insulated lampholders, the test voltage is determined from Table 10.2 of IEC 60598-1 | | N/A |
| | - between live parts of different polarity (2U + 1000 V) | | N/A |
| | - between live parts connected together and the body (4U + 2750 V) | | N/A |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| | - between accessible metal parts and metal foil on the inside of insulating lining, if any (4U + 2750 V) | | N/A |
| | - between live parts and other metal parts in switched lampholders (switch closed and open) (4U + 2750 V) | | N/A |
| | No flashover or breakdown occurs | | P |

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| 15 | MECHANICAL STRENGTH (Sample 1, 2 and 3) | | P |
| 15.2 | Mechanical strength of the outer shell, the screw shell and the dome checked by screwing a test cap into the sample with appropriate torque for 1 min: | | P |
| | - the sample clamped at the outer shell | 2,0 Nm | P |
| | - the sample fixed by the threaded entry, dome or backplate | 2,0 Nm | P |
| | - for other E14 lampholders | | P |
| | The lampholder shows no change impairing its further use | | P |
| 15.3 | The mechanical strength of the connection between shell and dome/backplate checked by the torque applied to the outer shell for 1 min (not applicable for lampholders E5 and E10) | | P |
| | No loosening of the connection or other damage | | P |
| 15.4 | The fixing of the threaded entry to a brass conduit checked after tightening the set-screw with a torque according to table 12 | | P |
| | No loosening of the connection caused by anti-clockwise application for 1 min of a torque according to 15.2 | Threaded entry loosened from the brass conduit at 0,5 Nm | N/A |
| | Repeated test, if necessary, with the set-screw further tightened | Not loosened | P |
| | Necessary torque (Nm): | 1,1 Nm | P |
| 15.5 | The strength of the connection between dome and threaded entry checked as indicated in fig. 12 (not applicable for candle lampholders) | | P |
| | A sag of max. 5 mm measured at the end of the mandrel | max. 4-5 mm | P |
| | Repeated test, if necessary, shows no damage impairing the normal use of the lampholder | | N/A |
| 15.6 | a) Impact test, 4 blows applied by pendulum apparatus according to fig. 8: | | P |
| | - ceramic parts (100±1mm) | | N/A |
| | - other material (150±1,5mm) | | P |
| | - candle lampholders without decorative cover (100±1mm) | | N/A |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| | After the test, no serious damage | | P |
| | Creepage distances and clearances not reduced below values of Cl. 17 | | P |
| | b) Tumbling barrel test (50 times, 500 mm) on lampholders E5 and E10 | | N/A |
| | Mechanical strength checked by means of spring hammer. | | N/A |
| 15.6.1 | For lampholders with a snap-on outer shell, the outer shell remain in its intended position after push and pull test | | P |
| | Additionally, the outer shell not be removed by the standard fingertip of 30 N | | P |
| 15.7 | Pressure test on metal outer shell and metal dome, pressure according to table 11 for 1 min (not applicable for lampholders E5 and E10) | | N/A |
| | Maximum deformation: | | N/A |
| | - during the test | | N/A |
| | - after the test | | N/A |
| 15.8 | Entry spouts and glands tightened with appropriate torque for 1 min | | N/A |
| | Glands, spouts and enclosure show no damage | | N/A |
| 15.9 | Backplate lampholder fixed by means of screws to a rigid flat steel sheet (not applicable for lampholders E5) | | P |
| | Torque test 0,5 Nm on 3 mm screws for lampholders E10 | | N/A |
| | Torque test 1,2 Nm on 4 mm screws for other lampholders | | P |
| | No damage impairing further use | | P |

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| 16 | SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS (Sample 1, 2 and 3) | | P |
| 16.1 | Screws and mechanical connections withstand mechanical stresses | | N/A |
| | No damage impairing further use of screwed connection when screws or nuts are tightened and loosened with a torque according to table 12: | | N/A |
| | - 5 times for screws operating in a female thread in metal | | N/A |
| | - 10 times for screws operating in a female thread in insulating material | | N/A |
| 16.2 | Min. length of engagement in thread in insulating material 3 mm + 1/3 D or 8 mm | | N/A |

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|-----------|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Correct introduction of screw into the thread is ensured | | N/A |
| 16.3 | Contact pressure not transmitted through insulating material, other than ceramic, unless resiliency compensates for any possible shrinkage | | P |
| | Screws not of metal which is soft or liable to creep | | N/A |
| | Screws transmitting contact pressure, and screws with a nominal diameter of less than 3 mm, operated when connections are made to the lampholder, are screwed into metal (locking screws excepted) | | N/A |
| 16.4 | Screws and rivets for electrical as well as mechanical connections locked against loosening | | N/A |
| 16.5 | Current-carrying parts made of copper, an alloy containing at least 50% copper, or material having characteristics at least equivalent | | P |

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| 17 | CREEPAGE DISTANCES AND CLEARANCES (Sample 1, 2 and 3) | | P |
| 17.1 | Creepage distances and clearances not less than specified minimum values measured with inserted lamp having specified diameter of central contact and without a lamp, with and without supply wires | | P |
| | Impulse withstand category.....: | II / III | P |
| | Basic insulation: | | P |
| | Reinforced insulation: | | N/A |
| | Creepage distance: | | P |
| | 1. between live parts of different polarity: | | P |
| | - insulation with PTI \geq 600 | | N/A |
| | - insulation with PTI < 600 | Required:2,5mm /1,5 mm Measured: min. 8 mm | P |
| | 2. between live parts and external metal parts if not covered with insulating material, including fixing screws of backplate lampholders | | P |
| | - insulation with PTI \geq 600 | | N/A |
| | - insulation with PTI < 600 | Required:2,5 mm /3 mm Measured: > 10 mm | P |

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| | Clearances: | | P |
| | 1. between live parts of different polarity | Required:1,5 mm /1,5 mm Measured: min. 3,5 mm | P |
| | 2. between live parts and external metal parts, if not covered with insulating material, including fixing screws of backplate lampholders | Required:1,5 mm /3 mm Measured (between live parts and set-screw): \geq 5 mm | P |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| | between live parts and screw shell (4) | | N/A |
| | Distance in the case of backplate lampholders: | | P |
| | 3. between live parts and mounting surface | Required: cr 5 mm cl 3 mm Measured: cr, cl \geq 25 mm | P |
| | distances for pulse voltages at rated pulse voltage (peak kV) | | N/A |
| | between live parts and the boundary of the space for the supply wires in backplate lampholders not specifically intended for building-in | Required: cr 5 mm cl 3 mm Measured: cr, cl \geq 25 mm | P |
| | Creepage distances and clearances between live parts of different polarity for E5 and E10 intended for series-connected lamps(Max. rated voltage 25V for E5, 60V for E10) | | N/A |
| 17.2 | Sealing compound not protruding above the edge of the cavity | | N/A |

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| 18 | NORMAL OPERATION (Sample 4, 5 and 6) | | P |
| | Normal use causes no excessive wear or other harmful effect (not applicable for lampholders E5 and E10) | | P |
| | Test cap according to fig. 5 screwed in and out 100 times, using a test apparatus according to fig. 4 at a rate of 15 times/min. with specified torque | 1,5 Nm | P |
| | Clamping of the lampholder shifted from dome/backplate to outer shell after half the number of operations | | P |
| | At the end of the test, the specimen shall show: | | P |
| | - no wear impairing its operation | | P |
| | - no damage impairing protection against electric shock | | P |
| | - no loosening of electrical contacts | | P |
| | - no loosening of the connection between shell and dome | | P |
| | - no loosening of the set screw locking the threaded entry | | P |
| | Compliance with gauges according to 8.2: | | P |
| | - for E14, 7006-30 and 7006-31 | | N/A |
| | - for E14 candle, 7006-30A and 7006-31 | | N/A |
| | - for E27, 7006-21 and 7006-22A | | P |
| | - for E40, 7006-23 and 7006-24 | | N/A |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| | Electric strength test according to 14.4 but with the test voltage reduced by 500 V | 1000 V | P |

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| 19 | GENERAL RESISTANCE TO HEAT (Sample 4, 5 and 6) | | P |
| 19.2 | For E27 lampholders: | | P |
| | - compliance with gauges according to 7006-22C and 7006-22D of IEC 60061-3 | | P |
| | - test cap B screwed into the lampholder with required torque and the lampholder is placed in a vertical holder-up position in a heating cabinet maintained at the specified temperature for 48 h and loaded with rated current | 1,5 Nm, 190°C, 4 A 1,5 Nm, 220°C, 4 A | P |
| | - after cooling down, still compliance with gauges according to 7006-22C and 7006-22D | | P |
| | For E14 lampholders: | | N/A |
| | - test cap B screwed into the lampholder with required torque and the lampholder is placed in a vertical holder-up position in a heating cabinet maintained at the specified temperature for 48 h and loaded with rated current | | N/A |
| | - after cooling down, test cap A is screwed into the lampholder 10 times and the contact resistance between terminals is measured (0,02 Ω) | | N/A |
| 19.3 | The lampholder connected with cables of maximum cross-sectional area according to 10.1 and terminal screws tightened with 2/3 of the torque specified in 16.1 (not applicable for lampholders E5 and E10) | 2,5 mm ² | P |
| | After loading the lampholder for 1 h with 1,25 times rated current, the temperature rise of the terminals does not exceed 45 K | 5 A Max. 2 K | P |
| | The conductors are not damaged after the test | | P |
| 19.4 | The lampholder with test cap B screwed fully home placed in a vertical holder-up position in a heating cabinet maintained for 168 h at the temperature specified in table 15 or marked temperature T plus 35 K (not applicable for integral lampholders) | 215°C (T180 marked lampholder) 245°C (T210 marked lampholder) | P |
| | Lampholders for refrigerators and food freezers tested for 16 h at rated minimum temperature | | N/A |
| | a) Impact test, 4 blows applied by pendulum apparatus according to fig. 8: | | P |
| | - ceramic parts (100±1mm) | | N/A |
| | - other material (150±1,5mm) | | P |
| | - candle lampholders without decorative cover (100±1mm) | | N/A |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| | After the test, no serious damage | | P |
| | Creepage distances and clearances not reduced below values of Cl. 17 | | P |
| | b) Tumbling barrel test (50 times, 500 mm) on lampholders E5 and E10 | | N/A |
| | Mechanical strength checked by means of spring hammer. | | N/A |
| | Lampholders for refrigerators and food freezers tested for 168 h at rated operating temperature plus 35 K | | N/A |
| | During the test, the sample shows no: | | P |
| | - reduction of the protection against electric shock | | P |
| | - loosening of electrical contacts | | P |
| | - cracks, swelling or shrinking | | P |
| | - sealing compound flowing out | | N/A |
| | Edison threads checked by means of "Go"-gauge in accordance with Standard Sheet 7006-25 or 7006-25A | | P |
| | The lampholder withstands the mechanical strength test in accordance with 15.2 but the torque reduced to 50% | 1,0 Nm | P |
| | The lampholder withstands the mechanical strength test in accordance with 15.6 but the height of fall reduced to 5 cm | | P |

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| 20 | RESISTANCE TO HEAT, FIRE AND TRACKING | | P |
| 20.1 | Ball-pressure test on parts retaining contacts at temperature according to 19.4 or 125 °C for E5 and E10 (not applicable for integral lampholders) (Sample 7) | 215°C (T180 marked lampholder) 245°C (T210 marked lampholder - used material is PET GF25 Rynite GW525CS NC010) | P |
| | Diameter of impression not exceeding 2 mm (Sample 7) | T180 -> Ø 1,7 mm T210 -> Ø 1,9 mm | P |
| | Ball-pressure test on external parts, including those with a conductive exterior, at temperature according to 19.4 (no test for E5 or E10) (Sample 7) | 215°C (T180 marked lampholder) 245°C (T210 marked lampholder) | P |
| | Diameter of impression not exceeding 2 mm (Sample 7) | T180 -> Ø 1,7 mm T210 -> Ø 1,9 mm | P |
| | Not applicable for integral lampholders | | N/A |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| 20.3 | Glow-wire test 650 °C on parts providing protection against electric shock, including those with a conductive exterior and parts of insulating material retaining ELV parts in position (Sample 8) | ti=0; te=0; h=0 cm | P |
| | Any flame or glowing extinguished within 30 s, and any flaming drops do not ignite tissue paper (Sample 8) | ti=0; te=0; h=0 cm | P |
| 20.4 | Needle-flame test 10s on parts retaining live parts in position or ELV lamp contacts in position (Sample 8) | | P |
| | Any self-sustaining flame extinguished within 30s, and any flaming drops do not ignite tissue paper (Sample 8) | from 2 s to 18 s | P |
| 20.5 | Tracking test on parts retaining live parts or ELV parts in position of drip-proof lampholders (Sample 9) | | P |
| | Lampholder withstands 50 drops without failure at PTI 175 (Sample 9) | | N/A |

t_i – duration from the beginning of tip application up to the time at which the specimen or wrapping tissue ignites
t_e - duration from the beginning of tip application up to the time when flames extinguish (during or after the period of application)
h- the maximum height of any flame

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| 21 | RESISTANCE TO SEASON CRACKING AND TO RUSTING (Sample 9) | | P |
| 21.1 | Contacts and other parts of copper or copper alloy do not show any cracks after the test in ammonium chloride solution, inspected at 8 x optical magnification | | P |
| 21.2 | No signs of rust after the prescribed test | | N/A |

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| | ANNEX: screwless terminals (test made on separate samples) | P |
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| (15) | SCREWLESS TERMINALS | | P |
| (15.2) | Type of terminal | Spring terminal | — |
| | Rated current (A) | 4 A | — |
| (15.3.1) | Material | | P |
| (15.3.2) | Clamping | | P |
| (15.3.3) | Stop | | P |
| (15.3.4) | Unprepared conductors | | P |
| (15.3.5) | Pressure on insulating material | | P |
| (15.3.6) | Clear connection method | | P |
| (15.3.7) | Clamping independently | | P |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| (15.3.8) | Fixed in position | | P |
| (15.3.10) | Conductor size | 0,5 - 2,5 mm ² | P |
| | Type of conductor | | P |
| (15.5.1) | Terminals internal wiring | | N/A |
| (15.5.1.1) | Pull test spring-type terminals (4 N, 4 samples) | | N/A |
| (15.5.1.2) | Pull test pin or tab terminals (4 N, 4 samples) | | N/A |
| | Insertion force not exceeding 50 N | | N/A |
| (15.5.2) | Permanent connections: pull-off test (20 N) | | N/A |
| (15.6) | Electrical tests: | | N/A |
| | Voltage drop (mV) after 1 h (4 samples) | | N/A |
| | Voltage drop of two inseparable joints | | N/A |
| | Number of cycles..... | | — |
| | Voltage drop (mV) after 10th alt. 25th cycle (4 samples) | | N/A |
| | Voltage drop (mV) after 50th alt. 100th cycle (4 samples) | | N/A |
| | After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples) | | N/A |
| | After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples) | | N/A |
| (15.7) | Terminals external wiring | | P |
| | Terminal size and rating | | P |
| (15.8.1) | Pull test spring-type terminals (4 samples); pull (N): | 20 N | P |
| | Pull test pin or tab terminals (4 samples); pull (N): | | N/A |

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| Clause | Requirement + Test | | | | | Result - Remark | | | | | Verdict |
|-------------------|--|-----|-----|-----|-----|-----------------|-----|-----|-----|-----|---------|
| (15.9) | Contact resistance test | | | | | | | | | | P |
| | Voltage drop (mV) after 1 h | | | | | | | | | | P |
| terminal | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| voltage drop (mV) | 7 | 6,7 | 6,3 | 6,1 | 6,7 | 6 | 5,9 | 7,2 | 6,5 | 7,1 | |
| | Voltage drop of two inseparable joints | | | | | | | | | P | |
| | Voltage drop after 10th alt. 25th cycle | | | | | | | | | | P |
| | Max. allowed voltage drop (mV) : | | | | | 22,5 mV | | | | — | |
| terminal | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| voltage drop (mV) | 6,8 | 6,5 | 6,4 | 6,3 | 6,2 | 6,2 | 5,8 | 8 | 6,8 | 7,4 | |
| | Voltage drop after 50th alt. 100th cycle | | | | | | | | | | N/A |
| | Max. allowed voltage drop (mV) : | | | | | | | | | — | |
| terminal | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| voltage drop (mV) | / | / | / | / | / | / | / | / | / | / | |
| | Continued ageing: voltage drop after 10th alt. 25th cycle | | | | | | | | | | P |
| | Max. allowed voltage drop (mV) : | | | | | 22,5 mV | | | | — | |
| terminal | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| voltage drop (mV) | 7,1 | 7,2 | 6,5 | 6,8 | 6,4 | 6,5 | 5,8 | 8,2 | 6,4 | 7,8 | |
| | Continued ageing: voltage drop after 50th alt. 100th cycle | | | | | | | | | | N/A |
| | Max. allowed voltage drop (mV) : | | | | | | | | | — | |
| terminal | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| voltage drop (mV) | / | / | / | / | / | / | / | / | / | / | |

1-2-3...0,5 mm².....Flexible conductor

4-5-6...2,5 mm².....Flexible conductor

7,8.....0,5 mm².....Rigid conductor

9-10.....2,5 mm².....Rigid conductor

ATTACHMENT 1 - Photo documentation

Type 1201 (art. 12011 or 12012)



ATTACHMENT 1 - Photo documentation

Type 1201 (art. 12015 or 12016)



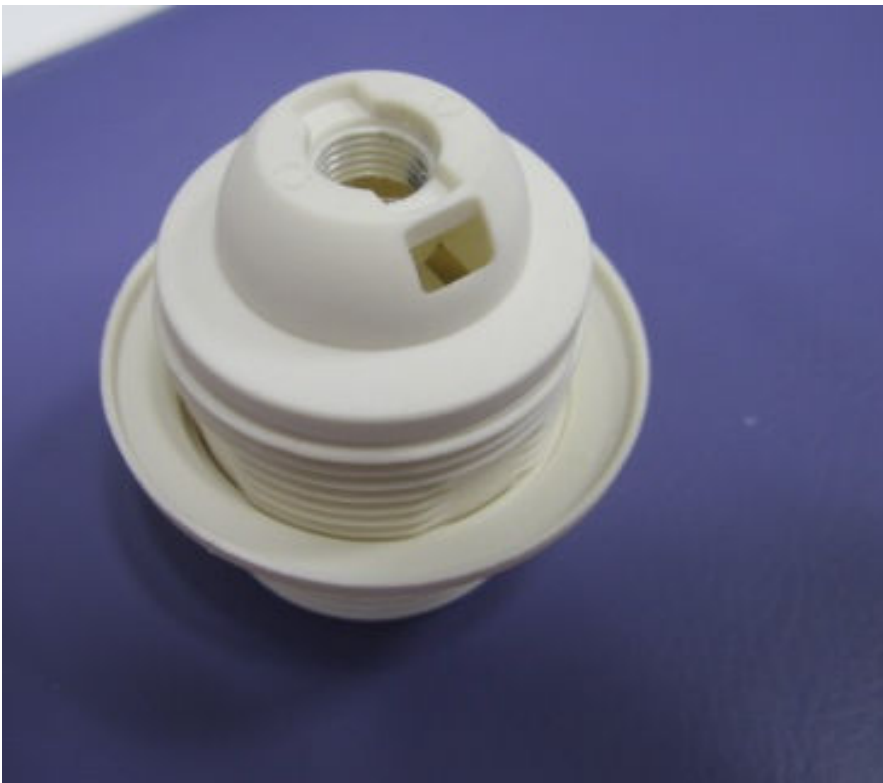
ATTACHMENT 1 - Photo documentation

Type 1201 (art. 12013 or 12014)



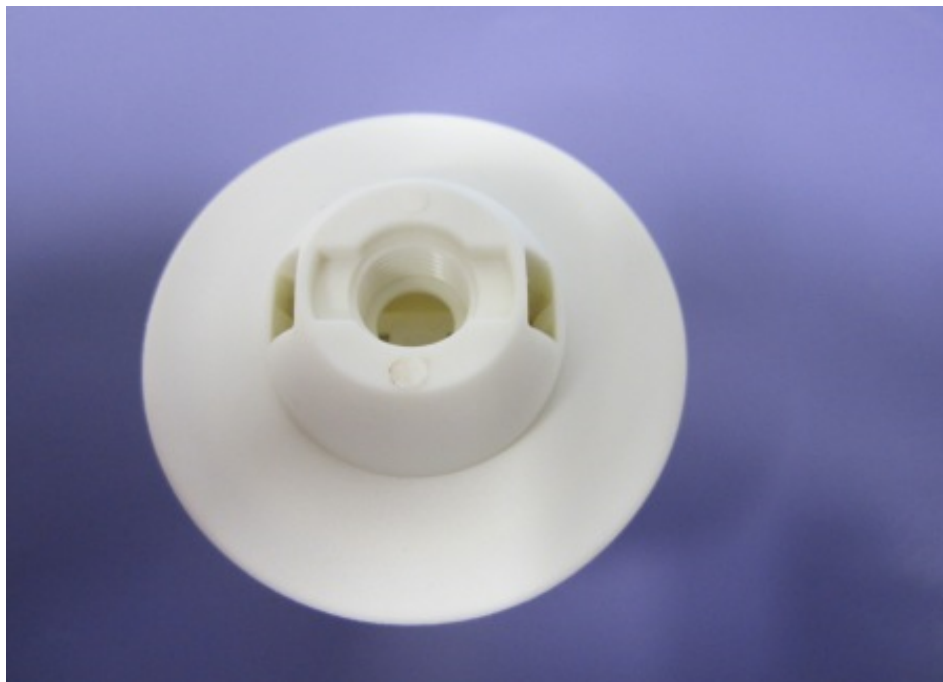
ATTACHMENT 1 - Photo documentation

Type 1102 (art. 12021 or 12022)



ATTACHMENT 1 - Photo documentation

Type 1202 (art. 12023 or 12024)



ATTACHMENT 1 - Photo documentation

Type 1203 (art. 12031 or 12032)



ATTACHMENT 1 - Photo documentation**Type 1204 (art. 12041 or 12042)**

ATTACHMENT 1 - Photo documentation

Type 1204 (art. 12043 or 12044)



ATTACHMENT 1 - Photo documentation

End cap with threaded entry M10x1



Spring terminal

