



First Group Lab

CE LVD TEST REPORT

For
Aldo Bernardi srl

Model No.: Wall box "Ottoni"

Applicant: Aldo Bernardi srl
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Note

The results reported in this test report relate the tested item only.

The laboratory is not responsible of the sampling.

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TEST REPORT
IEC 60670-22

Boxes and enclosures for electrical accessories for household and similar fixed electrical installations
Part 22: Particular requirements for connecting boxes and enclosure

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Test specification Standard: IEC 60670-22: 2003 used in conjunction with IEC 60670-1: 2015

Non standard test method: N/A

Trade Mark: Aldo Bernardi srl

Model/Type designation: Wall box "Ottoni"

Test Item Description: wall box

Ratings: 1000V a.c. / 1500V d.c.

Possible test verdict

| | |
|-----------------|---|
| N/A | test case does not apply to the test object |
| P (pass) | test object does meet the requirement |
| F (fail) | test object does not meet the requirement |
| Decisional rule | The judgment / declaration of conformity is assigned taking into account only the numerical values of the measurands reported in this document or the data obtained in the visual inspection. |

Tested by : laboratory technician Valter Benetton Valter Benetton

Approved by: laboratory manager Giorgio Lovisetto Giorgio Lovisetto

General remarks:

This report includes the following parts:

- _ Applied clauses of IEC 60670-22.
- _ Annex 1: Tables
- _ Annex 2: Photo Documentation.
- _ Annex 3: Laboratory Equipments.

Unless otherwise specified, test are made under normal conditions at an ambient temperature within the range of 18°C to 28°C, RH 45% to 75%.

Throughout this report a comma is used as the decimal separator.

| Test item particulars | |
|--|---|
| 7.1 Nature of materials | <input type="checkbox"/> 7.1.1 Insulating <input checked="" type="checkbox"/> 7.1.2 Metallic <input type="checkbox"/> 7.1.3 Composite <input type="checkbox"/> 7.1.3 Natural or synthetic rubber or a mixture of both |
| 7.2 Method of installation | <input type="checkbox"/> 7.2.1 Flush, semi-flush in solid walls, ceiling or floors <ul style="list-style-type: none"> <input type="checkbox"/> 7.2.1.1 Not suitable for installation into concrete <input type="checkbox"/> 7.2.1.2 Suitable for installation into concrete, max T 60°C during casting <input type="checkbox"/> 7.2.1.3 Suitable for installation into concrete, max T 90°C during casting <input type="checkbox"/> 7.2.2 Flush, semi-flush in hallow walls, hallow ceiling, hallow floors or furniture <ul style="list-style-type: none"> <input type="checkbox"/> 7.2.2.1 Class Ha <input type="checkbox"/> 7.2.2.2 Class Hb for walls <input type="checkbox"/> 7.2.2.3 Class Hb for ceilings <input checked="" type="checkbox"/> 7.2.3 Surface mounting on walls, ceiling, floors or furniture |
| 7.3 Type(s) of inlets (outlets) | <input type="checkbox"/> 7.3.1 With inlets for sheathed cables for fixed installations <input type="checkbox"/> 7.3.2 With inlets for flexible cables <input checked="" type="checkbox"/> 7.3.3 With inlets for plain or corrugated conduits <input type="checkbox"/> 7.3.4 With inlets for threaded conduits <input type="checkbox"/> 7.3.5 With inlets for other types of conductors/cables or conduits <input type="checkbox"/> 7.3.6 With spouts (hub) <input type="checkbox"/> 7.3.7 Without inlets. Inlet openings will be made during installation |
| 7.4 Clamping means | <input type="checkbox"/> 7.4.1 With cable retention <input type="checkbox"/> 7.4.2 With cable anchorage <input type="checkbox"/> 7.4.3 With clamping means for flexible conduit <input checked="" type="checkbox"/> 7.4.4 With clamping means for flexible conduit |
| 7.5 Minimum temperature during installation | <input checked="" type="checkbox"/> 7.5.1 -5°C <input type="checkbox"/> 7.5.2 -15°C <input type="checkbox"/> 7.5.3 -25°C |
| 7.6 and 7.7 IP degree | <input type="checkbox"/> minimum IP2X <input checked="" type="checkbox"/> Degree IP40 |
| 7.8 Degree of protection of the part mounted inside the hallow walls if classified 7.2.2.1 | <input type="checkbox"/> 7.8.1 IP2X <input type="checkbox"/> 7.8.2 >IP2x |
| 7.9 The provision for fixing accessories to boxes | <input type="checkbox"/> 7.9.1 Boxes supplied with screws <input checked="" type="checkbox"/> 7.9.2 Boxes intended to receive screws <input type="checkbox"/> 7.9.3 Boxes intended to receive claws <input type="checkbox"/> 7.9.4 Boxes intended to receive other means |
| 7.101 Method of fixing the terminal in the connecting device | <input type="checkbox"/> 7.101.1 With integrated clamping unit <input type="checkbox"/> 7.101.2 with incorporated terminals or connecting devices <input type="checkbox"/> 7.101.3 With provisions for subsequent incorporation of terminals <input checked="" type="checkbox"/> 7.101.4 Without fixing (floating terminals or connecting device) |

This test report cover the follow elements:

- 75** Round junction box in cast brass
- 80** Oval junction box in cast brass
- 90** Rectangular junction box in cast brass
- CIL.10** Brass connection for conduit Ø10 mm
- CIL.16** Brass connection for conduit Ø16 mm
- CIL.20** Brass connection for conduit Ø20 mm
- TAP.10** Opening cap Ø10 mm
- TAP.16** Opening cap Ø16 mm
- TAP.20** Opening cap Ø20 mm
- RID.1** Brass adapter Ø20 to Ø16 mm
- RID.2** Brass adapter Ø16 to Ø10 mm

| IEC 60670-22 | | | |
|--------------|--|-----------------|------------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 8 | MARKING | | P |
| 8.1 | Boxes and enclosures are marked with: | | - |
| | a) name, trade mark or identification mark of the manufacturer or the responsible vendor | | P |
| | Enclosures are marked in addition with: | | N/A |
| | b) IP code against ingress of solid objects if higher than IP2X | IP 4X | P |
| | c) IP code against harmful ingress of water if higher than IPX0 | IP X0 | N/A |
| | d) marking on cover of flush enclosures for rough surfaces and where IP is dependent on the surface (Fig. 5) | IP XX ▲▲▲ | N/A |
| | IP code is marked on the outside of the enclosure so as to be easily discernible when the enclosure is mounted and wired as for normal use | | P |
| | e) type reference, which may be a catalogue number | | P |
| | f) if classified 7.2.2.2 and 7.2.2.3 indicate the minimum internal volume in cm ³ | | N/A |
| | Information marked on the boxes and enclosures or provided by the manufacturer on the smallest package unit or in the instructions of the manufacturer: | | - |
| | g) + 90°C if classified according 7.2.1.3 | | N/A |
| | h) necessary information concerning the openings which can be made during installation for boxes and enclosures classified according to 7.3.7 | | N/A |
| | i) minimum temperature during installation for boxes classified according to 7.5.2 and 7.5.3 | | N/A |
| | j) symbol Ha for boxes classified according to 7.2.2.1, symbol Hb for boxes classified according to 7.2.2.2 and 7.2.2.3 | | N/A |
| | k) rated insulation voltage for boxes with integrated or incorporated terminals or connecting device ...: | | N/A |
| | l) rated connecting capacity.....: | | N/A |
| | m) maximum number of conductor to be placed in the box | | N/A |
| 8.101 | Correct symbols V, mm ² or □ | | P |
| 8.2 | Marking is durable and easily legible | | P |
| 9 | DIMENSIONS | | N/A |
| | Boxes and enclosures comply with the appropriate standard sheets, if any | | N/A |
| 10 | PROTECTION AGAINST ELECTRIC SHOCK | | P |
| | In boxes and enclosures assembled, equipped and installed as for normal use in accordance with the manufacturer's instructions: live parts are not accessible | | P |

| | | | |
|-----------|---|-----------------|----------|
| | Test probe 11 of IEC 61032 applied for 1 min with a force of 20 N do not penetrate in the internal volume of the enclosure | | P |
| | Additional test at (35 ± 2) °C with probe 11 of IEC 61032 on enclosures according to 7.1.1, 7.1.3 and 7.1.4 with parts of thermoplastic or electrometric material applied to: | | - |
| | - all places, except membranes or the like, where yielding of insulating material could impair the safety, with a force of 75 N | | N/A |
| 11 | PROVISION FOR EARTHING | | P |
| 11.1 | Boxes and enclosure with exposed conductive parts | | - |
| | Provided with an earthing means of a low resistance | | P |
| | Have provision for the fitting of such an earthing | | N/A |
| | Exposed conductive parts of covers or cover-plates | | N/A |
| | Resistance $\leq 0,05 \Omega$ (Ω) | 0,04 | P |
| | The earthing means or the provision for the fitting of such an earthing means shall be located so that: | | - |
| | - the means is readily accessible through the open face of the box, and | | P |
| | - the removal of an accessory mounted in the box does not disturb the continuity, and | | P |
| | - the means is not parts of the removable cover, back, or side of the box or enclosure | | N/A |
| 11.3 | Boxes and enclosure with removable sides according to 7.1.2 | | - |
| | Electrical bond between separable parts includes at least one threaded scew connection | | P |
| 11.4 | Earthing terminal threads | | - |
| | The threads of the earthing terminal shall not be stripped when the torque is applied | | P |
| | - type of screw | M4, bottom head | - |
| | - torque applied (Table 4) | 1,2 Nm | - |
| | No damage during test | | N/A |
| 12 | CONSTRUCTION | | P |
| 12.1 | General | | - |
| | Constructed without sharp edge | | P |
| | Inner an outer surfaces not be subjected to peeling, scaling, flaking; smooth and free from blisters, crack and other defects. | | P |
| 12.2 | Lids, covers or cover-plates or part of them | | - |
| 12.2.1 | Lids, covers or cover-plates or parts of them, such as protective membranes, which are intended to ensure protection against electric shock, are held in place effectively | | P |
| 12.2.2 | Box or enclosure intended to accept a lid, cover or cover plate by means of screw fixing is provided with means to accommodate the intended screws | | N/A |
| 12.2.3 | Non-screw-type fixing operable without the use of a tool or a key; provided with a means to fix the lid, cover or cover plate | | N/A |

| | | | |
|-------------|---|--|-----|
| 12.2.3.2 | Verification of the non-removal of the lids, covers or cover-plates: force applied for 1 min (N) | | - |
| | Lids, covers or cover-plates not come off | | N/A |
| 12.2.3.3 | Verification of the removal of the lids, covers or cover-plates: force applied for 10 times on each part (N) | | - |
| | Lids, covers or cover-plates not come off | | N/A |
| 12.2.3.4 | Verification of the outline of the lids, covers or cover-plates: test with gauge of Figure 6 | | N/A |
| 12.2.3.5 | Verification of grooves, holes and reverse tapers: test with gauge \varnothing 1mm applied with a force of $(1\pm 0,2)$ N | | - |
| | No enter more 1mm | | N/A |
| 12.2.4 | Non-screw-type fixing operable with the use of a tool or a key | | N/A |
| 12.3 | Drain holes | | - |
| | Surface and semi-flush mounting enclosures having IPX1 to IPX6 allow the opening of a drain hole ≥ 5 mm in diameter (mm \varnothing) or 20 mm ² in area (mm ²) with a width or length ≥ 3 mm (mm) | | N/A |
| | Drain holes: effective | | N/A |
| 12.4 | Mounting of enclosure | | - |
| | Enclosures have provisions for their suitable attachment according to the method of installation | | P |
| 12.5 | Boxes and enclosures with inlets for flexible cables | | N/A |
| 12.6 | Boxes and enclosures with inlets for applications other than flexible cables | | N/A |
| 12.7 | Boxes and enclosures with a cable anchorage(s) | | N/A |
| 12.8 | Boxes and enclosures with cable retention means | | N/A |
| 12.9 | Knock-out inlets (outlets) intended to be removed by mechanical impact | | - |
| 12.9.1 | General | | - |
| | It is possible to remove knock-out by mechanical | | N/A |
| | Chips or burrs are not accepted in knock-out for | | N/A |
| | Chips and burrs are disregarded in knock-out for | | N/A |
| | In order to close an open knock-out in a box or an enclosure according 7.1.2 a blanking-plug used without a locknut: | | N/A |
| | - not become dislodged, and | | N/A |
| | - its effectiveness not be impaired, and | | N/A |
| | - it fulfil all requirements for knock-outs | | N/A |
| 12.9.2 | Knock-out retention | | - |
| | Boxes and enclosures having knock-outs, accessible after installation by means of a 6 mm diameter mandrel with a flat end that: | | N/A |
| | not provide access to live parts, a force of (30 ± 1) N applied for (15 ± 1) s | | N/A |
| | provide direct access to live parts, a force of (40 ± 1) N applied for (60 ± 1) s | | N/A |
| | Box with multi-stage knock-outs, the force applied to the smallest | | N/A |
| | During the test: knock-out remains in place | | N/A |

| | | | |
|--------------|--|-----------|-----|
| | Degree of protection unchanged 1 h after the test | | N/A |
| 12.9.3 | Knock-out removal | | - |
| | Removal test of knock-outs with a tool as stated by the manufacturer, without conditioning: | | - |
| | During the test: no displacement of a larger stage of multi-stage knock-outs when a smaller stage is removed | | N/A |
| | After the test: no sharp edges, box and enclosure is not damaged | | N/A |
| | Removal test of knock-outs with a tool as stated by the manufacturer, immediately following a conditioning at the minimum temperature specified according to 7.5 for 5 h ± 10 min (boxes and enclosures according to 7.1.1 or 7.1.3) | | - |
| | Test temperature (°C).....: | -5°C | - |
| | During the test: no displacement of a larger stage of multi-stage knock-outs when a smaller stage is | | N/A |
| | After the test: no sharp edges, box and enclosure is not damaged | | N/A |
| 12.10 | Screw fixings | | - |
| | Fixing means effected by screws withstand mechanical stresses | | P |
| | Screw or other fixing means made from insulating material without standardized thread are tested according to the manufacturer's instruction | | N/A |
| | Thread-forming or thread-cutting screws used only if supplied together with one of the pieces with which they are intended to be inserted | | N/A |
| | Verification of the mechanical strength of screws | see table | P |
| 12.11 | Fixing of boxes and enclosures classified according to 7.2.1 | | N/A |
| 12.12 | Fixing of flush type and semi-flush type boxes and enclosures classified according to 7.2.2.1 | | N/A |
| 12.13 | Boxes and enclosures classified according to 7.2.2.2 and 7.2.2.3 | | N/A |
| 12.14 | Cable gland entry | | P |
| | - diameter (mm) | 10 | - |
| | - torque applied (Table 5) (Nm) | 6,3 | - |
| | - diameter (mm) | 16 and 20 | - |
| | - torque applied (Table 5) (Nm) | 7,5 | - |
| 12.15 | Boxes and enclosure with inlets (outlets) or spouts (hubs) for conduits | | - |
| 12.15.1 | Boxes and enclosure classified according to 7.3.4 and conical spouts as in 7.3.6 withstand the tests of 12.15.2, 12.15.3 and 12.15.4 | | N/A |
| | Boxes and enclosure classified according to 7.3.3 withstand the tests of 12.14 | | P |
| 12.15.2 | Enclosures with inlet spout for conduits: a minimum size of conduit pressed for 1 min ±5 s with a force of (100±2) N | | N/A |
| | During the test: inlet spout prevents further entry of the conduit into the box | | N/A |

| | | | |
|--------------|--|--|-----|
| 12.15.3 | Pull-out test after the test according to 12.15.2: conduit with the minimum size corresponding to the insert opening loaded for 1 min with a tensile force of (20±2)N | | N/A |
| | During the test: conduit not come loose from the inlet spout of the enclosure | | N/A |
| 12.15.4 | Resistance to bending strain of an inlet spout: piece of conduit inserted into the inlet spout with a compressible force of (100±2) N and loaded with a bending moment of 3 Nm for 1 min in six different directions with an interval of 60° | | N/A |
| | During the test: inlet spout not come loose or damaged and conduit stays within the inlet spout | | N/A |
| 12.16 | Internal volume of boxes and enclosure | | - |
| | Declared internal volume of the box or enclosure and each partitioned section of a box or enclosure, raised cover and box extension is measured | | P |
| 12.101 | connecting boxes have adequate space to allow the correct connection of conductor specified in the relevant sections of Part 2 of IEC 60998 | | N/A |
| | Maximum number of conductors of maximum cross-sectional areas or the most unfavourable combination | | N/A |
| 12.102 | Retention means for terminals or connecting devices withstand the mechanical stresses | | N/A |
| | Connected conductors in accordance with the relevant Part 2 of IEC 60998 for type of connecting device used | | N/A |
| | After the test: no harmful deformation, crack or similar damage | | N/A |
| 12.103 | Connecting boxes classified according to 7.101.1, 7.101.2 and 7.101.3 comply with temperature rise requirements of 16.102 | | N/A |

| | | | |
|-------------|--|--|----------|
| 13 | RESISTANCE TO AGEING, PROTECTION AGAINST INGRESS OF SOLID OBJECTS AND AGAINST HARMFUL INGRESS OF WATER | | P |
| 13.1 | Resistance to ageing | | N/A |
| 13.1.1 | Resistance to ageing | | N/A |
| | Specimens of insulating and composite boxes and enclosures, glands, grommets and replaceable membranes placed in a heating cabinet at (70 ± 2) °C for (168 + 4) h and then kept at room temperature for (96 + 4) h | | - |
| | Glands tightened with a torque equal to 2/3 of the torque applied during the test of 12.13 (Nm) | | N/A |
| | Greater torque value stated by the manufacturer, if any (Nm) | | N/A |
| | After the test: no harmful deformation or similar damage | | N/A |
| 13.1.2 | Grommets, blanking-plug and entry membranes in inlet openings and protecting membranes are reliably fixed and are not displaced by the mechanical and thermal stresses occurring in normal use | | N/A |

| | | | |
|-------------|--|---|-----|
| | Specimens that have been subjected to the treatment specified in 13.1.1 placed in a heating cabinet at $(40 \pm 2) ^\circ\text{C}$ for $2 \text{ h} \pm 15 \text{ min}$ | | - |
| | Immediately after this period the tip of test probe 11 of IEC 61032 is applied for $(5 \pm 1) \text{ s}$ with a force of $(30 - 2) \text{ N}$. During the tests: grommets, blanking plug and/or membranes not deformed to such an extent that live parts of any included accessory become accessible | | N/A |
| | Grommets, blanking-plug and/or membranes likely to be subjected to an axial pull: axial pull of $(30 - 2) \text{ N}$ applied for $(5 \pm 1) \text{ s}$. During the tests: grommets, blanking-plug and/or membranes not deformed to such an extent that live parts of any included accessory become accessible | | N/A |
| | Test repeated on same enclosures fitted with grommets, blanking-plug and/or membranes not subjected to any treatment | | N/A |
| | After the test: no harmful deformation, cracks or similar damage | | N/A |
| 13.1.3 | Grommets, blanking-plug and entry membranes in inlet openings of boxes and enclosures classified according to 7.5.2 and 7.5.3: introduction of the cables and conduit permitted when the ambient temperature is low | | N/A |
| | Test on enclosures fitted with grommets, blanking-plug and/or membranes not subjected to any ageing treatment kept for 2 h in a refrigerator | | - |
| | Test temperature ($^\circ\text{C}$) | | - |
| | Immediately after conditioning: it is possible to pierce any blind grommets, blanking-plug and entry membranes and to introduce cables and conduit of the maximum diameter intended | | N/A |
| | After the test: no harmful deformation, cracks or similar damage | | N/A |
| 13.2 | Protection against the ingress of solid objects | | P |
| | Enclosures provide a degree of protection against the ingress of solid objects in accordance with the declared IP code | IP4x | P |
| | Enclosures mounted as in normal use with screwed glands or grommets fitted with cables as declared by the manufacturer..... | | N/A |
| | Enclosures mounted as in normal use with screwed glands or grommets fitted with conduits as declared by the manufacturer..... | $\varnothing 10, 16 \text{ and } 20 \text{ mm}$ | P |
| | Fixing screws of the cover or cover-plate tightened with a torque (Nm) | | N/A |
| | Greater torque value stated by the manufacturer, if the relevant information is provided (Nm) | | N/A |
| | - IP5X: test performed as specified in IEC 60529 category 2 with the drain holes, if any, not opened | | N/A |

| | | | |
|-------------|---|-------------------------|------------|
| | - IP≤4X: test probe does not pass through any opening other than drain holes | | N/A |
| | - IP≤4X: test probe applied on drain holes does not touch live parts within the enclosure | | N/A |
| | - IP5X: dust does not cover the whole inner surface | | N/A |
| | - IP6X: there is no dust inside the box or enclosure | | N/A |
| 13.3 | Protection against harmful ingress of water | | N/A |
| 13.3.1 | Enclosures with IP>X0 provide a degree of protection against harmful ingress of water in accordance with the declared IP code | IPX0 | N/A |
| | Enclosure dimensions: reference surface S (m ²) / perimeter (m) | surface or perimeter XX | - |
| | - dimension S ≤ 0,04 m ² or perimeter ≤ 0,8 m according to 13.3.2 and 13.3.3 | | N/A |
| | - dimension S > 0,04 m ² and perimeter > 0,8 m according to 13.3.2 and 13.3.4 | | N/A |
| | Enclosures mounted as in normal use with screwed glands or grommets fitted with cables as declared by the manufacturer..... | min max sezione cavo | N/A |
| | Enclosures mounted as in normal use with screwed glands or grommets fitted with conduits as declared by the manufacturer..... | min max diametro tubo | N/A |
| | Fixing screws of the cover or cover-plate tightened with a torque (Nm) | | - |
| 13.3.2 | Surface-mounting enclosures mounted as for normal use | | N/A |
| | Flush type and semi-flush type enclosures fixed in a test wall: | | - |
| | - according to the manufacturer's instructions | | N/A |
| | - according to Figure 5 | | N/A |
| | IPX3 and IPX4 enclosures | | N/A |
| 13.3.3 | Immediately after the test no more than 0,2 ml x S (cm ²) water in the enclosure (ml) | | N/A |
| | Electric strength test specified in 14.2 except for enclosures classified according to 7.101.4 | | N/A |
| 13.3.4 | Immediately after the test: indicator paper still dry | | N/A |
| 14 | INSULATION RESISTANCE AND ELECTRIC STRENGTH | | N/A |
| 14.1 | Insulation resistance and electric strength of enclosures classified according to 7.1.1, 7.1.3 and 7.1.4 is adequate | | N/A |
| | Specimens placed in a humidity cabinet containing air with relative humidity between 91 % and 95 % and air temperature between 20 °C and 30 °C for: | | - |
| | - 2 days (48 h) for enclosures classified IPX0 | | N/A |
| | - 7 days (168 h) for enclosures classified IP>X0 | | N/A |
| | After this treatment: no damage | | N/A |
| 14.2 | Insulation resistance measured 1 min after application of 500 V d.c. | see table 14.2 | N/A |
| 14.2.101 | For box with integrated or incorporate terminal or connectind device, the measurements are made consecutively as below | | - |
| | a) between all clamping units connected together and the body for connecting device | | N/A |

| | | | |
|-----------|--|---------------------------|------------|
| | b) between each clamping units and all other connected to the body for connecting device | | N/A |
| 14.3 | Electric strength: a.c. test voltage applied for 1 min | see table 14.3 | N/A |
| 15 | MECHANICAL STRENGTH | | N/A |
| 15.1 | Boxes and enclosures have adequate mechanical strength | | - |
| 15.2 | Impact test at low temperature | only for non-metallic box | N/A |
| 15.3 | Compression test | only for non-metallic box | N/A |
| 15.4 | Impact test for boxes and enclosure | only for non-metallic box | N/A |
| 15.5 | Compression test for enclosures made of natural or synthetic rubber or a mixture of both | only for non-metallic box | N/A |
| 16 | RESISTANCE TO HEAT | | N/A |
| 16.1 | Part of insulating material necessary to retain current-carrying parts | | N/A |
| | Ball pressure test according IEC 60695-10-2 (125±2)°C for (60+5) min | see table 16.1 - 16.2 | N/A |
| 16.2 | Part of insulating material not necessary to retain current-carrying parts | | N/A |
| | Ball pressure test according 16.1 but (70±2)°C for (60+5) min | see table 16.1 - 16.2 | N/A |
| | Parts of insulating material of flush-mounted enclosures classified according to 7.2.1.3: ball pressure test according to 16.1 but at (90 ± 2) °C | | N/A |
| 16.3 | Boxes and enclosures of insulating materials classified according to 7.7.2 | | N/A |
| 17 | CREEPAGE DISTANCES, CLEARANCES AND DISTANCES THROUGH SEALING COMPOUND | | N/A |
| | Test does not apply to boxes for floating terminals or connecting devices classified according 7.101.4 | | - |
| 18 | RESISTANCE OF INSULATING MATERIAL TO ABNORMAL HEAT AND FIRE | | N/A |
| | Glow-wire test according to Clauses 4 to 10 of IEC 60695-2-11 | see table 18 | N/A |
| 19 | RESISTANCE TO TRACKING | | N/A |
| | Parts of insulating material retaining live parts in position of boxes and enclosures having IP>X0: PTI 175, 50 drops, solution A of IEC 60112 | see table 19 | N/A |
| 20 | RESISTANCE TO CORROSION | | N/A |
| | Test made after having removed all grease by immersion in a degreasing agent for (10 ± 1) min, (10 ± 1) min in a 10 % solution of ammonium chloride, (10 ± 1) min in a box containing air saturated with moisture and (10 ± 1) min at (100 ± 5) °C | | - |
| | No signs of rust | | N/A |
| 21 | ELECTROMAGNETIC COMPATIBILITY (EMC) | | N/A |
| | No tests necessary | | - |

| ANNEX 1 | | TABLES | | | |
|--|--|--|---|------------------------------------|------------------------------------|
| Clause | Requirement + test / Result - Remark | | | | Verdict |
| 12.9 | TABLE: mechanical strenght of screws | | | | P |
| threaded part identification (e.g. fixing means for cover) | diameter of screw thread (mm) | column number – Table 4 (I, II, III or IV) | applied torque – Table 4 (Nm) | times (5/10) | no damage |
| earth contact | 4 | II | 1,2 | 10 | P |
| cover fixing | 4 | III | 1,2 | 10 | P |
| Supplementary information: | | | | | |
| 14.2 | TABLE: insulation resistance | | | | N/A |
| test voltage applied between: | | | | measured (MΩ) | required (MΩ) |
| body and a metal foil in contact with the internal surface | | | | | 5 |
| supplementary information: | | | | | |
| 14.3 | TABLE: electric strenght | | | | N/A |
| rated insulation voltage (V).....: | | | | | |
| test voltage applied between: | | | | test voltage (V) | flashover / breakdown (Yes/No) |
| supplementary information: | | | | | |
| 15.3 | TABLE: impact test | | | | N/A |
| part of enclosure tested per Table 7 (A, B, C, D, E, F, G) | Total number of blows per part – Figure 10 | | height of fall (mm) | | comments |
| supplementary information: | | | | | |
| 16.1 - 16.2 | TABLE: ball pressure test of insulating materials | | | | N/A |
| allowed impression diameter (mm).....: | | | | ≤2 | - |
| part under test | | | | test temperature (°C) | impression diameter (mm) |
| supplementary information: | | | | | |
| 18 | TABLE: glow-wire test | | | | N/A |
| part under test | material designation | test temperature (°C) | visible flame and sustained glowing (Y/N) | flames and glowing extinction time | ignition of the tissue paper (Y/N) |
| supplementary information: | | | | | |
| 19 | TABLE: resistance to tracking | | | | N/A |
| part under test | material designation | | | test voltage (V) | flashover / breakdown (Y/N) |
| supplementary information: | | | | | |

ANNEX 2 | **PHOTO DOCUMENTATION**



| ANNEX 3 | | LABORATORY EQUIPMENTS | | | | |
|-------------------|-----------------------------|-----------------------|-----------------------|---------------------|-----------------------------|----------------------|
| code | type | manufacturer | model | serial | certificate of calibration | calibration due date |
| LAB001 | datalogger | HP | 34970A | US37027411 | LAT 135 S.13926.T | 20/09/2023 |
| LAB010+ LAB011 | thermoigrometer | Delta Ohm | HD2101.1R + HP472AC R | 15036059 + 16017312 | LAT 238 3400-22 | 21/09/2023 |
| LAB004 | multimeter | HP | 34401A | US36099959 | LAT 135 E-3676-68455 | 19/09/2023 |
| LAB008 | electrical safety tester | Schleich | GLP2-i | 2347 | LAT 238 0714CT-22 | 22/09/2023 |
| LAB021 | torque srewdriver | Fervi | 0806/020 | Q70600255 | T2i 2690/22-2805/22-2806/22 | 28/10/2023 |
| LAB022 | dynamometer | Sauter | FH2K | 5B15L01144 | T2i 2689/22 | 27/10/2023 |
| LAB025 | vernier caliper | Metrica | vernier caliper | SC 2927 | LAT 137 S1474/22 | 27/10/2023 |
| LAB012 | analizer | Everfine | PF9800 | YG100661N11 120215 | LAT 046 373101 | 14/10/2023 |
| LAB057 | stopwatch | Decathlon | ON START 310 | 00473828553 8 | LAT 056 22-0145 | 11/02/2024 |
| LAB058 | ambient datalogger | Testo | Saveris 2 H1 | 0054737942 | LAT 238 0537-22 | 15/02/2024 |
| LAB059 | anemometer | Testo | 440+0635 1051 | 83625005+63 237316 | LAT 124 22000967 | 16/03/2024 |
| LAB064+ LAB065 | dynamometer | AEP | TCE-TM25kN + DF12 | 164162 + 6962 | 03214 23 I + 03216 23 I | 16/01/2025 |
| | Petroleum spirit (n-Hexane) | Merck | 1.04374.1000 | K54108474 | coa K54108474 | 2027 |

END OF REPORT