CGS TEST HİZMETLERİ TEKNİK KONTROL VE BELGELENDİRME ANONİM ŞİRKETİ

Kayışdağı Mah. Gülçin Sok. No:2/2 Ataşehir
İstanbul/TÜRKİYE
Deney Raporu
Test Report

LVD-183-84R1.0

06-23

Müşterinin adı /adresi: Customer name/address	***MUTLUSAN PLASTIK ELEKTRIK SAN. VE TIC. A.Ş.*** ***İkitelli O.S.B. Mah. Enkoop cad. No:7 Başakşehir / İstanbul /TURKEY***
Üretici/ Üretim Yeri: Manufacturer/ Manufacturing Location	***MUTLUSAN PLASTIK ELEKTRIK SAN. VE TIC. A.Ş.*** ***İkitelli O.S.B. Mah. Enkoop cad. No:7 Başakşehir / İstanbul /TURKEY***
İstek Numarası: Order no.	***01062023bk02R1.0***
Numunenin Adı ve Tarifi: Name and identity of test item	***001 027 100012 00 00; W AUTOMATIC FUSE BOXES***
Numunenin Kabul tarihi: The date of receipt of test item	***06.01.2022***
Açıklamalar: Remarks	***Ürün ilgili testlerden geçmiştir, lütfen raporu inceleyiniz. LVD-183-84 numaralı rapor EN 60670-1:2005/A1:2013 numaralı standardının EN IEC 60670-1:2021/A11:2021 standardına göre güncellenmesi sebebiyle 03.06.2023 tarihinden itibaren geçersizdir. 03.06.2023 tarihinden itibaren LVD-183-84R1.0 numaralı rapor geçerlidir. /*** The product passes related tests, see report below. The report numbered LVD-183-84 is invalid as of 03.06.2023 due to the updating of the standard EN 60670-1:2005/A1:2013 according to the EN IEC 60670-1:2021/A11:2021 standard. As of 03.06.2023, the report numbered LVD-183-84R1.0 is valid.
Deneyin yapıldığı tarih: Date of Test	***06.01.2022 to 17.03.2022***
Deneyin Yapıldığı Yer: Testing Location	***CGS TEST HİZMETLERİ TEKNİK KONTROL VE BELGELENDİRME ANONİM ŞİRKETİ/ Kayışdağı Mah. Gülçin Sok. No:2/2 Ataşehir İstanbul/TURKİYE***
Deney Standartı Test Standard	***EN 60670-24:2013 to be used in conjunction with EN IEC 60670-1:2021/A11:2021***
Raporun Sayfa Sayısı: Number of pages of the Report	***24* sayfa*/pages***

Deney ve /veya ölçüm sonuçları, genişletilmiş ölçüm belirsizlikleri (olması halinde) ve deney metotları bu sertifikanın tamamlayıcı kısmı olan takip eden sayfalarda verilmiştir.

The test and/or measurement results, the uncertainties (if applicable) with confidence probability and test methods are given on the following pages which are part of this report.

Mühür/Kaşe Seal	***Tarih*** Date	***Deney Sorumlusu*** Person in charge of test	***Onaylayan*** Approval
	03.06.2023	***Bedran ÖNDEŞ***	***Naim Koralp KARAKOÇ***

TEST REPORT

EN 60670-24

Boxes and enclosures for electrical accessories for household and similar fixed electrical installations

Part 24: Particular requirements for enclosures for housing protective devices and other power dissipating electrical equipment

Report Reference No……:	LVD-183-84R1.0
Date of issue……:	03.06.2023
Contents……:	24 pages
Testing Laboratory……:	CGS TEST HİZMETLERİ TEKNİK KONTROL VE BELGELENDİRME ANONİM ŞİRKETİ
Address……:	Kayışdağı Mah. Gülçin Sok. No:2/2 Ataşehir İstanbul/TÜRKİYE
Testing location……:	CGS TEST HİZMETLERİ TEKNİK KONTROL VE BELGELENDİRME ANONİM ŞİRKETİ
Address……:	Kayışdağı Mah. Gülçin Sok. No:2/2 Ataşehir İstanbul/TÜRKİYE
Applicant's name.....:	MUTLUSAN PLASTIK ELEKTRIK SAN. VE TIC. A.Ş.
Address .....:	İkitelli O.S.B. Mah. Enkoop cad. No:7 Başakşehir İstanbul/TURKEY
Manufacturer .....:	MUTLUSAN PLASTIK ELEKTRIK SAN. VE TIC. A.Ş.
Address .....:	İkitelli O.S.B. Mah. Enkoop cad. No:7 Başakşehir İstanbul/TURKEY
Test specification:	
Standard.....:	EN 60670-24:2013 to be used in conjunction with EN IEC 60670-1:2021/A11:2021
Test procedure .....:	Type Test
Non-standard test method……..:	N/A
Test Report Form No. .....:	F510_69_R1.0
Test item description .....:	W AUTOMATIC FUSE BOXES
Trade Mark .....:	Mutlusan® electric
Manufacturer .....:	MUTLUSAN PLASTIK ELEKTRIK SAN. VE TIC. A.Ş.
Model/Type reference .....:	001 027 100012 00 00
Ratings .....:	230/400 VAC, IP30

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
EN 60670-24:2013 to be used in conjunction with EN IEC 60670-1:2021/A11:2021 standard; The necessary tests were done for sample.	CGS TEST HİZMETLERİ TEKNİK KONTROL VE BELGELENDİRME ANONİM ŞİRKETİ Kayışdağı Mah. Gülçin Sok. No:2/2 Ataşehir İstanbul/TÜRKİYE
Summary of compliance with National Differences:	
Copy of marking plate: **Marking on the enclosure** 	

Test item particulars		
7.1	Nature of material	☒ 7.1.1 Insulating ☐ 7.1.2 Metallic ☐ 7.1.3 Composite ☐ 7.1.4 Natural or synthetic rubber or a mixture of both
7.2	Type of installation	☐ 7.2.1 Flush, semi-flush or embedded in: ☐ 7.2.1.1 Non combustible walls, ceilings or floors ☐ 7.2.1.2 Combustible walls, ceilings or floors ☐ 7.2.1.3 Hollow walls, hollow ceilings, hollow floors or furniture ☒ 7.2.2 Surface mounting on: ☒ 7.2.2.1 Non combustible walls, ceilings, floors or furniture ☐ 7.2.3 Placement: ☐ 7.2.3.1 Suitable for installation into concrete during the casting process (see 7.6) ☒ 7.2.3.2 Suitable for all types of installation except into concrete ☐ 7.2.1.3 Suitable for installation into concrete with a maximum temperature during the casting process of +90 °C
7.3	Type(s) of inlets (outlets)	☐ 7.3.1 With inlets for sheathed cables for fixed installations ☐ 7.3.2 With inlets for flexible cables ☐ 7.3.3 With inlets for plain or corrugated conduits ☐ 7.3.4 With inlets for threaded conduits ☐ 7.3.5 With inlets for other types of conductors/cables or conduits ☐ 7.3.6 With spouts (hub) ☒ 7.3.7 Without inlets. Inlet openings are made during installation
7.4	Clamping means	☐ 7.4.1 With cable retention ☐ 7.4.2 With cable anchorage ☐ 7.4.3 With clamping means for flexible conduit ☒ 7.4.4 Without clamping means
7.5	Minimum and maximum temperatures during installation	☐ 7.5.1 -5 °C to +60 °C ☐ 7.5.2 -15 °C to +60 °C ☒ 7.5.3 -25 °C to +60 °C
7.6	Degree of protection against access to hazardous parts and against harmful effects due to the ingress of solid foreign objects (minimum degree of IP 2X)	☐ 7.6.1 <IP2X ☒ 7.6.2 >IP2X
7.7	Boxes and enclosures for hollow walls and the like according to 7.2.2.1	☐ 7.7.1 Class Ha ☒ 7.7.3 degree of protection of the part mounted in the hollow wall: ☒ 7.7.3.2 >IP2X

7.8	Provision for fixing accessories to boxes	☐ 7.8.1 Boxes supplied with screws ☒ 7.8.2 Boxes intended to receive screws ☐ 7.8.3 Boxes intended to receive claws ☐ 7.8.4 Boxes intended to receive other means
7.9	The provision for fixing accessories to boxes	☐ 7.9.1 Boxes supplied with screws ☒ 7.9.2 Boxes intended to receive screws ☐ 7.9.3 Boxes intended to receive claws ☐ 7.9.4 Boxes intended to receive other means

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 ..... : 06.01.2022

Date (s) of performance of tests..... : 06.01.2022 to 17.03.2022

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.

General product information:

It is a plastic panel with lid used in work in places such as product businesses and automation areas.

8	MARKING		P
8.1	Enclosures shall be marked with:		P
	a) name, trade mark or identification mark of the manufacturer or the responsible vendor ..... :	Mutlusan electric	P
	b) the degree of protection against access to hazardous parts and against harmful effects due to ingress of solid foreign objects, if declared to be higher than 4 in which case the second characteristic numeral shall also be marked	The product is IP30.	N/A
	c) the second characteristic numeral for the degree of protection against harmful effects due to ingress of water, if declared to be higher than 2 in which case the first characteristic numeral shall also be marked	The product is IP30.	N/A
	d) the following IPXX marking on the cover of flush enclosures intended to be mounted on rough surfaces and where the IP is dependent on the surface		N/A
	e) type designation, reference number or catalogue number ..... :	001 027 100012 00 00	P
	The following information shall be marked on the boxes and enclosures or provided by the manufacturer on the smallest package unit or in the manufacturer's instructions which need not be provided with the product:		P
	g) +90 °C for boxes and enclosures classified according to 7.2.1.3		N/A
	h) the necessary information concerning the openings (7.3.7)		N/A
	i) the minimum temperature during installation for boxes (according to 7.5.2 & 7.5.3)		N/A
	j) the letter Ha or information for boxes and enclosures (7.2.2.1)		N/A
8.2	Marking is durable and easily legible		P
	Rubbing test 15 s with water and 15 s with petroleum spirit		P
	After the test: marking still 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
	Boxes and enclosures assembled, equipped and installed as for normal use in accordance with the manufacturer's instructions: live parts are not accessible.		P
	Enclosures, tested with test probe 11 according to IEC 61032 applied for 1 min with a force of 20 N		P
	In addition, enclosures according to 7.1.1 and 7.1.3, tested with test probe 11 according to IEC 61032 applied for 1 min with a force of 75 N to all places except membranes or like, at (35 ± 2) °C.		P
	The probe is applied to all places where yielding of insulating material could impair the safety with a force of 75 N except to membranes, grommets and knock-outs or the like.		P
	Knock-outs are tested according to 12.9.2.		P

11	PROVISION FOR EARTHING		N/A
11.1	Boxes and enclosures with exposed conductive parts:		N/A
	- provided with an earthing means of low resistance	No earthing terminal provided	N/A
	- have provision for the fitting of such an earthing means		N/A
	Earthing means or provision for fitting, located so that:		N/A
	- means is readily accessible, and		N/A
	- removal of an accessory, not disturb the continuity of earthing circuit, and		N/A
	- means is not part of removable cover…..		N/A
	Exposed conductive parts of covers or cover-plates are connected through a low resistance connection to the earthing means		N/A
	Resistance ≤ 0,05 Ω (Ω)..... :		N/A
11.3	Boxes and enclosures with removable sides according to 7.1.2		N/A
	Constructed so that the electrical bond between separable parts includes at least one threaded screw connection		N/A
11.4	Earthing terminal threads		N/A
	Threads of earthing terminal are not stripped		N/A
	During the test: no damage such as impairing the further	~~See appended table 11.4~~	N/A

12	CONSTRUCTION		P
12.1	Boxes and enclosures, constructed without sharp edges		P
	The inner and outer surfaces of a box or cover have the following characterictics:		—
	- not subject to peeling, scaling or flaking, and		P
	- smooth and free from blisters, crack and other defects		P
12.2	Lids, covers or cover-plates or part of them		P
12.2.1	Lids, covers or cover-plates or parts of them, which are intended to ensure protection against electric shock:		P
	- are held in place effectively		P
	- are removable only by the use of a tool and/or a key		N/A
12.2.2	A box or enclosure intended to accept a lid, cover, or cover plate by means of screw fixing shall be provided with means to accommodate the intended screws.	Product has a lid which can be fitted without a screw. Non-screw-type fixing.	N/A
12.2.3	Non-screw-type fixing operable without the use of a tool or a key		
12.2.3.1	For lids, covers or cover-plates whose removal is obtained by applying a force according to the requirements in Table 2		N/A
12.2.3.2	Verification of the non-removal of the lids, covers or cover-plates		N/A
	Forces are gradually applied in one smooth and continuous movement for 1 minute in a direction perpendicular to the mounting surfaces. The lids, covers or cover-plates, shall not come off.		N/A
12.2.3.3	Verification of the removal of the lids, covers or cover-plates		N/A
	A force applied in one smooth and continuous movement, in a direction perpendicular to the mounting/supporting surfaces (Table 2). The lids, covers or cover-plates shall come off.		N/A
12.2.3.4	Verification of the outline of lids, covers and cocver-plates		
	The face B resting on the mounting/supporting surface, with the face A perpendicular to it, the gauge is applied at right angles to each side under test.		N/A
	In the case of a lid or any without screws to another lid, cover or coverplate or to a mounting box, having the same outline dimensions, the face B of the gauge shall be placed at the same level as the junction		N/A
	The distances between the face C of the gauge and the outline of the side under test, measured parallel to face B, shall not decrease		N/A
12.2.3.5	Verification of grooves, holes and reverse tapers		N/A

	A gauge, applied with a force of (1 ± 0,2) N, shall not enter more than 1,0 mm from the upper part.		N/A
12.2.4	Non screw-type fixing operable with the use of a tool or a key		N/A
	For lids, covers or cover-plates whose fixing is not dependent on screws and whose removal is obtained by using a tool and/or a key, need not come off when applying a force not exceeding 120 N		N/A
12.3	Drain holes		N/A
	Surface and semi-flush mounting enclosures having IPX1 to IPX6 allow the opening of a drain hole ≥ 5 mm in diameter (mm Ø) or 20 mm2 in area (mm²) with a width or length ≥ 3mm (mm)..... :	No such part	N/A
12.4	Mounting of enclosures		N/A
	Enclosures have provisions for their suitable attachment according to the method of installation (7.2)	Mounting at the factory	N/A
	Conductive parts of fixing means inside the box or enclosure are surrounded by insulation which projects above the top of the fixing means by an amount of ≥ 10 % of the maximum width of the cavity for the fixing means (mm)..... :	10% of 29.83mm 5.00 mm ≥ 2.98 mm	N/A
12.5	Boxes and enclosures with inlets for flexible cables		N/A
	In inlets (outlets) provided in boxes and enclosures classified according to 7.3.2 the flexible cables can be easily introduced, and	No inlets	N/A
	- no damage the flexible cable where it enter, or		N/A
	- enclosure impairing its further use		N/A
12.6	Boxes and enclosures with inlets for applications other than flexible cables		—
	Inlet openings classified according to 7.3 other than 7.3.2, if any, allow the introduction of:		N/A
	- a conduit or a suitable fitting, and/or		N/A
	- the protective covering of the cable		N/A
	Inlet opening for conduit entries:		N/A
	- capable of accepting either conduits of sizes, or a combination of sizes, according to IEC 60423.		N/A
	- same requirement in at least two inlet openings if there are more than one		N/A
12.7	Boxes and enclosures with a cable anchorage(s)		N/A
	In boxes and enclosures classified according to 7.4.2 the connection of the conductors of the flexible cable are relieved from strain		N/A
	Clear how relief from strain and prevention of twisting is intended to be effected		N/A

	Cable anchorages are:		—
	- suitable for the different types of flexible cable		N/A
	- at least one part of it is integral with, or permanently fixed to, one of the component parts of the box		N/A
	- of insulating material or provided with an insulating lining fixed to the metal parts		N/A
	Test of effectiveness of the cable anchorage:		N/A
	- external dimensions of flexible cable (mm) ..... :		—
	- clamping screws tightened with a torque equal to 2/3 of that specified in Table 4 (Nm) ..... :		—
	- glands tightened with a torque equal to that specified in Table 5 ..... :		—
	It is not possible to push the flexible cable into the specimen by more than 1 mm with a force specified in Table 3 (N) ..... :		N/A
	Pull force as specified in Table 3 applied 50 times for 1 s (N) ..... :		—
	Torque as specified in Table 3 applied for (15 ± 1) s (Nm)..... :		—
	After the test: displacement ≤ 2 mm (mm)..... :		N/A
	Cable anchorage: no damage		N/A
12.8	Boxes and enclosures with cable retention means		N/A
	Cable retention means of boxes and enclosures classified according to 7.4.1 retain the cable in place		N/A
	Boxes and enclosures according to 7.5.2 or 7.5.3, tested at (-15 ± 2) °C and (-15 ± 2) °C respectively		N/A
	Test with cables as declared by the manufacturer, fitted according to the manufacturer's instructions and loaded with an axial force of (20 ± 1) N applied for 1 min:		N/A
	Type of cable/maximum nominal cross-sectional area (mm^2) ..... :		—
	After the test: displacement ≤ 3 mm (mm)..... :		N/A
	Type of cable/minimum nominal cross-sectional area (mm^2) ..... :		—
	After the test: displacement ≤ 3 mm (mm)..... :		N/A
12.9	Knock-out inlets (outlets) intended to be removed by mechanical impact		—
12.9.1	General		N/A
	It is possible to remove knock-out by mechanical impact without damaging the box		N/A
	Chips or burrs are not accepted in knock-out for cables		N/A
	Chips and burrs are disregarded in knock-out for conduits and/or for use with a grommet or a membrane		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:		—
	- 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:		—
	- 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		N/A
	Removal test of knock-outs with a tool as stated by the manufacturer, without conditioning:		N/A
	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)		N/A
	Test temperature (°C)..... :		—
	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
12.9.4	Flat surfaces surrounding knock-outs		N/A
	Knock-outs located in flat surface		N/A
	Projections or identification are prohibited		N/A
12.10	Screw fixings		P
	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 in which they are intended to be inserted		N/A

	Verification of the mechanical strength of screws	~~See appended table 12.9~~	N/A
12.11	Fixing of boxes and enclosures classified according to 7.2.1		P
	Fixing means provided for flush type boxes and enclosures other than for hollow walls ..... :		N/A
	Screws not supplied with box or enclosures can be provided according to the manufacturer's instruction		P
	Screws, additional mechanical supports or design features, are considered adequate fixing means		N/A
	the block is filled by the following material ..... :		N/A
	auxiliary device described in Figure 23 is mounted on the specimen and the screw are tightened with a torque equal to 2/3 of that specified in table 4 ..... :		N/A
	After the test, according to Figure Z3, displacement of the specimen from the mounting block ≤ 0,5 mm:		N/A
12.11	Boxes and enclosures classified according to 7.7.1 (Class Ha)		N/A
	Enclosures for hollow walls classified according to 7.7.1 provide suitable means for fixing the enclosure to hollow walls.		N/A
12.12	Boxes and enclosures classified according to 7.7.2 (Class Hb)		N/A
12.13	Cable gland entry		N/A
	Torque test: glands provided with a metal rod tightened and loosened 10 times with a torque specified in Table 5 for 1 min ± 5 s		N/A
	- diameter of test rod (mm) ..... :		—
	- type of material (metal / insulating)..... :		—
	- torque (Nm) ..... :		—
	After the test: no damage		N/A
12.14	Boxes and enclosures with inlets (outlets) for conduits or spouts (hubs)		N/A
	Boxes and enclosures classified according to 7.3.4 and conical spouts as in 7.3.6 withstand the tests of 12.14.1, 12.14.2 and 12.14.3		N/A
	Boxes and enclosures classified according to 7.4.3 withstand the tests of 12.14.1 and 12.14.2		N/A
12.14.1	Enclosures with inlet spout for conduits: a minimum size piece 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
12.14.2	Pull-out test after the test according to 12.14.1: 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
12.14.3	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 ± 2) °		N/A
	During the test: inlet spout not come loose or damaged and conduit stays within the inlet spout		N/A

12.15	Internal volume of boxes and enclosures		P
	Declared internal volume of the box or enclosure and each partitioned section of a box or enclosure, raised cover and box extension is measured	25mmX35mmX15mm	P
	The volume of a side pocket provided to increase the volume of a box or enclosure is calculated using a depth-of-pocket not more than the smallest dimension of the opening into that side pocket		N/A
	Difference in the volume of water in the measuring cylinder measured before and after the filling of the box, enclosure or raised cover indicates the volume of the box ..... :		P
12.16	Enclosures for hollow walls have provisions for retention means for cables or means to use a separate retention device or devices		N/A

13	**RESISTANCE TO AGEING, PROTECTION AGAINST INGRESS OF SOLID OBJECTS AND AGAINST HARMFUL INGRESS OF WATER**		**P**
13.1	Resistance to ageing		P
13.1.1	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 than kept at room temperature for (96 + 4) h		P
	Glands tightened with a torque equal to 2/3 of the torque applied during the test of 12.13 (Nm) ..... :		—
	Greater torque value stated by the manufacturer, if any (Nm) ..... :		—
	After the test: no harmful deformation or similar damage		P
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 ± 2) °C for 2 h ± 15 min		N/A
	Immediately after this period the tip of test probe 11 of IEC 61032 is applied for (5 ± 1) s with a force of (30 -2) 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) N applied for (5 ± 1) 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 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		N/A
	Test temperature (°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 foreign objects		P
	Enclosures provide a degree of protection of at least IP3X against the ingress of solid foreign objects in accordance with their declared IP code with the lid closed, if any.	IP30	P
	In the case of an enclosure with a door or a lid which can be opened without the use of a tool during normal use, a minimum degree of IP20 is maintained after opening the door or the lid.	Special key is required	N/A
	Enclosures mounted as in normal use with screwed glands or grommets fitted with cables as declared by the manufacturer:		N/A
	- type of cable, smallest cross-sectional area (mm²).....:		—
	- type of cable, largest cross-sectional area (mm²).....:		—
	Enclosures mounted as in normal use with screwed glands or grommets fitted with conduits as declared by the manufacturer:		N/A
	- smallest diameter or dimensions (mm)..... :		—
	- largest diameter or dimensions (mm) ..... :		—
	Fixing screws of the cover or cover-plate tightened with a torque equal to 2/3 of the value of Table 4 used for the test of 12.9 (Nm) ..... :	0.53 Nm	P
	Greater torque value stated by the manufacturer, if the relevant information is provided (Nm) ..... :		—
	- 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		N/A
	- IP5X: dust does not cover the whole inner surface		N/A
	- IP6X: there is no dust inside the box or enclosure		P
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 ..... :	IP30	P
	Enclosure dimensions: reference surface S (m²) / perimeter (m) ..... :		—
	Appropriate test performed on surface, flush or semi-flush enclosures as specified in IEC 60529 under the following conditions:		N/A
	- dimension S ≤ 0,04 m² or perimeter ≤ 0,8 m according to 13.3.2 and 13.3.3		P
	- dimension S > 0,04 m² and perimeter > 0,8 m according to 13.3.2 and 13.3.4		N/A
	Enclosures with screwed glands or grommets fitted with cables as declared by the manufacturer:		N/A
	- type of cable, smallest cross-sectional area (mm²)..... :		—
	- type of cable, largest cross-sectional area (mm²) :		—
	Enclosures with screwed glands or grommets fitted with conduits as declared by the manufacturer:		N/A
	- smallest diameter or dimensions (mm)..... :		—
	- largest diameter or dimensions (mm) ..... :		—
	Fixing screws of the cover or cover-plate tightened with a torque equal to 2/3 of the value of Table 4 used for the test of 12.9 (Nm) ..... :		—
13.3.2	Surface-mounting enclosures mounted as for normal use		P
	Flush type and semi-flush type enclosures fixed in a test wall:		N/A
	- according to the manufacturer's instructions		N/A
	- according to Figure 5		N/A
	Enclosures fitted with cables having conductors of the largest and smallest cross-sectional area as declared by the manufacturer..... :		—
	IPX3 and IPX4 enclosures: use of oscillating tube (Figure 4) or spray nozzle according to IEC 60529 (Figure 5) ..... :		—
13.3.3	Immediately after the test no more than 0,2 ml x S (cm²) water in the enclosure (ml)..... :		P
	Specimens withstand an electric strength test specified in 14.3 started within 5 min of the completion of IP test		P
13.3.4	Immediately after the test: indicator paper still dry		P

14	INSULATION RESISTANCE AND ELECTRIC STRENGTH		P
14.1	Insulation resistance and electric strength of enclosures classified according to 7.1.1 and 7.1.3 is adequate		P
	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		P
	After this treatment: no damage		N/A
14.2	Insulation resistance measured 1 min after application of 500 V d.c.	See appended table 14.2	P
14.3	Electric strength: a.c. test voltage applied for 1 min	See appended table 14.3	P

15	MECHANICAL STRENGTH		P
15.1	Boxes and enclosures have adequate mechanical strength		P
15.2	Impact test at low temperature		N/A
	Non-metallic boxes and enclosures for use in cast concrete according to 7.3.2.1: impact test with a vertical hammer test apparatus (Figure 8) placed together with the specimens for 2 h ± 15 min in a refrigerator at:		N/A
	- (-5 ± 2) °C for boxes and enclosures classified according to 7.5.1		N/A
	- (-15 ± 2) °C for boxes and enclosures classified according to 7.5.2		N/A
	- (-25 ± 2) °C for boxes and enclosures classified according to 7.5.3		P
	Specimens subjected to 5 blows with a mass of 1 kg falling from a height of 100 mm: no damage		P
15.3	Compression test		N/A
	Boxes and enclosures then placed between two flat hardwood plates and loaded with a force of (500 ± 5) N for 1 min ± 5 s		P
	After the test: no deformation or damage		P
15.4	Impact test for boxes and enclosures		P
	Specimens subjected to blows by means of an impact test apparatus as described in IEC 60068-2-75 (test EHA) with equivalent mass of 250 g	See appended table 15.3	P
	Boxes classified according to 7.5.2 and 7.5.3 performed at the following temperature:		
	- (-15 ± 2) °C for boxes classified according to 7.5.2		N/A
	- (-25 ± 2) °C for boxes classified according to 7.5.3		P
	After the test: no damage		P

15.5	Compression test for enclosures made of natural or synthetic rubber or a mixture of both		N/A

16	**RESISTANCE TO HEAT**		**P**
16.1	Part of insulating material necessary to retain current-carryng parts		P
	Parts of insulating material necessary to retain current-carrying parts and/or parts of the earthing circuit in position: ball-pressure test according to IEC 60695-10-2 at (125 ± 2) °C for (60 +5) min	See appended table 16.1-16.2	P
16.2	Part of insulating material not necessary to retain current-carryng parts		N/A
	Parts of insulating material not necessary to retain current-carrying parts and/or parts of the earthing circuit in position, even though in contact with them, and parts necessary to retain earthing terminals in position: ball-pressure test according to 16.1 but at (70 ± 2) °C	See appended table 16.1-16.2	N/A
	Parts of insulating material of flush-mounted enclosures classified according to 7.6.2: ball-pressure test according to 16.1 but at (90 ± 2) °C	See appended table 16.1-16.2	N/A

17	**CREEPAGE DISTANCES, CLEARANCES AND DISTANCES THROUGH SEALING COMPOUND**		**N/A**
	Creepage distances, clearances and distances through sealing compound no less than the values shown in table	See appended table 17	N/A

18	**RESISTANCE OF INSULATING MATERIAL TO ABNORMAL HEAT AND TO FIRE**		**P**
	Glow-wire test according to Clauses 4 to 10 if IEC 60695-2-11	See appended table 18	P

19	**RESISTANCE TO TRACKING**		**N/A**
	Parts of insulating material retaining live parts in position of boxes and enclosures having IP>X0: CTI 175, 50 drops, solution A of IEC 60112	See appended 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		N/A
	No signs of rust		N/A

21	ELECTROMAGNETIC COMPATIBILITY (EMC)		N/A
	No tests necessary		—

11.4	TABLE: Threaded earthing terminal torque test			N/A
Threaded part identification	**Diameter of thread (mm)**	**Table 4 Column number (I, II, III or IV)**	**Applied torque Table 4 (Nm)**	**No damage**
Supplementary information:				

12.9	TABLE: Threaded part torque test				N/A
Threaded part identification	**Diameter of thread (mm)**	**Table 4 Column number (I, II, III or IV)**	**Applied torque Table 4 (Nm)**	**Times (5/10)**	**No damage**
Lid Setscrew	3.51	II	0.80	5	ND
Rail Setscrew	3.45	II	0.80	5	ND
Box Setscrew	3.87	II	1.20	5	ND
Supplementary information:					

14.2	TABLE: Insulation resistance		P
Test voltage applied between:		**Measured (MΩ)**	**Required (MΩ)**
Inner and outer surface of metal sheeting		999,9 MΩ	Not less than 5 MΩ
Plastic of the enclosure		999,9 MΩ	Not less than 5 MΩ
Supplementary information:			

14.3	TABLE: Electric strength		P
Test voltage applied between:		**Test voltage (V)**	**Flashover / breakdown (Yes/No)**
Contact between metal sheeting and metal foil		3000	No
Contact between plastic of the enclosure and metal foil		3000	No
Supplementary information:			

15.3	TABLE: Impact test		P
Part of enclosure per Table 7 (A, B, C, D, E, F, G)	**Total number of blows per part – Figure 10**	**Height of fall per Table 8 (mm)**	**Comments**
F	4	400	ND
Supplementary information:			

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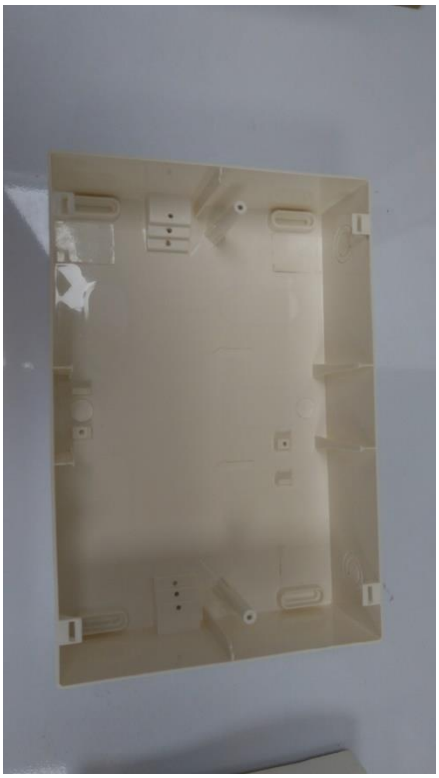
16.1 - 16.2	TABLE: Ball pressure test of insulating materials		P
Allowed impression diameter (mm) ..... :	**≤ 2 mm**		—
Part under test		**Test temperature (°C)**	**Diameter of impression (mm)**
Enclosure		70	0.70
Grey Connector		125	1.60
Transparent Grey Lid		70	0.80
White Bottom Side		70	0.70
Supplementary information:			

17	TABLE: Creepage distances, clearances and distances through sealing compound					N/A
	Rated voltage (V) .....:					—
Creepage distance dcr, clearance cl and distance through sealing compound dtsc at/of:	**Required Cl. d. (mm)**	**Mesured Cl. d. (mm)**	**Required Cr. d. (mm)**	**Mesured Cr. d. (mm)**	**Required D. t. s. c. (mm)**	**Mesured D. t. s. c. (mm)**
	≥		≥		≥	
	≥		≥		≥	
	≥		≥		≥	
Supplementary information:						

18	TABLE: Glow-Wire test				P
Part under test	**Material designation**	**Test temperature (°C)**	**Visible flame and sustained glowing (Y/N)**	**Flames and glowing extinction time (s)**	**Ignition of the tissue paper (Yes/No)**
Enclosure	Plastic	650	N	0	No
Supplementary information:					

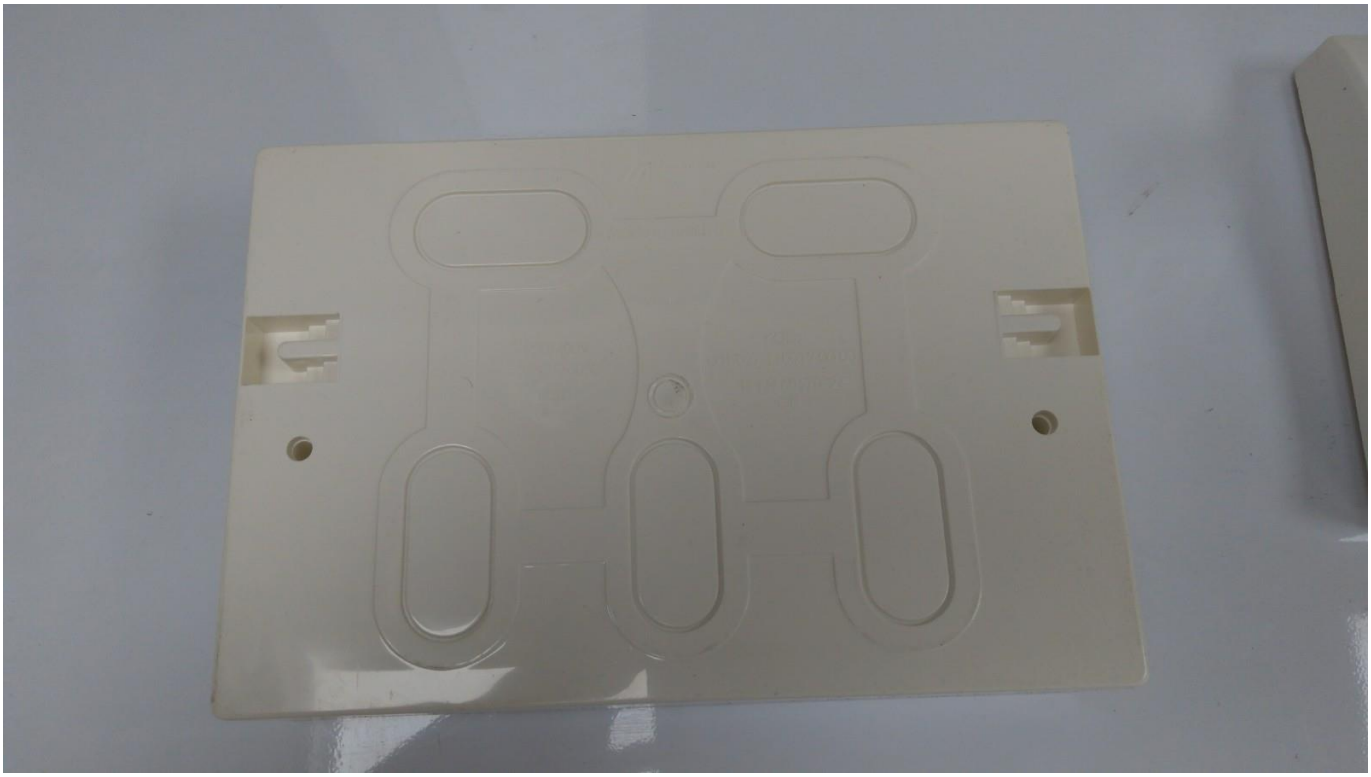
19	TABLE: Resistance to tracking		N/A
Part under test	**material designation**	**test voltage (V)**	**Flashover / breakdown (Yes/No)**
Supplementary information:			

Annex 1 – Photo documentation

Photo documentation

Product Photo

Product Photo

Product Photo



Product Photo

Product Photo

Annex 2
Equipment of Measurements List

Equipment No	Kind of equipment	Model Type	Manufacturer	Last Cal Date	Next Cal Date	Last Ver Date	Next Ver Date	Test Clause
E-054	CE COMPACT TESTER	C.A 6160	CHAUVIN ARNOUX	3.01.2022	3.01.2023	---	---	---
E-011	Multimeter	UT61B	UNI-T	11.10.2021	11.10.2022	---	---	---
E-004	Climatic Chamber	---	ULMEKA Mekatronik Sistemler	18.10.2021	18.10.2022	---	---	---
E-033	Temperature-Humidity Meter	30.3166.02.S2	TFA	19.10.2021	19.10.2022	---	---	---
E-003	Datalogger	DL40	CSK elektronik	5.06.2021	5.06.2022	---	---	---
E-034	Etuv Oven	T12	HERAEUS	18.10.2021	18.10.2022	---	---	---
E-024	Prob 13	TS015/1000-13	CSK Elektrik Elektronik San. ve Tic. Ltd. Şti	---	---	15.05.2020	15.11.2020	---
E-031	Test Finger	---	CSK Elektrik Elektronik San. ve Tic. Ltd. Şti	---	---	15.05.2020	15.11.2020	---
E-020	Prob A	TS015/1000-A	CSK Elektrik Elektronik San. ve Tic. Ltd. Şti	6.04.2020	6.04.2022	15.05.2020	15.11.2020	---
E-021	Prob B	TS015/1000-B	CSK Elektrik Elektronik San. ve Tic. Ltd. Şti	6.04.2020	6.04.2022	15.05.2020	15.11.2020	---
E-021	Prob C	TS015/1000-C	CSK Elektrik Elektronik San. ve Tic. Ltd. Şti	6.04.2020	6.04.2022	15.05.2020	15.11.2020	---
E-005	Glow wire	---	ULMEKA Mekatronik Sistemler	18.10.2021	18.10.2022	---	---	---
E-007	Needle flame	---	ULMEKA MEKATRONİK SİSTEMLER	19.10.2021	19.10.2022	---	---	---
E-045	Ball-pressure mass	2014/587	Teknik Mekatronik	22.03.2021	22.03.2023	---	---	---
E-069	Strip Meter	---	---	22.12.2021	22.12.2023	---	---	---
E-093	Dynamometer	SH-1000 / Digital	Geratech	18.03.2022	18.03.2023	---	---	---
E-058	Impact hammer	F22.50	PTL Dr Grabenhost Gmbh	6.10.2021	6.10.2023	---	---	---
E-065	Impact hammer	DC-01	ÖZ MAKİNA	18.03.2022	18.03.2024	---	---	---