

MUTLUSAN PLASTIK ELEKTRİK SAN.VE TİC.A.Ş. TEST REPORT

SCOPE OF WORK

IPX4 & insulation resistance & electric strength test according to IEC/EN 60529

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NAME OF TESTING LABORATORY PREPARING THE REPORT

INTERTEK TEST HİZMETLERİ A.S. ELECTRIC LABORATORY



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TEST RAPORU

/TESTING REPORT

Proje No: /Project Number	IST22Q.0744.00
Tarih: /Date	17.08.2022
Hizmet: /Service	IPX4 & insulation resistance & electric strength test according to IEC/EN 60529
Ürün: /Product	Monophase triple socket-outlet
Ürün Tanımı: /Product Description	Triple socket-outlet
Firma İsmi: /Company Name	Mutlusan Plastik Elektrik San. ve Tic. A.Ş.
Firma Adresi: /Company Address	İkitelli OSB Enkoop Cad. No:7 Başakşehir/İstanbul/TÜRKİYE
Kontak Kişi & Pozisyonu: /Contact & Position	Nihat BALCI / Quality Management Officer

Deney laboratuvarı olarak faaliyet gösteren Intertek Test Hizmetleri A.S. TÜRKAK'tan AB-0823-T ile yukarıda belirtilen standartlara göre akredite edilmiştir.

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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.

Aksi talep edilmediği sürece Intertek Türkiye Elektrik Laboratuvarı Paylaşılan Risk Karar Kuralını (Basit Kabul Kuralı) uygulamaktadır.

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Sonuçlar, yaklaşık %95'lik bir güven düzeyi veren 2 kapsama faktörü (k=2) kullanılarak hesaplanan genişletilmiş bir belirsizlikle rapor edilir.

The results are reported with an expanded uncertainty calculated using a coverage factor k=2, which gives a level of confidence of approximately 95%.

İmzasız raporlar geçersizdir. Bu rapor laboratuvarın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz, üçüncü şahıslarla paylaşılabilir ve reklam aracı olarak kullanılamaz.

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Numune müşteri tarafından sağlanmıştır ve raporda verilen ölçüm sonuçları sadece test edilen numune için geçerlidir.

Sample has been provided by the customer and measurement results are only valid for the appliance which are tested.

Bu test raporunda (*) ile işaretlenen testler , bu laboratuvarın TÜRKAK akreditasyon kapsamında yer almamaktadır.

Tests marked with () in this test report are not within the scope of TÜRKAK accreditation of this laboratory.*

Intertek Test Hizmetleri A.S. Tel +90 212 496 4646

Merkez Mahallesi Sanayi Cad. Fax +90 212 452 8055

Altındağ Plaza No:23

Yenibosna 34197

İstanbul - Türkiye

intertek.turkey@intertek.com

intertek.com • intertek-turkey.com

Trade Register Number: 337606/285188 • Marmara Kurumlar V.D. : 465 004 2498



BÖLÜM 1

/SECTION 1

BAŞVURU SAHİBİ TARAFINDAN SAĞLANAN MÜHENDİSLİK NUMUNELERİNE İLİŞKİN BİLGİLER:

/INFORMATIONS FOR ENGINEERING SAMPLES PROVIDED BY APPLICANT

Numune /Sample	Alınan Numune /Sample Received	Seri # /Serial #	Tarih /Date
S22.794	Triple Socket-outlet	010 083 500293	12.08.2022

Standartlar

/Standards

1- IEC/EN 60529

İŞARETLEME ETİKETLERİ:

/MARKING PLATES

İşaretleme Etiketleri

/Marking Plates



BÖLÜM 2 /SECTION 2

TEST METODU VE YAPILIŞ: /TEST METHOD AND APPLICATION

IP X4 Test Method

16.2.2 Protection against harmful effects due to ingress of water

Accessories and their enclosures shall provide a degree of protection against harmful effects due to ingress of water in accordance with their IP classification. Compliance is checked by the appropriate tests of IEC 60529 under the conditions specified below.

Test for protection against water indicated by the second characteristic numeral according to IEC/EN 60529 Clause 14

Table 8 – Test means and main test conditions for the tests for protection against water

Second characteristic numeral	Test means	Water flow rate	Duration of test	Test conditions, see
0	No test required	–	–	–
1	Drip box Figure 3 Enclosure on turntable	$1^{+0,5}_0$ mm/min	10 min	14.2.1
2	Drip box Figure 3 Enclosure in 4 fixed positions of 15° tilt	$3^{+0,5}_0$ mm/min	2.5 min for each position of tilt	14.2.2
3	Oscillating tube Figure 4 Spray ± 80° from vertical, distance max. 200 mm or Spray nozzle Figure 5 Spray ± 80° from vertical	0,07 l/min ± 5 % per hole, multiplied by number of holes	10 min	14.2.3 a)
		10 l/min ± 5 %	1 min/m ² at least 5 min	14.2.3 b)
4	As for numeral 3 Spray ± 180° from vertical	As for numeral 3		14.2.4
5	Water jet hose nozzle Figure 6 Nozzle 6,3 mm diameter, distance 2,5 m to 3 m	12,5 l/min ± 5 %	1 min/m ² at least 3 min	14.2.5
6	Water jet hose nozzle Figure 6 Nozzle 12,5 mm diameter, distance 2,5 m to 3 m	100 l/min ± 5 %	1 min/m ² at least 3 min	14.2.6
7	Immersion tank Water-level on enclosure: 0,15 m above top 1 m above bottom	–	30 min	14.2.7
8	Immersion tank Water-level: by agreement	–	by agreement	14.2.8
9	Fan jet nozzle Figure 7 Test of small enclosure on turntable Figure 12 Turntable speed (5 ± 1) r/min Spray at 0°, 30°, 60°, 90° Or Test of large enclosures as per intended use Spray from all practical directions Distance (175 ± 25) mm	(15 ± 1) l/min	30 s per position	14.2.9 a)
			1 min/m ² at least 3 min	14.2.9 b)

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14.2.4 Test for second characteristic numeral 4 with oscillating tube or spray nozzle

The oscillating tube has spray holes over the whole 180° of the semicircle. The total flow rate is adjusted as specified in table 9 and is measured with a flow meter. The tube is caused to oscillate through an angle of almost 360°, 180° on either side of the vertical, the time for one complete oscillation (2 × 360°) being about 12 s.

The duration of the test is 10 min. If not specified otherwise in the relevant product standard, the support for the enclosure under test is perforated so as to avoid acting as a baffle and the enclosure is sprayed from every direction by oscillating the tube to the limit of its travel in each direction.

Table 9 – Total water flow rate q_v under IPX3 and IPX4 test conditions – Mean flow rate per hole $q_{vI} = 0,07$ l/min

Tube radius <i>R</i> mm	Degree IPX3		Degree IPX4	
	Number of open holes <i>N</i> ¹⁾	Total water flow q_v l/min	Number of open holes <i>N</i> ¹⁾	Total water flow q_v l/min
200	8	0,56	12	0,84
400	16	1,1	25	1,8
600	25	1,8	37	2,6
800	33	2,3	50	3,5
1 000	41	2,9	62	4,3
1 200	50	3,5	75	5,3
1 400	58	4,1	87	6,1
1 600	67	4,7	100	7,0

¹⁾ Depending on the actual arrangement of the hole centres at the specified distance, the number of open holes *N* may be increased by 1.

14.3 Acceptance criteria

After testing in accordance with the appropriate requirements of 14.2.1 to 14.2.9, the enclosure shall be inspected for ingress of water.

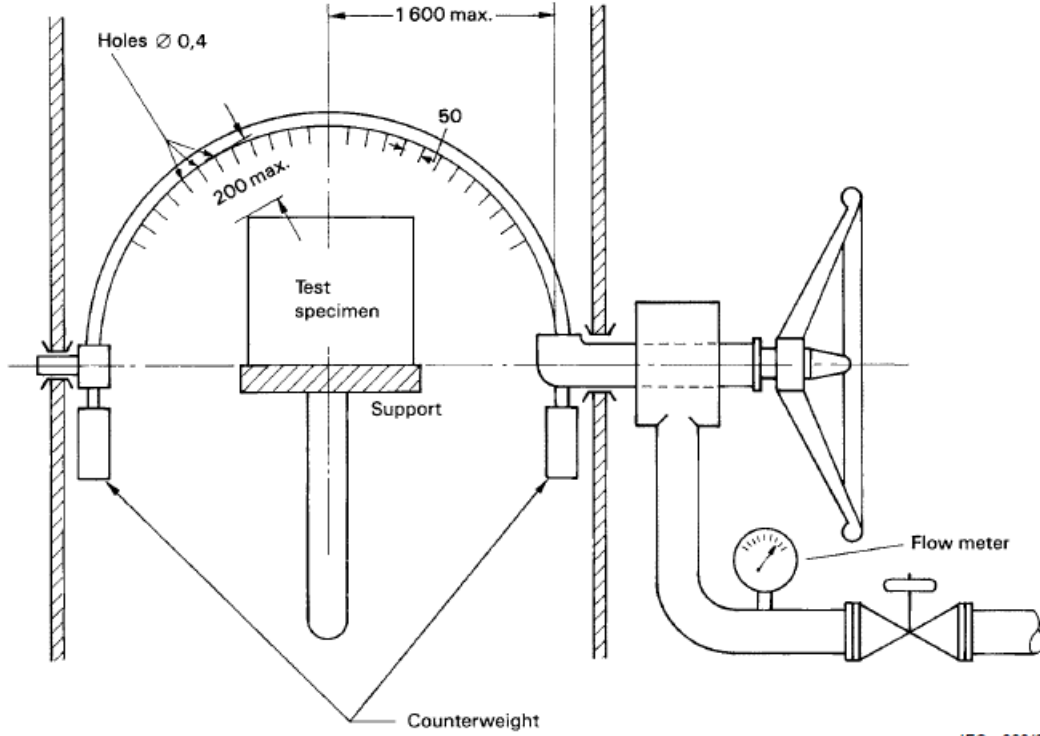
It is the responsibility of the relevant technical committee to specify the amount of water which may be allowed to enter the enclosure and the details of a dielectric strength test, if any.

In general, if any water has entered, it shall not:

- be sufficient to interfere with the correct operation of the equipment or impair safety;
- deposit on insulation parts where it could lead to tracking along the creepage distances;
- reach live parts or windings not designed to operate when wet;
- accumulate near the cable end or enter the cable if any.

If the enclosure is provided with drain-holes, it should be proved by inspection that any water which enters does not accumulate and that it drains away without doing any harm to the equipment.

For enclosures without drain-holes, the relevant product standard shall specify the acceptance conditions if water can accumulate to reach live parts.



Dimensions in millimetres

NOTE The range of holes is shown as for second characteristic numeral 3 (see 14.2.3 a)).

Figure 4 – Test device to verify protection against spraying and splashing water; second characteristic numerals 3 and 4 (oscillating tube)

Insulation Resistance and Electric Strength Test Method

Tests for insulation resistance and electric strength according to IEC 60884-1 Clause 17.

17.1 Insulation Resistance Test: The insulation resistance is measured with a d.c. voltage of approximately 500 V, the measurement being made 1 min after application of the voltage.

The insulation resistance shall be not less than 5 MΩ .

- between all poles connected together and the body, the measurement being made with a plug in engagement;
 - between each pole in turn and all others, these being connected to the body with a plug in engagement;
 - between any metal enclosure and metal foil in contact with the inner surface of its insulating linings, if any;
- NOTE 1 This test is only made if an insulating lining is necessary to provide insulation.
- between any metal part of the cord anchorage, including clamping screws, and earthing terminal(s) or earthing contact(s), if any, of portable socket-outlets;
 - between any metal part of the cord anchorage of portable socket-outlets and a metal rod of the maximum diameter of the flexible cable inserted in its place (see table 17).

17.2 Electric Strength Test: A voltage of substantially sine-wave form, having a frequency of 50 Hz or 60 Hz, is applied for 1 min between the parts indicated in 17.1.

The test voltage shall be as follows:

- 1 250 V for accessories having a rated voltage up to and including 130 V;
- 2 000 V for accessories having a rated voltage exceeding 130 V.

Initially, not more than half the prescribed voltage is applied, then it is raised rapidly to the full value.

No flashover or breakdown shall occur during the test.

BÖLÜM 3

/SECTION 3

TEST SONUÇLARI:

/TEST RESULTS

Test for protection against water indicated by the second characteristic numeral 4 according to IEC/EN 60529 Clause 14.2.4 The enclosure was checked the water ingress. There was not water into the sample. The result is **PASS**.

Madde /Clause	Tanım /Description	Ortam Şartları /Ambient Conditions	Sonuç /Result
IPX4	IPX4 test and insulation resistance and electric strength test	24°C / %50 humidity	P
P:	Uygun / Conformed		
F:	Uygunsuzluk / Non-Conformity		
N/A:	Uygulanabilir değil / Not Applicable		

Testi

Gerçekleştiren:

/Completed by

İhsan HAMZAÇEBİ

Ünvan:

/Title

Senior Project Engineer

İmza:

/Signature

Tarih:

/Date

17.08.2022

Onaylayan:

/Reviewed by

Yusuf İdris MERAL

Ünvan:

/Title

Senior Project Engineer

İmza:

/Signature

Tarih:

/Date

17.08.2022

BÖLÜM 4

/SECTION 4

TEST EKİPMANLARI:

/TEST EQUIPMENT

Ekipman Adı /Equipment Name	Üretici /Manufacturer	Ekipman # /ID #	Kalibrasyon Tarihi /Calibration Date	Sonraki Kal. Tarihi /Next Cal. Date
Water Supply Unit for Drip Box	TESTING EUROPE T1-23	EN 47A	-	-
Motor Drive for Spray Apparatus	TESTING EUROPE T1-32	EN 048	05.2022	05.2023
Chronometer	CASIO HS-80TW	EN 114	02.2022	02.2023
Tube for Spray Apparatus	T1-27 R400	EN 048C	-	-
Electrical Safety Analyzer	CHROMA 19032-P	EN 021	01.2022	01.2023



BÖLÜM 5 /SECTION 5

FOTO DOKÜMANTASYON: /PHOTO DOCUMENTATION



Photo 1. General view of the sample



Photo 2. Declared information of the sample



Photo 3. Triple socket-outlet during the test



Photo 4. Triple socket-outlet after the test

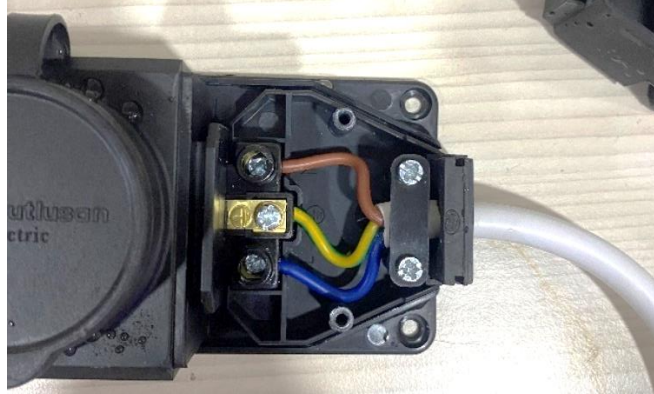


Photo 5. Terminal box of triple socket-outlet after the test



Photo 6. Triple socket-outlet after IPX4 test



Photo 7. Triple socket-outlet after IPX4 test



Photo 8. Triple socket-outlet insulation resistance test

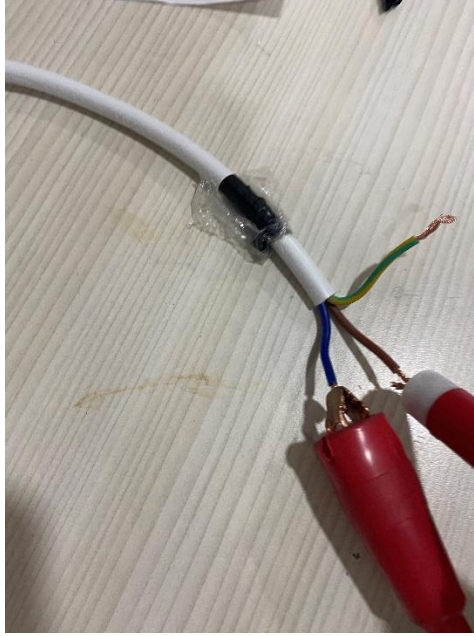


Photo 9. Triple socket-outlet electric strength test