sertec S.R.L.

Soluciones inteligentes pensando en usted

CMCE SERTEC

ELECTRO-ATMOSPHERIC FIELD PROTECTOR

The most effective protection system **Against Lightning**

www.sertec.com.py

AES COLON
PANAMÁ

BLUE TOWER
PARAGUAY

VINPEARL GOLF CLUB NHA TRANG
VIETNAM

SOCIEDAD MINERA EL BROCAL
PERÚ

THE CMCE SERTEC

Specially designed for:

FACTORIES

HOSPITALS
SANATORIES

TELECOMMUNICATIONS

SPORTS
COMPLEXES

CONSTRUCTION

MONUMENTS AND
HISTORICAL SITES

AIRPORTS
RADARS
CONTROL TOWERS

BUILDINGS
SHOPPING CENTERS

MINES AND
PETROCHEMICALS
EXPLOSIVE ATMOSPHERES

ELECTRICAL SUBSTATIONS
HIGH AND LOW VOLTAGE
LINES

D-U-N-S® REGISTERED™

RoHS compliant

NATO OTAN

CMCE SERTEC

Multiple Compensator of Electric Field

The CMCE SERTEC Protector aims to protect people, animals and structures in installations on land, from any electrical phenomenon driven through the air.

The CMCE SERTEC is designed to compensate the electroatmospheric effects, compensating and stabilizing the current of the electric charges in the environment, draining them to earth in harmless milliamps.

The CMCE SERTEC is the result of the discovery of the behavior of electroatmospheric phenomena that interact in the atmosphere of our planet. The novelty of this technological development is supported by the well-known laws of OHM and Maxwell's equations, on which this new technology is based. Essentially to have at all times the stabilized electric field of the atmosphere referring to ground in the protection area. The system behaves passively at the level of prevention, based on atmospheric electrical activity with the aim of maintaining a clean and controlled environment of electrical contamination.

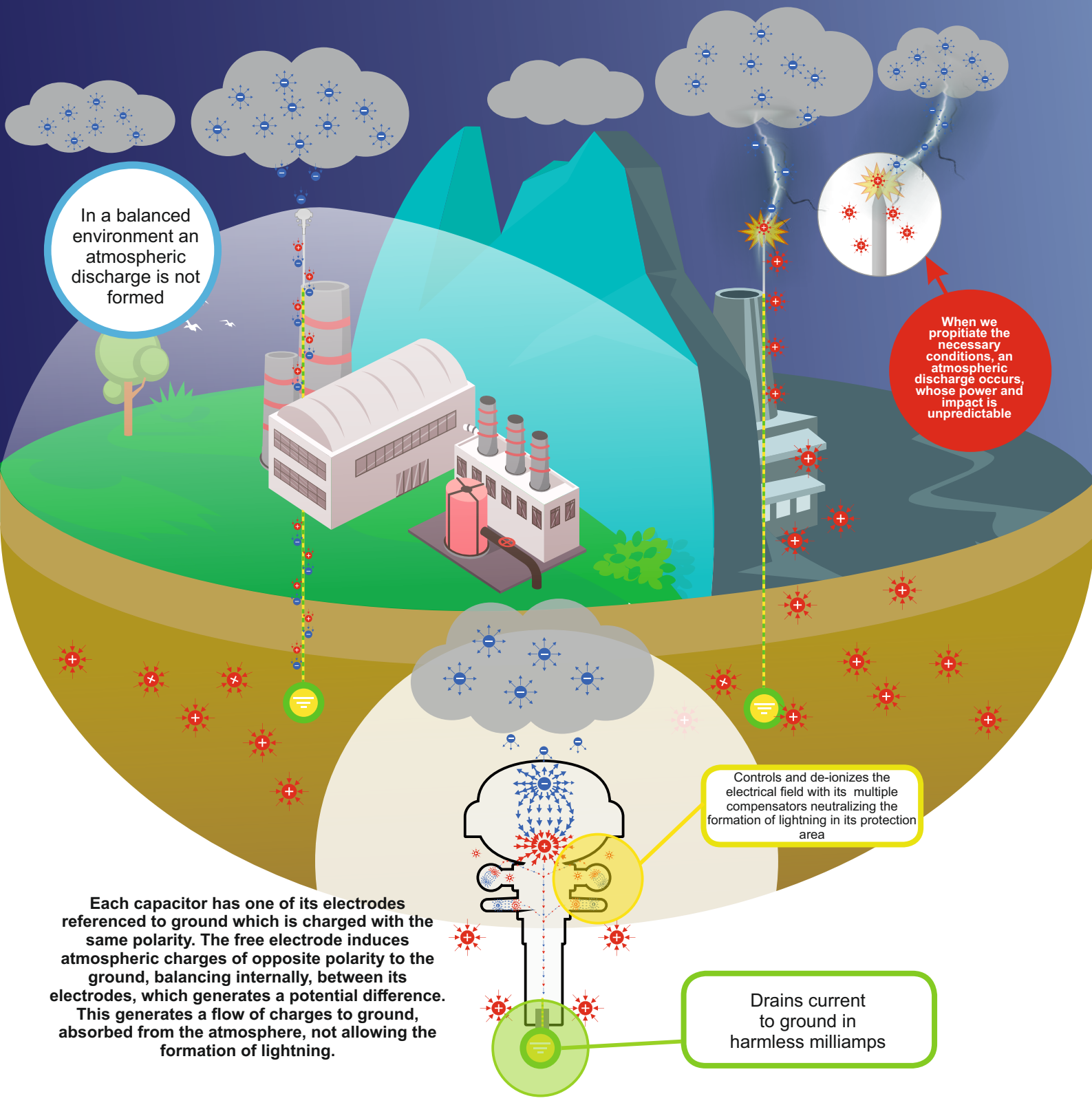
In 1916 Nikola Tesla in his patent No. 1,266,175 mentioned the operating principles of a primitive device based on the principles that underpin our developments, explaining the inconveniences caused by the lightning rods, which instead of protecting property and people, attracted the lightning increasing the feasibility of electric discharges and consequently the risks that they entailed.

New materials and designs, added to years of experience, have allowed us to improve the experiences of the undisputed scientist Nikola Tesla, evolving in the protection of atmospheric phenomena.

OPERATING Principle

The multiple compensator of electric field , CMCE SERTEC

is a passive sensor system designed to balance and deionize at all times the effects of atmospheric phenomena through multiple compensators, generating a protective shield in its coverage area, its operating principle is based on compensating, stabilizing the existing electric field in its environment, in this way it cancels the formation of the ascending tracer neutralizing the lightning draining the electric charges to earth, in harmless milliamperes.



Each capacitor has one of its electrodes referenced to ground which is charged with the same polarity. The free electrode induces atmospheric charges of opposite polarity to the ground, balancing internally, between its electrodes, which generates a potential difference. This generates a flow of charges to ground, absorbed from the atmosphere, not allowing the formation of lightning.

MODELS
Technical Specifications

Coverage Area

- CMCE Technology Method: Cover radius depending on the model varies between 25m. to 120m. (Check model's manual).
- All models must be installed at a height of 3m. above the highest point to be protected (For more detailed information check the manual).
- Rolling Spheres Method: For protection levels I, II, III and IV defined according to IEC 62305, the rolling sphere method must be used, with the protection radius marked by the standard.

Connection system to the mast:

It incorporates in its axis the connection system to the mast. The CMCE needs an internal measuring mast 42 mm Ø and outside 49 mm Ø with through hole of 8 mm Ø to 32 mm from the edge of the mast (may vary depending on the model, more detailed information consult the manual).

Component Materials:

Recycled Aluminum, Insulator: Polyacetal, also called polyoxymethylene (POM); Ceramic, or According to model, consult the manual.

25 meters Protection

CMCE NANO

Description: Developed for Small deposits, Telecommunications Towers, Medium and High Voltage Power Lines, Traffic Lights, Small Radars, Road Cameras, Garitas, and other structures that can be covered by their protection radius.
Weight: 980 grams (Gross)
Measures: 17cm. Height x 10 cm. diameter.
Packaging: Galvanized Metallic Material

55 meters Protection

CMCE HOME

Description: Developed to protect all types of structures on land, residences, small buildings, warehouses, etc.
Weight: 2,460 kilograms (Gross)
Measures: 24 cm. Height x 15.5 cm. diameter.
Packaging: Galvanized Metallic Material

120 meters Protection

CMCE SERTEC 120

Descripction: Greater deionizing power, for use in buildings, large complexes, mining, boats, electric stations, etc.
Weight: 7.4 kilograms (Gross)
Measurements: Ø 24.17 cm x 36.72 cm.
Packaging: Galvanized Metallic Material

120 meters Protection

CMCE-AT 120

Description: Developed for installations in high temperature environments, for example: chimneys, industries, etc. Supports up to 400ºC.
Weight: 7.4 kilograms (Gross)
Measurements: Ø 24.17 cm x 36.72 cm.
Packaging: Galvanized Metallic Material

MODELS Specifications

CMCE maximum working voltage WITHOUT lightning discharge

515.41 KV at one meter, according to high voltage laboratory tests (UNE 21186:2011// NF C17-102:2011).

Maximum allowable current of short circuit

The tests carried out according to IEC-10/350 Q curves of 100,000 Amperes, specified in the IEC-62305 norms, show that the equipment supports 7 continuous degasses of 89,906KA; 89.62KA; 88.53KA; 89.3KA; 90.44KA; 96,656KA; 89,688KA; without breaking materials or marks of deterioration or perforation.

Protection effectiveness

99% reduction of impact of direct rays in the protected structure. In case of direct impact of lightning (1%) or indirect effects due to external induced overvoltages in the protected structure, the CMCE behaves like a thermal fuse, absorbing part of the lightning energy in heat by melting its components, minimizing (between 60% - 90%) electromagnetic effects.

Does not contain radioactive, electronic or heavy metals components.

120 meters Protection

HIGH RESISTANCE

Description: Designed for highly corrosive environments, since it is a steel with high resistance to corrosion, given that the chromium or other alloying metals it contains, have great affinity for oxygen and react with it forming a passivating layer, thus avoiding corrosion of iron (purely stainless metals, which do not react with oxygen are gold and platinum, and of lower purity are called corrosion resistant.
Weight: 20 kilograms (Gross)
Measurements: Ø 24.17 cm x 36.72 cm.
Packaging: Galvanized Metallic Material

120 meters Protection

CMCE- HIGH VIBRATION

Description: Developed with the same characteristics as the CMCE 120, but with a special design to avoid the fall of the equipment, especially for derricks, etc.
Weight: 11,170 kilograms (Gross)
Measurements: Ø 24.17 cm x 36.72 cm.
Packaging: Galvanized Metallic Material

120 meters Protection

CMCE SERTEC 120

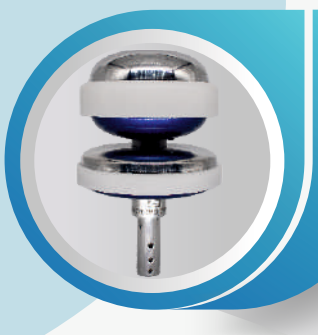
Description: Same characteristics as the CMCE 120, but with a dark matt color design, to avoid disturbance to the environmental visual.
Weight: 7.4 kilograms (Gross)
Measurements: Ø 24.17 cm x 36.72 cm.
Packaging: Galvanized Metallic Material

120 meters Protection

CMCE GRAPHENE

Description: Developed for special applications and Military use.
The innovation is based on the properties of Graphene.

Weight: 7.4kg (Net)
Measurements: Ø 24.00 cm x 38.54 cm
Packaging: Galvanized Metallic Material



100 meters Protection

CMCE TWIN MAX

Description:

For safe and effective protection in high electrical load environments, Sertec SRL has designed, created and tested the CMCE TWIN MAX device that exceeds the high efficiency of its inspiring base, the CMCE 120, to work in the most extreme conditions..
With the CMCE TWIN MAX it manages to compensate extreme electric fields with greater speed, efficiency and reduce the intensity of magnetic fields, so its application is focused on this type of conditions tested in the laboratory, exceeding our expectations by up to 30%.

Weight: 6,460 kg (Net)
Measurements: Ø 24.00 cm x 37.10 cm.
Packaging: Galvanized Metallic Material

CERTIFICATIONS
Regulations

ISO 9001-2015 certified by STAREGISTER
ISO 9001 is the internationally recognized standard for quality management systems (SGC).

ISO 14001-2015 certified by STAREGISTER
The ISO 14001 standard is the international standard for environmental management systems (EMS), which helps your organization identify, prioritize and manage environmental risks, as part of your usual business practices.

INTN Product Certificate (National Institute of Technology and Standardization and Metrology).

- High Voltage Comparative Tests in the INTI according to NFC-17100, where the comparative difference is that lightning discharges do not appear.

ENAC; ILAC-MRA
A.1. General tests (Section.c.3.1UNE21186: 2011 // NF C17-102: 2011)
Test: Documentation, information and identification (C.3.1.1)
Test: Marking (C.3.1.2)
A.2. Mechanical tests (Section.c.3.2 UNE21186: 2011 // NF C17-102: 2011)
Test: Mechanical tests (C.3.2)
A.3 Environmental tests (Section.c.3.3UNE21186: 2011 // NF C17-102: 2011)
Test: Salt spray test (C.3.3.1)
Test: Test in sulphurous humid atmosphere (C.3.3.2)
A.4 Current test (Section.c.3.4UNE21186: 2011 // NF C17-102: 2011)
Test: Current test (C.3.4)
TO 5. Priming advance tests (Section.c.3.5UNE21186: 2011 // NF C17-102: 2011)
Test: Determination of the progress in the PDC priming (C.3.5.3 UNE 21186: / C.3.5.2.4 NF C17-102: 2011)

SERTEC S.R.L. It is approved within the NATO Cataloging System (NOC) with the NCAGE code SFKU3 for our CMCE-SERTEC lightning rods

DUNS REGISTRATION Number 955067967

We have CE MARKING on all CMCE models.

We have UKCA MARKING on all CMCE models.

WARRANTY

MANUFACTURED BY SERTEC S.R.L. IN ASUNCIÓN, PARAGUAY

MAINTENANCE: Annual mandatory, carried out and certified by the official installer.
PRODUCT WARRANTY 5 YEARS warranty for manufacturing defect, proving annual maintenance.

Check insurance coverage according to the country where it will be installed and the equipment model.

TECHNOLOGICAL CHANGE

THE CMCE SERTEC

A legacy of one of the most privileged minds: Nikola Tesla

The CMCE ensures a 99% reduction of lightning impacts in almost all types of buildings and structures through the deionization of electrostatic charge.

Our device guarantees the reliability of computer systems and data during storms, optimizes production by increasing competitiveness and improves staff safety, among other positive aspects.

TECHNOLOGICAL DIFFERENCES BETWEEN THE CMCE SERTEC AND THE CONVENTIONAL LIGHTNING ROD

	CMCE	Conventional Lightning Rod
	It does not excite or capture the lightning, since it does not generate ascending tracers.	Excites and captures the lightning, generating upward tracers.
	Protects all types of structures and environments with risk of fire or explosion.(ATEX)	Increases the risk of fire or explosion.
	It does not generate overvoltages.	Generates overvoltages.
	Avoids electrical risks.	Creates high voltage electrical hazards.
	Complies with the basic principles of occupational risk prevention.	Does not comply with the basic principles of occupational risk prevention
	Does not generate Electromagnetic Compatibility effects.	Generates effects of Electromagnetic Compatibility, since it attracts the ray.
	Ground connection is compatible with low voltage electrical ground connections according to the REBT.	Ground connection is NOT compatible with the low voltage electrical earth electrodes according to the REBT.
	It is not radioactive.	Some are radioactive.
	Environmentally friendly.	Indirectly generates electromagnetic pollution.
$	Price is very competitive in relation to safety.	Price is NOT competitive in relation to safety.
	Offers guaranteed protection.	Does not offer guaranteed protection.

RISKS - COSTS - EFFECTIVENESS ANALYSIS

	Electrical Risk	Accident Risk	Security-Cost Ratio	Efficiency of the System	Return on Investment
CMCE	LOW	LOW	LOW	HIGH · 99% No Lightning	HIGH · 99% No Lightning
Conventional	HIGH	HIGH	HIGH	LOW · 99% Lightning	LOW

HELITACTICA
PARAGUAY

RELJUB
PARAGUAY

FEEDLOOT
ARGENTINA

CEPM
REPÚBLICA DOMINICANA

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ELECTROATMOSPHERIC FIELD PROTECTOR

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DUN & BRADSTREET D-U-N-S® REGISTERED™

IAS ACCREDITED ISO 14001:2015 STAREGISTER

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