



PRODUCT CATALOGUE

*Lightning Protection & Earthing Systems
Exothermic Welding & Aircraft Warning Systems*





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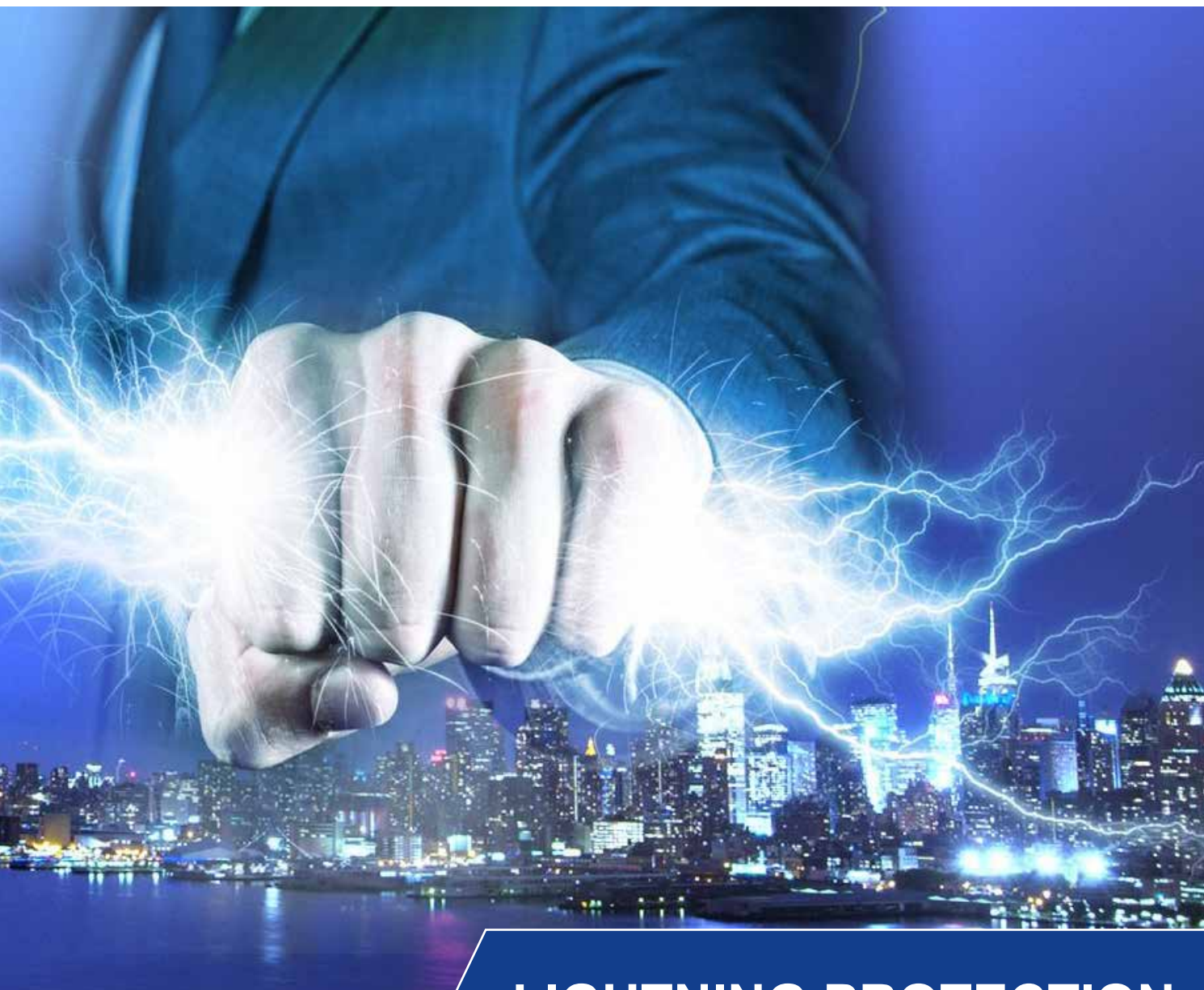
COMPANY PROFILE

Amper is one of the leading companies in the lightning protection and grounding sector, with more than 50 years of experience, well known by its customers for its high-quality services and professionalism. Founded in 1962 by H.N. Sirmabiyıkoğlu and starting to operate as a joint venture in 1972, Amper has undertaken the supply works of many Turkish and foreign projects as one of Turkey's modern, established and innovative companies with years of success behind it both at home and abroad.

Amper is committed to meeting the needs of all domestic and foreign institutions and organizations in the lightning protection and grounding industry in accordance with national and international standards. True to our values, we have always shown our industry the path forward, never compromising on the dynamism and enthusiasm that

has shaped the company from day one. We continue to offer optimum solutions to customer needs with our range of products for the industry and distributorship of leading global brands.

We do our best to be a company that always follows the developments in its industry and technology closely, keeps the bar high without compromising team spirit, develops its quality understanding at all times, and makes a commitment to its customers regarding the continuity of its quality. Aiming to hand down the pool of knowledge we have built on strong foundations to future generations, we will take firm steps forward in the 21st century towards our vision to become the leading company in the industry, just as we did in the 20th century with the experience and strength we have gained over the years.



LIGHTNING PROTECTION SYSTEMS





E.S.E Active Lightning Rod Systems

After the prohibition of radioactive lightning rods, they were replaced by E.S.E. (active) lightning rods. E.S.E. (active) lightning rods come in two types; electrostatic lightning rods and piezoelectric crystal lightning rods.

Protection is enabled by means of an active lightning rod, the tip of which is refined and sharpened in both lightning rod systems, and lightning rods are placed on the highest spot of the construction to be protected. Lightning rods are connected with the ground along the shortest route. The protection area they provide varies depending on the location of the installation and height of such location compared to the surrounding constructions. The electro-geometrical model method based on warning distance enables the safe calculation of protection level.

Active lightning rods suitable for ion devices also follow the same rules, however warning distance is further improved (about 1.5-3 times), because arc delay is reduced. Their advantage is the increase in efficiency, especially in the case of low-density lightning strikes, and a decrease in the lengths of lightning rods for some situations with very hard applicability.

Electrostatic Lightning Rods

Electrostatic active lightning rods form an effective protection area against lightning. Such type of lightning rods feature different manufacturing techniques and an effective protection area. Electrostatic lightning rods come in various types and shapes. They have several different test reports, standards (ISO and their local standards), and generally an anti-corrosion warranty of 25 years.

Electrostatic lightning rods operate by using the electromagnetic field that changes/densifies in the air prior to lightning striking. When the electromagnetic field difference between the air and ground increases, the mechanism inside the lightning rod shifts to the ionization system using this difference, and starts an ion diffusion. It creates a lightning channel with this ion diffusion, and conducts the lightning from itself to the ground.

The lightning rod unit functions both in positive lightning conditions and negative lightning conditions. Electrostatic lightning rods have active and passive ionization electrodes. Thanks to their passive electrodes, they detect the potential difference between the location of the lightning rod and the ground, and enable ionization in the air in the most guaranteed way. The ion efficiency reaches its maximum level thanks to the internal ion generator system contributing to ionization diffusion.

Piezoelectric Crystal E.S.E Active Lightning Rods

Piezoelectric crystals are crystal structures that convert electrical energy to mechanical energy and vice versa. These crystals are made from some minerals that are found in nature. Therefore, they are not affected by the lightning discharges. They are protected against both positive and negative lightning discharge.

For piezoelectric crystal lightning rods, high voltage impacts emanating from the vibrations received by the piezoelectric crystal found in the body of the device leads to the formation of ionization. Accelerated ion diffusion occurs thanks to the ion diffusion mechanism in the shape of a venturi pipe. Thus, a lightning channel is created with this ion diffusion, and the lightning is conducted from itself to the ground. The lower body contains a piezoelectric crystal, while the upper part includes an ion diffusion system and protection system. For various models, there are protection radius depending on different heights and different level results. As they operate with piezo crystal, a durable natural mineral, this type of lightning rod is superior to electrostatic active lightning rods.

Protection Radius of E.S.E Active Lightning Rod

The role of ground connection is significant in the effective operation of an active lightning rod system, and it must be installed carefully. NF C 17-100 and NF C 17-102 standards state that the cage and lightning rods for each down lightning must have an independent-separate grounding. Electrical grounding or the available arch are connected to these lightnings to provide equipotential. Lastly, it is required to keep the lightning grounding as far away from any underground metal electric power transmission pipes as possible (3-5m), and the ohmic value with low wave impedance must not be above 10 Ohm.

E.S.E Active Lightning Rod Installation Elements

Lightning rod head: The part that captures the atmospheric electrical discharges of the area to be protected from lightning to be conducted to the ground.

Lightning rod pole: The pole carrying the lightning rod.

Pole crochet: Enables detection of the down conductor on the pole.

Lightning rod pole fixing clamp: Used to fasten the pole of the conductor rod.

Tile crochet: Enables the down conductor to descend from above the tile.

Down conductor: The conductor used for grounding the lightning rod.

Wall crochet: Enables the down conductor to descend from above the wall or concrete.

Control (test) clamp: The element that enables measurement of the grounding resistance.

Protection pipe: The element that protects the part of the down conductor between the control clamp and ground against impacts.

Protection pipe fixing clamp: The crochet used to secure the protection pipe.

PVC hose: The hose inside the protection pipe containing the conductors.

Grounding electrode: Installed underground and used to decrease resistance.

Exothermic welding/grounding electrode head: Used for the connection of the down conductor and electrodes.

Radioactive Lightning Rods

These are systems that enable protection against lightning using ionization generated by the radioactive isotopes inside. They started to be used in Turkey in 1974, but their sale was banned in 30.07.2001 as per the communiqué no. 10700-1485.

Franklin Rod / Air Terminal

Known as Franklin rod or air terminal systems, this method is a lightning protection method consisting of a basic metal tip, down conductor, and grounding sections.

A metallic air terminal is placed on top of the construction to be protected, and ground connection is established. It provides a protection cone thanks to the α apex angle. In this method, an area specified with a fixed protection angle can be protected.

Places Where the Air Terminal Method Can Be Applied:

- Tower type constructions with small floors
- Mosque minarets, light houses, guard boxes, etc.
- Special spot protection in constructions with Faraday cages

- Chimney breasts, devices on flat roofs especially, elevator towers

Faraday (Cage) System

This is performed by combining the conductors that are placed at suitable distances from a cage on top of the building depending on the protection level, and providing connection with the ground. This provides a protection angle thanks to the rolling sphere method. Air terminals

called strike points (0.50-2m) are mounted on each important point (chimney, roof bodywork, etc.) around the roof.

The building to be protected with the Faraday Cage method will be covered so that there is a continuous and uninterrupted conductor route from the top points of the building, including the secondary parts, to the ground. This cage has many attractors formed by conductors completed by horizontal connections and is connected to a grounding system. All metal extensions on the roof that is connected to the grounding system on purpose or incidentally must be connected to the air terminal system, and consist a part of the system. If the height of some parts of the construction varies significantly, the lower air terminal or air terminal system must be connected to the down conductors of high parts in addition to its own down conductor.

Stretch Wire

The protection area in the stretch wire method is defined with the combination of volume protected by the apparent rods on the wire. Stretch wire is bonded from the height that will protect the building between the poles erected on two or more sides. Poles must provide electrical continuity between the grounding of the stretch wire and poles, and the stretch wire must have a section (min 50mm²) that can bear the stretch wire lightning current.

This method is not preferred on high buildings due to the difficulty of installing it and the unpleasant appearance it creates on the building.





DE-LUXSO E.S.E Aktif Paratoner

DE-LUXSO - E.S.E. Air Terminal

ÜRÜN KODU Product Code	MATERYAL Material	KORUMA ÇAPI Protection Diameter (m)	BOY Height (cm)	AĞIRLIK Weight (kg)
AE 10204	Pirinç - Brass	144	63	3,30
AE 10205	Pirinç - Brass	214	63	3,30

■ AE 10204 : $\Delta t = 30 \mu s$ ■ AE 10205 : $\Delta t = 60 \mu s$

KORUMA YARIÇAPI TABLOSU

Protection Radius Table

DİREK YÜKSEKLİĞİ Pole Height h (m)	KORUMA SEVİYESİ Protection Level (m)							
	I		II		III		IV	
	10204	10205	10204	10205	10204	10205	10204	10205
2	19	31	21	35	25	39	28	43
4	38	63	43	69	51	78	57	85
6	48	79	55	87	63	97	71	107
8	48	79	55	87	64	98	72	108
10	49	79	57	88	66	99	75	109
20	50	80	59	89	71	102	81	113
30	50	80	60	90	73	104	85	116
60	50	80	60	90	75	105	90	120

■ ISO 9001: 2008 belgeli

Certificated ISO 9001: 2008

■ NFC 17 - 102 versiyonuna uygunluk test belgeli

Test certificated of compliance NFC 17 - 102



DE-LUXSO Test Cihazı

DE-LUXSO Tester

ÜRÜN KODU Product Code	EBATLAR Dimensions (mm)	AĞIRLIK Weight (kg)
AE 10119	75 x 111 x 37	0.10



TESLA ST - E.S.E Aktif Paratoner

TESLA ST - E.S.E. Air Terminal

ÜRÜN KODU Product Code	MATERYAL Material	KORUMA ÇAPI Protection Diameter (m)	BOY Height (cm)	AĞIRLIK Weight (kg)
AE 10351	Paslanmaz Çelik - Stainless Steel	214	38 x 80	5,70



■ $\Delta t = 60 \mu s$

KORUMA YARIÇAPI TABLOSU

Protection Radius Table

DİREK YÜKSEKLİĞİ Pole Height h (m)	KORUMA SEVİYESİ Protection Level (m)			
	I	II	III	IV
2	31	35	39	43
4	63	69	78	85
6	79	87	97	107
8	79	87	98	108
10	79	88	99	109
20	80	89	102	113
30	80	90	104	116
60	80	90	105	120

■ TS 13709 belgeli

Certificated TS 13709

■ ISO 9001: 2008 belgeli

Certificated ISO 9001: 2008

■ TGMCM -TEXAS test belgeli

Test certificated TGMCM-TEXAS

■ BET Lab. test belgeli (100 kA)

Test certificated by BET laboratory (100 kA)

■ ODTÜ test belgeli (200 kA)

Test certificated by ODTU (200 kA)

■ ICMET Laboratuvar test belgeli

Test certificated by ICMET laboratory

■ CE deklarasyonu

CE declaration

■ East London Üniversitesi test belgeli

Test certificated by East London University

■ Gerçek yıldırım test belgeli

Real lightning strike test certificated

TESLA Test Cihazı

TESLA Tester

ÜRÜN KODU Product Code	EBATLAR Dimensions (mm)	AĞIRLIK Weight (kg)
AE 10361	75 x 111 x 37	0,16





Analog Yıldırım Sayacı

Analogue Lightning Strike Counter



ÜRÜN KODU Product Code	EBATLAR Dimensions (mm)	AĞIRLIK Weight (kg)
AE 10802	64 x 185 x 57	0,60

- IP65 test belgeli
IP65 test certificated

Dijital Yıldırım Sayacı

Digital Lightning Strike Counter



ÜRÜN KODU Product Code	EBATLAR Dimensions (mm)	AĞIRLIK Weight (kg)
AE 10804	64 x 185 x 57	0,50

- Resetlenebilir
Resettable
- Sınırsız test imkanı
Unlimited testing capability
- LED ışıklı
LED display
- IP65 test belgeli
IP65 test certificated

Paratoner Direği*Air Terminal Pole*

ÜRÜN KODU Product Code	MATERYAL Material	UZUNLUK Length (m)	DİREK ÇAPI Pole Diameter (")	AĞIRLIK Weight (kg/m)
AE 70111	Galvaniz Çelik - Galvanized Steel	1	2	5,00
AE 70113	Galvaniz Çelik - Galvanized Steel	1	2 1/2	6,42
AE 70115	Galvaniz Çelik - Galvanized Steel	1	3	8,38
AE 70117	Galvaniz Çelik - Galvanized Steel	1	4	12,15

**Koruma Borusu***Steel Protective Pipe*

ÜRÜN KODU Product Code	MATERYAL Material	UZUNLUK Length (m)	DİREK ÇAPI Pole Diameter (")	AĞIRLIK Weight (kg/m)
AE 70105	Galvaniz Çelik - Galvanized Steel	1	1	2.40
AE 70107	Galvaniz Çelik - Galvanized Steel	1	1 1/4	3.06
AE 70109	Galvaniz Çelik - Galvanized Steel	1	1 1/2	3.53



■ Tüm borular 3 metre boylarda sevk edilmektedir. Farklı ölçüler için lütfen sipariş aşamasında bilgi veriniz.
All poles are shipped as 3 meter length. For different sizes, please give us detail at the time of ordering.



Ünite Adaptörü Unit Adapter

ÜRÜN KODU Product Code	MATERYAL Material	DİREK ÇAPI Pole Diameter (")	AĞIRLIK Weight (kg)
AE 11390	Galvaniz Çelik - Galvanized Steel	2	2,26



Direk Adaptörü Pole Adapter

ÜRÜN KODU Product Code	MATERYAL Material	DİREK ÇAPI Pole Diameter (")	AĞIRLIK Weight (kg)
AE 11401	Galvaniz Çelik - Galvanized Steel	2 - 2	1,09
AE 11403	Galvaniz Çelik - Galvanized Steel	2 - 2 1/2	1,97
AE 11405	Galvaniz Çelik - Galvanized Steel	2 - 3	3,49
AE 11407	Galvaniz Çelik - Galvanized Steel	2 1/2 - 2 1/2	1,05
AE 11409	Galvaniz Çelik - Galvanized Steel	2 1/2 - 3	3,11
AE 11411	Galvaniz Çelik - Galvanized Steel	3 - 3	3,60



Yalıtkan Tip Direk Adaptörü Insulating Type Pole Adapter

ÜRÜN KODU Product Code	MATERYAL Material	DİREK ÇAPI Pole Diameter (")	AĞIRLIK Weight (kg)
AE 11410	Plastik - Plastic	2 - 2	0,40

Düz Tip Direk Kelepçesi*Flat Type Pole Clamp*

ÜRÜN KODU Product Code	MATERYAL Material	DİREK ÇAPI Pole Diameter (")	MONTAJ DELİK ÇAPI Mounting Hole Diameter (")	AĞIRLIK Weight (kg)
AE 11509	Çelik - Steel	2	M10	0,42
AE 11511	Çelik - Steel	2 1/2	M10	0,50
AE 11513	Çelik - Steel	3	M10	0,52

**Duvar Tip Direk Kelepçesi***Wall Type Pole Clamp*

ÜRÜN KODU Product Code	MATERYAL Material	DİREK ÇAPI Pole Diameter (")	MONTAJ DELİK ÇAPI Mounting Hole Diameter (")	AĞIRLIK Weight (kg)
AE 11571	Çelik - Steel	2	M10	1,56
AE 11581	Çelik - Steel	2 1/2	M10	1,60

**Pilon Tip Direk Kelepçesi***Pylon Type Pole Clamp*

ÜRÜN KODU Product Code	MATERYAL Material	DİREK ÇAPI Pole Diameter (")	AĞIRLIK Weight (kg)
AE 11605	Çelik - Steel	2	0,83
AE 11607	Çelik - Steel	2 1/2	0,83
AE 11609	Çelik - Steel	3	0,83





U Tip Direk Kelepçesi

U Type Pole Clamp



ÜRÜN KODU Product Code	MATERYAL Material	DİREK ÇAPI Pole Diameter (")	AĞIRLIK Weight (kg)
AE 11621	Çelik - Steel	2	2,96
AE 11623	Çelik - Steel	2 1/2	4,14

Ayaklı Tip Direk Kelepçesi

Foot Type Pole Clamp



ÜRÜN KODU Product Code	MATERYAL Material	DİREK ÇAPI Pole Diameter (")	MONTAJ DELİK ÇAPI Mounting Hole Diameter (")	AĞIRLIK Weight (kg)
AE 11755	Çelik - Steel	2	M10	1,13
AE 11757	Çelik - Steel	2 1/2	M10	1,20
AE 11759	Çelik - Steel	3	M10	1,70

Koruma Borusu Kelepçesi

Protection Pipe Clamp



ÜRÜN KODU Product Code	MATERYAL Material	DİREK ÇAPI Pole Diameter (")	MONTAJ DELİK ÇAPI Mounting Hole Diameter (")	AĞIRLIK Weight (kg)
AE 13205	Çelik - Steel	1	M8	0,50
AE 13207	Çelik - Steel	1 1/4	M8	0,97

Yalıtkan Tip Boru Kelepçesi

Insulating Type Pipe Clamp



ÜRÜN KODU Product Code	MATERYAL Material	DİREK ÇAPI Pole Diameter (")	MONTAJ DELİK ÇAPI Mounting Hole Diameter (")	AĞIRLIK Weight (kg)
AE 13455	Çelik - Steel	1	M8	0,13
AE 13457	Çelik - Steel	1 1/4	M8	0,15



Düz Tip Duvar Tabanı

Flat Wall Type Pole Base

ÜRÜN KODU Product Code	MATERYAL Material	DİREK ÇAPI Pole Diameter (")	MONTAJ DELİK ÇAPI Mounting Hole Diameter (")	AĞIRLIK Weight (kg)
AE 11811	Çelik - Steel	2	M10	0,47
AE 11813	Çelik - Steel	2 1/2	M10	0,55
AE 11815	Çelik - Steel	3	M10	0,57



Kenar Tip Taban

Border Type Base

ÜRÜN KODU Product Code	MATERYAL Material	DİREK ÇAPI Pole Diameter (")	MONTAJ DELİK ÇAPI Mounting Hole Diameter (")	AĞIRLIK Weight (kg)
AE 12011	Çelik - Steel	2	M10	3,41
AE 12013	Çelik - Steel	2 1/2	M10	4,28
AE 12015	Çelik - Steel	3	M10	7,00



Orta Tip Taban

Middle Type Base

ÜRÜN KODU Product Code	MATERYAL Material	DİREK ÇAPI Pole Diameter (")	MONTAJ DELİK ÇAPI Mounting Hole Diameter (")	AĞIRLIK Weight (kg)
AE 12061	Çelik - Steel	2	M10	4,40
AE 12063	Çelik - Steel	2 1/2	M10	4,84
AE 12065	Çelik - Steel	3	M10	7,56



**Hareketli Tip Taban**
Adjustable Type Base

ÜRÜN KODU Product Code	MATERYAL Material	DİREK ÇAPI Pole Diameter (")	MONTAJ DELİK ÇAPI Mounting Hole Diameter (")	AĞIRLIK Weight (kg)
AE 12100	Çelik - Steel	2	M12	14,00
AE 12101	Çelik - Steel	2 1/2	M12	15,00
AE 12102	Çelik - Steel	3	M12	16,00

Köşe Tip Taban
Corner Type Base

ÜRÜN KODU Product Code	MATERYAL Material	DİREK ÇAPI Pole Diameter (")	MONTAJ DELİK ÇAPI Mounting Hole Diameter (")	AĞIRLIK Weight (kg)
AE 12111	Çelik - Steel	2	M12	3,41
AE 12113	Çelik - Steel	2 1/2	M12	4,28
AE 12115	Çelik - Steel	3	M12	7,00



Test Klemensi

Test Clamp

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Connection Conductor (mm ²)	AĞIRLIK Weight (kg)
AE 12401	Bakır - Copper	1 x 25	0,34
AE 12403	Bakır - Copper	1 x 50	0,35
AE 12404	Bakır - Copper	1 x 70	0,38
AE 12405	Bakır - Copper	2 x 50	0,36
AE 12411	Bakır - Copper	20 x 3	0,28
AE 12413	Bakır - Copper	25 x 3	0,28
AE 12415	Bakır - Copper	30 x 3	0,28
AE 12420	Bakır - Copper	LICON 35	0,28
AE 12427	Alüminyum - Aluminum	30 x 3	0,24
AE 12525	Çelik - Steel	2 x 50	0,37
AE 12526	Çelik - Steel	30 x 3	0,26
AE 12555	Pirinç - Brass	1 x 50	0,15
AE 12572	Pirinç - Brass	30 x 3	0,23



Topraklama Sistemi Ayırıcı

Earthing System Separator

ÜRÜN KODU Product Code	MATERYAL Material	ÖLÇÜLER Sizes (mm)	AĞIRLIK Weight (kg)
AE 12800	Bakır - Copper	95 - 120	0,24



Eş Potansiyelleme Takoğu

Equipotential Bonding Clamp

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Connection Conductor (mm)	AĞIRLIK Weight (kg)
AE 13121	Alüminyum - Aluminum	8	0,40





Gergi Teli Stretch Wire



ÜRÜN KODU Product Code	MATERYAL Material	ÇAP Diameter (Ø)	AĞIRLIK Weight (kg)
AE 13003	Çelik - Steel	6-8	0,02

Gergi Teli Mengenesi Stretch Wire Vice



ÜRÜN KODU Product Code	MATERYAL Material	ÇAP Diameter (Ø)	AĞIRLIK Weight (kg)
AE 13020	Çelik - Steel	8	0,12

Gergi Teli Klemensi Stretch Wire Clamp



ÜRÜN KODU Product Code	MATERYAL Material	ÇAP Diameter (Ø)	AĞIRLIK Weight (kg)
AE 13030	Çelik - Steel	8	0,70

Gergi Teli Kelepçesi Stretch Wire Clip



ÜRÜN KODU Product Code	MATERYAL Material	ÇAP Diameter (")	AĞIRLIK Weight (kg)
AE 13040	Çelik - Steel	2	0,84

Gergi Teli Tespit Tabanı Stretch Wire Fixing Base



ÜRÜN KODU Product Code	ZEMİN TİPİ Ground Type	MONTAJ DELİK ÇAPI Mounting Hole Diameter (")	EBATLAR Dimension (mm)	AĞIRLIK Weight (kg)
AE 13050	Beton - Concrete	M8	-	0,35
AE 13080	Toprak - Earth	-	40 x 40 x 1000	2,45



Şerit İletken Kroşesi

Flat Conductor Clamp

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Connection Conductor (mm)	MONTAJ DELİK ÇAPI Mounting Hole Diameter (")	AĞIRLIK Weight (kg)
AE 13757	Bakır - Copper	25 x 3	M6	0,01
AE 13759	Bakır - Copper	30 x 3	M6	0,02
AE 13761	Bakır - Copper	40 x 3	M6	0,03
AE 13774	Çelik - Steel	30 x 3	M6	0,01
AE 13778	Çelik - Steel	40 x 4	M6	0,03
AE 13782	Pirinç - Brass	25 x 3	M6	0,01
AE 13783	Pirinç - Brass	30 x 3	M6	0,02



U Kroşe

U Clamp

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Connection Conductor (mm ²)	MONTAJ DELİK ÇAPI Mounting Hole Diameter (")	AĞIRLIK Weight (kg)
AE 13845	Bakır - Copper	1 x 16	M6	0,06
AE 13850	Bakır - Copper	1 x 35	M6	0,06
AE 13851	Bakır - Copper	1 x 50	M6	0,06
AE 13853	Bakır - Copper	1 x 70	M6	0,06
AE 13855	Bakır - Copper	1 x 95	M6	0,07
AE 13857	Bakır - Copper	1 x 120	M6	0,07
AE 13858	Bakır - Copper	1 x 150	M6	0,08
AE 13873	Bakır - Copper	25 x 3	M6	0,05
AE 13875	Bakır - Copper	30 x 3	M6	0,05
AE 13877	Bakır - Copper	30 x 5	M6	0,05
AE 13879	Bakır - Copper	40 x 4	M6	0,08
AE 13881	Bakır - Copper	50 x 5	M6	0,08
AE 13901	Çelik - Steel	1 x 50	M6	0,05
AE 13902	Çelik - Steel	1 x 70	M6	0,05
AE 13904	Çelik - Steel	1 x 95	M6	0,06
AE 13925	Çelik - Steel	30 x 3	M6	0,05
AE 13929	Çelik - Steel	40 x 4	M6	0,07
AE 13931	Çelik - Steel	50 x 5	M6	0,07



**L Kroşe**
L Clamp

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Connection Conductor (mm)	MONTAJ DELİK ÇAPI Mounting Hole Diameter (")	AĞIRLIK Weight (kg)
AE 13955	Bakır - Copper	20 x 3	M6	0,10
AE 13957	Bakır - Copper	25 x 3	M6	0,10
AE 13959	Bakır - Copper	30 x 3	M6	0,11
AE 13979	Çelik - Steel	30 x 3	M6	0,10
AE 13984	Çelik - Steel	40 x 4	M6	0,11
AE 13985	Çelik - Steel	40 x 5	M6	0,12

Bir Vidalı Kroşe
One Hole Clamp

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Connection Conductor (mm ²)	MONTAJ DELİK ÇAPI Mounting Hole Diameter (")	AĞIRLIK Weight (kg)
AE 14007	Çelik - Steel	1 x 70	M6	0,01
AE 14009	Çelik - Steel	1 x 95	M6	0,01
AE 14011	Çelik - Steel	1 x 120	M6	0,01
AE 14027	Bakır - Copper	1 x 70	M6	0,01
AE 14029	Bakır - Copper	1 x 95	M6	0,01
AE 14030	Bakır - Copper	1 x 120	M6	0,01

Tek Delikli Kroşe
One Hole Clamp

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Connection Conductor (mm ²)	MONTAJ DELİK ÇAPI Mounting Hole Diameter (")	AĞIRLIK Weight (kg)
AE 14045	Bakır - Copper	1 x 70	M16	0,01
AE 14046	Bakır - Copper	1 x 95	M16	0,01
AE 14047	Bakır - Copper	1 x 120	M16	0,01
AE 14048	Bakır - Copper	1 x 150	M16	0,01
AE 14055	Paslanmaz Çelik - Stainless Steel	1 x 70	M16	0,01
AE 14056	Paslanmaz Çelik - Stainless Steel	1 x 95	M16	0,01
AE 14057	Paslanmaz Çelik - Stainless Steel	1 x 120	M16	0,01
AE 14058	Paslanmaz Çelik - Stainless Steel	1 x 150	M16	0,01



Salyangoz Kroşe

Snail Clamp

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Connection Conductor (mm ²)	MONTAJ DELİK ÇAPI Mounting Hole Diameter (")	AĞIRLIK Weight (kg)
AE 14102	Bakır - Copper	1 x 16	M6	0,006
AE 14105	Bakır - Copper	1 x 25	M6	0,007
AE 14107	Bakır - Copper	1 x 35	M6	0,008
AE 14109	Bakır - Copper	1 x 50	M6	0,009
AE 14111	Bakır - Copper	1 x 70	M6	0,010
AE 14113	Bakır - Copper	1 x 95	M6	0,010
AE 14115	Bakır - Copper	1 x 120	M6	0,010
AE 14137	Çelik - Steel	1 x 50	M6	0,008
AE 14139	Çelik - Steel	1 x 70	M6	0,009
AE 14141	Çelik - Steel	1 x 95	M6	0,010



DC Kroşe

DC Clamp

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Connection Conductor (mm)	MONTAJ DELİK ÇAPI Mounting Hole Diameter (")	AĞIRLIK Weight (kg)
AE 14167	Bronz - Bronze	25 x 3 - 30 x 3	M6	0,06
AE 14169	Alüminyum - Aluminum	25 x 3 - 30 x 3	M6	0,02
AE 14171	Bronz - Bronze	8	M6	0,08
AE 14173	Alüminyum - Aluminum	8	M6	0,03
AE 21218	Plastik - PVC	25 x 3 - 30 x 3	M6	0,03



Yapışkan Altılık

Sticky Pad

ÜRÜN KODU Product Code	MATERYAL Material	MONTAJ DELİK ÇAPI Mounting Hole Diameter (")	AĞIRLIK Weight (kg)
AE 21220	Plastik - PVC	M6	0,005



■ AE 21220 kodlu ürün, AE 21216 ve AE 21218 kodlu ürünler ile birlikte kullanılabilir.

The product coded AE 21220 can be used with the products coded AE 21216 and AE 21218



Çelik Vidalı Kroşe

Steel Screwed Clamp

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Connection Conductor (mm ²)	DÜBEL ÇAPI Fixing Plug Diameter (mm)	AĞIRLIK Weight (kg)
AE 14373	Bakır - Copper	20 x 3	8	0,09
AE 14375	Bakır - Copper	25 x 3	8	0,10
AE 14377	Bakır - Copper	30 x 3	8	0,11
AE 14381	Bakır - Copper	40 x 5	8	0,13
AE 14383	Bakır - Copper	1 x 35	8	0,05
AE 14385	Bakır - Copper	1 x 50	8	0,05
AE 14386	Bakır - Copper	1 x 50	8	0,07
AE 14387	Bakır - Copper	1 x 70	8	0,06
AE 14388	Bakır - Copper	1 x 95	8	0,06
AE 14389	Bakır - Copper	1 x 120	8	0,07
AE 14401	Bakır - Copper (6-10 cm)	2 x 50	8	0,08
AE 14403	Bakır - Copper (12-15cm)	2 x 50	8	0,11
AE 14045	PVC - Plastic	2 x 50	8	0,01
AE 14565	Çelik - Steel	1 x 50	8	0,05
AE 14567	Çelik - Steel	1 x 70	8	0,05
AE 14575	Çelik - Steel	2 x 50	8	0,07
AE 14577	Çelik - Steel	2 x 70	8	0,09
AE 14587	Çelik - Steel	30 x 3	8	0,08
AE 14589	Çelik - Steel	40 x 4	8	0,12
AE 14593	Çelik - Steel	50 x 5	8	0,14

■ AE 14386 uzun vidalıdır. (15 cm)
AE 14386 is long screwed. (15 cm)

Pirinç Vidalı Kroşe

Brass Screwed Clamp

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Connection Conductor (mm)	DÜBEL ÇAPI Fixing Plug Diameter (mm)	AĞIRLIK Weight (kg)
AE 14405	Bakır - Copper	20 x 3	8	0,08
AE 14408	Bakır - Copper	25 x 3	8	0,08
AE 14409	Bakır - Copper	30 x 3	8	0,09
AE 14421	Bakır - Copper	1 x 50	8	0,08
AE 14423	Bakır - Copper	1 x 70	8	0,08
AE 14425	Bakır - Copper	1 x 95	8	0,09
AE 14427	Bakır - Copper	1 x 120	8	0,09
AE 14431	Bakır - Copper	2 x 50	8	0,09



Z Kroşe

Z Clamp

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Connection Conductor (mm ²)	MONTAJ DELİK ÇAPI Mounting Hole Diameter (")	AĞIRLIK Weight (kg)
AE 14615	Bakır - Copper	1 x 50	M6	0,08
AE 14621	Bakır - Copper	2 x 50	M6	0,10
AE 14665	Çelik - Steel	1 x 50	M6	0,08
AE 14673	Çelik - Steel	2 x 50	M6	0,10



Pilon Kroşe

Pylon Clamp

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Connection Conductor (mm ²)	AĞIRLIK Weight (kg)
AE 14751	Bakır - Copper	1 x 50	0,17
AE 14753	Bakır - Copper	1 x 95	0,17
AE 14757	Bakır - Copper	2 x 50	0,19
AE 14759	Bakır - Copper	25 x 3	0,21
AE 14762	Bakır - Copper	30 x 3	0,21
AE 14765	Çelik - Steel	1 x 50	0,17
AE 14767	Çelik - Steel	1 x 70	0,17
AE 14780	Çelik - Steel	2 x 50	0,18
AE 14782	Çelik - Steel	2 x 70	0,19
AE 14792	Çelik - Steel	30 x 3	0,21
AE 14794	Çelik - Steel	40 x 4	0,22



**Kiremit Kroşe**
Roof tile Clamp

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Connection Conductor (mm ²)	AĞIRLIK Weight (kg)
AE 14845	Bakır - Copper	1 x 50	0,17
AE 14855	Bakır - Copper	2 x 50	0,17
AE 14857	Bakır - Copper	2 x 50	0,21
AE 14875	Çelik - Steel	1 x 50	0,17
AE 14877	Çelik - Steel	2 x 50	0,20
AE 14885	Çelik - Steel	2 x 50	0,17

■ AE 14857 ve AE 14877 geniş tiplidir.
AE 14857 and AE 14877 are wide type products.

Mahya Kroşe
Ridge Clamp

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Connection Conductor (mm ²)	AĞIRLIK Weight (kg)
AE 14905	Bakır - Copper	1 x 50	0,22
AE 14915	Bakır - Copper	2 x 50	0,22
AE 14935	Çelik - Steel	1 x 50	0,21
AE 14945	Çelik - Steel	2 x 50	0,22

Direk Kroşe

Pole Clamp

ÜRÜN KODU Product Code	MATERYAL Material	DİREK ÇAPI - BAĞLANTI İLETKENİ Pole Diameter - Connection Conductor ($''$ - mm ²)	AĞIRLIK Weight (kg)
AE 15010	Bakır - Copper	2,00 - 2 x 50	0,16
AE 15012	Bakır - Copper	2,50 - 2 x 50	0,17
AE 15014	Bakır - Copper	3,00 - 2 x 50	0,18
AE 15025	Bakır - Copper	2,00 - 25 x 3	0,16
AE 15026	Bakır - Copper	2,00 - 30 x 3	0,17
AE 15027	Bakır - Copper	2,50 - 25 x 3	0,18
AE 15028	Bakır - Copper	2,50 - 30 x 3	0,30
AE 15029	Bakır - Copper	3,00 - 25 x 3	0,21
AE 15051	Plastik - Plastic	2,00 - 2 x 50	0,10
AE 15053	Plastik - Plastic	2,50 - 2 x 50	0,11
AE 15061	Çelik - Steel	2,00 - 1 x 50	0,16
AE 15063	Çelik - Steel	2,00 - 1 x 70	0,16
AE 15064	Çelik - Steel	2,00 - 1 x 95	0,16
AE 15065	Çelik - Steel	2,00 - 2 x 50	0,16
AE 15066	Çelik - Steel	2,50 - 2 x 50	0,19
AE 15068	Çelik - Steel	2,00 - 30 x 3	0,16



Üniversal Tip Direk Kelepçesi

Universal Type Pole Clamp

ÜRÜN KODU Product Code	MATERYAL Material	MAKSİMUM SIKMA ÇAPI Maximum Tightening Diameter (mm)	AĞIRLIK Weight (kg)
AE 15071	Paslanmaz Çelik - Stainless Steel	50	0,06
AE 15073	Paslanmaz Çelik - Stainless Steel	100	0,07
AE 15075	Paslanmaz Çelik - Stainless Steel	200	0,08



İzolatörlü Kroşe

Isolated Clamp

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Connection Conductor (mm ²)	MONTAJ DELİK ÇAPI Mounting Hole Diameter ($''$)	AĞIRLIK Weight (kg)
AE 15245	Bakır - Copper	1 x 50	M6	0,09
AE 15257	Bakır - Copper	2 x 50	M6	0,15
AE 15275	Çelik - Steel	1 x 50	M6	0,08
AE 15282	Çelik - Steel	2 x 50	M6	0,15



**İzole Zemin Kroşe**
Pyramide Holdfast Clamp

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Connection Conductor (mm ²)	AĞIRLIK Weight (kg)
AE 16005	Plastik - Plastic	1 x 50	1,10

İzole Zemin Kroşe Aparatı
Holdfast Conductor Clamp

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Connection Conductor (mm ²)	AĞIRLIK Weight (kg)
AE 16009	Plastik - Plastic	2 x 50	0,010
AE 16010	Plastik - Plastic	25 x 3	0,007
AE 16011	Plastik - Plastic	30 x 3	0,008
AE 16012	Plastik - Plastic	1 x 70	0,010

Yapıştırıcı
Adhesive

ÜRÜN KODU Product Code	MATERYAL Material	SICAKLIK DAYANIMI Heat Resistance
AE 16021	Yapışkan Macun - Sticky Paste	- 40°C - +90°C

Plastik Tutucu
Plastic Holder

ÜRÜN KODU Product Code	MATERYAL Material	MONTAJ DELİK ÇAPI Mounting Hole Diameter (")	AĞIRLIK Weight (kg)
AE 16022	Pvc - Plastic	M8	0,09



Li-Term Yakalama Ucu Sistemi

Li-Term Air Terminal Systems

ÜRÜN KODU Product Code	MATERYAL Material	YÜKSEKLİK Height (m)	PARÇA SAYISI Total Make Up	AĞIRLIK Weight (kg)
AE 17001		4	2	7 + 120
AE 17003	Paslanmaz Çelik+Alüminyum	6	2	18 + 120
AE 17005	Stainless Steel+Aluminum	8	3	28 + 180
AE 17007		10	3	36 + 260



■ Tripod Tip Yakalama Ucu Sistemleri standart olarak 150 km/h rüzgar hızına dayanacak şekilde üretilmektedir.

Daha yüksek rüzgar hızı taleplerinizi lütfen belirtiniz.

Tripod Type Air Terminal Systems are produced with a resistance of 150 km/h wind speed standardly.

Please specify your higher wind speed requirements.



Pirinç Yakalama Ucu

Brass Air Terminal



ÜRÜN KODU Product Code	MATERYAL Material	ÇAP - EBATLAR Diameter - Dimension (mm)	AĞIRLIK Weight (kg)
AE 17022	Pirinç - Brass	Ø 16 - 600	0,98
AE 17024	Pirinç - Brass	Ø 16 - 800	1,27
AE 17026	Pirinç - Brass	Ø 16 - 1000	1,62
AE 17040	Pirinç - Brass	Ø 20 - 600	1,55
AE 17042	Pirinç - Brass	Ø 20 - 800	2,07
AE 17044	Pirinç - Brass	Ø 20-1000	2,59

Çelik Yakalama Ucu

Steel Air Terminal



ÜRÜN KODU Product Code	MATERYAL Material	ÇAP - EBATLAR Diameter - Dimension (mm)	AĞIRLIK Weight (kg)
AE 17116	Çelik - Steel	Ø 16 - 600	0,90
AE 17118	Çelik - Steel	Ø 16 - 800	1,22
AE 17119	Çelik - Steel	Ø 16 - 1000	1,53
AE 17126	Çelik - Steel	Ø 20 - 600	1,40
AE 17128	Çelik - Steel	Ø 20 - 800	1,89
AE 17130	Çelik - Steel	Ø 20 - 1000	2,39

Bakır Yakalama Ucu

Copper Air Terminal



ÜRÜN KODU Product Code	MATERYAL Material	ÇAP - EBATLAR Diameter - Dimension (mm)	AĞIRLIK Weight (kg)
AE 17214	Bakır - Copper	Ø 16 - 600	1,02
AE 17216	Bakır - Copper	Ø 16 - 800	1,38
AE 17217	Bakır - Copper	Ø 16 - 1000	1,74
AE 17222	Bakır - Copper	Ø 20 - 600	1,59
AE 17224	Bakır - Copper	Ø 20 - 800	2,15
AE 17226	Bakır - Copper	Ø 20 - 1000	2,71

■ Standart yakalama ucu dış çapı 3/8"-16 dir.
Standard air terminal thread diameter is 3/8"-16

■ Farklı uzunluklar için lütfen sipariş aşamasında bilgi veriniz.
For different length, please give us detail at the time of ordering.

Alüminyum Yakalama Ucu

Aluminum Air Terminal

ÜRÜN KODU Product Code	MATERYAL Material	ÇAP - EBATLAR Diameter - Dimension (mm)	AĞIRLIK Weight (kg)
AE 17236	Alüminyum - Aluminum	Ø 16 - 600	0,31
AE 17237	Alüminyum - Aluminum	Ø 16 - 800	0,42
AE 17244	Alüminyum - Aluminum	Ø 16 - 1000	0,53
AE 17243	Alüminyum - Aluminum	Ø 20 - 600	0,48
AE 17242	Alüminyum - Aluminum	Ø 20 - 800	0,65
AE 17238	Alüminyum - Aluminum	Ø 20 - 1000	0,82

**Alüminyum Yakalama Ucu (Açılı Tip)**

Aluminum Air Terminal (Angled Type)

ÜRÜN KODU Product Code	MATERYAL Material	ÇAP - EBATLAR Diameter - Dimension (mm)	AĞIRLIK Weight (kg)
AE 17245	Alüminyum - Aluminum	ø 10 - 1000	0,50

**Paslanmaz Çelik Yakalama Ucu**

Stainless Steel Air Terminal

ÜRÜN KODU Product Code	MATERYAL Material	ÇAP - EBATLAR Diameter - Dimension (mm)	AĞIRLIK Weight (kg)
AE 17267	Paslanmaz Çelik - Stainless Steel	Ø 16 - 600	0,91
AE 17266	Paslanmaz Çelik - Stainless Steel	Ø 16 - 800	1,22
AE 17269	Paslanmaz Çelik - Stainless Steel	Ø 16 - 1000	1,54
AE 17279	Paslanmaz Çelik - Stainless Steel	Ø 20 - 600	1,41
AE 17280	Paslanmaz Çelik - Stainless Steel	Ø 20 - 800	1,90
AE 17281	Paslanmaz Çelik - Stainless Steel	Ø 20 - 1000	2,40

**Çok Uçlu Yakalama Ucu**

Multi Point Air Terminal

ÜRÜN KODU Product Code	MATERYAL Material	AĞIRLIK Weight (kg)
AE 17302	Bakır - Copper	0,88
AE 17301	Pirinç - Brass	0,84



■ Standart yakalama ucu dış çapı 3/8"-16 dir.
Standard air terminal thread diameter is 3/8"-16

■ Farklı uzunluklar için lütfen sipariş aşamasında bilgi veriniz.
For different length, please give us detail at the time of ordering.

**Düz Tip Yakalama Ucu Tabanı***Flat Type Air Terminal Fixing Bases*

ÜRÜN KODU Product Code	MATERYAL Material	MONTAJ DELİK ÇAPI Mounting Hole Diameter (")	AĞIRLIK Weight (kg)
AE 17603	Çelik - Steel	M6	0,31
AE 17615	Bakır - Copper	M6	0,28
AE 17621	Pirinç - Brass	M6	0,67
AE 17622	Pirinç - Brass	M6	0,52

Yalıtkan Tip Yakalama Ucu Tabanı*Isolated Type Air Terminal Fixing Base*

ÜRÜN KODU Product Code	MATERYAL Material	AĞIRLIK Weight (kg)
AE 17625	Plastik - Plastic	1,20

İstavroz Tip Yakalama Ucu Tabanı*Cross Type Air Terminal Fixing Base*

ÜRÜN KODU Product Code	MATERYAL Material	AĞIRLIK Weight (kg)
AE 17801	Pirinç - Brass	0,30

A Tip Yakalama Ucu Tabanı*A Type Air Terminal Fixing Bases*

ÜRÜN KODU Product Code	MATERYAL Material	MONTAJ DELİK ÇAPI Mounting Hole Diameter (")	AĞIRLIK Weight (kg)
AE 18101	Çelik - Steel	M6	0,27
AE 18115	Bakır - Copper	M6	0,34

■ Yakalama ucu tabanı dış çapları 3/8"-16 dir.
Thread diameter of fixing bases are 3/8"-16



Eğri Tip Yakalama Ucu Tabanı

Curved Type Air Terminal Fixing Base

ÜRÜN KODU Product Code	MATERYAL Material	MONTAJ DELİK ÇAPI Mounting Hole Diameter (")	AĞIRLIK Weight (kg)
AE 18201	Çelik - Steel	M6	0,34
AE 18215	Bakır - Copper	M6	0,39



Beton Tip Yakalama Ucu Tabanı

Concrete Type Air Terminal Fixing Base

ÜRÜN KODU Product Code	MATERYAL Material	AĞIRLIK Weight (kg)
AE 18300	Beton - Concrete	11



Bronz Tip Yakalama Ucu Tabanı

Bronze Type Air Terminal Fixing Base

ÜRÜN KODU Product Code	MATERYAL Material	MONTAJ DELİK ÇAPI Mounting Hole Diameter (")	AĞIRLIK Weight (kg)
AE 18454	Alüminyum - Aluminum	M6	0,16
AE 18455	Pirinç - Brass	M6	0,46



■ Yakalama ucu tabanı dış çapları 3/8"-16 dir.

Thread diameter of fixing bases are 3/8"-16



Şerit Tip Yakalama Ucu Tabanı

Tape Type Air Terminal Fixing Base



ÜRÜN KODU Product Code	MATERYAL Material	MONTAJ DELİK ÇAPI Mounting Hole Diameter (")	BAĞLANTI İLETKENİ Connection Conductor (mm ²)	AĞIRLIK Weight (kg)
AE 18456	Pirinç - Brass	M6	30 x 3	0,64
AE 18510	Çelik - Steel	M6	30 x 3	0,66
AE 18530	Bakır - Copper	M6	30 x 3	0,66
AE 18457	Bronz - Bronze	M6	25 x 3	0,42
AE 18458	Pirinç - Brass	M6	25 x 3	0,34

Omega Tip Yakalama Ucu Tabanı

Omega Type Air Terminal Fixing Base



ÜRÜN KODU Product Code	MATERYAL Material	MONTAJ DELİK ÇAPI Mounting Hole Diameter (")	AĞIRLIK Weight (kg)
AE 18515	Çelik - Steel	M8	0,43
AE 18532	Bakır - Cooper	M8	0,44

Omega Tip Yakalama Ucu Tabanı (Hareketli)

Omega Type Air Terminal Fixing Base (Adjustable)



ÜRÜN KODU Product Code	MATERYAL Material	AĞIRLIK Weight (kg)
AE 18516	Çelik - Steel	0,54
AE 18533	Bakır - Cooper	0,55



Boru Tip Yakalama Ucu Tabanı

Pipe Type Air Terminal Fixing Base

ÜRÜN KODU Product Code	MATERYAL Material	BORU ÇAPI Pipe Diameter (")	AĞIRLIK Weight (kg)
AE 18850	Çelik - Steel	2	0,69
AE 18870	Pirinç - Brass	2	0,95



Kiremit Tip Yakalama Ucu Tabanı

Tile Type Air Terminal Fixing Base

ÜRÜN KODU Product Code	MATERYAL Material	UZUNLUK Length (cm)	AĞIRLIK Weight (kg)
AE 19212	Pirinç - Brass	23 - 33	0,87



Mahya Tip Yakalama Ucu Tabanı

Ridge Type Air Terminal Fixing Base

ÜRÜN KODU Product Code	MATERYAL Material	İLETKEN KESİTİ Conductor Size (mm)	MONTAJ DELİK ÇAPI Mounting Hole Diameter (")	AĞIRLIK Weight (kg)
AE 19252	Pirinç - Brass	8	M8	0,80
AE 19323	Bronz - Bronze	30 x 3	M6	0,92
AE 19325	Alüminyum - Aluminum	30 x 3	M6	0,15



Duvar Tip Yakalama Ucu Tabanı

Wall Type Air Terminal Fixing Base

ÜRÜN KODU Product Code	MATERYAL Material	MONTAJ DELİK ÇAPI Mounting Hole Diameter (mm)	AĞIRLIK Weight (kg)
AE 19803	Çelik - Steel	16	0,38
AE 19533	Bronz - Bronze	16	1,10
AE 19535	Alüminyum - Aluminum	16	0,35







TOPRAKLAMA SİSTEMLERİ

GROUNDING SYSTEMS



Foundation Grounding

Foundation grounding is one of the most important grounding methods known ever. Foundation grounding of buildings must be started at the beginning of construction (at foundation stage). This is performed by laying a galvanized conductor between reinforcing bars. This conductor is connected to reinforcing bars at certain distances. The ends of this conductor are taken out from some specified points and left as the "connection bud". Once these buds are connected to the equipotential grounding bus bars, the grounding is completed by connecting all systems to be grounded to these buses.

Foundation grounding (embedded conductor) must be designed in the form of a closed ring, and placed in the foundation of the external walls of the building, or the foundation platform. In buildings with a large perimeter, foundation grounding rods must be divided into sections of 20x20m. Connection must be established with reinforcing bars every few meters.

Measurement of Ground Resistivity

In order to measure the ground resistivity to predetermine the ground dispersion resistance or grounding impedance,

the "Four Probe Method" (e.g. Wenner Method), which enables determination of this resistance for various depths, must be used.

Regulation Annex-N 2.2.1 can be referred to for the distances between probes. Special devices have been designed to implement this method.

Equipotential Grounding

The safest system in grounding is the equipotential system. In this system all groundings and metal sections are connected to each other by means of equipotential bus bars. The voltage difference that might occur at any two points in the installation is prevented, and equipotential is provided at all points.

While connecting the lightning protection system with the equipotential system it is required to take precautions against overvoltages that might occur. For this purpose, an "internal lightning conductor" (overvoltage impact protection) must be included in this system. Otherwise, electric-electronic systems and equipment are at great risk. While connecting different grounding to each other, the connection must be established through the potential equalizers.

Grounding Resistance Reducing Powder

Ions enable electrical flow in the ground. The grounding system and its surroundings must be able to regulate rapid ion flow. If the movement of ions in the ground is low, the resistance will be high and the current will not flow easily. In an ideal grounding system, grounding resistance must be as low as possible in order for the electrical current to easily flow through the ground. However, it is not always possible to reach the desired grounding resistance. Grounding resistance reducing powder (TDM) is a material that increases conductivity, and serves to reduce the grounding resistance in all types of ground (rocky, sandy). It is the ideal material for ground with weak conductivity.

General characteristics:

Maintains the resistance obtained throughout the life of the system.

Doesn't dissolve or decompose over time.
Increases freezing resistance by about 10%.

No need for periodical checks.

Only one person is needed to prepare and apply it.
Doesn't have a harmful effect on the ground or pollute underground water.

Advantages of Grounding Resistance Reducing Powder Compared to Coal and Salt:

When two different metals are side by side, a potential difference occurs between them due to the difference of ion numbers between metals. This difference causes the metals to act like a battery and ion flow to form. This is called "galvanic corrosion". Due to the electrochemical potential between coal and copper, coal gains copper's ions. The number of ions decreases over time in the copper, and this causes the copper to lose its characteristics. The electrolyte formed when salt combines with water leads to corrosion in the copper and decomposes it. The amount of salt contained in the underground water is decreased and wastes away over time.



PLASTIC EARTH PIT
5 tons durability



COPPER BONDED STEEL EARTHING ROD
Plating Thickness: 250 microns



U TYPE CLAMP
Brass



U TYPE CLAMP
Bronze



T TYPE CLAMP
Bronze



G TYPE CLAMP
Brass



ROD COUPLING
Bronze, Steel

**Mono Bakır İletken***Mono Copper Conductor*

ÜRÜN KODU Product Code	MATERYAL Material	İLETKEN KESİTİ Conductor Size (mm ²)	AĞIRLIK Weight (kg/m)
AE 20006	Bakır - Copper	4	0,036
AE 20008	Bakır - Copper	6	0,054
AE 20010	Bakır - Copper	10	0,089
AE 20012	Bakır - Copper	16	0,143
AE 20014	Bakır - Copper	25	0,223
AE 20016	Bakır - Copper	35	0,312
AE 20018	Bakır - Copper	50	0,446
AE 20020	Bakır - Copper	70	0,624

Örgülü Bakır İletken*Stranded Copper Conductor*

ÜRÜN KODU Product Code	MATERYAL Material	İLETKEN KESİTİ Conductor Size (mm ²)	AĞIRLIK Weight (kg/m)
AE 20102	Bakır - Copper	10	0,089
AE 20104	Bakır - Copper	16	0,143
AE 20106	Bakır - Copper	25	0,223
AE 20108	Bakır - Copper	35	0,312
AE 20110	Bakır - Copper	50	0,446
AE 20112	Bakır - Copper	70	0,624
AE 20114	Bakır - Copper	95	0,847
AE 20116	Bakır - Copper	120	1,070
AE 20118	Bakır - Copper	150	1,338
AE 20119	Bakır - Copper	185	1,650
AE 20122	Bakır - Copper	240	2,141

■ Kalay kaplı - örgülü iletkenler için satış ekibimiz ile irtibata geçiniz.

For tin clad stranded copper conductors, please contact to our sales team.

CCA İletken*CCA Conductor*

ÜRÜN KODU Product Code	MATERYAL Material	İLETKEN KESİTİ Conductor Size (mm ²)	AĞIRLIK Weight (kg/m)
AE 20202	Bakır Kaplı Alüminyum Copper Clad Aluminum	50 (Ø 8 mm)	0,167

■ CCA iletken 100 metrelik rulolar halinde üretilmektedir.

The CCA conductor is manufactured in rolls of 100 meters.

Bakır Şerit İletken*Copper Tape Conductor*

ÜRÜN KODU Product Code	MATERYAL Material	İLETKEN KESİTİ Conductor Size (mm)	AĞIRLIK Weight (kg/m)
AE 20304	Bakır - Copper	30 x 2	0,535
AE 20306	Bakır - Copper	20 x 3	0,535
AE 20312	Bakır - Copper	25 x 3	0,669
AE 20314	Bakır - Copper	25 x 5	1,115
AE 20316	Bakır - Copper	30 x 3	0,803
AE 20320	Bakır - Copper	30 x 5	1,338
AE 20324	Bakır - Copper	40 x 3	1,070
AE 20328	Bakır - Copper	40 x 5	1,784
AE 20346	Bakır - Copper	50 x 5	2,230
AE 20352	Bakır - Copper	50 x 6	2,676
AE 20336	Bakır - Copper	60 x 5	2,676
AE 20357	Bakır - Copper	80 x 5	3,568
AE 20342	Bakır - Copper	100 x 10	8,920

**Çelik Şerit İletken***Steel Tape Conductor*

ÜRÜN KODU Product Code	MATERYAL Material	TİP Type	İLETKEN KESİTİ Conductor Size (mm)	AĞIRLIK Weight (kg/m)
AE 20411	Çelik - Steel	Sic. Dal. Galv. - Hot Dip Galv.	30 x 3	0,740
AE 20417	Çelik - Steel	Sic. Dal. Galv. - Hot Dip Galv.	40 x 3	0,960
AE 20419	Çelik - Steel	Sic. Dal. Galv. - Hot Dip Galv.	40 x 4	1,300
AE 20422	Çelik - Steel	Sic. Dal. Galv. - Hot Dip Galv.	30 x 3,5	0,850
AE 20461	Çelik - Steel	Sic. Dal. Galv. - Hot Dip Galv.	50 x 5	2,000
AE 20471	Paslanmaz Çelik - Stainless Steel	304 / L	25 x 3	0,600
AE 20473	Paslanmaz Çelik - Stainless Steel	316 / L	25 x 3	0,600
AE 20475	Paslanmaz Çelik - Stainless Steel	304 / L	30 x 3	0,720
AE 20477	Paslanmaz Çelik - Stainless Steel	316 / L	30 x 3	0,720



■ Diğer ölçü ve talepleriniz için satış ekibimiz ile irtibata geçiniz.

For more sizes and demands, please contact to our sales team.

**PVC Kaplı Bakır Şerit**
PVC Covered Copper Tape

ÜRÜN KODU Product Code	RENK Colour	İLETKEN KESİTİ Conductor Size (mm)	BOY Length (m)	AĞIRLIK Weight (kg/m)
AE 20605	Siyah - Black	25 x 3	10 / 15	0,77
AE 20613	Sarı/Yeşil - Yellow/Green	25 x 3	10 / 15	0,77
AE 20615	Siyah - Black	30 x 3	10 / 15	0,90

**Mono Alüminyum İletken**
Mono Aluminum Conductor

ÜRÜN KODU Product Code	MATERYAL Material	İLETKEN ÇAPI Conductor Diameter (mm)	AĞIRLIK Weight (kg/m)
AE 20805	Alüminyum - Aluminum	8	0,140
AE 20808	Alüminyum - Aluminum	10	0,200

**Mono Galvaniz İletken**
Mono Galvanized Conductor

ÜRÜN KODU Product Code	MATERYAL Material	İLETKEN ÇAPI Conductor Diameter (mm)	AĞIRLIK Weight (kg/m)
AE 20852	Çelik - Steel	8	0,420
AE 20854	Çelik - Steel	10	0,640

**Örgülü Galvaniz İletken**
Stranded Galvanized Conductor

ÜRÜN KODU Product Code	MATERYAL Material	İLETKEN ÇAPI Conductor Diameter (mm ²)	AĞIRLIK Weight (kg/m)
AE 20858	Çelik - Steel	95	0,760
AE 20859	Çelik - Steel	70	0,520



Esnek Örgülü Bakır İletken

Flexible Stranded Copper Conductor

ÜRÜN KODU Product Code	MATERYAL Material	KAPLAMA Plating	İLETKEN KESİTİ Conductor Size (mm ²)	AĞIRLIK Weight (kg/m)
AE 20899	Bakır - Copper	Kalay (Opsiyonel) - Tin (Optionally)	6	0,54
AE 20903	Bakır - Copper	Kalay (Opsiyonel) - Tin (Optionally)	10	0,09
AE 20908	Bakır - Copper	Kalay (Opsiyonel) - Tin (Optionally)	16	0,14
AE 20909	Bakır - Copper	Kalay (Opsiyonel) - Tin (Optionally)	25	0,22
AE 20910	Bakır - Copper	Kalay (Opsiyonel) - Tin (Optionally)	35	0,31
AE 20907	Bakır - Copper	Kalay (Opsiyonel) - Tin (Optionally)	50	0,45
AE 20917	Bakır - Copper	Kalay (Opsiyonel) - Tin (Optionally)	95	0,85



Esnek Şerit Bakır İletken

Flexible Tape Copper Conductor

ÜRÜN KODU Product Code	MATERYAL Material	KAPLAMA Plating	İLETKEN KESİTİ Conductor Size (mm)	AĞIRLIK Weight (kg)
AE 25115	Bakır - Copper	Yok - Not available	30 x 5 x 500	0,67
AE 37102	Bakır - Copper	Yok - Not available	20 x 3 x 500	0,27
AE 37105	Bakır - Copper	Yok - Not available	25 x 3 x 500	0,34
AE 37106	Bakır - Copper	Yok - Not available	30 x 3 x 500	0,40
AE 37107	Bakır - Copper	Yok - Not available	25 x 5 x 500	0,56
AE 37150	Bakır - Copper	Kalay - Tin	20 x 3 x 500	0,27
AE 37152	Bakır - Copper	Kalay - Tin	25 x 3 x 500	0,34
AE 37154	Bakır - Copper	Kalay - Tin	30 x 3 x 500	0,40
AE 37155	Bakır - Copper	Kalay - Tin	25 x 5 x 500	0,56
AE 37157	Bakır - Copper	Kalay - Tin	30 x 5 x 500	0,67



■ Özel ölçüler için lütfen satış ekibi ile irtibata geçiniz.

Please contact to sales department for special dimensions.

**NYAF (H07V-K) İletken**

NYAF (H07V-K) Conductor



ÜRÜN KODU Product Code	MATERYAL Material	İLETKEN KESİTİ Conductor Size (mm ²)	AĞIRLIK Weight (kg/m)
AE 21003	Bakır - Copper	10	0,11
AE 21005	Bakır - Copper	16	0,17
AE 21007	Bakır - Copper	25	0,26
AE 21009	Bakır - Copper	35	0,35
AE 21011	Bakır - Copper	50	0,50
AE 21013	Bakır - Copper	70	0,69
AE 21015	Bakır - Copper	95	0,92
AE 21017	Bakır - Copper	120	1,17
AE 21019	Bakır - Copper	150	1,46
AE 21021	Bakır - Copper	185	1,79

NYA (H07V-R) İletken

NYA (H07V-R) Conductor



ÜRÜN KODU Product Code	MATERYAL Material	İLETKEN KESİTİ Conductor Size (mm ²)	AĞIRLIK Weight (kg/m)
AE 21101	Bakır - Copper	1	0,01
AE 21103	Bakır - Copper	1,5	0,02
AE 21105	Bakır - Copper	2,5	0,03
AE 21107	Bakır - Copper	4	0,04
AE 21109	Bakır - Copper	6	0,07
AE 21111	Bakır - Copper	10	0,11
AE 21113	Bakır - Copper	16	0,16
AE 21115	Bakır - Copper	25	0,26
AE 21117	Bakır - Copper	35	0,35
AE 21119	Bakır - Copper	50	0,48
AE 21121	Bakır - Copper	70	0,67
AE 21123	Bakır - Copper	95	0,93
AE 21125	Bakır - Copper	120	1,16
AE 21127	Bakır - Copper	150	1,43

NYN (YVV) İletken

NYN (YVV) Conductor

ÜRÜN KODU Product Code	MATERYAL Material	İLETKEN KESİTİ Conductor Size (mm ²)	AĞIRLIK Weight (kg/m)
AE 21151	Bakır - Copper	1 x 16	0,22
AE 21153	Bakır - Copper	1 x 25	0,32
AE 21154	Bakır - Copper	1 x 35	0,42
AE 21155	Bakır - Copper	1 x 50	0,56
AE 21156	Bakır - Copper	1 x 70	0,77
AE 21157	Bakır - Copper	1 x 95	1,06
AE 21158	Bakır - Copper	1 x 120	1,29
AE 21160	Bakır - Copper	1 x 150	1,59
AE 21165	Bakır - Copper	1 x 240	2,57
AE 21171	Bakır - Copper	2 x 1.5	0,19
AE 21172	Bakır - Copper	2 x 2.5	0,23
AE 21173	Bakır - Copper	2 x 4	0,31
AE 21174	Bakır - Copper	2 x 6	0,37
AE 21178	Bakır - Copper	3 x 2.5	0,27
AE 21180	Bakır - Copper	4 x 1.5	0,25
AE 21184	Bakır - Copper	3 x 1.5	0,23





LICON İzoleli Yıldırım İnış İletkeni

LICON Isolated Lightning Down Conductor



ÜRÜN KODU Product Code	MATERYAL Material	İLETKEN TİPİ Conductor Type	İLETKEN KESİTİ Conductor Size (mm ²)	AĞIRLIK Weight (kg/m)
AE 21179	Bakır - Copper	Yassı - Tape	35	0,57
AE 21182	Bakır - Copper	Yuvarlak - Round	50	0,81

Paratoner Bağlantı Pabucu

Lightning Rod Connection Lug



ÜRÜN KODU Product Code	MATERYAL Material	İLETKEN TİPİ Conductor Type	İLETKEN KESİTİ Conductor Size (mm ²)	AĞIRLIK Weight (kg)
AE 21205	Bakır - Copper	Yuvarlak - Round	50	0,02
AE 21206	Bakır - Copper	Yassı - Tape	35	0,12

Direk Kroşe

Pole Clamp



ÜRÜN KODU Product Code	MATERYAL Material	İLETKEN TİPİ Conductor Type	İLETKEN KESİTİ Conductor Size (mm ²)	AĞIRLIK Weight (kg)
AE 21207	Plastik - Plastic	Yuvarlak - Round	50	0,17
AE 21208	Plastik - Plastic	Yassı - Tape	35	0,18

Vidalı Tip Kroşe

Screwed Type Clamp



ÜRÜN KODU Product Code	MATERYAL Material	İLETKEN TİPİ Conductor Type	İLETKEN KESİTİ Conductor Size (mm ²)	AĞIRLIK Weight (kg)
AE 21209	Plastik - Plastic	Yuvarlak - Round	50	0,08
AE 21210	Plastik - Plastic	Yassı - Tape	35	0,08

Trapez Tip Kroşe*Trapez Type Clamp*

ÜRÜN KODU Product Code	MATERYAL Material	İLETKEN TİPİ Conductor Type	İLETKEN KESİTİ Conductor Size (mm ²)	AĞIRLIK Weight (kg)
AE 21211	Plastik - Plastic	Yuvarlak - Round	50	0,08
AE 21212	Plastik - Plastic	Yassı - Tape	35	0,10

**Z Tip Kroşe***Z Type Clamp*

ÜRÜN KODU Product Code	MATERYAL Material	İLETKEN TİPİ Conductor Type	İLETKEN KESİTİ Conductor Size (mm ²)	AĞIRLIK Weight (kg)
AE 21213	Plastik - Plastic	Yuvarlak - Round	50	0,08
AE 21214	Plastik - Plastic	Yassı - Tape	35	0,08

**Bağlantı Manşonu***Connection Coupling*

ÜRÜN KODU Product Code	MATERYAL Material	İLETKEN TİPİ Conductor Type	İLETKEN KESİTİ Conductor Size (mm ²)	AĞIRLIK Weight (kg)
AE 21215	Galvaniz - Galvanized	Yuvarlak - Round	50	0,15

**Eko Tip Duvar Kroşesi***Eco Type Wall Clamp*

ÜRÜN KODU Product Code	MATERYAL Material	İLETKEN TİPİ Conductor Type	İLETKEN KESİTİ Conductor Size (mm ²)	AĞIRLIK Weight (kg)
AE 21216	Plastik - Plastic	Yuvarlak - Round	50	0,030



**Kablo Bağları**
Cable Clips

ÜRÜN KODU Product Code	MATERYAL Material	İLETKEN Conductor (mm)	AĞIRLIK Weight (kg)
AE 22401	Plastik - Plastic	135 x 2,5	0,02
AE 22402	Plastik - Plastic	150 x 3,5	0,02
AE 22403	Plastik - Plastic	280 x 3,5	0,02
AE 22404	Plastik - Plastic	430 x 4,5	0,02
AE 22408	Plastik - Plastic	360 x 4,5	0,02

Düz Tip Kablo Ek Mufu
Flat Type Cable Connection Tube

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Connection Conductor (mm ²)	AĞIRLIK Weight (kg)
AE 22555	Bakır - Copper	6	0,01
AE 22557	Bakır - Copper	10	0,01
AE 22559	Bakır - Copper	16	0,01
AE 22561	Bakır - Copper	25	0,01
AE 22563	Bakır - Copper	35	0,01
AE 22565	Bakır - Copper	50	0,02
AE 22567	Bakır - Copper	70	0,03
AE 22569	Bakır - Copper	95	0,03
AE 22571	Bakır - Copper	120	0,05
AE 22573	Bakır - Copper	150	0,06
AE 22575	Bakır - Copper	185	0,09
AE 22577	Bakır - Copper	240	0,011

Kablo Pabucu

Cable Lug

ÜRÜN KODU Product Code	MATERYAL Material	MONTAJ DELİK ÇAPI Mounting Hole Diameter	BAĞLANTI İLETKENİ Connection Conductor (mm ²)	KUTU ADETİ Box Quantity	KUTU AĞIRLIĞI Box Weight (kg)
AE 22805	Bakır - Copper	M 4	6	300	1,00
AE 22807	Bakır - Copper	M 4	10	250	1,00
AE 22809	Bakır - Copper	M 6	16	250	1,67
AE 22811	Bakır - Copper	M 8	25	250	2,30
AE 22813	Bakır - Copper	M 10	35	150	2,47
AE 22815	Bakır - Copper	M 10	50	100	2,36
AE 22817	Bakır - Copper	M 12	70	75	2,29
AE 22819	Bakır - Copper	M 12	95	50	1,82
AE 22821	Bakır - Copper	M 14	120	40	2,22
AE 22823	Bakır - Copper	M 14	150	35	2,80
AE 22825	Bakır - Copper	M 16	185	30	2,60
AE 22827	Bakır - Copper	M 16	240	20	2,19
AE 22829	Bakır - Copper	M 22	300	15	2,76

**Kablo Pabucu (EKO Tip)**

Cable Lug (ECO Type)

ÜRÜN KODU Product Code	MATERYAL Material	MONTAJ DELİK ÇAPI Mounting Hole Diameter	BAĞLANTI İLETKENİ Connection Conductor (mm ²)	KUTU ADETİ Box Quantity	KUTU AĞIRLIĞI Box Weight (kg)
AE 22806	Bakır - Copper	M 4	6	300	0,66
AE 22808	Bakır - Copper	M 4	10	250	0,75
AE 22810	Bakır - Copper	M 6	16	250	1,13
AE 22812	Bakır - Copper	M 8	25	250	1,55
AE 22814	Bakır - Copper	M 10	35	150	1,53
AE 22816	Bakır - Copper	M 10	50	100	1,40
AE 22818	Bakır - Copper	M 12	70	75	1,68
AE 22820	Bakır - Copper	M 12	95	50	1,49
AE 22822	Bakır - Copper	M 14	120	50	1,51
AE 22824	Bakır - Copper	M 14	150	35	1,95
AE 22826	Bakır - Copper	M 16	185	30	2,59
AE 22828	Bakır - Copper	M 16	240	20	2,13



**Bimetal Kablo Pabucu***Bimetallic Cable Lug*

ÜRÜN KODU Product Code	MATERYAL Material	MONTAJ DELİK ÇAPI Mounting Hole Diameter	BAĞLANTI İLETKENİ Connection Conductor (mm ²)	KUTU ADETİ Box Quantity	KUTU AĞIRLIĞI Box Weight (kg)
AE 22901	Al / Cu	10,5	16	80	4,00
AE 22903	Al / Cu	10,6	25	80	4,20
AE 22905	Al / Cu	10,6	35	80	4,60
AE 22907	Al / Cu	13	50	60	4,00
AE 22909	Al / Cu	13	70	60	4,20
AE 22911	Al / Cu	13	95	60	6,80
AE 22913	Al / Cu	13	120	30	3,50
AE 22915	Al / Cu	13	150	30	4,00
AE 22917	Al / Cu	14,5	185	15	3,50
AE 22919	Al / Cu	14,5	240	15	3,30
AE 22921	Al / Cu	16	300	10	3,00
AE 22923	Al / Cu	16	400	10	4,20





Düz Tip Eş Potansiyel Bara

Equipotential Bar Flat Type

ÜRÜN KODU Product Code	MATERYAL Material	MONTAJ AYAGI Self Support	DELİK SAYISI Number Of Holes	ÖLÇÜLER Sizes (mm)	AĞIRLIK Weight (kg)
AE 24313	Bakır - Copper	Yok - Unavailable	5	30 x 5 x 200	0,25
AE 24325	Bakır - Copper	Yok - Unavailable	12	30 x 3 x 500	0,37
AE 24327	Bakır - Copper	Yok - Unavailable	12	30 x 5 x 500	0,62
AE 24340	Bakır - Copper	Yok - Unavailable	12	40 x 5 x 500	0,83
AE 24413	Galvaniz - Galvanized	Yok - Unavailable	5	30 x 5 x 200	0,22
AE 24425	Galvaniz - Galvanized	Yok - Unavailable	8	30 x 5 x 300	0,34
AE 24427	Galvaniz - Galvanized	Yok - Unavailable	12	30 x 5 x 500	0,55
AE 24430	Galvaniz - Galvanized	Yok - Unavailable	8	40 x 4 x 300	0,39
AE 23613	Bakır - Copper	Var - Available	12	25 x 3 x 500	0,48
AE 23621	Bakır - Copper	Var - Available	8	30 x 3 x 300	0,40
AE 23623	Bakır - Copper	Var - Available	12	30 x 3 x 500	0,57
AE 23627	Bakır - Copper	Var - Available	8	30 x 5 x 300	0,68
AE 23643	Bakır - Copper	Var - Available	12	40 x 5 x 500	1,25
AE 23657	Bakır - Copper	Var - Available	12	50 x 5 x 500	1,58
AE 23671	Bakır - Copper	Var - Available	12	60 x 5 x 500	1,90



Eş Potansiyel Bara

Equipotential Bar

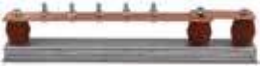
ÜRÜN KODU Product Code	MATERYAL Material	DELİK SAYISI Number Of Holes	ÖLÇÜLER Sizes (mm)	AĞIRLIK Weight (kg)
AE 23714	Bakır - Copper	4	25 x 5 x 250	0,53
AE 23715	Bakır - Copper	10	25 x 5 x 500	0,89
AE 23721	Bakır - Copper	6	30 x 3 x 300	0,53
AE 23723	Bakır - Copper	10	30 x 3 x 500	0,75
AE 23727	Bakır - Copper	6	30 x 5 x 300	0,68
AE 23728	Bakır - Copper	8	30 x 5 x 400	0,84
AE 23729	Bakır - Copper	10	30 x 5 x 500	1,00
AE 23740	Bakır - Copper	6	40 x 5 x 300	0,93
AE 23743	Bakır - Copper	10	40 x 5 x 500	1,33
AE 23748	Bakır - Copper	6	50 x 5 x 300	1,06
AE 23749	Bakır - Copper	10	50 x 5 x 500	1,56
AE 24121	Galvaniz - Galvanized	6	30 x 3 x 300	0,51
AE 24123	Galvaniz - Galvanized	10	30 x 3 x 500	0,80
AE 24127	Galvaniz - Galvanized	6	30 x 5 x 300	0,65
AE 24140	Galvaniz - Galvanized	6	40 x 5 x 300	0,89
AE 24146	Galvaniz - Galvanized	10	40 x 5 x 500	1,29





Tek Ayırıcılı Eş Potansiyel Bara

Equipotential Bar With One Separator



ÜRÜN KODU Product Code	MATERYAL Material	DELİK SAYISI Number Of Holes	ÖLÇÜLER Şizes (mm)	AĞIRLIK Weight (kg)
AE 24495	Bakır - Copper	8	50 x 5 x 500	1,71

Çift Ayırıcılı Eş Potansiyel Bara

Equipotential Bar With Two Separator



ÜRÜN KODU Product Code	MATERYAL Material	DELİK SAYISI Number Of Holes	ÖLÇÜLER Şizes (mm)	AĞIRLIK Weight (kg)
AE 24496	Bakır - Copper	8	50 x 5 x 500	1,90

Tek ve çift ayırıcı baralardaki farklı ölçü taleplerinizi lütfen belirtiniz.
Please specify your different size orders for equipotential bars with one and two separators.

Dokunma Korumalı Eş Potansiyel Bara

Equipotential Bar With Touch Protection



ÜRÜN KODU Product Code	MATERYAL Material	DELİK SAYISI Number Of Holes	ÖLÇÜLER Şizes (mm)	AĞIRLIK Weight (kg)
AE 24497	Bakır/Pvc - Copper/Pvc	6	30 x 5 x 300	0,85

İzolatör

Insulator



ÜRÜN KODU Product Code	MATERYAL Material	ÖLÇÜLER Şizes (mm)	AĞIRLIK Weight (kg)
AE 26439	Çelik Civata - Steel Bolt	M12	0,15
AE 26441	Çelik Civata - Steel Bolt	M10	0,13
AE 26442	Çelik Civata - Steel Bolt	M8	0,10
AE 26440	Çelik Civata - Steel Bolt	M6	0,04



Özel Tip İzolatör

Special Insulator

ÜRÜN KODU Product Code	MATERYAL Material	TİP Type
AE 26438	Pirinç Kör Somun - Brass Nut	1N500
AE 26436	Pirinç Kör Somun - Brass Nut	1N1000



Bara Buatı

Bar Box

ÜRÜN KODU Product Code	MATERYAL Material	ÖLÇÜLER Sizes (mm)
AE 30010	Plastik - Pvc	150 x 110 x 70
AE 30013	Plastik - Pvc	310 x 230 x 130



Pano Topraklama Klemensi

Enclosure Type Earth Bar

ÜRÜN KODU Product Code	MATERYAL Material	DELİK SAYISI Number Of Holes	ÖLÇÜLER Sizes (mm)	AĞIRLIK Weight (kg)
AE 30113	Alüminyum - Aluminum	10	20 x 15 x 180	0,15
AE 30208	Bakır - Copper	10	20 x 15 x 195	0,36



Rögar Barası

Bar For Inspection Pit

ÜRÜN KODU Product Code	MATERYAL Material	DELİK SAYISI Number Of Holes	ÖLÇÜLER Sizes (mm)	AĞIRLIK Weight (kg)
AE 36009	Bakır - Copper	4	25 x 3 x 240	0,40



**Som Bakır Topraklama Çubuğu**
Solid Copper Earthing Rod

ÜRÜN KODU Product Code	MATERYAL Material	ÇAP - UZUNLUK Diameter - Length (mm - mm)	AĞIRLIK Weight (kg)
AE 30409	Bakır - Copper	Ø 14 - 1000	1,38
AE 30411	Bakır - Copper	Ø 14 - 1200	1,66
AE 30412	Bakır - Copper	Ø 14 - 1500	2,08
AE 30501	Bakır - Copper	Ø 16 - 600	1,09
AE 30502	Bakır - Copper	Ø 16 - 1200	2,17
AE 30503	Bakır - Copper	Ø 16 - 1000	1,80
AE 30505	Bakır - Copper	Ø 16 - 1500	2,71
AE 30508	Bakır - Copper	Ø 16 - 2000	3,59
AE 30511	Bakır - Copper	Ø 16 - 3000	5,42
AE 30515	Bakır - Copper	Ø 18 - 1000	2,20
AE 30519	Bakır - Copper	Ø 18 - 1500	3,30
AE 30523	Bakır - Copper	Ø 18 - 1750	3,85
AE 30540	Bakır - Copper	Ø 20 - 600	1,68
AE 30545	Bakır - Copper	Ø 20 - 750	2,10
AE 30547	Bakır - Copper	Ø 20 - 1000	2,80
AE 30549	Bakır - Copper	Ø 20 - 1200	3,36
AE 30551	Bakır - Copper	Ø 20 - 1500	4,20
AE 30555	Bakır - Copper	Ø 20 - 1750	4,90
AE 30558	Bakır - Copper	Ø 20 - 2000	5,60
AE 30561	Bakır - Copper	Ø 20 - 2500	7,00
AE 30563	Bakır - Copper	Ø 20 - 3000	8,40
AE 30565	Bakır - Copper	Ø 20 - 3300	9,24
AE 30567	Bakır - Copper	Ø 20 - 3500	9,80
AE 30571	Bakır - Copper	Ø 22 - 2500	8,47
AE 30573	Bakır - Copper	Ø 25 - 1500	6,56
AE 30575	Bakır - Copper	Ø 30 - 1500	9,45



Bakır Kaplı Çelik Topraklama Çubuğu

Copper Clad Steel Earthing Rod

ÜRÜN KODU Product Code	MATERYAL Material	KAPLAMA KALINLIĞI Plating Thickness (Micron)	ÇAP - UZUNLUK Diameter - Length (mm - mm)	AĞIRLIK Weight (kg)
AE 30705	Bakır Kaplı Çelik - Copper Clad Steel	50	Ø 16 - 1000	1,44
AE 30716	Bakır Kaplı Çelik - Copper Clad Steel	50	Ø 18 - 1500	2,40
AE 30723	Bakır Kaplı Çelik - Copper Clad Steel	50	Ø 20 - 1500	2,68
AE 30805	Bakır Kaplı Çelik - Copper Clad Steel	1000	Ø 16 - 1000	1,44
AE 30807	Bakır Kaplı Çelik - Copper Clad Steel	1000	Ø 16 - 1200	1,82
AE 30808	Bakır Kaplı Çelik - Copper Clad Steel	1000	Ø 16 - 1500	2,16
AE 30814	Bakır Kaplı Çelik - Copper Clad Steel	1000	Ø 16 - 2400	3,63
AE 30816	Bakır Kaplı Çelik - Copper Clad Steel	1000	Ø 16 - 3000	4,31
AE 30821	Bakır Kaplı Çelik - Copper Clad Steel	1000	Ø 18 - 1000	1,60
AE 30824	Bakır Kaplı Çelik - Copper Clad Steel	1000	Ø 18 - 1500	2,40
AE 30845	Bakır Kaplı Çelik - Copper Clad Steel	1000	Ø 20 - 1000	1,79
AE 30847	Bakır Kaplı Çelik - Copper Clad Steel	1000	Ø 20 - 1200	2,15
AE 30848	Bakır Kaplı Çelik - Copper Clad Steel	1000	Ø 20 - 1500	2,68
AE 30851	Bakır Kaplı Çelik - Copper Clad Steel	1000	Ø 20 - 1750	3,14
AE 30856	Bakır Kaplı Çelik - Copper Clad Steel	1000	Ø 20 - 2000	3,58
AE 30857	Bakır Kaplı Çelik - Copper Clad Steel	1000	Ø 20 - 2500	4,47
AE 30860	Bakır Kaplı Çelik - Copper Clad Steel	1000	Ø 20 - 3000	5,36
AE 30875	Bakır Kaplı Çelik - Copper Clad Steel	1000	Ø 22 - 2500	8,45
AE 30938	Bakır Kaplı Çelik - Copper Clad Steel	3000	Ø 22 - 1500	4,70
AE 30939	Bakır Kaplı Çelik - Copper Clad Steel	3000	Ø 20 - 2500	8,10
AE 30940	Bakır Kaplı Çelik - Copper Clad Steel	3000	Ø 22 - 2500	6,25
AE 30941	Bakır Kaplı Çelik - Copper Clad Steel	3000	Ø 22 - 3000	9,40



Bakır Kaplı Çelik Topraklama Çubuğu (250 mikron)

Copper Bonded Steel Earthing Rod (250 Microns)

ÜRÜN KODU Product Code	MATERYAL Material	KAPLAMA KALINLIĞI Plating Thickness (Micron)	ÇAP - UZUNLUK Diameter - Length (" - mm)	AĞIRLIK Weight (kg)
AE 30951	Bakır Kaplı Çelik - Copper Bonded Steel	250	3/4 - 1200	2,19
AE 30953	Bakır Kaplı Çelik - Copper Bonded Steel	250	3/4 - 1500	2,73
AE 30956	Bakır Kaplı Çelik - Copper Bonded Steel	250	5/8 - 1200	1,53
AE 30957	Bakır Kaplı Çelik - Copper Bonded Steel	250	5/8 - 1500	1,88



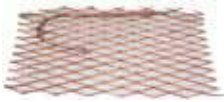


Topraklama Levhası Earthing Plate



ÜRÜN KODU Product Code	MATERYAL Material	ÖLÇÜLER Şizes (mm)	AĞIRLIK Weight (kg)
AE 31014	Bakır - Copper	700 x 700 x 1	4,41
AE 31016	Bakır - Copper	700 x 700 x 1,5	6,62
AE 31018	Bakır - Copper	700 x 700 x 2	8,82
AE 31020	Bakır - Copper	700 x 700 x 3	13,23
AE 31022	Bakır - Copper	700 x 700 x 4	17,64
AE 31024	Bakır - Copper	1000 x 500 x 5	22,50
AE 31026	Bakır - Copper	1000 x 500 x 1,5	6,75
AE 31028	Bakır - Copper	1000 x 500 x 2	9,00
AE 31032	Bakır - Copper	1000 x 1000 x 2	18,00
AE 31038	Bakır - Copper	1000 x 1000 x 4	36,00
AE 31040	Bakır - Copper	1000 x 1000 x 5	45,00
AE 31211	Çelik - Steel	1000 x 500 x 2	8,00
AE 31213	Çelik - Steel	1000 x 500 x 2,5	10,00
AE 31215	Çelik - Steel	1000 x 500 x 3	12,00

Topraklama Ağı Earthing Grid



ÜRÜN KODU Product Code	MATERYAL Material	ÖLÇÜLER Şizes (mm)	AĞIRLIK Weight (kg)
AE 31301	Bakır - Copper	500 x 1000 x 2	2,00
AE 31305	Bakır - Copper	1000 x 1000 x 2	4,00

Topraklama Kafesi Earthing Mat



ÜRÜN KODU Product Code	MATERYAL Material	ÖLÇÜLER Şizes (mm)	AĞIRLIK Weight (kg)
AE 31414	Bakır - Copper	600 x 600 x 3	3,98
AE 31416	Bakır - Copper	900 x 900 x 3	7,20



Köşebent Topraklama Çubuğu

Angle Type Earthing Rod

ÜRÜN KODU Product Code	MATERYAL Material	KAPLAMA Plating	ÖLÇÜLER Sizes (mm)	AĞIRLIK Weight (kg)
AE 31600	Çelik - Steel	Sic.Dal.Galv. - Hot Dip Galv.	40 x 4 x 1500	3,70
AE 31602	Çelik - Steel	Sic.Dal.Galv. - Hot Dip Galv.	40 x 4 x 1000	2,50
AE 31603	Çelik - Steel	Sic.Dal.Galv. - Hot Dip Galv.	50 x 5 x 1500	5,80
AE 31605	Çelik - Steel	Sic.Dal.Galv. - Hot Dip Galv.	65 x 6 x 1000	6,20
AE 31606	Çelik - Steel	Sic.Dal.Galv. - Hot Dip Galv.	60 x 6 x 1000	5,40
AE 31607	Çelik - Steel	Sic.Dal.Galv. - Hot Dip Galv.	65 x 6 x 1500	9,00
AE 31608	Çelik - Steel	Sic.Dal.Galv. - Hot Dip Galv.	60 x 6 x 1500	8,10
AE 31615	Çelik - Steel	Sic.Dal.Galv. - Hot Dip Galv.	65 x 7 x 2000	14,00
AE 31618	Çelik - Steel	Sic.Dal.Galv. - Hot Dip Galv.	60 x 5 x 1500	6,90
AE 31623	Çelik - Steel	Sic.Dal.Galv. - Hot Dip Galv.	50 x 5 x 1000	3,90
AE 31624	Çelik - Steel	Sic.Dal.Galv. - Hot Dip Galv.	60 x 5 x 1000	4,60



Galvaniz Çelik Topraklama Çubuğu

Galvanized Steel Earthing Rod

ÜRÜN KODU Product Code	MATERYAL Material	KAPLAMA Plating	ÖLÇÜLER Sizes (mm)	AĞIRLIK Weight (kg)
AE 31699	Çelik - Steel	Sic.Dal.Galv. - Hot Dip Galv.	Ø 18 - 1500	3,10
AE 31700	Çelik - Steel	Sic.Dal.Galv. - Hot Dip Galv.	Ø 16 - 1000	1,60
AE 31704	Çelik - Steel	Sic.Dal.Galv. - Hot Dip Galv.	Ø 18 - 1000	2,10
AE 31706	Çelik - Steel	Sic.Dal.Galv. - Hot Dip Galv.	Ø 20 - 1000	2,60
AE 31707	Çelik - Steel	Sic.Dal.Galv. - Hot Dip Galv.	Ø 20 - 1500	3,90
AE 31713	Çelik - Steel	Sic.Dal.Galv. - Hot Dip Galv.	Ø 20 - 3000	7,80
AE 31717	Çelik - Steel	Sic.Dal.Galv. - Hot Dip Galv.	Ø 16 - 1500	2,40



Paslanmaz Çelik Topraklama Çubuğu

Stainless Steel Earthing Rod

ÜRÜN KODU Product Code	MATERYAL Material	ÇAP - UZUNLUK Diameter - Length (mm - mm)	AĞIRLIK Weight (kg)
AE 31501	Paslanmaz Çelik - Stainless Steel	Ø 16 - 1000	1,27
AE 31503	Paslanmaz Çelik - Stainless Steel	Ø 16 - 1500	1,90
AE 31505	Paslanmaz Çelik - Stainless Steel	Ø 18 - 1000	1,65
AE 31511	Paslanmaz Çelik - Stainless Steel	Ø 18 - 1500	2,47
AE 31521	Paslanmaz Çelik - Stainless Steel	Ø 20 - 1000	2,73
AE 31527	Paslanmaz Çelik - Stainless Steel	Ø 20 - 1500	5,46



**Çubuk Çakma Ucu**
Rod Driving Stud

ÜRÜN KODU Product Code	MATERYAL Material	ÇAP Diameter (mm)	AĞIRLIK Weight (kg)
AE 31801	Çelik - Steel	Ø 16	0,01
AE 31803	Çelik - Steel	Ø 18	0,02
AE 31805	Çelik - Steel	Ø 20	0,03
AE 31806	Çelik - Steel	3/4"	0,11
AE 31808	Çelik - Steel	5/8"	0,08

Çubuk İrtibat Cıvatası
Rod Coupling Dowell

ÜRÜN KODU Product Code	MATERYAL Material	ÇAP Diameter (mm)	AĞIRLIK Weight (kg)
AE 31851	Çelik - Steel	Ø 16	0,01
AE 31853	Çelik - Steel	Ø 18	0,02
AE 31855	Çelik - Steel	Ø 20	0,02

Manşon
Rod Coupling

ÜRÜN KODU Product Code	MATERYAL Material	ÇAP Diameter (mm)	AĞIRLIK Weight (kg)
AE 31903	Bronz - Bronze	Ø 16 (5/8")	0,13
AE 31907	Bronz - Bronze	Ø 20 (3/4")	0,14

Çubuk Sivri Ucu
Rod Spike

ÜRÜN KODU Product Code	MATERYAL Material	ÇAP Diameter (mm)	AĞIRLIK Weight (kg)
AE 31951	Çelik - Steel	Ø 16	0,01
AE 31953	Çelik - Steel	Ø 18	0,02
AE 31955	Çelik - Steel	Ø 20	0,02
AE 31948	Pirinç - Brass	3/4"	0,10
AE 31947	Pirinç - Brass	5/8"	0,11



D Tip

D Type

ÜRÜN KODU Product Code	MATERYAL Material	ÇAP - BAĞLANTI İLETKENİ Diameter - Connection Conductor (mm - mm ²)	AĞIRLIK Weight (kg)
AE 32517	Pirinç - Brass	Ø 20 / 2 x 50	0,35



F Tip

F Type

ÜRÜN KODU Product Code	MATERYAL Material	ÇAP - BAĞLANTI İLETKENİ Diameter - Connection Conductor (mm - mm ²)	AĞIRLIK Weight (kg)
AE 32624	Pirinç - Brass	Ø 16 - 2 x 50	0,49
AE 32625	Pirinç - Brass	Ø 20 - 2 x 50	0,49
AE 32627	Pirinç - Brass	Ø 20 - 2 x 70	0,49



C Tip

C Type

ÜRÜN KODU Product Code	MATERYAL Material	ÇAP - BAĞLANTI İLETKENİ Diameter - Connection Conductor (mm - mm ²)	AĞIRLIK Weight (kg)
AE 32710	Bakır - Copper	Ø 16 - Ø 18 / 1 x 50	0,10
AE 32715	Bakır - Copper	Ø 20 / 1 x 25	0,11
AE 32717	Bakır - Copper	Ø 20 / 1 x 35	0,11
AE 32719	Bakır - Copper	Ø 20 / 1 x 50	0,11
AE 32721	Bakır - Copper	Ø 20 / 1 x 70	0,11
AE 32723	Bakır - Copper	Ø 20 / 1 x 95	0,11



A Tip

A Type

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Connection Conductor (mm ²)	AĞIRLIK Weight (kg)
AE 32803	Bronz - Bronze	1 x 35	0,07
AE 32805	Bronz - Bronze	1 x 50	0,12





U Tip
U Type

ÜRÜN KODU Product Code	MATERYAL Material	ÇAP - BAĞLANTI İLETKENİ Diameter - Connection Conductor (mm - mm ²)	AĞIRLIK Weight (kg)
AE 32901	Pirinç - Brass	Ø 22 / 16 - 120	0,30
AE 32902	Pirinç - Brass	Ø 36 / 25 x 3 - 30 x 3	0,30
AE 32980	Pirinç - Brass	Ø 24 / 16 - 185	0,38



GUV Tip
GUV Type

ÜRÜN KODU Product Code	MATERYAL Material	ÇAP - BAĞLANTI İLETKENİ Diameter - Connection Conductor (mm - mm ²)	AĞIRLIK Weight (kg)
AE 32904	Bronz - Bronze	Ø 30 / 240	0,35
AE 32906	Bronz - Bronze	Ø 20 / 120	0,27



G Tip
G Type

ÜRÜN KODU Product Code	MATERYAL Material	ÇAP - BAĞLANTI İLETKENİ Diameter - Connection Conductor (mm - mm ²)	AĞIRLIK Weight (kg)
AE 33101	Bronz - Bronze	Ø 18 / 16 - 70	0,10
AE 33107	Pirinç - Brass	Ø 16 / 16 - 70	0,10
AE 33109	Pirinç - Brass	Ø 20 / 16 - 95	0,15
AE 33121	Bronz - Bronze	Ø 20 / 16 - 95	0,15

H Tip
H Type



ÜRÜN KODU Product Code	MATERYAL Material	ÇAP - BAĞLANTI İLETKENİ Diameter - Connection Conductor (mm - mm ²)	AĞIRLIK Weight (kg)
AE 33291	Bakır - Copper	Ø 16 - Ø 18 / 1 x 50	0,08
AE 33317	Bakır - Copper	Ø 20 / 1 x 50	0,08
AE 33319	Bakır - Copper	Ø 20 / 1 x 70	0,08
AE 33321	Bakır - Copper	Ø 20 / 1 x 95	0,08
AE 33322	Bakır - Copper	Ø 20 / 1 x 120	0,08
AE 33351	Çelik - Steel	Ø 16 / 1 x 50	0,07
AE 33361	Çelik - Steel	Ø 18 / 1 x 50	0,07
AE 33371	Çelik - Steel	Ø 20 / 1 x 50	0,07



K Tip

K Type

ÜRÜN KODU Product Code	MATERYAL Material	ÇAP Diameter (mm)	AĞIRLIK Weight (kg)
AE 33403	Bakır - Copper	Ø 16	0,13
AE 33405	Bakır - Copper	Ø 18	0,13
AE 33409	Bakır - Copper	Ø 20	0,13



Delik çapı M8 / Cable lug fixing hole M8

J Tip (Şerit İletken)

J Type (Tape Conductor)

ÜRÜN KODU Product Code	MATERYAL Material	ÇAP - BAĞLANTI İLETKENİ Diameter - Connection Conductor (mm - mm ²)	AĞIRLIK Weight (kg)
AE 33705	Bakır - Copper	Ø 16 - Ø 18 / 25 x 3	0,32
AE 33707	Bakır - Copper	Ø 16 - Ø 18 / 30 x 3	0,32
AE 33713	Bakır - Copper	Ø 16 - Ø 18 / 40 x 4	0,34
AE 33727	Bakır - Copper	Ø 20 / 25 x 3	0,32
AE 33729	Bakır - Copper	Ø 20 / 30 x 3	0,32
AE 33731	Bakır - Copper	Ø 20 / 40 x 4	0,34
AE 33827	Çelik - Steel	Ø 16 - Ø 18 / 30 x 3	0,31
AE 33826	Çelik - Steel	Ø 16 - Ø 18 / 40 x 4	0,32
AE 33829	Çelik - Steel	Ø 20 / 30 x 3	0,31
AE 33831	Çelik - Steel	Ø 20 / 40 x 4	0,32



J Tip (Yuvarlak İletken)

J Type (Round Conductor)

ÜRÜN KODU Product Code	MATERYAL Material	ÇAP - BAĞLANTI İLETKENİ Diameter - Connection Conductor (mm - mm ²)	AĞIRLIK Weight (kg)
AE 33701	Bakır - Copper	Ø 16 - Ø 18 / 2 x 50	0,27
AE 33703	Bakır - Copper	Ø 16 - Ø 18 / 2 x 70	0,30
AE 33718	Bakır - Copper	Ø 20 / 2 x 120	0,35
AE 33723	Bakır - Copper	Ø 20 / 2 x 50	0,27
AE 33725	Bakır - Copper	Ø 20 / 2 x 70	0,28
AE 33833	Çelik - Steel	Ø 20 / 2 x 50	0,26
AE 33836	Çelik - Steel	Ø 20 / 2 x 70	0,24



**M Tip**
M Type

ÜRÜN KODU Product Code	MATERYAL Material	ÇAP - BAĞLANTI İLETKENİ Diameter - Connection Conductor (mm - mm ²)	AĞIRLIK Weight (kg)
AE 33922	Bakır - Copper	Ø 18 / 2 x 50	0,17
AE 33941	Bakır - Copper	Ø 20 / 1 x 50	0,21
AE 33943	Bakır - Copper	Ø 20 / 1 x 70	0,21
AE 33945	Bakır - Copper	Ø 20 / 1 x 95	0,21
AE 33951	Bakır - Copper	Ø 20 / 1 x 120	0,21
AE 33961	Bakır - Copper	Ø 20 / 2 x 50	0,17
AE 33963	Bakır - Copper	Ø 20 / 2 x 70	0,33
AE 33965	Bakır - Copper	Ø 20 / 2 x 95	0,35
AE 33967	Bakır - Copper	Ø 20 / 2 x 120	0,37

T Tip
T Type

ÜRÜN KODU Product Code	MATERYAL Material	ÇAP - BAĞLANTI İLETKENİ Diameter - Connection Conductor (mm - mm ²)	AĞIRLIK Weight (kg)
AE 34509	Bronz - Bronze	Ø 16 - Ø 20 / 30 x 3 - 25 x 3	0,13



Plastik Rögar (5 Ton Dayanıklılık)

Plastic Earth Pit (5 Ton Durability)

ÜRÜN KODU Product Code	MATERYAL Material	EBATLAR Dimensions (mm)	AĞIRLIK Weight (kg)
AE 36001	Plastik - Plastic	300 x 300 x 220	1,78



Laboratuvar test sonucu 65 tona dayanımlıdır.
Laboratory test result is 65 tones resistanted.

Plastik Rögar

Plastic Earth Pit

ÜRÜN KODU Product Code	MATERYAL Material	EBATLAR Dimensions (mm)	AĞIRLIK Weight (kg)
AE 36002	Plastik - Plastic	400 x 400 x 400	2,40
AE 36005	Plastik - Plastic	550 x 550 x 500	4,40



Galvaniz Rögar

Galvanized Earth Pit

ÜRÜN KODU Product Code	MATERYAL Material	KAPLAMA Plating	EBATLAR Dimensions (mm)	AĞIRLIK Weight (kg)
AE 36030	Çelik - Steel	Sic.Dal.Galv. - Hot Dip Galv.	300 x 300 x 300	10,00
AE 36031	Çelik - Steel	Sic.Dal.Galv. - Hot Dip Galv.	400 x 400 x 400	17,50



Beton Rögar

Concrete Earth Pit

ÜRÜN KODU Product Code	MATERYAL Material	EBATLAR Dimensions (mm)	AĞIRLIK Weight (kg)
AE 36015	Beton - Concrete	400 x 400 x 400	70,00
AE 36060	Beton - Concrete	400 x 400 x 200	40,00





Topraklama Terminali Earthing Terminal



ÜRÜN KODU Product Code	MATERYAL Material	BOY Length (mm)	AĞIRLIK Weight (kg)
AE 36533	304 Paslanmaz Çelik - 304 Stainless Steel	200	0,29

Tij çapı ø10 mm

Stud diameter is ø10 mm

Pabuç delik çapı M10

Cable lug hole is M10

Beton Geçiş Ünitesi Concrete Wall Flanges



ÜRÜN KODU Product Code	MATERYAL Material	BOY Length (mm)	AĞIRLIK Weight (kg)
AE 36534	304 Paslanmaz Çelik - 304 Stainless Steel	750	0,81

Tij çapı ø10 mm

Stud diameter is ø10 mm

Topraklama Prizi Earth Boss



ÜRÜN KODU Product Code	MATERYAL Material	AĞIRLIK Weight (kg)
AE 36535	Çelik veya paslanmaz çelik - Steel or stainless steel	0,77

Topraklama Prizi Earth Boss



ÜRÜN KODU Product Code	TİP Type	MATERYAL Material	VİDA ÖLÇÜLERİ Screw Sizes (mm)	AĞIRLIK Weight (kg)
AE 36805	Tek Kutuplu - Single Hole	Bronz - Bronze	M8 x 15 - 80	0,26
AE 36857	Çift Kutuplu - Double Hole	Bronz - Bronze	M8 x 15 - 80	0,36
AE 36905	Dört Kutuplu - Four Hole	Bronz - Bronze	M8 x 15 - 80	0,45

Dört Kutuplu Topraklama Prizi (Kablo Kaynaklı)*Four Holes Earthing Point (Cable Welded)*

ÜRÜN KODU Product Code	MATERYAL Material	VİDA ÖLÇÜLERİ Screw Sizes (mm)	AĞIRLIK Weight (kg)
AE 36906	Bronz - Bronze	M8 x 15 – 80 (+ 500) 70 mm ² cable	0,76

**Dört Kutuplu Topraklama Prizi (Şerit Tip)***Four Holes Earthing Point (Tape Type)*

ÜRÜN KODU Product Code	MATERYAL Material	VİDA ÖLÇÜLERİ Screw Sizes (mm)	AĞIRLIK Weight (kg)
AE 36907	Bronz - Bronze	M8 x 15 – 80	0,39

**Topraklama Priz Kutusu***Earthing Point Box*

ÜRÜN KODU Product Code	MATERYAL Material	AĞIRLIK Weight (kg)
AE 36908	Pirinç - Brass	0,66



**Ölüm Tehlike Levhası**
Dead Danger Warning Plate

ÜRÜN KODU Product Code	MATERYAL Material	EBATLAR Dimension (mm)	AĞIRLIK Weight (kg)
AE 36401	Alüminyum - Aluminum	15 x 230	0.039

**Statik Elektrik Levhası**
Static Electric Plate

ÜRÜN KODU Product Code	MATERYAL Material	EBATLAR Dimensions (mm)	AĞIRLIK Weight (kg)
AE 36411	Bakır - Copper	250 x 300 x 1,5	0,94
AE 36412	Bakır - Copper	320 x 320 x 1,0	0,92

**Topraklama Tamburu**
Static Electric Reel

ÜRÜN KODU Product Code	KABLO Cable	PENSE Clamp	KABLO UZUNLUĞU Cable Length (m)	AĞIRLIK Weight (kg)
AE 36420	Çelik - Steel	Alüminyum - Aluminum	6	4,00
AE 36421	Çelik - Steel	Alüminyum - Aluminum	15	8,00

**Elektronik Kontrollü Topraklama Tamburu**
Electronic Controlled Static Electric Reel

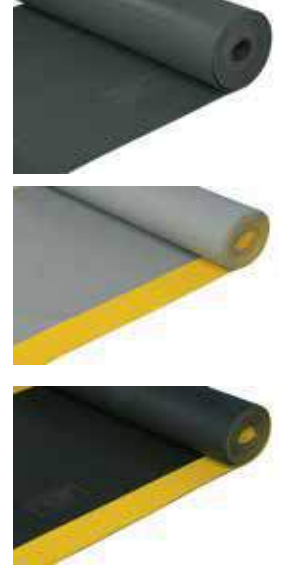
ÜRÜN KODU Product Code	KABLO UZUNLUĞU Cable Length (m)	AĞIRLIK Weight (kg)
AE 36425	8	16,00



İzole Halı

Insulating Mat

ÜRÜN KODU Product Code	KALINLIK Thickness (mm)	KULLANIM GERİLİMİ Usage Voltage (kV)	RENK Colour	SARI İKAZ ŞERİDİ Yellow Warning Band
AE 36537	2	1	Siyah - Black	Yok - Not Available
AE 36538	2	10	Siyah - Black	Yok - Not Available
AE 36539	3	20	Siyah - Black	Yok - Not Available
AE 36540	5	36	Siyah - Black	Yok - Not Available
AE 36541	2	10	Gri - Grey	Yok - Not Available
AE 36542	3	20	Gri - Grey	Yok - Not Available
AE 36543	5	36	Gri - Grey	Yok - Not Available
AE 36544	2	10	Siyah - Black	Var - Available
AE 36545	3	20	Siyah - Black	Var - Available
AE 36546	5	36	Siyah - Black	Var - Available
AE 36547	2	10	Gri - Grey	Var - Available
AE 36548	3	20	Gri - Grey	Var - Available
AE 36549	5	36	Gri - Grey	Var - Available



10 metrelik rulolar halinde üretilmektedir.

Produced as 10 meter rolls.

İzole Eldiven

Insulating Glove

ÜRÜN KODU Product Code	SINIF Class	UZUNLUK Length (cm)	KATEGORİ Category	KALINLIK Thickness (mm)	BOY Sizes	RENK Colour
AE 36554	00	28 / 36	AZC	0.5	8 - 9 - 10 - 11	Bej - Beige
	0	36 / 41	AZC	1.0	8 - 9 - 10 - 11	Kırmızı - Red
	1	36 / 41	AZC	1.5	8 - 9 - 10 - 11	Beyaz - White
	2	36 / 41	RC	2.3	8 - 9 - 10 - 11	Sarı - Yellow
	3	36 / 41	RC	2.9	8 - 9 - 10 - 11	Yeşil - Green
	4	41	RC	3.6	9 - 10 - 11	Turuncu - Orange



İzole Sehpa

Insulating Stool

ÜRÜN KODU Product Code	ÜST YÜZEY ÖLÇÜLERİ Top Surface Dimensions (cm)	YÜKSEKLİK Height (cm)	AĞIRLIK Weight (kg)
AE 36557	50 x 50	26	7





Dilatasyon Branşmanı Dilatation Clamp



ÜRÜN KODU Product Code	MATERYAL Material	İLETKEN KESİTİ Conductor Size (mm)	AĞIRLIK Weight (kg)
AE 37305	Çelik - Steel	30 x 3 x 300	0,25
AE 37355	Bakır - Copper	30 x 3 x 300	0,26
AE 37311	Çelik - Steel	40 x 4 x 300	0,46

İnşaat Demiri Klemensi (Tip 2) Reinforcement Clamp (Type 2)



ÜRÜN KODU Product Code	MATERYAL Material	İLETKEN KESİTİ Conductor Size (mm)	AĞIRLIK Weight (kg)
AE 37451	Çelik - Steel	20 - 30 x 3	0,14
AE 37447	Çelik - Steel	20 - 40 x 4	0,19

İnşaat Demiri Klemensi (Tip 4) Reinforcement Clamp (Type 4)



ÜRÜN KODU Product Code	MATERYAL Material	İLETKEN KESİTİ Conductor Size (mm)	AĞIRLIK Weight (kg)
AE 37505	Çelik - Steel	16 - 20 / 30 x 3	0,08
AE 37507	Çelik - Steel	22 - 26 / 30 x 3	0,09
AE 37508	Çelik - Steel	28 - 32 / 30 x 3	0,09
AE 37509	Çelik - Steel	16 - 20 / 40 x 4	0,12
AE 37510	Çelik - Steel	26 - 32 / 40 x 4	0,40

İnşaat Demiri Klemensi (Tip 5) Reinforcement Clamp (Type 5)



ÜRÜN KODU Product Code	MATERYAL Material	İLETKEN KESİTİ Conductor Size (mm)	AĞIRLIK Weight (kg)
AE 37530	Bakır - Copper	16 - 20 / 8	0,34



Paralel Ek Klemens

Parallel Joining Clamp

ÜRÜN KODU Product Code	MATERYAL Material	İLETKEN KESİTİ Conductor Size (mm ² - mm ²)	AĞIRLIK Weight (kg)
AE 38005	Bakır - Copper	50 – 50	0,12
AE 38007	Bakır - Copper	70 – 70	0,15
AE 38009	Bakır - Copper	95 – 95	0,16
AE 38011	Bakır - Copper	120 – 120	0,18
AE 38015	Çelik - Steel	50 – 50	0,06



Tava Klemensi

Cable Tray Split Bolt Clamp

ÜRÜN KODU Product Code	MATERYAL Material	MONTAJ DELİK ÇAP Mounting Hole Diameter	BAĞLANTI İLETKENİ Conductor Size (mm ² - mm ²)	AĞIRLIK Weight (kg)
AE 38027	Pirinç - Brass	M 6	6	0,01
AE 38028	Pirinç - Brass	M 6	10	0,01
AE 38029	Pirinç - Brass	M 6	16	0,02
AE 38031	Pirinç - Brass	M 6	25	0,02
AE 38033	Pirinç - Brass	M 6	35	0,02
AE 38035	Pirinç - Brass	M 6	50	0,03
AE 38037	Pirinç - Brass	M 6	70	0,03
AE 38039	Pirinç - Brass	M 6	95	0,04
AE 38041	Pirinç - Brass	M 6	120	0,05
AE 38043	Pirinç - Brass	M 6	150	0,06
AE 38047	Pirinç - Brass	M 6	240	0,11



■ Ürün standart olarak tek iletken montajı içindir. Çift iletken kullanılması durumunda lütfen belirtiniz.

The product is for single conductor mounting standardly. Please specify if two conductors will be used.

Bimetal Pul

Bimetallic Washer

ÜRÜN KODU Product Code	TİP Type	MONTAJ DELİK ÇAP Mounting Hole Diameter	ÇAP Diameter (mm)	AĞIRLIK Weight (kg)
AE 38080	Küçük - Small	M6	16	0,005
AE 38081	Büyük - Big	M6	18	0,010



■ Montaj delik çapını siparişte belirtiniz.

Please specify mounting hole diameter at the time of ordering.

**Al - Cu Klemensi**
Al - Cu Clamp

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Connection Conductor	AĞIRLIK Weight (kg)
AE 38303	Alüminyum / Bakır - Aluminum / Copper	A25 - B16	0,03
AE 38305	Alüminyum / Bakır - Aluminum / Copper	A40 - B25	0,04
AE 38307	Alüminyum / Bakır - Aluminum / Copper	A70 - B50	0,08
AE 38309	Alüminyum / Bakır - Aluminum / Copper	A120 - B70	0,17
AE 38311	Alüminyum / Bakır - Aluminum / Copper	A240 - B120	0,40

Durdurucu Klemens
Stopping Clamp

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Connection Conductor	AĞIRLIK Weight (kg)
AE 38543	Alüminyum - Aluminum	A50 - A50	0,08
AE 38546	Alüminyum - Aluminum	A50 - A95	0,15
AE 38547	Alüminyum - Aluminum	A95 - A120	0,18

Tırnaklı Klemens
Claw Type Clamp

ÜRÜN KODU Product Code	MATERYAL Material	SIRA NUMARASI Serial Number	BAĞLANTI İLETKENİ Conductor Conductor (mm ² - mm ²)	KUTU ADETİ Box Quantity
AE 38601	Pirinç - Brass	1	10	600
AE 38603	Pirinç - Brass	2	16	350
AE 38605	Pirinç - Brass	3	25	200
AE 38607	Pirinç - Brass	4	35	175
AE 38609	Pirinç - Brass	5	50	90
AE 38611	Pirinç - Brass	6	70	50
AE 38613	Pirinç - Brass	7	95	50
AE 38615	Pirinç - Brass	8	120	40



C Klemens

C Clamp

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Conductor Conductor (mm ² - mm ²)	AĞIRLIK Weight (kg)
AE 38805	Bakır - Copper	35 - 35	0,03
AE 38807	Bakır - Copper	35 - 50	0,05
AE 38825	Bakır - Copper	50 - 50	0,04
AE 38830	Bakır - Copper	50 - 120	0,09
AE 38840	Bakır - Copper	70 - 35	0,07
AE 38845	Bakır - Copper	70 - 70	0,06
AE 38849	Bakır - Copper	70 - 150	0,15
AE 38855	Bakır - Copper	95 - 35	0,11
AE 38865	Bakır - Copper	95 - 95	0,11
AE 38875	Bakır - Copper	95 - 120	0,11
AE 38877	Bakır - Copper	120 - 120	0,12
AE 38880	Bakır - Copper	120 - 70	0,09
AE 38888	Bakır - Copper	150 - 150	0,15



H Klemens

H Clamp

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Conductor Conductor (mm ² - mm ²)	AĞIRLIK Weight (kg)
AE 39015	Bakır - Copper	35 - 35	0,03
AE 39017	Bakır - Copper	35 - 50	0,03
AE 39025	Bakır - Copper	50 - 50	0,04
AE 39027	Bakır - Copper	50 - 70	0,05
AE 39029	Bakır - Copper	50 - 95	0,08
AE 39030	Bakır - Copper	50 - 120	0,08
AE 39035	Bakır - Copper	70 - 70	0,04
AE 39038	Bakır - Copper	70 - 150	0,09
AE 39039	Bakır - Copper	70 - 120	0,09
AE 39045	Bakır - Copper	95 - 95	0,08
AE 39047	Bakır - Copper	95 - 120	0,09
AE 39055	Bakır - Copper	120 - 120	0,09
AE 39060	Bakır - Copper	150 - 150	0,15



■ Diğer ürün ölçüleri ve kalay kaplı ürünler için satış ekibimiz ile iletişime geçiniz.

For more sizes and tin plated products please contact to our sales team.



U Klemens

U Clamp



ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Conductor Conductor (mm ² - mm ²)	AĞIRLIK Weight (kg)
AE 39403	Pirinç - Brass	6	0,01
AE 39405	Pirinç - Brass	10	0,02
AE 39407	Pirinç - Brass	16	0,03
AE 39409	Pirinç - Brass	25	0,04
AE 39411	Pirinç - Brass	35	0,05
AE 39413	Pirinç - Brass	50	0,06
AE 39415	Pirinç - Brass	70	0,08
AE 39417	Pirinç - Brass	95	0,12
AE 39419	Pirinç - Brass	120	0,14
AE 39421	Pirinç - Brass	150	0,21

Hidrolik Sıkma Pensesi ve Çene Takımı

Hydraulic Crimping Tool and Dies Set



ÜRÜN KODU Product Code	TİP Type	İLETKEN KESİTİ Conductor Size (mm ² - mm ²)	AĞIRLIK Weight (kg)
AE 39000	Hidrolik Sıkma Pensesi - Hydraulic Crimping Tool	16 - 300	6,5
AE 39001	Çene Takımı - Dies Set	16 - 300	1

H (Vida) Tipi Klemens

H (Screw) Type Clamp



ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Conductor Conductor (mm ² - mm ²)	AĞIRLIK Weight (kg)
AE 39513	Bakır - Copper	16 - 16	0,50
AE 39523	Bakır - Copper	25 - 25	0,50
AE 39533	Bakır - Copper	35 - 35	0,50
AE 39543	Bakır - Copper	50 - 50	0,60
AE 39553	Bakır - Copper	70 - 70	0,80
AE 39563	Bakır - Copper	95 - 95	0,11
AE 39573	Bakır - Copper	120 - 120	0,15
AE 39577	Bakır - Copper	120 - 185	0,30
AE 39583	Bakır - Copper	185 - 185	0,35
AE 39588	Bakır - Copper	240 - 240	0,39



Pratik Bağlantı Klemensi

Practical Connection Clamp

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Conductor Size (mm ² - mm ²)	AĞIRLIK Weight (kg)
AE 39615	Alüminyum - Aluminum	50 - 70	0,05
AE 39630	Bakır - Copper	50 - 70	0,11
AE 39660	Çelik - Steel	50 - 70	0,12



Üçgen T Klemens

Triangle T Clamp

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Conductor Size (mm ² - mm ²)	AĞIRLIK Weight (kg)
AE 39755	Pirinç - Brass	50	0,21
AE 39761	Pirinç - Brass	70	0,28
AE 39767	Pirinç - Brass	95	0,32



Paralel Ek Klemens

Parallel Joining Clamp

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Conductor Size (mm ² - mm ²)	AĞIRLIK Weight (kg)
AE 39941	Pirinç - Brass	35 - 35	0,18
AE 39945	Pirinç - Brass	50 - 50	0,23
AE 39949	Pirinç - Brass	70 - 70	0,24
AE 39961	Pirinç - Brass	95 - 95	0,39



**Kızıl Klemens**
Red Clamp

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Conductor Size (mm ² - mm ²)	AĞIRLIK Weight (kg)
AE 39962	Pirinç - Brass	95 – 95	0,42
AE 39971	Pirinç - Brass	120 – 120	0,46

T Tip Kablo Ek Mufu
T Type Cable Connection Tube

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Conductor Size (mm ²)	AĞIRLIK Weight (kg)
AE 40230	Pirinç - Brass	35	0,09
AE 40234	Pirinç - Brass	50	0,10
AE 40242	Pirinç - Brass	70	0,10
AE 40252	Pirinç - Brass	95	0,11
AE 40255	Pirinç - Brass	120	0,12

4'lü Tip Kablo Ek Mufu
Quad Type Cable Connection Tube

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Conductor Size (mm ²)	AĞIRLIK Weight (kg)
AE 40330	Pirinç - Brass	35	0,08
AE 40334	Pirinç - Brass	50	0,09
AE 40342	Pirinç - Brass	70	0,10
AE 40352	Pirinç - Brass	95	0,11
AE 40355	Pirinç - Brass	120	0,12

Kare Klemens (Yuvarlak Tip)*Square Clamp (Cable to Cable)*

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Conductor Size (mm ²)	AĞIRLIK Weight (kg)
AE 40514	Bakır - Copper	16 – 16	0,15
AE 40519	Bakır - Copper	25 – 70	0,16
AE 40522	Bakır - Copper	25 – 50	0,15
AE 40525	Bakır - Copper	35 – 35	0,15
AE 40526	Bakır - Copper	35 – 50	0,15
AE 40527	Bakır - Copper	35 – 70	0,16
AE 40530	Bakır - Copper	50 – 50	0,15
AE 40531	Bakır - Copper	50 – 70	0,16
AE 40532	Bakır - Copper	50 – 95	0,17
AE 40533	Bakır - Copper	50 – 120	0,18
AE 40537	Bakır - Copper	70 – 70	0,17
AE 40539	Bakır - Copper	70 – 120	0,18
AE 40544	Bakır - Copper	95 – 95	0,18
AE 40545	Bakır - Copper	95 – 120	0,19
AE 40550	Bakır - Copper	120 – 120	0,19
AE 40556	Bakır - Copper	150 – 150	0,20
AE 40562	Bakır - Copper	185 – 185	0,21
AE 40568	Bakır - Copper	240 – 240	0,26
AE 40574	Bakır - Copper	300 – 300	0,27
AE 40730	Çelik - Steel	50 – 50	0,14
AE 40731	Çelik - Steel	50 – 70	0,15
AE 40737	Çelik - Steel	70 – 70	0,15
AE 40744	Çelik - Steel	95 – 95	0,16



■ Değişken iletken ölçülerine uygun özel taleplerinizi lütfen belirtiniz.

Please specify your special requirements for variable conductor sizes.

**Kare Klemens (T Tip)**
Square Clamp (T Type)

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Conductor Size (mm ² - mm ²)	AĞIRLIK Weight (kg)
AE 41030	Bakır - Copper	50 – 50	0,12
AE 41037	Bakır - Copper	70 – 70	0,12
AE 41044	Bakır - Copper	95 – 95	0,13
AE 41050	Bakır - Copper	120 – 120	0,13
AE 41234	Çelik - Steel	50 – 50	0,12
AE 41237	Çelik - Steel	50 – 120	0,12
AE 41242	Çelik - Steel	70 – 70	0,12
AE 41250	Çelik - Steel	95 – 95	0,12

Kare Klemens (4'lü Tip)
Square Clamp Double Plate

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Conductor Size (mm ² - mm ²)	AĞIRLIK Weight (kg)
AE 41314	Bakır - Copper	16 – 16	0,12
AE 41320	Bakır - Copper	25 – 25	0,12
AE 41325	Bakır - Copper	35 – 35	0,12
AE 41330	Bakır - Copper	50 – 50	0,12
AE 41337	Bakır - Copper	70 – 70	0,13
AE 41344	Bakır - Copper	95 – 95	0,13
AE 41350	Bakır - Copper	120 – 120	0,14
AE 41530	Çelik - Steel	50 – 50	0,12
AE 41537	Çelik - Steel	70 – 70	0,12
AE 41544	Çelik - Steel	95 – 95	0,13

Kare Klemens (Şerit-Şerit İletken)*Square Clamp (Tape-Tape Conductor)*

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Conductor Size (mm - mm)	AĞIRLIK Weight (kg)
AE 41617	Bakır - Copper	20 x 3 – 20 x 3	0,15
AE 41627	Bakır - Copper	25 x 3 – 25 x 3	0,20
AE 41629	Bakır - Copper	25 x 3 – 30 x 3	0,20
AE 41638	Bakır - Copper	30 x 3 – 30 x 3	0,20
AE 41663	Bakır - Copper	40 x 5 – 40 x 5	0,37
AE 41664	Bakır - Copper	50 x 5- 50 x 5	0,45
AE 41669	Bakır - Copper	50 x 6 – 50 x 6	0,45
AE 41738	Çelik - Steel	30 x 3 – 30 x 3	0,19
AE 41739	Çelik - Steel	30 x 3,5 – 30 x 3,5	0,19
AE 41740	Çelik - Steel	30 x 3 – 40 x 4	0,35
AE 41743	Çelik - Steel	30 x 3 – 50 x 5	0,45
AE 41748	Çelik - Steel	30 x 5 – 30 x 5	0,19
AE 41755	Çelik - Steel	40 x 4 – 40 x 4	0,35
AE 41757	Çelik - Steel	40 x 4 – 40 x 5	0,35
AE 41764	Çelik - Steel	50 x 5 – 50 x 5	0,42
AE 41895	Bronz - Bronze	25 x 3 – 25 x 3	0,16
AE 41897	Bronz - Bronze	30 x 3 – 30 x 3	0,18



**Kare Klemens (Şerit-Yuvarlak İletken)**
Square Clamp (Tape-Round Conductor)

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Conductor Size (mm - mm ²)	AĞIRLIK Weight (kg)
AE 41828	Bakır - Copper	25 x 3 – 25	0,21
AE 41830	Bakır - Copper	25 x 3 – 50	0,21
AE 41831	Bakır - Copper	25 x 3 – 70	0,21
AE 41832	Bakır - Copper	25 x 3 – 95	0,21
AE 41840	Bakır - Copper	30 x 3 – 50	0,21
AE 41841	Bakır - Copper	30 x 3 – 70	0,21
AE 41842	Bakır - Copper	30 x 3 – 95	0,22
AE 41843	Bakır - Copper	30 x 3 – 120	0,22
AE 41844	Bakır - Copper	30 x 3 – 20	0,23
AE 41861	Bakır - Copper	40 x 5 – 70	0,39
AE 41862	Bakır - Copper	40 x 5 – 95	0,40
AE 41863	Bakır - Copper	40 x 5 – 120	0,40
AE 41876	Bakır - Copper	50 x 5 – 120	0,48
AE 41940	Çelik - Steel	30 x 3 – 50	0,19
AE 41941	Çelik - Steel	30 x 3 – 70	0,19
AE 41942	Çelik - Steel	30 x 3 – 95	0,19
AE 41951	Çelik - Steel	40 x 4 – 50	0,36
AE 41952	Çelik - Steel	40 x 4 – 70	0,36
AE 41953	Çelik - Steel	40 x 5 – 95	0,36
AE 41972	Çelik - Steel	50 x 5 – 50	0,43
AE 41973	Çelik - Steel	50 x 5 – 70	0,45

Kare Klemens (Şerit İletken-İnşaat Demiri)*Square Clamp (Tape Conductor-Reinforcement)*

ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Conductor Size (mm - mm)	AĞIRLIK Weight (kg)
AE 42103	Çelik - Steel	30 x 3 - Ø 8	0,20
AE 42105	Çelik - Steel	30 x 3 - Ø 10	0,20
AE 42109	Çelik - Steel	30 x 3 - Ø 12	0,20
AE 42113	Çelik - Steel	30 x 3 - Ø 14	0,21
AE 42115	Çelik - Steel	30 x 3 - Ø 16	0,21
AE 42117	Çelik - Steel	30 x 3 - Ø 18	0,21
AE 42121	Çelik - Steel	30 x 3 - Ø 20	0,21
AE 42122	Çelik - Steel	30 x 3,5 - Ø 20	0,21
AE 42123	Çelik - Steel	30 x 3 - Ø 32	0,34
AE 42124	Çelik - Steel	30 x 3 - Ø 24	0,32
AE 42125	Çelik - Steel	30 x 3 - Ø 22	0,22
AE 42128	Çelik - Steel	30 x 3 - Ø 28	0,32
AE 42129	Çelik - Steel	30 x 3 - Ø 26	0,32
AE 42131	Çelik - Steel	30 x 3 - Ø 30	0,33
AE 42145	Çelik - Steel	40 x 4 - Ø 10	0,34
AE 42151	Çelik - Steel	40 x 4 - Ø 16	0,36
AE 42153	Çelik - Steel	40 x 4 - Ø 18	0,37
AE 42155	Çelik - Steel	40 x 4 - Ø 22	0,38
AE 42156	Çelik - Steel	40 x 4 - Ø 20	0,37
AE 42157	Çelik - Steel	40 x 4 - Ø 26	0,40
AE 42158	Çelik - Steel	40 x 4 - Ø 28	0,40
AE 42159	Çelik - Steel	40 x 4 - Ø 32	0,41
AE 42187	Çelik - Steel	50 x 5 - Ø 20	0,47
AE 42189	Çelik - Steel	50 x 5 - Ø 26	0,48





Kare Klemens (Yuvarlak İletken-İnşaat Demiri)

Round Conductor Square Clamp



ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Conductor Size (mm - mm)	AĞIRLIK Weight (kg)
AE 43151	Çelik - Steel	8 – Ø 20	0,22
AE 43153	Çelik - Steel	8 – Ø 26	0,23
AE 43161	Çelik - Steel	10 – Ø 20	0,24
AE 43177	Çelik - Steel	10 – Ø 26	0,24

Kare Klemens (Şerit - Yuvarlak İletken)

Square Clamp (Tape - Round Conductor)



ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Conductor Size (mm - mm ²)	AĞIRLIK Weight (kg)
AE 43332	Galvaniz / Bakır - Galvanized / Copper	30 x 3 – Ø 20	0,28
AE 43339	Galvaniz / Bakır - Galvanized / Copper	30 x 3 – 50	0,26
AE 43341	Galvaniz / Bakır - Galvanized / Copper	30 x 3 – 70	0,26
AE 43343	Galvaniz / Bakır - Galvanized / Copper	30 x 3 – 95	0,27
AE 43345	Galvaniz / Bakır - Galvanized / Copper	30 x 3 – 120	0,27
AE 43348	Galvaniz / Bakır - Galvanized / Copper	40 x 4 – 50	0,37
AE 43349	Galvaniz / Bakır - Galvanized / Copper	40 x 4 – 70	0,37
AE 43351	Galvaniz / Bakır - Galvanized / Copper	40 x 4 – 95	0,38
AE 43353	Galvaniz / Bakır - Galvanized / Copper	40 x 4 – 120	0,38

Mesafe Tutucu

Distance Holder for Galvanized Tape



ÜRÜN KODU Product Code	MATERYAL Material	BAĞLANTI İLETKENİ Conductor Size (mm)	AĞIRLIK Weight (kg)
AE 44101	Çelik - Steel	30 x 3 - 40 x 4	0,42
AE 44103	Çelik - Steel	8-10	0,49
AE 44102	Bakır- Copper	30 x 3	0,51

**GEM - Toprak Direnç Düşürücü Toz***GEM - Ground Enhancement Material*

ÜRÜN KODU Product Code	EBATLAR Dimensions (mm)	AĞIRLIK Weight (kg)
AE 45101	580 x 350	11,00

■ Menşei : Amerika
Made in U.S.A

TDM - Toprak Direnç Düşürücü Toz*TDM - Ground Enhancement Material*

ÜRÜN KODU Product Code	AĞIRLIK Weight (kg)
AE 45128	1,00

■ 10 ve 25 kg'lık paketler halinde bulunmaktadır.
Available in 10 and 25 kg packages.

TDM Plus - Toprak Direnç Düşürücü Toz*TDM Plus - Ground Enhancement Material*

ÜRÜN KODU Product Code	AĞIRLIK Weight (kg)
AE 45129	11,00

■ TDM Plus Özgül Direnci : $\leq 0,15$ ohm/cm
The resistivity of TDM Plus : $\leq 0,15$ ohm/cm



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TERMOKAYNAK SİSTEMLERİ

EXOTHERMIC WELDING SYSTEMS



What is Exothermic Welding?

Exothermic welding is the welding process that can be applied easily even for different metals, such as copper-copper, copper-steel, steel-steel, aluminum-copper, aluminum-aluminum in joints that must be connected electrically. For electrical connections, it is very important to create an uninterrupted and solid transmission line in conductors.

Importance of Exothermic Welding in Grounding Systems

One of the most important problems experienced in grounding installations after many years is the corrosion in underground conductor connections, which brings about problems such as loosening and separation. In order to prevent such problems from occurring, underground conductors must be connected using exothermic welding. Exothermic welding is the most important way to create a high-quality electrical connection without the need for an external heat source.

How Is It Done?

1. Open the mould by using handle clamp, then fit the conductors in the mould.
2. Check if the mould is tightly closed. Also the conductors must be fixed and well positioned.
3. To prevent unwanted leaks, place the metallic disk in the bottom of the mould.
4. Pour the needed amount of welding powder into the mould.
5. Pour the starter powder over the main powder. It locates in the reverse side of the tube.
6. Place the welding fuse over the starter powder, then close the mould cover.
7. Press "on/off" button of the remote flint igniter and see the "ready" indicator is active. Then press "burn".
8. After the reaction, wait during 15 seconds and open the mould. Clean it with the mould brush and the scraper.



Graphite Mould:

A specifically designed graphite mould is composed of a chamber, a discharge hole, and a weld gap. Thermal reaction occurs in the chamber. The molten copper pours into the weld gap from the discharge hole. This section is designed to easily separate the mould from the completed connection. Hence, it also prolongs the life of the mould if care is taken during use. The mean life of a welding crucible is around 50 uses.

Handle clamp:

It is the pliers with two handles that prevent the mold from opening and dispersion of the weld powder inside the mold by clamping the graphite mold, including the conductors to be welded. Lever clamps can be used to clamp different types of molds and are produced depending on the type and size of the required connection.

Amperweld powder:

A kind of copper alloy, Amperweld powder is available in plastic tubes with various weights depending on the section of conductors to be connected. Each tube contains enough metal weld powder for the desired connection, along with silver-colored starting powder.

Igniter (Lighter):

This is used to start the reaction. Using the electronic crucible lighter developed based on Occupational Health and Safety Code No. 6331 is more advantageous than using a traditional exothermic welding lighter to ignite the powder during this process.

Cable cleaner:

Designed to clean the circular conductors, i.e. rods and cables. The head of the cable brush can be changed.



Connection Ratings & Photographic Guides

GOOD

A good connection is a normal weld with only minor surface imperfections.



ACCEPTABLE

An acceptable connection is a less than normal weld, but a good performing weld. The flaws indicate the following:

- A new mold is required
- The procedure needs to be changed
- Appropriate mold conductors and / or weld metal must be used



REJECT

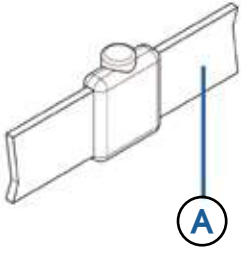
A reject connection shows inadequate fill or an extra high riser due

- Worn-out incorrect equipment and / or equipment usage
- Use the wrong procedure or use the wrong material.



**BB1 - Baradan Baraya**

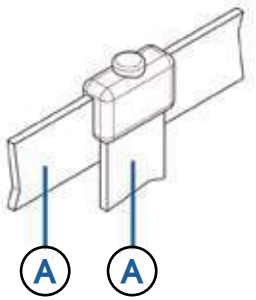
BB1 - Bar To Bar



İLETKEN KESİTİ Conductor Size (mm) A	KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
25 x 3	65P10	BB1-253	HCPK4	C
30 x 2	50P10	BB1-302	HCPK4	C
30 x 3	115P10	BB1-303	HCPK4	C
30 x 3,5	115P10	BB1-303,5	HCPK4	C
30 x 5	115P10	BB1-305	HCPK4	C
40 x 3	150P10	BB1-403	HCPK4	C
40 x 4	200P10	BB1-404	HCPK5	D
40 x 5	200P10	BB1-405	HCPK5	D
50 x 3	200P10	BB1-503	HCPK5	D
50 x 5	250P10	BB1-505	HCPK5	D
50 x 6	250P10	BB1-506	HCPK5	D

BB3 - Baradan Baraya

BB3 - Bar To Bar

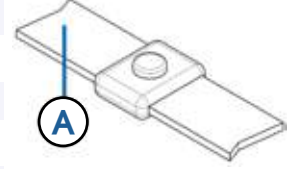


İLETKEN KESİTİ Conductor Size (mm) A	KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
25 x 3	90P10	BB3-203	HCPK4	C
30 x 2	115P10	BB3-302	HCPK4	C
30 x 3	115P10	BB3-304	HCPK4	C
30 x 3,5	115P10	BB3-303,5	HCPK4	C
30 x 5	115P10	BB3-305	HCPK4	C
40 x 3	150P10	BB3-403	HCPK4	C
40 x 4	150P10	BB3-404	HCPK5	D
40 x 5	200P10	BB3-405	HCPK5	D
50 x 3	200P10	BB3-503	HCPK5	D
50 x 5	250P10	BB3-505	HCPK5	D
50 x 6	250P10	BB3-506	HCPK5	D

BB7 - Baradan Baraya

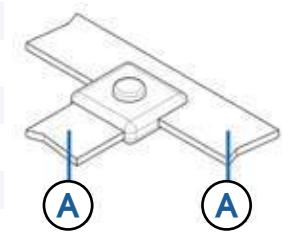
BB7 - Bar To Bar

İLETKEN KESİTİ Conductor Size (mm) A	KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
25 x 3	90P10	BB7-253	HCPK4	C
30 x 2	90P10	BB7-302	HCPK4	C
30 x 3	90P10	BB7-303	HCPK4	C
30 x 3,5	90P10	BB7-303,5	HCPK4	C
30 x 5	115P10	BB7-305	HCPK4	C
40 x 3	115P10	BB7-403	HCPK4	C
40 x 4	150P10	BB7-404	HCPK5	D
40 x 5	150P10	BB7-405	HCPK5	D
50 x 3	200P10	BB7-503	HCPK5	D
50 x 5	200P10	BB7-505	HCPK5	D
50 x 6	250P10	BB7-506	HCPK5	D

**BB14 - Baradan Baraya**

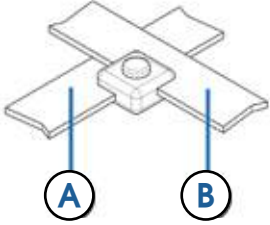
BB14 - Bar To Bar

İLETKEN KESİTİ Conductor Size (mm) A	KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
25 x 3	90P10	BB14-253253	HCPK4	C
30 x 2	90P10	BB14-302302	HCPK4	C
30 x 3	115P10	BB14-304304	HCPK4	C
30 x 3,5	115P10	BB14-303,5303,5	HCPK5	D
30 x 5	115P10	BB14-305305	HCPK5	D
40 x 3	115P10	BB14-403403	HCPK5	D
40 x 4	150P10	BB14-404404	HCPK5	D
40 x 5	150P10	BB14-405405	HCPK5	D
50 x 3	150P10	BB14-503503	HCPK5	D
50 x 5	200P10	BB14-505505	HCPK5	D
50 x 6	250P10	BB14-5065506	HCPK5	D



**BB41 - Baradan Baraya**

BB41 - Bar To Bar

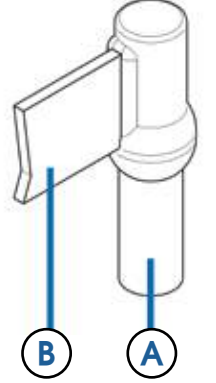


İLETKEN KESİTİ Conductor Size (mm)		KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
A	B				
25 x 3	25 x 3	65P10	BB41-253	HCPK4	C
30 x 2	30 x 2	65P10	BB41-302	HCPK4	C
30 x 3	30 x 3	115P10	BB41-304	HCPK5	D
30 x 3,5	30 x 3,5	115P10	BB41-303,5	HCPK5	D
30 x 5	30 x 5	115P10	BB41-305	HCPK5	D
40 x 3	40 x 3	200P10	BB41-403	HCPK5	D
40 x 4	40 x 4	200P10	BB41-404	HCPK5	D
40 x 5	40 x 5	200P10	BB41-405	HCPK5	D
50 x 3	50 x 3	200P10	BB41-503	HCPK5	D
50 x 5	50 x 5	200P10	BB41-505	HCPK5	D
50 x 6	50 x 6	200P10	BB41-506	HCPK5	D

BE1 – Baradan Topraklama Elektroduna

BE1 – Bar To Earthing Rod

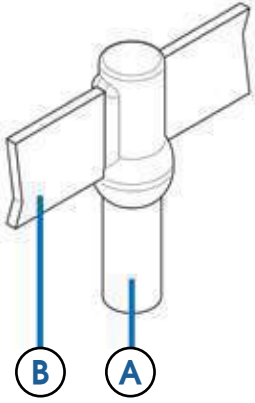
İLETKEN KESİTİ Conductor Size (mm)		KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
A	B				
16	25 x 3	150P10	BE1-16253	HCPK4	C
16	30 x 3	150P10	BE1-16303	HCPK4	C
16	30 x 3,5	150P10	BE1-16303,5	HCPK4	C
16	30 x 5	200P10	BE1-16305	HCPK4	C
16	40 x 3	200P10	BE1-16403	HCPK4	C
16	40 x 4	200P10	BE1-16404	HCPK5	D
16	40 x 5	200P10	BE1-16405	HCPK5	D
16	50 x 3	250P10	BE1-16503	HCPK5	D
16	50 x 5	2x150P10	BE1-16505	HCPK5	D
18	25 x 3	150P10	BE1-18253	HCPK5	D
18	30 x 3	150P10	BE1-18303	HCPK4	C
18	30 x 3,5	150P10	BE1-18303,5	HCPK4	C
18	30 x 5	200P10	BE1-18305	HCPK4	C
18	40 x 3	200P10	BE1-18403	HCPK4	C
18	40 x 4	200P10	BE1-18404	HCPK5	D
18	40 x 5	200P10	BE1-18405	HCPK5	D
18	50 x 3	250P10	BE1-18503	HCPK5	D
18	50 x 5	2x150P10	BE1-18505	HCPK5	D
20	25 x 3	150P10	BE1-20253	HCPK4	C
20	30 x 3	200P10	BE1-20303	HCPK4	C
20	30 x 3,5	200P10	BE1-20303,5	HCPK4	C
20	30 x 5	250P10	BE1-20305	HCPK4	C
20	40 x 3	250P10	BE1-20403	HCPK4	C
20	40 x 4	250P10	BE1-20404	HCPK5	D
20	40 x 5	250P10	BE1-20405	HCPK5	D
20	50 x 3	2x150P10	BE1-20503	HCPK5	D
20	50 x 5	2x150P10	BE1-20505	HCPK5	D





BE2 - Baradan Baraya

BE2 - Bar To Bar

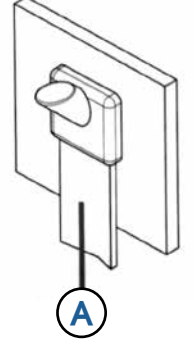


İLETKEN KESİTİ Conductor Size (mm)		KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
A	B				
16	25 x 3	150P10	BE2-16253	HCPK4	C
16	30 x 3	200P10	BE2-16303	HCPK4	C
16	30 x 3,5	200P10	BE2-16303,5	HCPK4	C
16	30 x 5	250P10	BE2-16305	HCPK4	C
16	40 x 3	250P10	BE2-16403	HCPK5	D
16	40 x 4	250P10	BE2-16404	HCPK5	D
16	40 x 5	250P10	BE2-16405	HCPK5	D
16	50 x 3	2x150P10	BE2-16503	HCPK5	D
16	50 x 5	2x150P10	BE2-16505	HCPK5	D
18	25 x 3	150P10	BE2-18253	HCPK4	C
18	30 x 3	200P10	BE2-18303	HCPK4	C
18	30 x 3,5	200P10	BE2-18303,5	HCPK4	C
18	30 x 5	250P10	BE2-18305	HCPK4	C
18	40 x 3	250P10	BE2-18403	HCPK5	D
18	40 x 4	250P10	BE2-18404	HCPK5	D
18	40 x 5	250P10	BE2-18405	HCPK5	D
18	50 x 3	2x150P10	BE2-18503	HCPK5	D
18	50 x 5	2x150P10	BE2-18505	HCPK5	D
20	25 x 3	150P10	BE2-20253	HCPK4	C
20	25 x 4	200P10	BE2-20254	HCPK4	C
20	30 x 3	200P10	BE2-20303	HCPK4	C
20	30 x 3,5	200P10	BE2-20303,5	HCPK4	C
20	30 x 5	250P10	BE2-20305	HCPK4	C
20	40 x 3	250P10	BE2-20403	HCPK5	D
20	40 x 4	250P10	BE2-20404	HCPK5	D
20	40 x 5	250P10	BE2-20405	HCPK5	D
20	50 x 3	2x150P10	BE2-20503	HCPK5	D
20	50 x 5	2x150P10	BE2-20505	HCPK5	D

BY1 – Baradan Çelik Yüzeye

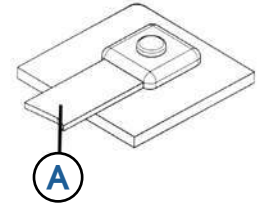
BY1 - Bar To Steel Surface

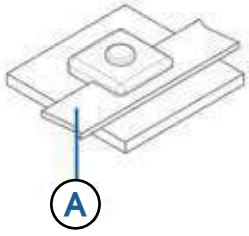
İLETKEN KESİTİ Conductor Size (mm) A	KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
25 x 3	90P10	BY1-253	HCPK4	C
30 x 2	90P10	BY1-302	HCPK4	C
30 x 3	115P10	BY1-303	HCPK4	C
30 x 3,5	115P10	BY1-303,5	HCPK4	C
30 x 5	150P10	BY1-305	HCPK4	C
40 x 3	150P10	BY1-403	HCPK5	D
40 x 4	200P10	BY1-404	HCPK5	D
40 x 5	200P10	BY1-405	HCPK5	D
50 x 3	200P10	BY1-503	HCPK5	D
50 x 5	250P10	BY1-505	HCPK5	D
50 x 6	2x150P10	BY1-506	HCPK5	D

**BY2 – Baradan Çelik Yüzeye**

BY2 - Bar To Steel Surface

İLETKEN KESİTİ Conductor Size (mm) A	KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
25 x 3	115P10	BY2-253	HCPK4	C
30 x 2	115P10	BY2-302	HCPK4	C
30 x 3	115P10	BY2-303	HCPK4	C
30 x 3,5	115P10	BY2-303,5	HCPK4	C
30 x 5	200P10	BY2-305	HCPK4	C
40 x 3	115P10	BY2-403	HCPK5	D
40 x 4	200P10	BY2-404	HCPK5	D
40 x 5	200P10	BY2-405	HCPK5	D
50 x 3	200P10	BY2-503	HCPK5	D
50 x 4	2x150P10	BY2-504	HCPK5	D
50 x 5	2x150P10	BY2-505	HCPK5	D



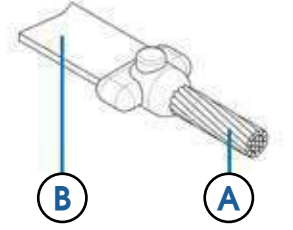
**BY3 – Baradan Çelik Yüzeye***BY3 - Bar To Steel Surface*

İLETKEN KESİTİ Conductor Size (mm) A	KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
25 x 3	115P10	BY3-253	HCPK4	C
30 x 2	115P10	BY3-302	HCPK4	C
30 x 3	150P10	BY3-303	HCPK4	C
30 x 3,5	150P10	BY3-303,5	HCPK4	C
30 x 5	115P10	BY3-305	HCPK4	C
40 x 3	150P10	BY3-403	HCPK5	D
40 x 4	200P10	BY3-404	HCPK5	D
40 x 5	250P10	BY3-405	HCPK5	D
50 x 3	250P10	BY3-503	HCPK5	D
50 x 5	250P10	BY3-505	HCPK5	D
50 x 6	250P10	BY3-506	HCPK5	D

KB1 - Kablodan Baraya

KB1 - Cable To Bar

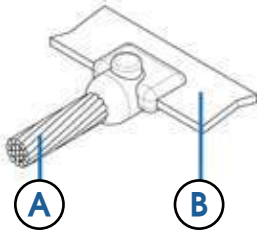
İLETKEN KESİTİ Conductor Size (mm ²) A B		KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
16	25 x 3	65P10	KB1-16253	HCPK4	C
25	25 x 3	65P10	KB1-25253	HCPK4	C
35	20 x 3	65P10	KB1-35203	HCPK4	C
35	25 x 3	65P10	KB1-35253	HCPK4	C
35	30 x 3	115P10	KB1-35303	HCPK4	C
35	30 x 3,5	115P10	KB1-35303,5	HCPK4	C
50	30 x 3	115P10	KB1-50303	HCPK4	C
50	25 x 3	90P10	KB1-50253	HCPK4	C
50	30 x 3,5	115P10	KB1-50303,5	HCPK4	C
Ø8	30 x 3	115P10	KB1-8SC303	HCPK4	C
Ø8	25 x 3	90P10	KB1-8SC253	HCPK4	C
Ø8	30 x 3,5	115P10	KB1-8SC303,5	HCPK4	C
70	25 x 3	90P10	KB1-70253	HCPK4	C
70	30 x 3	115P10	KB1-70303	HCPK4	C
70	30 x 3,5	115P10	KB1-70303,5	HCPK4	C
Ø10	25 x 3	90P10	KB1-10SC253	HCPK4	C
Ø10	30 x 3	115P10	KB1-10SC303	HCPK4	C
Ø10	30 x 3,5	115P10	KB1-10SC303,5	HCPK4	C
95	30 x 3	115P10	KB1-95303	HCPK4	C
95	30 x 3,5	115P10	KB1-95303,5	HCPK4	C
120	30 x 3	115P10	KB1-120303	HCPK4	C
120	30 x 3,5	150P10	KB1-120303,5	HCPK4	C
120	30 x 5	115P10	KB1-120305	HCPK4	C
150	30 x 3	150P10	KB1-150303	HCPK4	C
150	30 x 3,5	150P10	KB1-150303,5	HCPK4	C
150	30 x 5	150P10	KB1-150305	HCPK4	C
150	40 x 5	150P10	KB1-150405	HCPK5	D
185	30 x 3	150P10	KB1-185303	HCPK5	D
185	40 x 5	150P10	KB1-185405	HCPK5	D
185	50 x 5	200P10	KB1-185505	HCPK5	D
240	50 x 5	200P10	KB1-240505	HCPK5	D
240	50 x 6	2x150P10	KB1-240506	HCPK5	D
300	50 x 6	2x150P10	KB1-300506	HCPK5	D





KB4 - Kablodan Baraya

KB4 - Cable To Bar

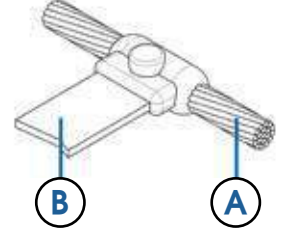


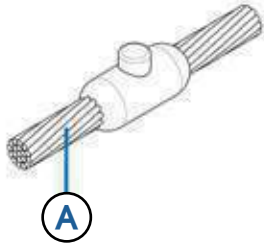
İLETKEN KESİTİ Conductor Size (mm²) A		KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
(mm) B					
16	25 x 3	65P10	KB4-16253	HCPK4	C
25	25 x 3	65P10	KB4-25253	HCPK4	C
35	20 x 3	65P10	KB4-35203	HCPK4	C
35	25 x 3	65P10	KB4-35253	HCPK4	C
50	30 x 3	115P10	KB4-50303	HCPK4	C
50	25 x 3	65P10	KB4-50253	HCPK4	C
50	30 x 3,5	115P10	KB4-50303,5	HCPK4	C
Ø8	30 x 3	115P10	KB4-8SC303	HCPK4	C
Ø8	25 x 3	65P10	KB4-8SC253	HCPK4	C
Ø8	30 x 3,5	115P10	KB4-8SC303,5	HCPK4	C
70	25 x 3	90P10	KB4-70253	HCPK4	C
70	30 x 3	115P10	KB4-70303	HCPK4	C
70	25 x 4	90P10	KB4-70254	HCPK4	C
70	30 x 3,5	115P10	KB4-70303,5	HCPK4	C
Ø10	30 x 3	115P10	KB4-10SC303	HCPK4	C
Ø10	30 x 3,5	115P10	KB4-10SC303,5	HCPK4	C
95	30 x 3	115P10	KB4-95303	HCPK4	C
95	30 x 3,5	115P10	KB4-95303,5	HCPK4	C
120	30 x 3	115P10	KB4-120303	HCPK4	C
120	30 x 5	115P10	KB4-120305	HCPK4	C
120	30 x 3,5	115P10	KB4-120303,5	HCPK4	C
150	30 x 3	150P10	KB4-150303	HCPK4	C
150	30 x 5	150P10	KB4-150305	HCPK4	C
150	30 x 3,5	150P10	KB4-150303,5	HCPK4	C
150	40 x 5	115P10	KB4-150405	HCPK5	D
185	30 x 3	150P10	KB4-185303	HCPK5	D
185	40 x 5	150P10	KB4-185405	HCPK5	D
185	50 x 5	150P10	KB4-185505	HCPK5	D
240	50 x 5	200P10	KB4-240505	HCPK5	D
240	50 x 6	250P10	KB4-240506	HCPK5	D
300	50 x 6	2x150P10	KB4-300506	HCPK5	D

KB5 - Kablodan Baraya

KB5 - Cable To Bar

İLETKEN KESİTİ Conductor Size (mm ²) A B		KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
16	25 x 3	65P10	KB5-16253	HCPK4	C
25	25 x 3	65P10	KB5-25253	HCPK4	C
35	25 x 3	65P10	KB5-35253	HCPK4	C
50	25 x 3	65P10	KB5-50253	HCPK4	C
Ø8	25 x 3	65P10	KB5-8SC253	HCPK4	C
70	25 x 3	90P10	KB5-70253	HCPK4	C
70	30 x 3	150P10	KB5-70303	HCPK4	C
70	30 x 3,5	150P10	KB5-70303,5	HCPK4	C
Ø10	25 x 3	115P10	KB5-10SC253	HCPK4	C
95	30 x 3	150P10	KB5-95303	HCPK4	C
95	30 x 3,5	150P10	KB5-95303,5	HCPK4	C
120	25 x 3	150P10	KB5-120253	HCPK4	C
120	30 x 3,5	150P10	KB5-120303,5	HCPK4	C
120	30 x 5	200P10	KB5-120305	HCPK4	C
150	25 x 3	200P10	KB5-150253	HCPK4	C
150	30 x 5	200P10	KB5-150305	HCPK5	D
150	40 x 5	250P10	KB5-150405	HCPK5	D
185	30 x 3	250P10	KB5-185303	HCPK5	D
185	40 x 5	250P10	KB5-185405	HCPK5	D
185	50 x 5	2x150P10	KB5-185505	HCPK5	D
240	50 x 5	2x150P10	KB5-240505	HCPK5	D
240	50 x 6	2x150P10	KB5-240506	HCPK5	D
300	50 x 6	2x150P10	KB5-300506	HCPK5	D



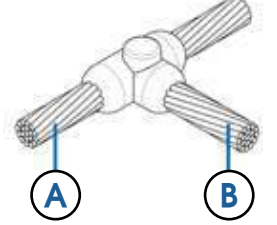
**KK1 - Kabloda Kabloya***KK1 - Cable To Cable*

İLETKEN KESİTİ Conductor Size (mm ²) A	KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
16	45P10	KK1-16	HCPK4	C
25	65P10	KK1-25	HCPK4	C
35	65P10	KK1-35	HCPK4	C
50	65P10	KK1-50	HCPK4	C
Ø8	65P10	KK1-8SC	HCPK4	C
70	90P10	KK1-70	HCPK4	C
Ø10	90P10	KK1-10SC	HCPK4	C
95	90P10	KK1-95	HCPK4	C
120	115P10	KK1-120	HCPK4	C
150	115P10	KK1-150	HCPK4	C
185	150P10	KK1-185	HCPK5	C
240	200P10	KK1-240	HCPK5	C
300	250P10	KK1-300	HCPK5	C
400	250P10	KK1-400	HCPK5	C

KK2 - Kablodan Kabloya

KK2 - Cable To Cable

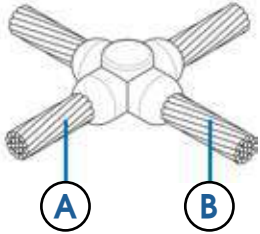
İLETKEN KESİTİ Conductor Size (mm ²) A B		KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
16	16	45P10	KK2-1616	HCPK4	C
25	25	65P10	KK2-2525	HCPK4	C
35	35	65P10	KK2-3535	HCPK4	C
35	25	65P10	KK2-3525	HCPK4	C
Ø8	Ø8	90P10	KK2-88SC	HCPK4	C
50	50	90P10	KK2-5050	HCPK4	C
50	35	90P10	KK2-5035	HCPK4	C
50	25	90P10	KK2-5025	HCPK4	C
Ø10	Ø10	115P10	KK2-1010SC	HCPK4	C
70	70	115P10	KK2-7070	HCPK4	C
70	50	115P10	KK2-7050	HCPK4	C
70	35	90P10	KK2-7035	HCPK4	C
70	25	90P10	KK2-7025	HCPK4	C
95	95	115P10	KK2-9595	HCPK4	C
95	70	115P10	KK2-9570	HCPK4	C
95	50	115P10	KK2-9550	HCPK4	C
95	35	90P10	KK2-9535	HCPK4	C
120	120	150P10	KK2-120120	HCPK4	C
120	95	150P10	KK2-12095	HCPK4	C
120	70	115P10	KK2-12070	HCPK4	C
120	50	115P10	KK2-12050	HCPK5	C
150	150	150P10	KK2-150150	HCPK5	C
150	120	150P10	KK2-150120	HCPK5	C
150	95	150P10	KK2-15095	HCPK4	C
150	70	115P10	KK2-15070	HCPK4	C
185	185	200P10	KK2-185185	HCPK5	D
185	150	200P10	KK2-185150	HCPK5	D
185	120	200P10	KK2-185120	HCPK5	D
185	95	200P10	KK2-18595	HCPK5	D
240	240	250P10	KK2-240240	HCPK5	D
240	185	200P10	KK2-240185	HCPK5	D
240	150	200P10	KK2-240150	HCPK5	D
240	120	200P10	KK2-240120	HCPK5	D
300	300	2x150P10	KK2-300300	HCPK5	D
300	240	300P10	KK2-300240	HCPK5	D





KK4 - Kablodan Kabloya

KK4 - Cable To Cable

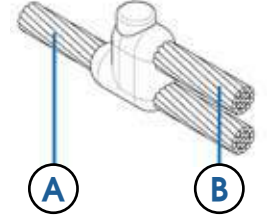


İLETKEN KESİTİ Conductor Size (mm ²) A		KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
16	16	65P10	KK4-1616	HCPK4	C
25	25	65P10	KK4-2525	HCPK4	C
35	35	90P10	KK4-3535	HCPK4	C
35	25	90P10	KK4-3525	HCPK4	C
Ø8	Ø8	90P10	KK4-88SC	HCPK4	C
50	50	115P10	KK4-5050	HCPK4	C
50	35	115P10	KK4-5035	HCPK4	C
50	25	115P10	KK4-5025	HCPK4	C
Ø10	Ø10	150P10	KK4-1010SC	HCPK4	C
70	70	150P10	KK4-7070	HCPK4	C
70	50	150P10	KK4-7050	HCPK4	C
70	35	115P10	KK4-7035	HCPK4	C
70	25	115P10	KK4-7025	HCPK4	C
95	95	150P10	KK4-9595	HCPK4	C
95	70	150P10	KK4-9570	HCPK4	C
95	50	150P10	KK4-9550	HCPK4	C
95	35	150P10	KK4-9535	HCPK4	C
120	120	200P10	KK4-120120	HCPK5	C
120	95	200P10	KK4-12095	HCPK4	C
120	70	150P10	KK4-12070	HCPK4	C
120	50	150P10	KK4-12050	HCPK4	C
150	150	200P10	KK4-150150	HCPK5	D
150	120	200P10	KK4-150120	HCPK5	D
150	95	200P10	KK4-15095	HCPK5	D
150	70	200P10	KK4-15070	HCPK5	D
185	185	250P10	KK4-185185	HCPK5	D
185	150	200P10	KK4-185150	HCPK5	D
185	120	200P10	KK4-185120	HCPK5	D
185	95	200P10	KK4-18595	HCPK5	D
185	70	200P10	KK4-18570	HCPK5	D
240	240	300P10	KK4-240240	HCPK5	D
240	185	300P10	KK4-240185	HCPK5	D
240	150	300P10	KK4-240150	HCPK5	D
240	120	250P10	KK4-240120	HCPK5	D

KK6 - Kablodan Kabloya

KK6 - Cable To Cable

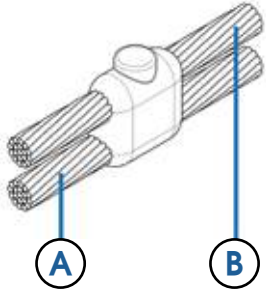
İLETKEN KESİTİ Conductor Size (mm ²) A B		KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
16	16	65P10	KK6-1616	HCPK4	C
25	25	65P10	KK6-2525	HCPK4	C
35	35	65P10	KK6-3535	HCPK4	C
35	25	65P10	KK6-3525	HCPK4	C
50	50	90P10	KK6-5050	HCPK4	C
50	35	90P10	KK6-5035	HCPK4	C
50	25	65P10	KK6-5025	HCPK4	C
70	70	115P10	KK6-7070	HCPK4	C
70	50	115P10	KK6-7050	HCPK4	C
70	35	115P10	KK6-7035	HCPK4	C
70	25	90P10	KK6-7025	HCPK4	C
95	95	150P10	KK6-9595	HCPK4	C
95	70	150P10	KK6-9570	HCPK4	C
95	50	115P10	KK6-9550	HCPK4	C
95	35	115P10	KK6-9535	HCPK4	C
120	120	200P10	KK6-120120	HCPK4	C
120	95	200P10	KK6-12095	HCPK4	C
120	70	150P10	KK6-12070	HCPK4	C
120	50	115P10	KK6-12050	HCPK4	C





KK7 - Kablodan Kabloya

KK7 - Cable To Cable



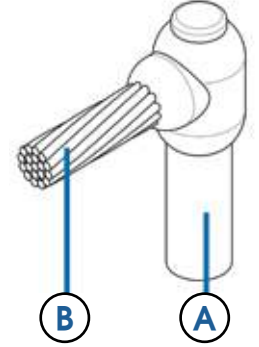
İLETKEN KESİTİ Conductor Size (mm ²) A		KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
16	16	65P10	KK7-1616	HCPK4	C
25	25	65P10	KK7-2525	HCPK4	C
35	35	65P10	KK7-3535	HCPK4	C
35	25	65P10	KK7-3525	HCPK4	C
Ø8	Ø8	115P10	KK7-88SC	HCPK4	C
50	50	115P10	KK7-5050	HCPK4	C
50	35	115P10	KK7-5035	HCPK4	C
50	25	90P10	KK7-5025	HCPK4	C
Ø10	Ø10	115P10	KK7-1010SC	HCPK4	C
70	70	115P10	KK7-7070	HCPK4	C
70	50	115P10	KK7-7050	HCPK4	C
70	35	115P10	KK7-7035	HCPK4	C
70	25	90P10	KK7-7025	HCPK4	C
95	95	150P10	KK7-9595	HCPK4	C
95	70	115P10	KK7-9570	HCPK4	C
95	50	115P10	KK7-9550	HCPK4	C
95	35	115P10	KK7-9535	HCPK4	C
120	120	200P10	KK7-120120	HCPK4	C
120	95	200P10	KK7-12095	HCPK4	C
120	70	150P10	KK7-12070	HCPK4	C
120	50	150P10	KK7-12050	HCPK4	C
150	150	250P10	KK7-150150	HCPK5	C
150	120	250P10	KK7-150120	HCPK5	D
150	95	200P10	KK7-15095	HCPK5	D
150	70	150P10	KK7-15070	HCPK5	D
185	185	250P10	KK7-185185	HCPK5	D
185	150	2x150P10	KK7-185150	HCPK5	D
185	120	250P10	KK7-185120	HCPK5	D
185	95	200P10	KK7-18595	HCPK5	D
240	240	300P10	KK7-240240	HCPK5	D
240	185	2x150P10	KK7-240185	HCPK5	D
240	150	2x150P10	KK7-240150	HCPK5	D
240	120	250P10	KK7-240120	HCPK5	D
300	300	2x200P10	KK7-300300	HCPK5	D
300	240	2x200P10	KK7-300240	HCPK5	D
300	185	2x200P10	KK7-300185	HCPK5	D
300	150	2x150P10	KK7-300150	HCPK5	D



KE1 - Kablodan Topraklama Elektroduna

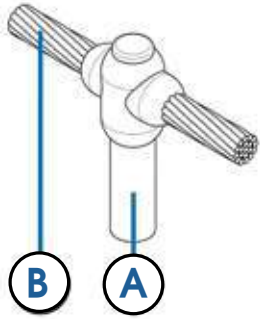
KE1 – Cable To Earthing Rod

İLETKEN KESİTİ Conductor Size (mm) A (mm²) B		KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
16	16	65P10	KE1-1616	HCPK4	C
16	25	90P10	KE1-1625	HCPK4	C
16	35	90P10	KE1-1635	HCPK4	C
16	50	90P10	KE1-1650	HCPK4	C
16	Ø8	90P10	KE1-168SC	HCPK4	C
16	70	115P10	KE1-1670	HCPK4	C
16	95	115P10	KE1-1695	HCPK4	C
16	120	115P10	KE1-16120	HCPK4	C
16	150	150P10	KE1-16150	HCPK4	C
16	185	150P10	KE1-16185	HCPK5	D
16	240	200P10	KE1-16240	HCPK5	D
18	16	90P10	KE1-1816	HCPK4	C
18	25	90P10	KE1-1825	HCPK4	C
18	35	90P10	KE1-1835	HCPK4	C
18	50	90P10	KE1-1850	HCPK4	C
18	Ø8	90P10	KE1-188SC	HCPK4	C
18	70	115P10	KE1-1870	HCPK4	C
18	95	115P10	KE1-1895	HCPK4	C
18	120	150P10	KE1-18120	HCPK4	C
18	150	200P10	KE1-18150	HCPK4	C
18	185	200P10	KE1-18185	HCPK5	D
18	240	250P10	KE1-18240	HCPK5	D
20	16	90P10	KE1-2016	HCPK4	C
20	25	90P10	KE1-2025	HCPK4	C
20	35	90P10	KE1-2035	HCPK4	C
20	50	115P10	KE1-2050	HCPK4	C
20	Ø8	115P10	KE1-208SC	HCPK4	C
20	70	115P10	KE1-2070	HCPK4	C
20	95	150P10	KE1-2095	HCPK4	C
20	120	150P10	KE1-20120	HCPK4	C
20	150	200P10	KE1-20150	HCPK4	C
20	185	200P10	KE1-20185	HCPK5	D
20	240	250P10	KE1-20240	HCPK5	D
20	300	250P10	KE1-20300	HCPK5	D





KE2 - Kablodan Topraklama Elektroduna KE2 – Cable To Earthing Rod

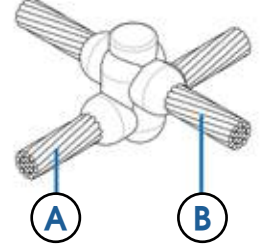


İLETKEN KESİTİ Conductor Size (mm) A (mm²) A		KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
16	16	65P10	KE2-1616	HCPK4	C
16	25	90P10	KE2-1625	HCPK4	C
16	35	90P10	KE2-1635	HCPK4	C
16	50	90P10	KE2-1650	HCPK4	C
16	Ø8	90P10	KE2-168SC	HCPK4	C
16	70	115P10	KE2-1670	HCPK4	C
16	95	115P10	KE2-1695	HCPK4	C
16	120	115P10	KE2-16120	HCPK4	C
16	150	150P10	KE2-16150	HCPK5	C
16	185	150P10	KE2-16185	HCPK5	C
16	240	200P10	KE2-16240	HCPK5	C
18	16	90P10	KE2-1816	HCPK4	C
18	25	90P10	KE2-1825	HCPK4	C
18	35	90P10	KE2-1835	HCPK4	C
18	50	115P10	KE2-1850	HCPK4	C
18	Ø8	115P10	KE2-188SC	HCPK4	C
18	70	115P10	KE2-1870	HCPK4	C
18	95	150P10	KE2-1895	HCPK4	C
18	120	150P10	KE2-18120	HCPK4	C
18	150	200P10	KE2-18150	HCPK5	C
18	185	200P10	KE2-18185	HCPK5	C
18	240	250P10	KE2-18240	HCPK5	C
20	16	90P10	KE2-2016	HCPK4	C
20	25	90P10	KE2-2025	HCPK4	C
20	35	90P10	KE2-2035	HCPK4	C
20	50	115P10	KE2-2050	HCPK4	C
20	Ø8	115P10	KE2-208SC	HCPK4	C
20	70	115P10	KE2-2070	HCPK4	C
20	95	150P10	KE2-2095	HCPK4	C
20	120	150P10	KE2-20120	HCPK4	C
20	150	200P10	KE2-20150	HCPK5	C
20	185	250P10	KE2-20185	HCPK5	C
20	240	250P10	KE2-20240	HCPK5	C
20	300	2x150P10	KE2-20300	HCPK5	D

KK11 - Kablodan Kabloya

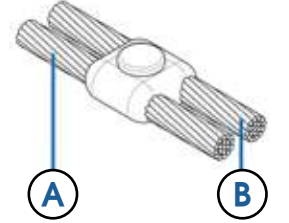
KK11 – Cable To Cable

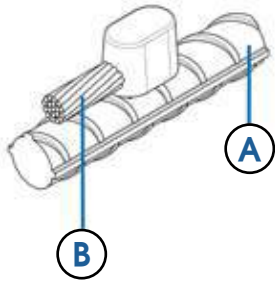
İLETKEN KESİTİ Conductor Size (mm ²) A B		KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
50	50	150P10	KK11-5050	HCPK4	C
70	70	200P10	KK11-7070	HCPK4	C
95	95	250P10	KK11-9595	HCPK4	C
120	120	250P10	KK11-120120	HCPK5	D
150	150	2x150P10	KK11-150150	HCPK5	D
185	185	2x150P10	KK11-185185	HCPK5	D
240	240	2x200P10	KK11-240240	HCPK5	D
Ø8	Ø8	150P10	KK11-8SC8SC	HCPK4	C
Ø10	Ø10	150P10	KK11-10SC10SC	HCPK4	C

**KK14 - Kablodan Kabloya**

KK14 – Cable To Cable

İLETKEN KESİTİ Conductor Size (mm ²) A B		KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
16	16	65P10	KK14-1616	HCPK4	C
25	25	65P10	KK14-2525	HCPK4	C
35	35	65P10	KK14-3535	HCPK4	C
35	25	65P10	KK14-3525	HCPK4	C
Ø8	Ø8	90P10	KK14-88SC	HCPK4	C
50	50	90P10	KK14-5050	HCPK4	C
50	35	90P10	KK14-5035	HCPK4	C
50	25	90P10	KK14-5025	HCPK4	C
70	70	115P10	KK14-7070	HCPK4	C
70	50	115P10	KK14-7050	HCPK4	C
70	35	90P10	KK14-7035	HCPK4	C
70	25	90P10	KK14-7025	HCPK4	C
95	95	150P10	KK14-9595	HCPK4	C
95	70	150P10	KK14-9570	HCPK4	C
95	50	150P10	KK14-9550	HCPK4	C
95	35	115P10	KK14-9535	HCPK4	C
120	120	200P10	KK14-120120	HCPK4	C
120	95	200P10	KK14-12095	HCPK4	C
120	70	200P10	KK14-12070	HCPK4	C
120	50	150P10	KK14-12050	HCPK4	C



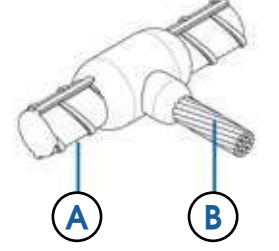
**KD1 - Kablodan İnşaat Demirine**
KD1 – Cable To Reinforcement

İLETKEN KESİTİ Conductor Size (mm) A		KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
20	16	65P10	KD1-16	HCPK3	C
20	25	65P10	KD1-25	HCPK3	C
20	35	65P10	KD1-35	HCPK3	C
20	Ø8	90P10	KD1-8SC	HCPK3	C
20	50	90P10	KD1-50	HCPK3	C
20	Ø10	115P10	KD1-10SC	HCPK3	C
20	70	115P10	KD1-70	HCPK3	C
20	95	115P10	KD1-95	HCPK3	C
20	120	150P10	KD1-120	HCPK3	C

KD2 - Kablodan İnşaat Demirine

KD2 – Cable To Reinforcement

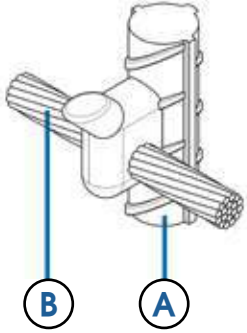
İLETKEN KESİTİ Conductor Size (mm) A (mm ²) B		KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
16	Ø8	115P10	KD2-16R8SC	HCPK4	C
16	50	115P10	KD2-16R50	HCPK4	C
16	Ø10	115P10	KD2-16R10SC	HCPK4	C
16	70	115P10	KD2-16R70	HCPK4	C
16	95	150P10	KD2-16R95	HCPK4	C
16	120	150P10	KD2-16R120	HCPK4	C
18	Ø8	150P10	KD2-18R8SC	HCPK4	C
18	50	150P10	KD2-18R50	HCPK4	C
18	Ø10	150P10	KD2-18R10SC	HCPK4	C
18	70	150P10	KD2-18R70	HCPK4	C
18	95	150P10	KD2-18R95	HCPK4	C
18	120	200P10	KD2-18R120	HCPK4	C
20	Ø8	150P10	KD2-20R8SC	HCPK5	D
20	50	150P10	KD2-20R50	HCPK5	D
20	Ø10	150P10	KD2-20R10SC	HCPK5	D
20	70	150P10	KD2-20R70	HCPK5	D
20	95	200P10	KD2-20R95	HCPK5	D
20	120	200P10	KD2-20R120	HCPK5	D
25	Ø8	200P10	KD2-25R8SC	HCPK5	D
25	50	200P10	KD2-25R50	HCPK5	D
25	Ø10	250P10	KD2-25R10SC	HCPK5	D
25	70	250P10	KD2-25R70	HCPK5	D
25	95	250P10	KD2-25R95	HCPK5	D
25	120	250P10	KD2-25R120	HCPK5	D
30	Ø8	2x150P10	KD2-30R8SC	HCPK5	D
30	50	2x150P10	KD2-30R50	HCPK5	D
30	Ø10	2x150P10	KD2-30R10SC	HCPK5	D
30	70	2x150P10	KD2-30R70	HCPK5	D
30	95	2x150P10	KD2-30R95	HCPK5	D
30	120	2x200P10	KD2-30R120	HCPK5	D





KD3 - Kablodan İnşaat Demirine

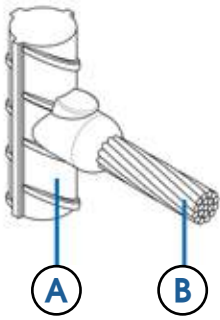
KD3 - Cable To Reinforcement



İLETKEN KESİTİ Conductor Size (mm ²) A B		KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
10-40	Ø10	90P10	KD3-10SC	HCPK4	C
10-40	Ø8	90P10	KD3-8SC	HCPK4	C
10-40	50	90P10	KD3-50	HCPK4	C
10-40	70	90P10	KD3-70	HCPK4	C
10-40	95	115P10	KD3-95	HCPK4	C
10-40	120	115P10	KD3-120	HCPK4	C

KD6 - Kablodan İnşaat Demirine

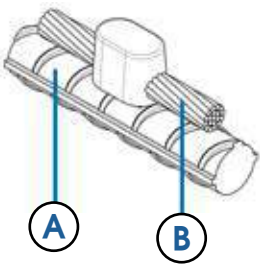
KD6 - Cable To Reinforcement



İLETKEN KESİTİ Conductor Size (mm ²) A B		KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
10-40	Ø8	65P10	KD6-8SC	HCPK4	C
10-40	50	65P10	KD6-50	HCPK4	C
10-40	Ø10	90P10	KD6-10SC	HCPK4	C
10-40	70	90P10	KD6-70	HCPK4	C
10-40	95	90P10	KD6-95	HCPK4	C
10-40	120	90P10	KD6-120	HCPK4	C

KD17 - Kablodan İnşaat Demirine

KD17 - Cable To Reinforcement

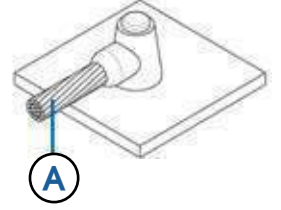


İLETKEN KESİTİ Conductor Size (mm ²) A B		KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
20	16	65P10	KD17-16	HCPK4	C
20	25	65P10	KD17-25	HCPK4	C
20	35	65P10	KD17-35	HCPK4	C
20	Ø8	90P10	KD17-8SC	HCPK4	C
20	50	90P10	KD17-50	HCPK4	C
20	Ø10	115P10	KD17-10SC	HCPK4	C
20	70	115P10	KD17-70	HCPK4	C
20	95	115P10	KD17-95	HCPK4	C
20	120	150P10	KD17-120	HCPK4	C

KY1 - Kablodan Çelik Yüzeye Veya Boruya

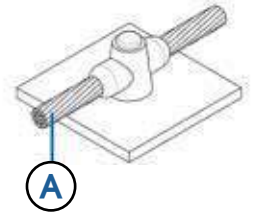
KY1 – Cable To Steel Surface Or Pipe

İLETKEN KESİTİ Conductor Size (mm ²) A	KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
16	45P10	KY1-16	HCPK1	C
25	45P10	KY1-25	HCPK1	C
35	45P10	KY1-35	HCPK1	C
Ø8	90P10	KY1-8SC	HCPK1	C
50	90P10	KY1-50	HCPK1	C
Ø10	90P10	KY1-10SC	HCPK1	C
70	90P10	KY1-70	HCPK1	C
95	115P10	KY1-95	HCPK1	C
120	115P10	KY1-120	HCPK1	C
150	150P10	KY1-150	HCPK1	C
185	200P10	KY1-185	HCPK1	C
240	200P10	KY1-240	HCPK1	C
300	250P10	KY1-300	HCPK1	C

**KY2 - Kablodan Çelik Yüzeye Veya Boruya**

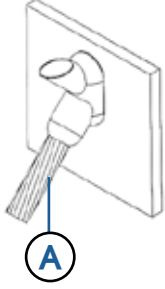
KY2 – Cable To Steel Surface Or Pipe

İLETKEN KESİTİ Conductor Size (mm ²) A	KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
16	45P10	KY2-16	HCPK4	C
25	45P10	KY2-25	HCPK4	C
35	45P10	KY2-35	HCPK4	C
Ø8	90P10	KY2-8SC	HCPK4	C
50	90P10	KY2-50	HCPK4	C
Ø10	115P10	KY2-10SC	HCPK4	C
70	115P10	KY2-70	HCPK4	C
95	115P10	KY2-95	HCPK4	C
120	150P10	KY2-120	HCPK4	C
150	200P10	KY2-150	HCPK5	D
185	250P10	KY2-185	HCPK5	D
240	2x150P10	KY2-240	HCPK5	D
300	2x200P10	KY2-300	HCPK5	D



**KY3 - Kablodan Çelik Yüzeye Veya Boruya**

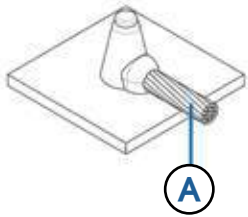
KY3 – Cable To Steel Surface Or Pipe



İLETKEN KESİTİ Conductor Size (mm ²) A	KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
16	45P10	KY3-16	HCPK4	C
25	45P10	KY3-25	HCPK4	C
35	45P10	KY3-35	HCPK4	C
Ø8	65P10	KY3-8SC	HCPK4	C
50	65P10	KY3-50	HCPK4	C
Ø10	90P10	KY3-10SC	HCPK4	C
70	90P10	KY3-70	HCPK4	C
95	115P10	KY3-95	HCPK4	C
120	115P10	KY3-120	HCPK4	C
150	115P10	KY3-150	HCPK5	D
185	200P10	KY3-185	HCPK5	D
240	200P10	KY3-240	HCPK5	D
300	250P10	KY3-300	HCPK5	D

KY8 - Kablodan Çelik Yüzeye Veya Boruya

KY8 – Cable To Steel Surface Or Pipe

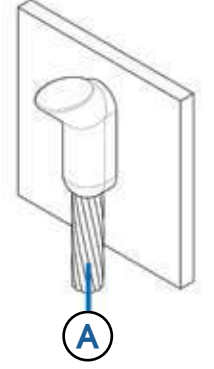


İLETKEN KESİTİ Conductor Size (mm ²) A	KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
16	45P10	KY8-16	HCPK4	A
25	45P10	KY8-25	HCPK4	A
35	45P10	KY8-35	HCPK4	A
Ø8	45P10	KY8-8SC	HCPK4	A
50	45P10	KY8-50	HCPK4	A
Ø10	65P10	KY8-10SC	HCPK4	A
70	65P10	KY8-70	HCPK4	A
95	90P10	KY8-95	HCPK4	A
120	115P10	KY8-120	HCPK4	A
150	150P10	KY8-150	HCPK5	D
185	200P10	KY8-185	HCPK5	D
240	200P10	KY8-240	HCPK5	D
300	250P10	KY8-300	HCPK5	D

KY25 - Kablodan Çelik Yüzeye Veya Boruya

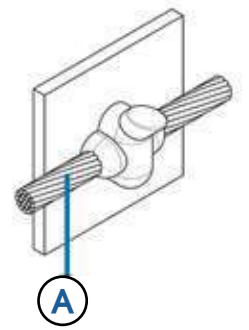
KY25 – Cable To Steel Surface Or Pipe

İLETKEN KESİTİ Conductor Size (mm ²) A	KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
16	45P10	KY25-16	HCPK4	C
25	45P10	KY25-25	HCPK4	C
35	45P10	KY25-35	HCPK4	C
Ø8	65P10	KY25-8SC	HCPK4	C
50	65P10	KY25-50	HCPK4	C
Ø10	90P10	KY25-10SC	HCPK4	C
70	90P10	KY25-70	HCPK4	C
95	115P10	KY25-95	HCPK4	C
120	115P10	KY25-120	HCPK4	C
150	150P10	KY25-150	HCPK5	D
185	200P10	KY25-185	HCPK5	D
240	200P10	KY25-240	HCPK5	D
300	250P10	KY25-300	HCPK5	D

**KY27 - Kablodan Çelik Yüzeye Veya Boruya**

KY27 – Cable To Steel Surface Or Pipe

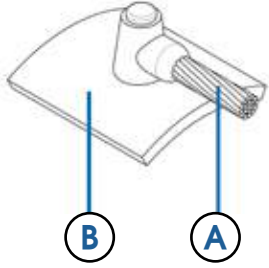
İLETKEN KESİTİ Conductor Size (mm ²) A	KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
16	45P10	KY27-16	HCPK4	C
25	45P10	KY27-25	HCPK4	C
35	45P10	KY27-35	HCPK4	C
Ø8	65P10	KY27-8SC	HCPK4	C
50	65P10	KY27-50	HCPK4	C
Ø10	115P10	KY27-10SC	HCPK4	C
70	115P10	KY27-70	HCPK4	C
95	150P10	KY27-95	HCPK4	C
120	150P10	KY27-120	HCPK4	C
150	200P10	KY27-150	HCPK5	D
185	250P10	KY27-185	HCPK5	D
240	2x150P10	KY27-240	HCPK5	D
300	2x200P10	KY27-300	HCPK5	D





KY32 - Kablodan Çelik Yüzeye Veya Boruya

KY32 - Cable To Steel Surface Or Pipe

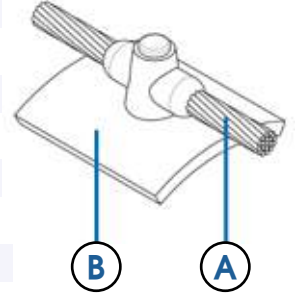


İLETKEN KESİTİ Conductor Size (mm ²) A B		KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
4	<125	15P10	KY32-4-A	HCPK4	C
4	>125	15P10	KY32-4-B	HCPK4	C
6	<125	15P10	KY32-6-A	HCPK4	C
6	>125	15P10	KY32-6-B	HCPK4	C
10	<125	25P10	KY32-10-A	HCPK4	C
10	>125	25P10	KY32-10-B	HCPK4	C
16	<125	45P10	KY32-16-A	HCPK4	C
16	>125	45P10	KY32-16-B	HCPK4	C
25	<70	25P10	KY32-25-C	HCPK4	C
25	70-165	25P10	KY32-25-D	HCPK4	C
25	>165	25P10	KY32-25-E	HCPK4	C
35	<70	45P10	KY32-35-C	HCPK4	C
35	70-165	45P10	KY32-35-D	HCPK4	C
35	165-250	45P10	KY32-35-F	HCPK4	C
35	>250	45P10	KY32-35-G	HCPK4	C
50	<70	45P10	KY32-50-C	HCPK4	C
50	70-165	45P10	KY32-50-D	HCPK4	C
50	165-250	45P10	KY32-50-F	HCPK4	C
50	>250	45P10	KY32-50-G	HCPK4	C
70	<70	65P10	KY32-70-C	HCPK4	C
70	70-165	65P10	KY32-70-D	HCPK4	C
70	165-250	65P10	KY32-70-F	HCPK4	C
70	>250	65P10	KY32-70-G	HCPK4	C

KY34 - Kablodan Çelik Yüzeye Veya Boruya

KY34 – Cable To Steel Surface Or Pipe

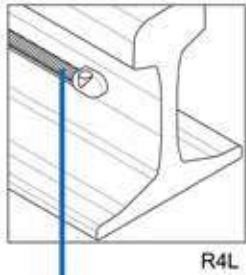
İLETKEN KESİTİ Conductor Size (mm ²) A B		KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
4	<125	15P10	KY34-4-A	HCPK4	C
4	>125	15P10	KY34-4-B	HCPK4	C
6	<125	15P10	KY34-6-A	HCPK4	C
6	>125	15P10	KY34-6-B	HCPK4	C
10	<125	32P10	KY34-10-A	HCPK4	C
10	>125	32P10	KY34-10-B	HCPK4	C
16	<125	45P10	KY34-16-A	HCPK4	C
16	>125	45P10	KY34-16-B	HCPK4	C
25	<70	32P10	KY34-25-C	HCPK4	C
25	70-165	32P10	KY34-25-D	HCPK4	C
25	>165	32P10	KY34-25-E	HCPK4	C
35	<70	45P10	KY34-35-C	HCPK4	C
35	70-165	45P10	KY34-35-D	HCPK4	C
35	165-250	45P10	KY34-35-F	HCPK4	C
35	>250	45P10	KY34-35-G	HCPK4	C
50	<70	65P10	KY34-50-C	HCPK4	C
50	70-165	65P10	KY34-50-D	HCPK4	C
50	165-250	65P10	KY34-50-F	HCPK4	C
50	>250	65P10	KY34-50-G	HCPK4	C





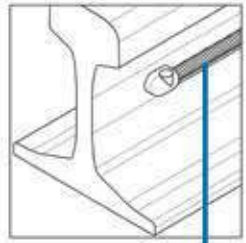
R4L / R4R – Kablodan Raya

R4L / R4R – Cable To Rail



R4L

A



R4R

B

İLETKEN KESİTİ Conductor Size (mm ²) A	KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
16	45P10	R4L-16	HCPK1	C
16	45P10	R4R-16	HCPK1	C
25	45P10	R4L-25	HCPK1	C
25	45P10	R4R-25	HCPK1	C
35	45P10	R4L-35	HCPK1	C
35	45P10	R4R-35	HCPK1	C
50	65P10	R4L-50	HCPK1	C
50	75P10	R4R-50	HCPK1	C
70	75P10	R4L-70	HCPK1	C
70	75P10	R4R-70	HCPK1	C
95	75P10	R4L-95	HCPK1	C
95	115P10	R4R-95	HCPK1	C
120	115P10	R4L-120	HCPK1	C
120	115P10	R4R-120	HCPK1	C
150	150P10	R4L-150	HCPK1	C
150	150P10	R4R-150	HCPK1	C

R5 – Kablodan Raya

R5 – Cable To Rail

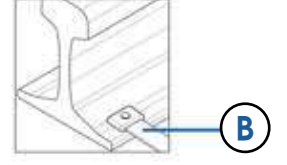


A

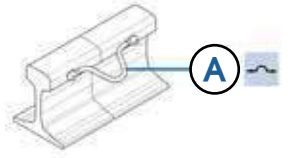
İLETKEN KESİTİ Conductor Size (mm ²) A	KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
16	25P10	R5-16	HCPK1	C
25	25P10	R5-25	HCPK1	C
35	32P10	R5-35	HCPK1	C
50	45P10	R5-50	HCPK1	C
70	65P10	R5-70	HCPK1	C
95	65P10	R5-95	HCPK1	C
120	90P10	R5-120	HCPK1	C
150	115P10	R5-150	HCPK1	C

R6 – Baradan Raya*R6 – Bar To Rail*

İLETKEN KESİTİ Conductor Size (mm) A	KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
25 x 3	65P10	R6-3-253	HCPK1	C

**R12 – Kablodan Raya***R12 – Cable To Rail*

İLETKEN KESİTİ Conductor Size (mm ²) A	KAYNAK TOZU Welding Powder (gr)	POTA Mould	POTA PENSESİ Handle Clamp	POTA TİPİ Mould Type
25	32P10	R12-25	HCPK4	C
35	32P10	R12-35	HCPK4	C
50	45P10	R12-50	HCPK4	C
70	65P10	R12-70	HCPK4	C
95	75P10	R12-95	HCPK4	C
120	115P10	R12-120	HCPK4	C





Kaynak Tozu (Amperweld)

Welding Powder (Amperweld)



ÜRÜN KODU Product Code	MATERYAL Material	TOZ GRAMAJI Powder Weight (gr)	KUTU ADETİ Box Quantity	KUTU AĞIRLIĞI Box Weight
AE 46364	Bakır Alaşımı - Copper Alloy	65	20	1,70
AE 46365	Bakır Alaşımı - Copper Alloy	90	20	2,20
AE 46366	Bakır Alaşımı - Copper Alloy	115	20	2,70
AE 46367	Bakır Alaşımı - Copper Alloy	150	10	1,81
AE 46368	Bakır Alaşımı - Copper Alloy	200	10	2,25
AE 46369	Bakır Alaşımı - Copper Alloy	250	10	2,78

Kaynak Potası

Welding Mould



ÜRÜN KODU Product Code	MATERYAL Material	KUTU ADETİ Box Quantity	EBAT Size (mm)	AĞIRLIK Weight (kg)
AE 46703	Grafit - Graphite	1	150 x 75 x 75	1,63
AE 46704	Grafit - Graphite	1	175 x 100 x 100	2,25

Pota Çakmağı (Klasik)

Flint Gun (Classic)



ÜRÜN KODU Product Code	MATERYAL Material	KUTU ADETİ Box Quantity	AĞIRLIK Weight (kg)
AE 46760		1	0,09

Pota Çakmağı (Elektronik)

Flint Gun (Electronic)



ÜRÜN KODU Product Code	MATERYAL Material	KUTU ADETİ Box Quantity	AĞIRLIK Weight (kg)
AE 46767	Elektronik Çakmak - Electronic Igniter	1	0,18
AE 46454	Kaynak Elektrodu - Welding Fuse	100	0,36

Pota Macunu*Mould Sealer*

ÜRÜN KODU Product Code	KUTU ADETİ Box Quantity	AĞIRLIK Weight (kg)
AE 46770	1	1,01

**Korozyon Bandı***Corrosion Tape Strip*

ÜRÜN KODU Product Code	EBAT Size (mm)	AĞIRLIK Weight (kg)
AE 46772	0,5 x 1000	1

**Pota Pensesi***Mould Handle Clamp*

ÜRÜN KODU Product Code	TİP Type	KUTU ADETİ Box Quantity	AĞIRLIK Weight (kg)
AE 46801	HCPK5 - L159	1	1,13
AE 46803	HCPK4 - L160	1	1,10
AE 46805	HCPK1 - L161	1	0,48

**Pota Kazıyıcı***Mould Cleaning Scraper*

ÜRÜN KODU Product Code	MATERYAL Material	KUTU ADETİ Box Quantity	AĞIRLIK Weight (kg)
AE 46845	Galvanizli Demir - Galvanized Iron	1	0,08

**Temizleme Fırçası***Cleaning Brush*

ÜRÜN KODU Product Code	TİP Type	KUTU ADETİ Box Quantity	AĞIRLIK Weight (kg)
AE 46880	İletken temizleyici - Conductor cleaning brush	1	0,10
AE 46890	Pota temizleyici - Mould cleaning brush	1	0,02





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İÇ YILDIRIMLIK SİSTEMLERİ

SURGE PROTECTION DEVICES (SPD)





What Is Instantaneous Overvoltage and How Is It Formed?

Instantaneous overvoltages (impulse voltages) are those that appear within a few microseconds (micro 1/100,000) and a few milliseconds (milli 1/1000) with a magnitude varying between 5 to 10KV. Voltages with such magnitude equal 8-10 times the tolerance limits of electronic devices.

Instantaneous overvoltages can be network-induced or atmospheric-induced. Atmospheric-induced voltages are known as "lightning impacts". Transient voltage fluctuations, voltage dips, short interruptions, slow and quick voltage changes and harmonics are examples of network-induced impacts. There are also electrical switching incidents that have an effective role on the formation of instantaneous overvoltages.

What Are Lightning-Induced Overvoltages?

Lightning is mostly known for the direct damage it causes as a naturally occurring event that generally leads to physical damage and fire. However, there are many reasons to take precautions against the indirect damages of lightning in electrical applications. An impulse voltage that can reach up to a level of 500V is about 2.5 times that of a 230VAC nominal operating voltage. Therefore, it is inevitable that impulse voltages able to reach up to 100 times the nominal voltage of a device will be destructive. Indeed, lightning discharges causing instantaneous overvoltages in energy, phone and data communication lines have been observed to grow up to 530,000 amperes of current. 200,000 amperes is the recognized upper limit within this scope, and these discharges generally occur

between 2,000 and 200,000 amperes.

a) Direct Effect of Lightning (Galvanic Coupling)

When a lightning impact falls on an external lightning conductor (lightning rod, Faraday) system on a building or any carrier metal point (dish, antenna, etc.) on the roof, it moves to the indoor installation through the available grounding system as a result of the voltage increase that occurs in the grounding impedance, and pumps high partial lightning currents to the connected devices. Lightning can also directly strike on energy lines (low voltage overhead lines) and data lines, which causes the high partial lightning currents to be transferred into the building.

b) Indirect Effects of Lightning

The secondary effect of lightning currents causes instantaneous overvoltages in two ways. Resistance coupling and inductive coupling.

i) Resistance coupling

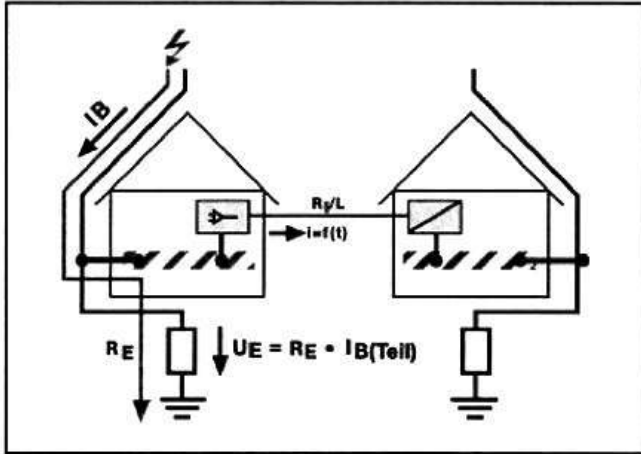
Resistance coupling occurs when lightning strikes on buildings or a group of buildings that have an electrical connection between each other. The two buildings seen in the figure have a single grounding system. The grounding system of the building close to the location of the lightning strike is under the effect of potential tent (voltage gradient) created by the lightning. However, the grounding system of the next building with which it has an electrical connection, is reference ground as compared to the potential tent. Therefore, circulating currents flow through the electrical connections between them, and overvoltages occur on the devices.



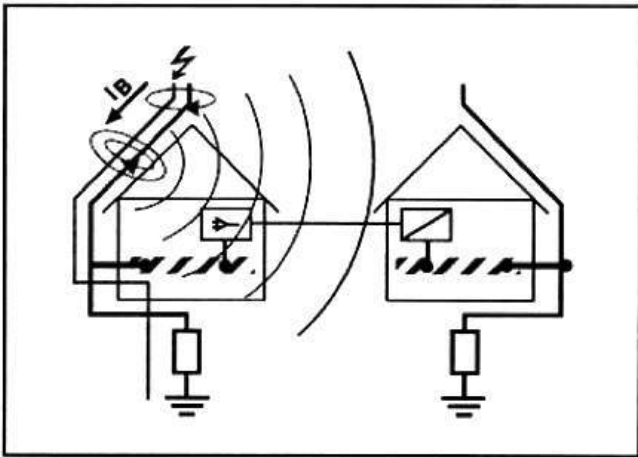
ii) Inductive coupling

Inductive coupling can be defined as the transforming effect between lightning currents and lines. A lightning current with a very large value creates a magnetic field, and this magnetic field induces voltages in nearby lines (Figure 3).

Resistance Coupling



Inductive Coupling



Overvoltage Protectors and their Operating Principles

Internal lightning conductors=overvoltage protectors connected between phases and the ground, and neutral loads and the ground in low voltage systems, switch to conduction in case of an impact and absorb the instantaneous overvoltage onto themselves. They take on the impulse voltages to which the system would be exposed.

• Type 1 = Class B Protection Products

Type 1 products have been designed to limit the effects of high-power lightning impacts, and generally operate with spark gap technology. They are used at the closest point to a low voltage supply line of a facility with a lightning rod or at a distance of 50m, and prevent damage to main supply points caused by lightning discharges. It is possible to individually protect each phase with unipolar manufactured modules. When the impulse voltage to which they are exposed reaches the critical value, they absorb this high voltage themselves and conduct it to the ground.

• Type 2 = Class C Protection Products

Placed on each distribution panel in an installation to protect against internally produced overvoltages, Type 2 = Class C overvoltage protectors operate with MOV (metal oxide varistor) technology, and are used against lower level impulse voltages for additional protection purposes. The overvoltages that switch in this way are reduced to acceptable levels.

• Type 1+2 = Class B+C Protection Products

In some facilities (GSM base stations), the distance between class B and C catchers can be shorter than it should be (container scale facilities). In such case, either inductive coupling is used or combined B+C protection sets, including class B and C protection, are preferred to enable coordination between elements.

• Type 3 = Class D Protection Products

An adapter-type protection module has been developed to meet the protection requirements of various devices. Thanks to its structure, the adapter is connected to the system easily, and enables an effective protection at ultimate device level. A protection circuit combining a varistor and gas arrester protects the connected devices against network harmonics. Varistors can become over-loaded due to very high or very frequent voltage impacts. As a result, the residual current might increase in the components within the circuit, leading to heating. A thermal separator connected to the varistor is mounted to prevent excessive heating of these components.

• Coaxial and Antenna Line Protectors

These are the modules that have been specifically designed for the protection of receiving and transmitting stations in the communication systems. They enable the protection of antenna input against instantaneous voltage flow impacts. They have a very wide field of application for the multiple input-output and wide-range radio communication systems of police and fire departments.



• Protection of Data Lines

In applications where signal transmission is handled through a coaxial cable, such as computers, data processing systems, or video systems, adapter modules with BNC connectors are recommended to prevent damage on devices caused by impulse voltages. This product can operate both grounded or floating. External grounding can be performed on the device. The protection circuit is placed in a metal case with BNC connection.

Other Factors Causing Overvoltages

a) Electrical Switching Incidents

Instantaneous voltages causing electrical switching incidents are very common and considered a significant interference source. The current flowing through a conductor creates a magnetic field around it, and the magnetic field suddenly decreases when the current is cut (switch is on). The energy accumulating on the conductor is distributed through induction as instantaneous overvoltage.

b) Network Peaks

No matter how solid the infrastructure is, due to non-compliance of the production or energy transfer lines with some international standards, and static load negations occurring in the areas it flows through, OSB transformers that feed hundreds of factories in the regions where companies or institutions using this energy are located generate peaks against instantaneous loads.

c) Network Harmonics

Harmonics is the most talked about power quality problem in recent years and has various disruptive effects on many different facilities. Electronic card failures are one of the effects of harmonics. Condensers inside the parasite filter found in the card leads might also draw over-current and explode. When it comes to card failures of critical loads such as CNC benches, the financial burden of this problem becomes serious.

Problems Caused by Overvoltages

Problems occur in three stages depending on the magnitude of the incoming overvoltage.

a) Failure

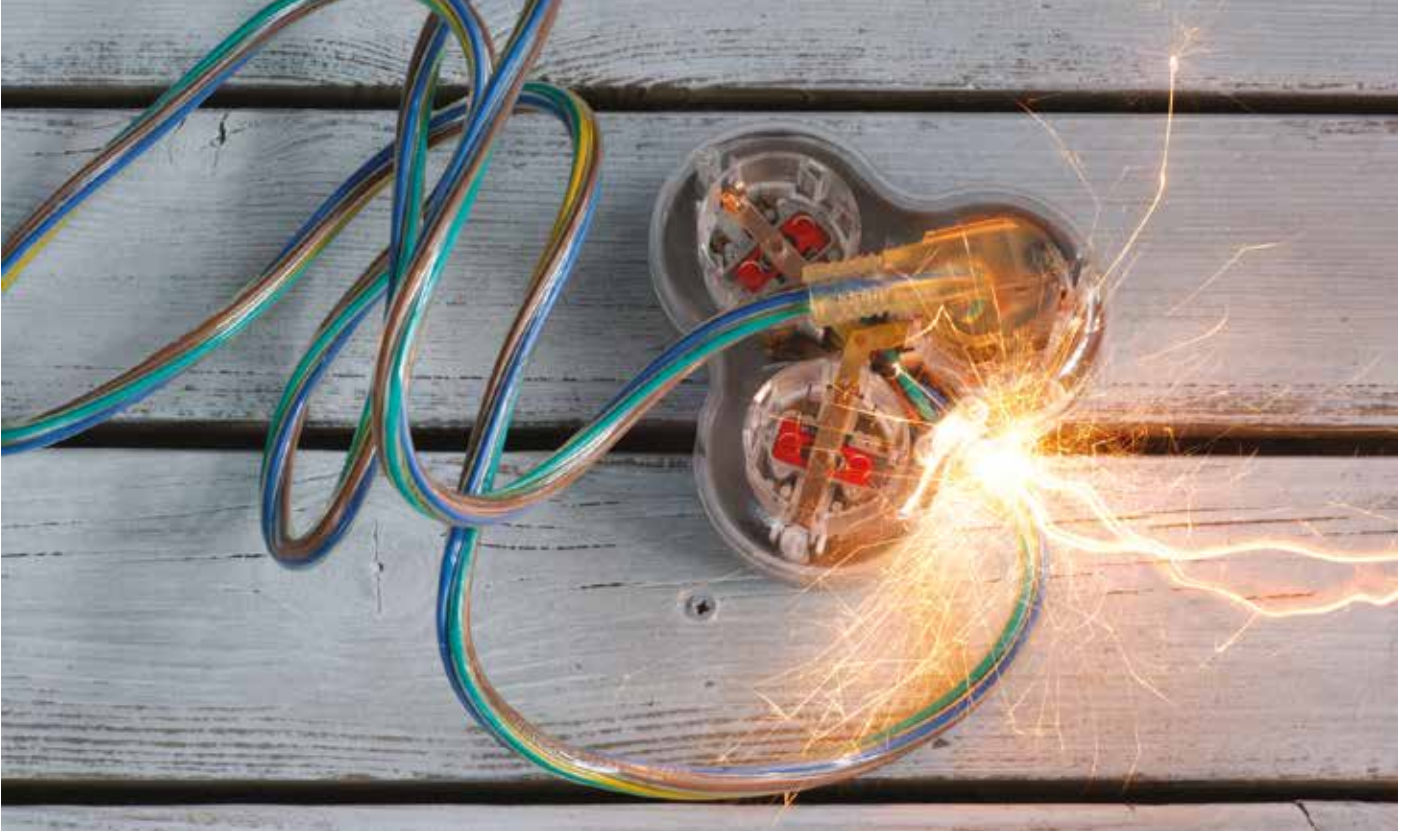
Although no physical damage occurs, data loss and unexplained computer freezing is experienced as a result of the disruptions in the analog and digital levels of the systems. The system has to be reset.

b) Wear

The life of electronic hardware that is exposed to instantaneous overvoltages intermittently is shortened, and this wear over time will probably lead to potential faults and failures. The life of an incandescent bulb can even be reduced to a 13th of the operating voltage. (If a 220 volt bulb is operated with 250V, its life decreases to 200 hours).

c) Damage

Great instantaneous overvoltages cause damages in hardware, circuit panels and I/O cards.



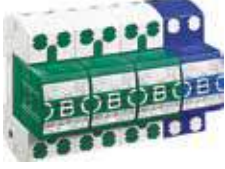
What Happens If An Overvoltage Protector Is Not Used?

The potential problems that can be encountered in the absence of an overvoltage protector are as follows.

- *Leakage of toxic substances as a result of halted measuring-control systems in chemical and nuclear facilities.*
- *Damage and failures due to loss of control of robotic systems.*
- *Damage and failures in medical electronic devices and life support units used in hospitals.*
- *Cease of communication due to damage in telephone switchboards.*
- *Renewal of expensive equipment due to damage.*
- *Cease of production in factories. (Especially in sites where computer-assisted manufacturing (CAM) is performed)*
- *Damage and failures in camera and alarm systems.*

**MC-50 Aşırı Gerilim Darbe Koruyucu**

MC-50 Surge Protection Device



ÜRÜN KODU Product Code	SINIF - KUTUP Class - Pole	SÜREKLİ ÇALIŞMA GERİLİMİ Continuous Operating Voltage (V)	VOLTAJ KORUMA SEVİYESİ Voltage Protection Level (kV)	TOTAL DEŞARJ AKIMI Total Discharge Current (10/350) (kA)
AE 56231	B - 3+NPE	255	< 2	125

MCD-50 Aşırı Gerilim Darbe Koruyucu

MCD-50 Surge Protection Device



ÜRÜN KODU Product Code	SINIF - KUTUP Class - Pole	SÜREKLİ ÇALIŞMA GERİLİMİ Continuous Operating Voltage (V)	VOLTAJ KORUMA SEVİYESİ Voltage Protection Level (kV)	TOTAL DEŞARJ AKIMI Total Discharge Current (10/350) (kA)
AE 56256	B - 3+NPE	255	1,3	125

FB-50 Aşırı Gerilim Darbe Koruyucu

FB-50 Surge Protection Device



ÜRÜN KODU Product Code	SINIF - KUTUP Class - Pole	SÜREKLİ ÇALIŞMA GERİLİMİ Continuous Operating Voltage (V)	VOLTAJ KORUMA SEVİYESİ Voltage Protection Level (kV)	TOTAL DEŞARJ AKIMI Total Discharge Current (10/350) (kA)
AE 57002	B - 3+NPE	255	≤ 4	100

Sparkgap Koruma

Sparkgap Protection



ÜRÜN KODU Product Code	SINIF Class	VOLTAJ KORUMA SEVİYESİ Voltage Protection Level (kV)	IMPULS DEŞARJ AKIMI Impulse Discharge Current (10/350) (kA)	NOMİNAL DEŞARJ AKIMI Nominal Discharge Current (8/20) (kA)
AE 53707	B	< 3	25	100
AE 56241	B	< 3	100	100



PS-4 Aşırı Gerilim Darbe Koruyucu

PS-4 Surge Protection Device

ÜRÜN KODU Product Code	SINIF - KUTUP Class - Pole	SÜREKLİ ÇALIŞMA GERİLİMİ Continuous Operating Voltage (V)	VOLTAJ KORUMA SEVİYESİ Voltage Protection Level (kV)	MAKSİMUM DEŞARJ AKIMI Maximum Discharge Current (8/20) (kA)
AE 56249	B+C - 3+NPE	255	< 1.3	100



V25 Aşırı Gerilim Darbe Koruyucu

V25 Surge Protection Device

ÜRÜN KODU Product Code	SINIF - KUTUP Class - Pole	SÜREKLİ ÇALIŞMA GERİLİMİ Continuous Operating Voltage (V)	VOLTAJ KORUMA SEVİYESİ Voltage Protection Level (kV)	MAKSİMUM DEŞARJ AKIMI Maximum Discharge Current (8/20) (kA)
AE 56252	B+C - 1+NPE	280	< 0.9	14
AE 56254	B+C - 3+NPE	280	< 0.9	25



V50 Aşırı Gerilim Darbe Koruyucu

V50 Surge Protection Device

ÜRÜN KODU Product Code	SINIF - KUTUP Class - Pole	SÜREKLİ ÇALIŞMA GERİLİMİ Continuous Operating Voltage (V)	VOLTAJ KORUMA SEVİYESİ Voltage Protection Level (kV)	MAKSİMUM DEŞARJ AKIMI Maximum Discharge Current (8/20) (kA)
AE 56275	B+C - 3+NPE	280	< 1.3	50
AE 56299	B+C - 3+NPE+Fs	280	< 1.3	50
AE 56342	B+C - 1+NPE+Fs	280	< 1.3	25
AE 56377	B+C - 1+NPE	280	< 1.3	25



V25 - Aşırı Gerilim Darbe Koruyucu (Fotovoltaik)

V25 - Surge Protection Device (Photovoltaic)

ÜRÜN KODU Product Code	SINIF - KUTUP Class - Pole	SÜREKLİ ÇALIŞMA GERİLİMİ Continuous Operating Voltage (V)	VOLTAJ KORUMA SEVİYESİ Voltage Protection Level (kV)	MAKSİMUM DEŞARJ AKIMI Maximum Discharge Current (8/20) (kA)
AE 56367	B+C - 3	900 (DC)	< 3	50



**V20- Aşırı Gerilim Darbe Koruyucu**

V20- Surge Protection Device



ÜRÜN KODU Product Code	SINIF - KUTUP Class - Pole	SÜREKLİ ÇALIŞMA GERİLİMİ Continuous Operating Voltage (V)	VOLTAJ KORUMA SEVİYESİ Voltage Protection Level (kV)	MAKSİMUM DEŞARJ AKIMI Maximum Discharge Current (8/20) (kA)
AE 56242	C - 3+NPE	280	< 1.3	40
AE 56244	C - 1+NPE	280	< 1.3	40

V10 - Aşırı Gerilim Darbe Koruyucu

V10 - Surge Protection Device



ÜRÜN KODU Product Code	SINIF - KUTUP Class - Pole	SÜREKLİ ÇALIŞMA GERİLİMİ Continuous Operating Voltage (V)	VOLTAJ KORUMA SEVİYESİ Voltage Protection Level (kV)	MAKSİMUM DEŞARJ AKIMI Maximum Discharge Current (8/20) (kA)
AE 56276	C - 3+NPE	280	< 1.1	20
AE 56292	C - 1+NPE	280	< 1.1	20

V20 - Aşırı Gerilim Darbe Koruyucu (Fotovoltaik)

V20 - Surge Protection Device (Photovoltaic)



ÜRÜN KODU Product Code	SINIF - KUTUP Class - Pole	SÜREKLİ ÇALIŞMA GERİLİMİ Continuous Operating Voltage (V)	VOLTAJ KORUMA SEVİYESİ Voltage Protection Level (kV)	MAKSİMUM DEŞARJ AKIMI Maximum Discharge Current (8/20) (kA)
AE 56325	C - 3	600 (DC)	< 2.6	40
AE 56358	C - 3	1000 (DC)	< 4	40
AE 56364	C - 2	600 (DC)	< 2.6	40

FC-275 Aşırı Gerilim Darbe Koruyucu

FC-275 Surge Protection Device



ÜRÜN KODU Product Code	SINIF - KUTUP Class - Pole	SÜREKLİ ÇALIŞMA GERİLİMİ Continuous Operating Voltage (V)	VOLTAJ KORUMA SEVİYESİ Voltage Protection Level (kV)	MAKSİMUM DEŞARJ AKIMI Maximum Discharge Current (8/20) (kA)
AE 57003	C - 3+NPE	255	≤ 1.5	40



V10 COMPACT - Aşırı Gerilim Darbe Koruyucu

V10 COMPACT- Surge Protection Device

ÜRÜN KODU Product Code	SINIF - KUTUP Class - Pole	SÜREKLİ ÇALIŞMA GERİLİMİ Continuous Operating Voltage (V)	VOLTAJ KORUMA SEVİYESİ Voltage Protection Level (kV)	MAKSİMUM DEŞARJ AKIMI Maximum Discharge Current (8/20) (kA)
AE 56391	C+D - 3+NPE	255	<1.1	20



VF - Enerji Hattı Darbe Koruyucu

VF - Energy Line Protection Device

ÜRÜN KODU Product Code	SINIF Class	SÜREKLİ ÇALIŞMA GERİLİMİ Continuous Operating Voltage (V)	VOLTAJ KORUMA SEVİYESİ Voltage Protection Level (V)	NOMİNAL DEŞARJ AKIMI Nominal Discharge Current (8/20) (kA)
AE 56248	D	255-350 (AC-DC)	<1000 (line-line)	2,5
AE 56250	D	60-80 (AC-DC)	<220 (line-line)	0,7
AE 56281	D	34-46 (AC-DC)	<130 (line-line)	0,7
AE 56355	D	150-200 (AC-DC)	<500 (line-line)	2,0
AE 56366	D	80-110 (AC-DC)	<280 (line-line)	0,7
AE 56382	D	13.5-18 (AC-DC)	<110 (line-line)	0,7



FRD - Data Hattı Darbe Koruyucu

FRD - Data Line Protection Device

ÜRÜN KODU Product Code	SINIF - KUTUP Class - Pole	SÜREKLİ ÇALIŞMA GERİLİMİ Continuous Operating Voltage (V)	VOLTAJ KORUMA SEVİYESİ Voltage Protection Level (V)	TOTAL İMPULS DAYANIMI Total Impulse Durability (8/20) (kA)
AE 56258	D - 2	4-6 (AC-DC)	<90 (line-line)	18
AE 56310	D - 2	19-28 (AC-DC)	<120 (line-line)	18



MDP - Data Hattı Darbe Koruyucu

MDP - Data Line Protection Device

ÜRÜN KODU Product Code	SINIF - KUTUP Class - Pole	SÜREKLİ ÇALIŞMA GERİLİMİ Continuous Operating Voltage (V)	VOLTAJ KORUMA SEVİYESİ Voltage Protection Level (V)	TOTAL İMPULS DAYANIMI Total Impulse Durability (8/20) (kA)
AE 56353	D - 4	20-28 (AC-DC)	55 (line-line)	10
AE 56375	D - 3	20-28 (AC-DC)	95 (line-line)	7,5



**CAT 5 - Hassas Darbe Koruyucu**

CAT 5 - Fine Protection Device



ÜRÜN KODU Product Code	SINIF - SOKET Class - Socket	SÜREKLİ ÇALIŞMA GERİLİMİ Continuous Operating Voltage (V)	VOLTAJ KORUMA SEVİYESİ Voltage Protection Level (V)	TOTAL DEŞARJ AKIMI Maximum Discharge Current (8/20) (kA)
AE 56245	D - CAT5	4.2-6.2 (AC-DC)	<12 (line-line)	5

RJ11 - Telefon Hattı Darbe Koruyucu

RJ11 - Telecom Line Protection Device



ÜRÜN KODU Product Code	SINIF - SOKET Class - Socket	SÜREKLİ ÇALIŞMA GERİLİMİ Continuous Operating Voltage (V)	NOMİNAL DEŞARJ AKIMI Nominal Discharge Current (8/20) (kA)
AE 56315	D - RJ11	122-170 (AC-DC)	7,5

CAT 6 - Hassas Darbe Koruyucu

CAT 6 - Fine Protection Device



ÜRÜN KODU Product Code	SINIF - SOKET Class - Socket	SÜREKLİ ÇALIŞMA GERİLİMİ Continuous Operating Voltage (V)	VOLTAJ KORUMA SEVİYESİ Voltage Protection Level (V)	TOTAL DEŞARJ AKIMI Maximum Discharge Current (8/20) (kA)
AE 56316	D - CAT6	41-58 (AC-DC)	<120 (line-line)	7

RJ45 - Ethernet Hattı Darbe Koruyucu

RJ-45 Ethernet Line Protection Device



ÜRÜN KODU Product Code	SINIF - SOKET Class - Socket	SÜREKLİ ÇALIŞMA GERİLİMİ Continuous Operating Voltage (V)	VOLTAJ KORUMA SEVİYESİ Voltage Protection Level (V)	TOTAL DEŞARJ AKIMI Maximum Discharge Current (8/20) (kA)
AE 57007	D - RJ45	4-6 (AC-DC)	≤30 (line-line)	5 (per line)



MF- Koaksiyel Darbe Koruyucu

MF- Coaxial Protection Device

ÜRÜN KODU Product Code	SINIF - SOKET Class - Socket	SÜREKLİ ÇALIŞMA GERİLİMİ Continuous Operating Voltage (V)	VOLTAJ KORUMA SEVİYESİ Voltage Protection Level (V)	TOTAL İMPULS DAYANIMI Total Impulse Durability (8/20) (kA)
AE 56237	D - BNC	4.2-6.2 (AC-DC)	<12 (line-line)	10
AE 56238	D - BNC	4.2-6.2 (AC-DC)	<12 (line-line)	10



Hassas Darbe Koruyucu Priz

Fine Protection

ÜRÜN KODU Product Code	SINIF - SOKET Class - Socket	SÜREKLİ ÇALIŞMA GERİLİMİ Continuous Operating Voltage (V)	VOLTAJ KORUMA SEVİYESİ Voltage Protection Level (kV)	NOMİNAL DEŞARJ AKIMI Nominal Discharge Current (8/20) (kA)
AE 56251	D - Single	275	<1.5	3
AE 56253	D - Triple	255	<1.5	2,5



LSA - Telefon Hattı Darbe Koruyucu

LSA - Telecom Line Protection Device

ÜRÜN KODU Product Code	SINIF - SOKET Class - Socket	SÜREKLİ ÇALIŞMA GERİLİMİ Continuous Operating Voltage (V)	VOLTAJ KORUMA SEVİYESİ Voltage Protection Level (V)	İMPULS-NOMİNAL DEŞARJ AKIMI Impulse - Nominal Discharge Current (kA)
AE 56279	D - Krone	180	<0.7	1 - 5



FBNC - Uydu Hattı Darbe Koruyucu

FBNC - Satellite Line Protection Device

ÜRÜN KODU Product Code	SINIF - SOKET Class - Socket	SÜREKLİ ÇALIŞMA GERİLİMİ Continuous Operating Voltage (V)	VOLTAJ KORUMA SEVİYESİ Voltage Protection Level (V)	NOMİNAL DEŞARJ AKIMI Nominal Discharge Current (8/20) (kA)
AE 57004	D - BNC	4-6 (AC-DC)	≤30 (line-shield)	5 (line-shield)





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UÇAK İKAZ SİSTEMLERİ

AIRCRAFT WARNING SYSTEMS



About Aircraft Warning Systems

According to the rules of the International Civil Aviation Organization, flashing warning systems that must be used on heights such as tall buildings, skyscrapers, towers, and mountains under the routes of aircraft such as airplanes and helicopters are vital to ensuring flight safety.

What is a “Power Led Sistem” for Aircraft Warning Systems?

It is a “New Technology Aircraft Warning Light” model that allows a stationary object present within the airway visibility area to give a warning signal in a given range with the led light path. mountains under the routes of aircraft such as airplanes and helicopters are vital to ensuring flight safety.

Where Is It Used?

“The areas of use for aircraft warning lamps with power led system technology are as follows:

- * Telecommunication towers
- * Radio-communication towers
- * Wind turbines
- * Industrial chimneys
- * High buildings and business towers
- * Cranes
- * Power transmission lines

Amper “Power Led System” Operating Mode

The electronic circuit of the device features a micro processor by which flashing modes are programmed. So, the device has two different operating functions.

1. Flash Mode : The flash frequency is 1 Hz.
2. Fixed Mode : All LEDs emit a continuous light. (Fabrication Mode)

Amper “Power Led System” Failure Functions

Both armatures featured by the two-head warning light model have the identical electronic circuit and 2 failure detectors. (Of power failure and LED failure detectors) The first one (Power Failure) is normally closed, while the second one (Led Failure) is open. In case of a failure; a light which is externally connected to the related outlet is caused to give a warning signal with a buzzer or an alternative signal.

Power failure: If there is a power failure, the device may transmit information through a dry contact.

LED failure: A light sensor, which is capable of switching armatures on and off during day and night, is installed onto circuits. The micro processor controls LEDs every 15 minutes and detects failure. If LEDs fail to emit light, the device may transmit information through a dry contact.

Important Note: The power led system aircraft warning light is designed to switch one of the warning lights on as soon as the light sensor is triggered. In case of any failure of an operative armature, the other armature becomes active within a maximum of 10 seconds, and the failure unit gives a failure warning signal.

Related Standards and Norms

* FAA-United States of America Federal Aviation Administration (AC No. 150/5345-43F, 2006)

* FAA-United States of America Federal Aviation Administration (Tip L810)

* ICAO-International Civil Aviation Organization (Annex 14, Edition 4, July 2004)

* ICAO-International Civil Aviation Organization (Low Power, Type B)

* DGAC-Mexico Civil Aviation General Directorate

Order Codes

For instance, a product with an F10DA220 code uses an F10 double warning lamp, AC220V power supply and constant flashing red light specifications.





İkaz Lambası (Tek Armatürlü)
Warning Light (Single Head)

ÜRÜN KODU Product Code	MATERYAL Material	AĞIRLIK Weight (kg)
AE 71005	Alüminyum / Cam - Aluminum / Glass	1,30



İkaz Lambası (Çift Armatürlü)
Warning Light (Double Head)

ÜRÜN KODU Product Code	MATERYAL Material	AĞIRLIK Weight (kg)
AE 71006	Alüminyum / Cam - Aluminum / Glass	4,60



İkaz Lambası Tespit Kolu
Warning Light Fixing Arm

ÜRÜN KODU Product Code	MATERYAL Material	AĞIRLIK Weight (kg)
AE 65371	Çelik - Steel	1,80



İkaz Lambası Kontrol Kutusu
Warning Light Control Box

ÜRÜN KODU Product Code	MATERYAL Material	EBATLAR Dimensions (cm)
AE 71004	Plastik - Plastic	50 x 40 x 20

Solar Panelli İkaz Lambası (Çift Armatürlü)*Warning Light With Solar Pannel (Double Head)*

ÜRÜN KODU Product Code	MATERYAL Material	AĞIRLIK Weight (kg)
AE 71007	Alüminyum / Cam - Aluminum / Glass	15,00

**Solar Panelli İkaz Lambası (Tek Armatürlü)***Warning Light With Solar Pannel (Single Head)*

ÜRÜN KODU Product Code	MATERYAL Material	AĞIRLIK Weight (kg)
AE 71008	Alüminyum / Cam - Aluminum / Glass	12,00

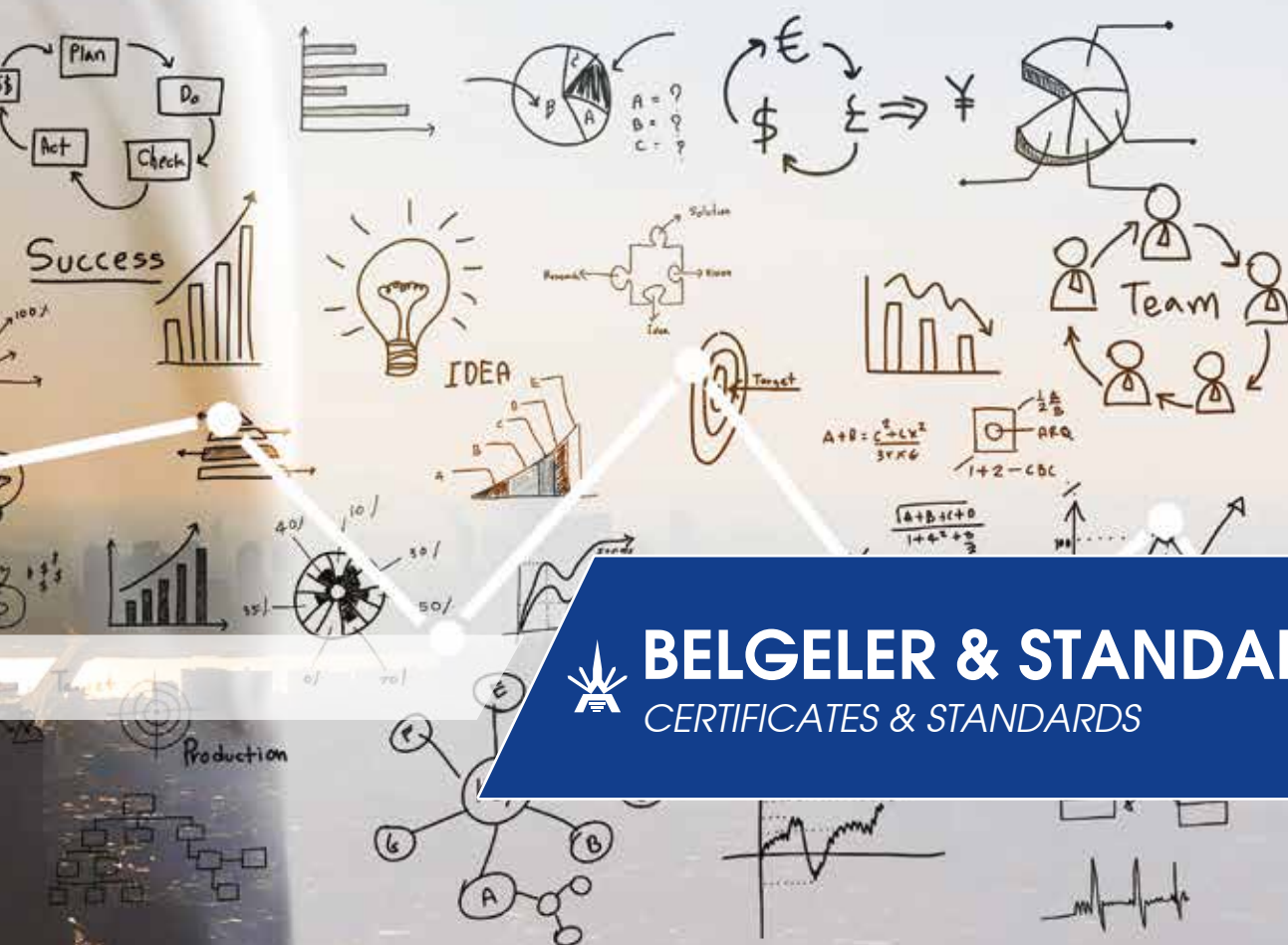
**Panelsiz Solar İkaz Lambası***Solar-Powered Aviation Light Without Pannel*

ÜRÜN KODU Product Code	MATERYAL Material	TİP Type	AĞIRLIK Weight (kg)
AE 71011	Alüminyum / Cam - Aluminum / Glass	Tek Armatürlü - Single Head	1,00
AE 71013	Alüminyum / Cam - Aluminum / Glass	Çift Armatürlü - Double Head	3,00





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BELGELER & STANDARTLAR
CERTIFICATES & STANDARDS

**TS EN 62305-1 Protection against Lightning Standard***Part 1: General Principles*

This standard provides the general principles to be followed for the protection of structures against lightning, including their installations and contents, as well as persons and services connected to the structures.

TS EN 62305-2 Protection against Lightning Standard*Part 2: Risk Management*

This standard covers the assessment of risks to structures or services caused by lightning flashes to the ground. The purpose of the standard is to provide a procedure for the assessment of such risks. The procedure enables suitable protection precautions to be chosen in order to reduce the risk to an acceptable level or below once the acceptable upper limit is identified for the risk.

TS EN 62305-3 Protection against Lightning*Part 3: Physical Damage to Structures and Life Hazard*

This standard provides the requirements for the protection of a structure against physical damage by means of a lightning protection system, and for protection against injury to living beings due to touch and step voltages in the vicinity of a lightning protection system.

TS EN 62305-4 Protection against Lightning*Part 4: Electrical and Electronic Systems within Structures*

This standard provides information for the design, installation, inspection, maintenance and testing of electrical and electronic system protection (SPM) to reduce the risk of permanent failures due to lightning electromagnetic impulse (LEMP) within a structure.

TS EN 62561-1 Lightning Protection System Components*Part 1: Requirements for Connection Components*

This standard includes the requirements and tests for metallic connection components that form part of a lightning protection system, such as connectors, bonding and bridging components, expansion pieces and test joints.

TS EN 62561-2 Lightning Protection System Components*Part 2: Requirements for Conductors and Earth Electrodes*

This standard specifies the requirements and tests for 1) metallic conductors (other than "natural" conductors) that form part of the lightning attractor system and down conductors and 2) metallic earth electrodes that form part of the grounding system.

TS 13709 Protection against Lightning - Active Conductor Rods

This standard covers active conductor rods used to protect facilities and open areas against direct lightning impact in lightning protection systems.

TS ISO 10134 Small Craft*Electrical Devices - Lightning Protection*

This standard establishes guidelines for the design, construction and installation of lightning protection systems fitted on small craft with a hull length up to 24m.

NFC 17-102

This is the French standard based on E.S.E. active systems related to lightning protection systems. It is the most common international conductor rod installation standard used in our country and many parts of the world.

NFPA-780

This is the name of the standard that includes American lightning protection principles of the National Fire Protection Association. It is based on passive systems, also known as standard cage systems.

Lightning Protection Regulation

This regulation covers the provisions on the safe design, installation, operation and auditing of lightning protection installations of constructions in terms of safety of life and property.

Grounding Regulation

This regulation principally covers the provisions on the safe installation, operation, and auditing of grounding systems related to alternative current and direct current electrical installations with a frequency below 100Hz, in terms of safety of life and property.

TSE Belgeleri - TSE Certificates

■ TS EN 62561-1



Markanın Tanımı - Description of the Mark
TSE  TSE

BELGE NUMARASI REFERENCE NUMBER OF LICENCE	000801-TSE-02/02
BELGENİN İLK VERİLİŞ TARİHİ DATE OF FIRST ISSUE OF LICENCE	30.06.2005
BELGENİN SON GEÇERLİLİK TARİHİ LICENCE VALID UNTIL	18.06.2019
BELGE SAHİBİ KURULUŞUN ADI NAME OF THE LICENCE HOLDER	AMPER ELEKTRİK İNŞAAT VE SANAYİ ANONİM ŞİRKETİ
BELGE SAHİBİ KURULUŞUN ADRESİ ADDRESS OF THE LICENCE HOLDER	H RIFATPAŞA M. PERPA TİC. MERK. NO.38 NO ABL /K-2 ŞİŞLİ İSTANBUL /TÜRKİYE
ÜRETİM YERİ ADI NAME OF THE MANUFACTURING PLACE	AMPER ELEKTRİK İNŞAAT VE SANAYİ A.Ş.
ÜRETİM YERİ ADRESİ ADDRESS OF THE MANUFACTURING PLACE	YAKUPLU MERKEZ M.H. DEREBOYU CD. NO 5/1 BEYLİKDÜZÜ İSTANBUL / TÜRKİYE
İPTAL EDİLEN BELGE NUMARASI (Varsa) INDICATION OF SUPERSEDED LICENCE (if any)	000801-TSE-02/01
TESCİLLİ TİCARİ MARKASI REGISTERED TRADE MARK	AMPER ELEKTRİK İNŞAAT VE SANAYİ A.Ş.
İLGİLİ TÜRK STANDARDI RELATED TURKISH STANDARD	TS EN 62561-1 / Yıldırımından korunma sistem bileşenleri (LPSC) - Bölüm 1: Bağlantı bileşenleri için kurallar / 14.04.2015
BELGE KAPSAMI SCOPE OF LICENCE	TS EN 50164-1/NİSAN 2004 YILDIRIMDAN KORUNMA BİLEŞENLERİ (YKB) BÖLÜM 1 - BAĞLANTI BİLEŞENLERİ İÇİN KURALLAR - BAĞLAYICILAR, KUŞAKLAMA VE KÖPRÜLEME BİLEŞENLERİ, DENEY EK YERLERİ İLE BİRLİKTE UZATMA PARÇALARI METALDEN YAPILMIŞ BAĞLANTI BİLEŞENLERİ ; YILDIRIM AKIMINA DAYANIM KAPASİTESİ H ; TESİS EDİLİŞİNE GÖRE TOPRAĞA GOMULU VE TOPRAK ÜZERİNDE

e-imza ile signed

28.08.2018

Belgelendirme Merkezi Başkanı Adına
GÜRSEL ERATAK

ELEKTROTEKNIK SEKTÖRÜ MÜDÜRÜ

*Bu belge, belgelendirilen ürünün, üretici, yetkili Enstitümüzün belirlediği şartları karşıladığını da gösterir.

*Bu belge hiç bir surette tanımlanmaz, satım veya okunmasını zorlaştıracak şekilde değiştirilmez, kopyası ve aktarılmaz.

*TSE ELEKTROTEKNIK SEKTÖRÜ MÜDÜRLÜĞÜ * Adres: Necatibey Cad. No:112 06100 Beşiktaş/İSTANBUL * Tel: 0312 416 63 90 * Faks: 0312 416 66 17

*TSE BELGELENDİRME MERKEZİ BAŞKANLIĞI * Adres: Necatibey Cad. No:112 06100 Beşiktaş/İSTANBUL * Tel: 0312 416 64 81 / 416 64 27 * Faks: 0312 416 66 17

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<http://tr.vakkontrol.tse.org.tr/BelgeDogrulama.aspx?p=tska&f=6> adresinden belgenin doğruluğunu ve geçerliğini sorgulayabilirsiniz.

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TSE Belgeleri - TSE Certificates

ITS EN 62561-2



TSE TSE

BELGE NUMARASI
REFERENCE NUMBER OF LICENSE: 000801-TSE-03002

BELGENİN İLK YERLİŞ TARİHİ
DATE OF FIRST ISSUE OF LICENSE: 22.04.2015

BELGENİN SON GEÇERLİLİK TARİHİ
EXPIRATION DATE: 02.10.2015

BELGE SAHİBİ KURULUŞUN ADI
NAME OF THE LICENSE HOLDER: AMPER ELEKTRİK İNŞAAT VE SANAYİ ANONİM ŞİRKETİ

BELGE SAHİBİ KURULUŞUN ADRESİ
ADDRESS OF THE LICENSE HOLDER: H. İRFATPAŞA M. PERPA TİC. MERK. NO 38 NO ABL AK-2 ŞİŞİ
İSTANBUL/TÜRKİYE

ÜRETİM YERİ ADI
NAME OF THE MANUFACTURING PLACE: AMPER ELEKTRİK İNŞAAT VE SAN. A.Ş.

ÜRETİM YERİ ADRESİ
ADDRESS OF THE MANUFACTURING PLACE: YAKUPLU MERKEZ M.H. DEREBOYU CO. NO 5/1 BEYLİKDÜZÜ
İSTANBUL / TÜRKİYE

İPTAL EDİLEN BELGE NUMARASI (Vahid)
INDICATION OF SUPERSEDED LICENSE (Unit): 000801-TSE-03001

TEBİHLİ TİCARİ MARKASI
REGISTERED TRADE MARK: AMPER

İLGİLİ TÜRK STANDARDI
RELATED TURKISH STANDARD: TS EN 62561-2 / Yüksekten korunma sistem bileşenleri (LPSC) -
Bölüm 2, İletkenler ve topraklama elektrotları için kurallar
(IEC 62561-2:2012, değiştirilmiştir) / 13.10.2015

BELGE KAPSAMI
SCOPE OF LICENSE:

YÜKSEK KORUNMA BİLEŞENLERİ
1. TOPRAKLAMA ELEKTROTLARI
A. TOPRAKLAMA ÇUBUKLARI 10MM BAKIR
Q10MM (10 MM DAHİL) - Q20MM (20 MM DAHİL) ARALIGINDAKİ ÇAPLAR
B. TOPRAKLAMA LEVHALARI 10MM BAKIR
1.5MM (1.5 MM DAHİL) - 2MM (2 MM DAHİL) ARALIGINDAKİ KALINLIKLAR
C. TOPRAKLAMA ADI SOMUNLARI
2MM KALINLIĞINDA

2. TOPRAKLAMA ELEKTRODU BAŞLIKLARI
A. TOPRAK ELEKTRODU BAŞLIĞI PIRINC 8 TİPİ

18.09.2018

Belgeleme Merkezi Başkanı Adına
GÜRSEL ERATAK
ELEKTROTEKNİK SEKTÖRLÜ MÜDÜRÜ

"Bu belge, belgelenen ürünün, belgenin kapsamındaki şartlar çerçevesinde üretilmiştir."
"This document certifies that the product conforms to the conditions specified in the scope of the license."
TSE BELGELEME MERKEZİ'NİN BAĞLIYIĞI ALTINDA ÜRETİLEN ÜRÜNLERİN KALİTE KONTROLÜNE İLİŞKİN BİLGİLERİ İÇEREN BELGELEME KURULUŞU'NUN İNTERNET SİTESİNDE YER ALIR.
"The information regarding the quality control of the products produced under the supervision of the TSE CERTIFICATION CENTER is available on the website of the certification institution."

<http://www.tse.com.tr> ve www.belgeler.com adreslerinde belgeyi doğrulamak için QR kodunu kullanabilirsiniz.



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TSE TSE

BELGE KAPSAMI (000801-TSE-03002'ndeki belge ile aynı) AMPER ELEKTRİK İNŞAAT VE SANAYİ ANONİM ŞİRKETİ
İLGİLİ TÜRK STANDARDI (NİTELİĞİ TÜRKİYE STANDARTI): TS EN 62561-2 / Yüksekten korunma sistem bileşenleri
(LPSC) -
Bölüm 2, İletkenler ve topraklama elektrotları için kurallar
(IEC 62561-2:2012, değiştirilmiştir) / 13.10.2015

10MM (10MM DAHİL) - 16MM (16MM DAHİL) İLE 10MM (10MM DAHİL) - 16MM (16MM DAHİL) ARALIGINDAKİ İLETKENLERİ BAĞLAMAK İÇİN
B. TOPRAK ELEKTRODU BAŞLIĞI PIRINC 8 TİPİ
10MM (10MM DAHİL) - 16MM (16MM DAHİL) İLE 10MM (10MM DAHİL) - 16MM (16MM DAHİL) ARALIGINDAKİ İLETKENLERİ BAĞLAMAK İÇİN
C. TOPRAK ELEKTRODU BAŞLIĞI BAKIR 2 TİPİ
10MM (10MM DAHİL) - 16MM (16MM DAHİL) İLE 10MM (10MM DAHİL) - 16MM (16MM DAHİL) ARALIGINDAKİ İLETKENLERİ BAĞLAMAK İÇİN
D. ELEKTRODU BAŞLIĞI PIRINC 11 TİPİ
Q10MM (10 MM DAHİL) - Q20MM (20MM DAHİL) ÇUBUK ÇAPINDA 10MM (10MM DAHİL) - 120MM (120 MM DAHİL) İLETKENLERİ BAĞLAMAK İÇİN

3. PARALEL İKİ KLEMENS PIRINC
10MM (10MM DAHİL) - 16MM (16MM DAHİL) İLETKENLERİ BAĞLAMAK İÇİN

4. SERİT İLETKEN BAKIR
20MM (20MM DAHİL) - 16MM (16MM DAHİL) İLETKENLERİ BAĞLAMAK İÇİN

5. YAKALAMA UÇLARI
A. YAKALAMA UÇU BAĞIR
Q10MM (10MM DAHİL) - Q20MM (20MM DAHİL) ÇAPLARI
B. YAKALAMA UÇU PIRINC
Q10MM (10MM DAHİL) - Q20MM (20MM DAHİL) ÇAPLARI
C. YAKALAMA UÇU İNŞAAT ADI
Q10MM (10MM DAHİL) - Q20MM (20MM DAHİL) ÇAPLARI

18.09.2018

Belgeleme Merkezi Başkanı Adına
GÜRSEL ERATAK
ELEKTROTEKNİK SEKTÖRLÜ MÜDÜRÜ

"Bu belge, belgelenen ürünün, belgenin kapsamındaki şartlar çerçevesinde üretilmiştir."
"This document certifies that the product conforms to the conditions specified in the scope of the license."
TSE BELGELEME MERKEZİ'NİN BAĞLIYIĞI ALTINDA ÜRETİLEN ÜRÜNLERİN KALİTE KONTROLÜNE İLİŞKİN BİLGİLERİ İÇEREN BELGELEME KURULUŞU'NUN İNTERNET SİTESİNDE YER ALIR.
"The information regarding the quality control of the products produced under the supervision of the TSE CERTIFICATION CENTER is available on the website of the certification institution."

<http://www.tse.com.tr> ve www.belgeler.com adreslerinde belgeyi doğrulamak için QR kodunu kullanabilirsiniz.



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TSE Belgeleri - TSE Certificates

■ TS EN ISO 1461



BELGE NUMARASI REFERENCE NUMBER OF LICENCE	000801-TSE-01/01
BELGENİN İLK VERİLİŞ TARİHİ DATE OF FIRST ISSUE OF LICENCE	02.12.2013
BELGENİN SON GEÇERLİLİK TARİHİ LICENCE VALID UNTIL	02.12.2019
BELGE SAHİBİ KURULUŞUN ADI NAME OF THE LICENCE HOLDER	AMPER ELEKTRİK İNŞAAT VE SANAYİ ANONİM ŞİRKETİ
BELGE SAHİBİ KURULUŞUN ADRESİ ADDRESS OF THE LICENCE HOLDER	H.RIFATPAŞA M. PERPA TİC.MERK.NO.38 NO.ABL /K-2 ŞİŞLİ İSTANBUL/TÜRKİYE
ÜRETİM YERİ ADI NAME OF THE MANUFACTURING PLACE	KARTAL METAL GALVANİZ SAN.VE TİC.A.Ş.
ÜRETİM YERİ ADRESİ ADDRESS OF THE MANUFACTURING PLACE	İSTANBUL YOLU 30.KM.KARTAL CAD.NO:9 SARAY-KAZAN ANKARA / TÜRKİYE
İPTAL EDİLEN BELGE NUMARAŞI (Varsa) INDICATION OF SUPERSEDED LICENCE (if any)	14.0.30.4.06.00/TSE-65697
TESCİLLİ TİCARİ MARKASI REGISTERED TRADE MARK	AMPER
İLGİLİ TÜRK STANDARDI RELATED TURKISH STANDARD	TS EN ISO 1461 / Demir ve çelikten imal edilmiş malzemeler üzerine sıcak daldırma ile yapılan galvaniz kaplamalar - Özellikler ve deney metodları / 14.07.2011
BELGE KAPSAMI SCOPE OF LICENCE	Demir ve Çelikten Yapılmış Malzemeler Üzerine Sıcak Daldırma Galvaniz Kaplamalar - Santrifüjlenmemiş Çelik Üzerine Kaplanmış ≥ 6 mm - Santrifüjlenmemiş Çelik Üzerine Kaplanmış > 3 mm ≤ 6 mm - Santrifüjlenmemiş Çelik Üzerine Kaplanmış $\geq 1,5$ mm ≤ 3 mm - Santrifüjlenmemiş Çelik Üzerine Kaplanmış $< 1,5$ mm

e-imza ile signed

13.12.2018

Belgelendirme Merkezi Başkanı Adına
ÖZER ÖZGÖKÇE
KİMYA SEKTÖR MÜDÜRÜ

*Bu belge, belgelendirilen ürünün, üretin, yerinin, Enstitümüzün tescilli olduğu kartları taşıdığı ve diğerleri

*Bu belge hiç bir şekilde tahrif edilemez, kopya veya okunmasını zorlaştıracak şekilde değiştirilemez, kopyası ve aktarılmaz.

*TSE KİMYA SEKTÖRÜ MÜDÜRLÜĞÜ Adres: Necatibey Cad. No: 112 06100 Bakırköy/İSTANBUL Tel: 312 416 64 81 Faks: 312 416 66 11

*TSE BELGELENDİRME MERKEZİ BAŞKANLIĞI Adres: Necatibey Cad. No: 112 06100 Bakırköy/İSTANBUL Tel: 312 416 64 81 / 416 66 27 Faks: 312 416 66 11

e-posta: tse@tse.org.tr web: www.tse.org.tr

<https://enrakkontrol.tse.org.tr/BelgeDegrulamasi.aspx?p=fa&agid=adresinden belgenin degerlendirilmesine ve gecercegine saglayici olur>


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ISO Belgeleri - ISO Certificates

ISO 9001

Registration Certificate

This is to certify that
the Management Systems of

AMPER ELEKTRİK İNŞAAT VE SAN. A.Ş.

have been assessed by AJA Registrars and registered
against the requirements of
ISO 9001:2015

Certificate No. : **AJA 13/0733** Date of Original Registration : **23/09/2013**

Expiry Date : **14/08/2019** Date of Re-Registration : **15/08/2016**



Mustafa İslim

Genel Müdür



This certificate is issued in respect of the locations & scope of registration detailed in the Associated Registration Schedule.
AJA 9000 Belgelendirme Ltd. Şti. Ankara Yolu, Pendik Kavşağı Osmankaya Plaza Kat:2 No:18-19 Pendik/İSTANBUL
Tel: 0 216 598 30 00 (Pbx) Fax: 0 216 598 20 04
www.gjaturk.com

Registration Schedule

SCOPE OF REGISTRATION

Design, development, production, installation, distribution, import and export of lightning protection systems, overvoltage protection equipment, grounding systems and materials, aircraft warning lights, exothermic welding systems, insulated mats and electrical insulation materials, 250 microns copper clad steel earthing rods, copper clad aluminum conductors and insulated type lightning protection down conductors.

Company Name : **AMPER ELEKTRİK İNŞAAT VE SAN. A.Ş.**

Sites Registered : **Center : H.Rifat Paşa Mahallesi, Darülaceze Caddesi, Perpa
Ticaret Merkezi, A Blok, Kat:2, No:38, Okmeydanı
Şişli / İSTANBUL / TÜRKİYE
Branch: Yakuplu Merkez Mahallesi Dereboyu Caddesi No:5/1
Beylikdüzü / İSTANBUL / TÜRKİYE**

Standart : **ISO 9001:2015**

EAC : **19, 28**

Date of Re-Registration : **15/08/2016** Revision Date : **27/07/2018**

Expiry Date : **14/08/2019**

Certification Number : **AJA 13/0733**



Mustafa İslim

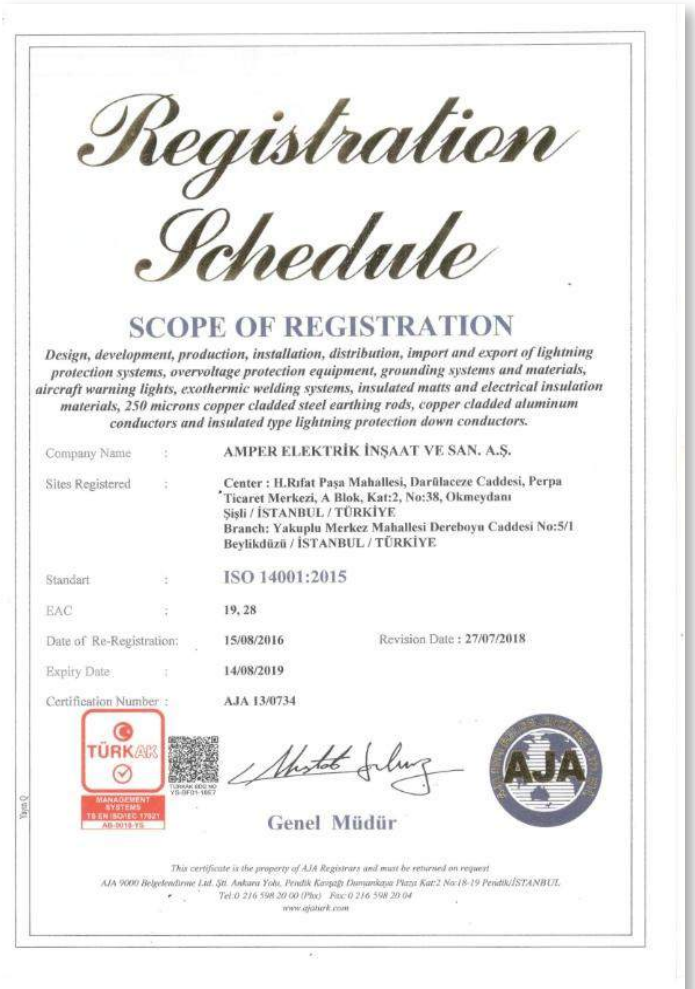
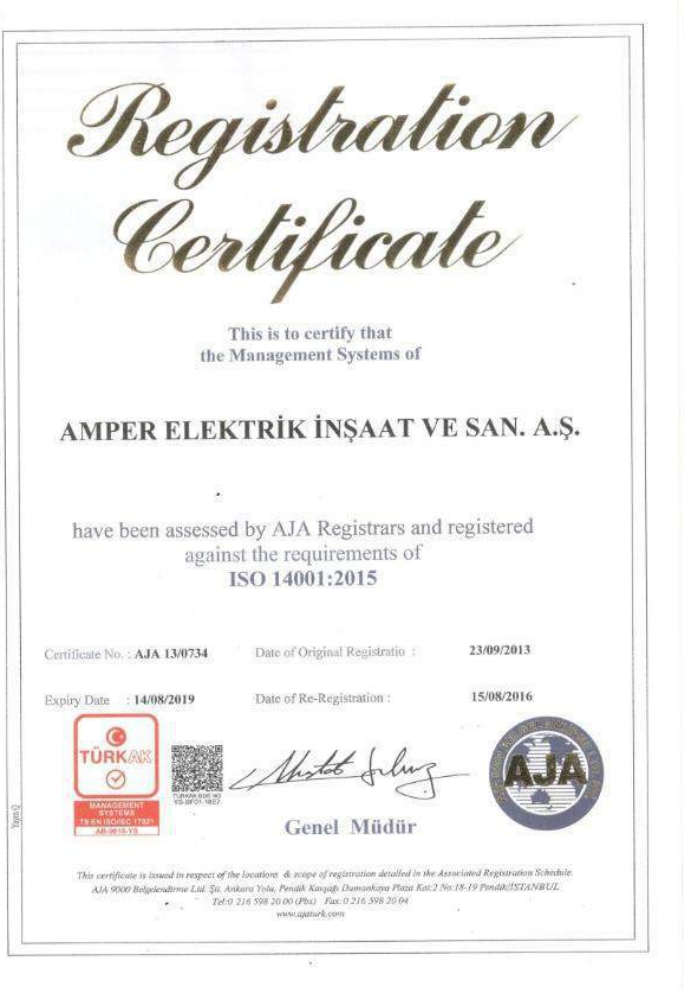
Genel Müdür



This certificate is the property of AJA Registrars and must be returned on request.
AJA 9000 Belgelendirme Ltd. Şti. Ankara Yolu, Pendik Kavşağı Osmankaya Plaza Kat:2 No:18-19 Pendik/İSTANBUL
Tel: 0 216 598 30 00 (Pbx) Fax: 0 216 598 20 04
www.gjaturk.com

ISO Belgeleri - ISO Certificates

ISO 14001





ISO Belgeleri - ISO Certificates

ISO 10002

Technical Universal Verification

CERTIFICATE

This Certificate has been awarded to:

AMPER ELEKTRİK İNŞAAT VE SANAYİ A.Ş.

HEAD OFFICE: PERPA TİCARET MERKEZİ A-BLOK KAT: 2 NO: 38 OKMEYDANI ŞİŞLİ İSTANBUL - TURKEY

FACTORY: YAKUPLU MAH.DEREBOYU CAD. BEYSAN SAN. SİT. NO: 5/1 BEYLİKDÜZÜ

İSTANBUL - TURKEY

In Recognition of the Organisation's Management System which complies with:

ISO 10002 : 2014

For the Scope of Activities described below:

DESIGN, MANUFACTURING AND SALES OF LIGHTNING PROTECTION AND EARTH SYSTEMS,
EXOTHERMIC WELDING SYSTEMS, WALL FRAME AND COVERS

Certificate No : 7006 Reissue Date :-

Date of Audit : 19.03.2018 Expiry Date : 29.04.2019

Date of Registration : 30.04.2018

Technical Universal Verification

This document is valid for 3 years provided that the management system is well maintained and surveillance audits are performed regularly.
After performing the surveillance audits certificate will be reissued. The current status of this certificate can be viewed via www.techcert.com.tr web site.
This certificate is a property of Technical Universal Verification Certification and Training Services Co., Ltd.
Thus, this certificate has to be returned if required by property owner.

Technical Universal Verification
Belgelendirme ve Eğitim Hizmetleri Ltd. Şti.
Oruçreis Mahallesi Tekstilkent Caddesi
No:10 AB/3017 Eserler / İSTANBUL
Tel.: 00 90 212 438 20 04
• web: www.techcert.com.tr
• e-mail: info@techcert.com.tr

FR 32/31.05.2017/00

OHSAS Belgeleri - OHSAS Certificates

OHSAS 18001





CE Belgeleri - CE Certificates

Yıldırımdan Korunma & Topraklama Sistemleri


CE UYUMLULUK DEKLARASYONU
204/108/EC Direktifi

FİRMA: AMPER ELEKTRİK İNŞAAT VE SANAYİ A.Ş.
ADRES: Perpa Ticaret Merkezi A Blok K:2 No:38 Okmeydanı-Şişli /İSTANBUL

Aşağıdaki ürünlerin bizim taahhüdümüz altında olduğunu bildiririz.

Yıldırımdan Korunma ve Topraklama Sistemleri

Paratoner başlıkları TS 13709 Belgelendirme Kriterine ve 204/108/EC direktifine uygun olarak üretilmiştir.

Amper Elektrik İnşaat ve Sanayi A.Ş.
ISO 9001:2015, ISO 14001:2015 ve OHSAS 18001 belgelerine sahiptir.

Kurulum, bakım ve uygulama talimatları ilgili standartlarda belirtildiği şekilde sunulmuştur.

Aşağıdaki yönerge ve hükümlerle uyumdadır;

Orta, alçak gerilim direktifi ve elektromanyetik uyumluluk direktifleri için kapsam dışıdır.

Aşağıda belirtilen standart ve normlara uyumluluk içindedir.

TS EN 62561 – 1
TS EN 62561 – 2
TS EN 62305 – 1,2,3,4
TS 13709
NFC 17.102 – 2011
UNE 21.186 – 2011

Düzenleme Tarihi : 02.01.2019
Geçerlilik Tarihi : 02.01.2020

Yetkili Adı : İpek BİDER
Görevi : Kalite Yönetim Sorumlusu
İmza :


Elektrik İnşaat ve Sanayi A.Ş.

Lightning Protection & Earthing Systems


CE DECLARATION OF CONFORMITY
Directive of 204/108/EC

We hereby : AMPER ELEKTRİK İNŞAAT VE SANAYİ A.Ş.
With address in : Perpa Ticaret Merkezi A Blok K:2 No:38
Okmeydanı-Şişli/İSTANBUL

We declare under our responsibility that the products:

Lightning Protection and Earthing Systems

E.S.E. type air terminals are produced TS 13709 Certification Criteria and 204/108/EC instruction.

Amper Elektrik, İnşaat ve Sanayi A.Ş.
has ISO 9001:2015, ISO 14001:2015 and OHSAS 18001 certificates.

Provided that is installed, maintained and used in application for which it was made in accordance with relevant installation standards and manufacturer's instructions.

Complies with the provisions of directive(s).

The product is out of scope for the Low Voltage Directives and Electromagnetic Compatibility.

Is in conformity with the following standard(s) or other normative document(s)

TS EN 62561 – 1
TS EN 62561 – 2
TS EN 62305 – 1, 2, 3, 4
TS 13709
NFC 17.102 – 2011
UNE 21.186 – 2011

Issued Date : 03.01.2019
Expiry Date: 03.01.2020

Responsible Person: İpek BİDER
Duty: Quality and Environment Responsible
Sign:


Elektrik İnşaat ve Sanayi A.Ş.

Ürün Test Raporları - Product Test Reports

ICMET-Tesla ST

TEST REPORT No. 40421 page 5

9. TEST ON ESELCT TYPE TESLA ST

9.1. Atmospheric conditions

BEFORE TEST	Beginning of the test: 11:340 p = 1002 mb t = 17.4 °C hr = 55.1 %
AFTER TEST	End of the test: 12:025 p = 1002 mb t = 17 °C hr = 54.9 %

9.2. Results

See tables on page 7

Number of significant impulses: 100

Average of significant T_B :

- calculated from the experimental wave $T_{PDA} = 206.42 \mu s$ Stdev: 10.4 %
- transferred on the reference waveform: $T_{PDA} = 255.56 \mu s$

See curves on page 8

Flashing advance: $\Delta T = T_{PFA} - T_{PDA} = 336.71 - 255.56 = 81.15 \mu s$

ICMET-Tesla ST
Tosun Elektrik
Büyükdere
Tel: (0212) 444 87 83
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ODTU UNIVERSITY - DE-LUXSO E.S.E LIGHTNING ROD

1. GENERAL

Manufacturer : AMPER A.Ş. Perpa Elektrikler Sitesi A Blok Kat:10-11
No: 1407-09-13 34385 Okmeydanı / İstanbul

Tests Requested : Impulse Current tests applied to Lightning Catching Heads and fittings.

Date : 02.12.2011

Tests Performed In : HIZAL San. Tic. Ltd. Yüksek Gerilim Laboratuvarı
OSTİM - Ankara - Turkey

Environmental Conditions : 16.5 °C, 686 mmHg, 56 % Rel. Humidity (No significant variation has been observed in these conditions during the tests.)

Equipment tested : Lightning Catching Head (ESE) , DE LUXSO Brand DE LUXSO 60 Model (E.S.E.) Lightning Catching Head

Brand : DE LUXSO
Model : DE LUXSO 60 Lightning Catching Head, Series No: 0201 Prototype , Year : 2011
Dimensions : length : 560 mm Maximum Diameter : 30 mm

2. TEST STANDARDS

TSE EN 50154-1 Apr.2004 , Sect. 6.3 de Class H 100 kA test.

3. MEASURING EQUIPMENT USED

DMM Fluke 8025B Digital Multimeter , : Calibr. Cert. UMS , E086 , 01.11

DMM Fluke 115 Digital Multimeter , : Calibr. Cert. UMS , E085 , 01.11

OSCILLOSCOPE RIGOL DS502M , Calibr. Cert. TSE , AB-0092-K, E0494 , 05-09

Impulse Voltage Measuring System : HIZAL H-220 IVD-09 / Rigol Elektronik DS502M , Calibr. Cert. UME , GİYĞ-0083 , 06-09

Impulse Current Measuring Shunt : HIZAL Shunt , H-CS-09 , Seri : 0094 , Calibr. Cert. UMS 19.01.2011 , E-115

Yazı: Luvandın T.Ö.
Lisansla onaylanmıştır.
Çevrim içi onay yapılmıştır.
İmza: Derya Zekeriya



Ürün Test Raporları - Product Test Reports

İSTANBUL TECHNICAL UNIVERSITY - EARTH PIT

 **İSTANBUL TEKNİK ÜNİVERSİTESİ**
PROF. DR. ADNAN TEKİN MALZEME BİLİMLERİ VE
ÜRETİM TEKNOLOJİLERİ UYGULAMA ARAŞTIRMA MERKEZİ

Raport No: B.34.2012.0.05.00.000 274 TETASINEL 28.05.2012

R A P O R

Ampert Elektrik İnşaat ve Sanayi A.Ş. firmasının 13.09.2011 tarihli yazıları ile ilgili rapordur.

Özet: 1 adet plastik topraklama reğari kapıdır.

İstenenler: Örneğin basma deneyinin yapılması.

Sonuçları: Deney sonucu genel görülmüş Şekil 1'de verilen örneğin basma deneyi, universal deney cihazına basma plakaları üzerine yerleştirilen örneğe aktarılmalı basma kuvveti uygulanarak gerçekleştirilmiştir. Örneğin basma sıradaki maksimum yük değeri Tablo 1'de, deney sonucu genel görülmüş Şekil 2'de verilmiştir.

Bilgilerinize saygı ile sunar.


 Doç. Dr. Mustafa HAYDOĞAN


 Prof. Dr. Ömer YÜCEL
 MÜDÜR

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 (a) (b)
 Şekil 1: (a) ve (b) Örneğin deney öncesi genel görünümü.

Tablo 1: Örneğin basma deneyi sonucu.

Örnek adı:	Maksimum yük, N
Plastik topraklama reğari kapısı	652750


 (a) (b)
 Şekil 2: (a) ve (b) Örneğin deney sonrası genel görünümü.





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