

GROUNDING

ECOSS STAINLESS STEEL EVAPORATIVE CONDENSER

The grounding system is part of a set of protection measures that provide a high level of electrical safety, and the correct sizing of such components is essential for the assembly to have the best possible performance, and these are:

- SPDA - Lightning Protection System
- Grounding of building and equipment
- Dimensioning of the power distribution system in the unit (electrical installation project).

Main purposes

- i) Protection of People:
 - Equipotentialization guarantee: at equipment, floors and structures;
 - Fault current dissipation: creation of low impedance path to the ground.
- ii) Protection of Premises:
 - Dissipation of currents from lightning;
 - Dissipation of electrostatic charges.
- iii) Equipment protection:
 - Minimization of the difference in electrical potential among equipment: reduction of circulation of currents by improper paths;
 - Minimization of electromagnetic induction effects: path from impedance to decoupling.

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Consequences of poor grounding

- Risk of injury, death and damage to property;
- Unexpected behavior of equipment;
- Reduced system reliability;
- Formation of "Ground Loops", which are characterized by the unwanted circulation of current through the grounding system, caused by the difference in potential between the grounding of interconnected equipment.

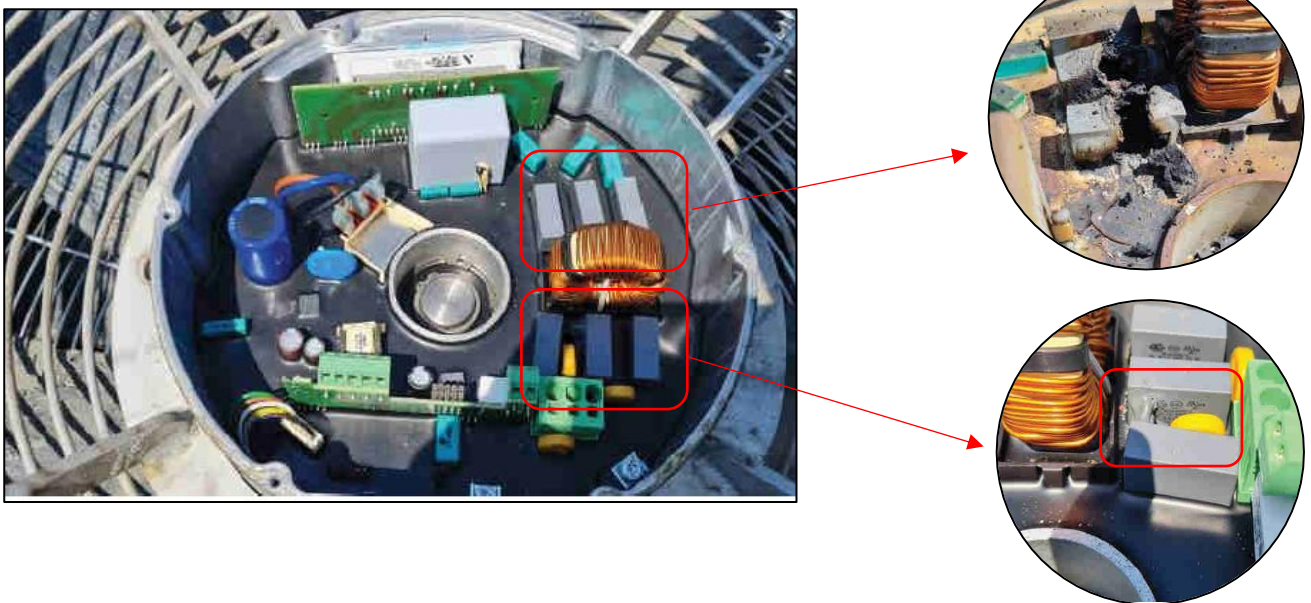
Application at fans and equipment ECOSS

Performing the correct grounding sizing is a responsibility of the client/installer. All standards cited in this bulletin and others relevant to the project should be considered.

Improper grounding mischaracterizes any kind of warranty of electrical components.

What can the lack of proper grounding cause in the fans?

EMC filter capacitors burning and melting



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These capacitors have the harmonic filtering function and discharge the peaks and transients direct to the “ground” of the installation.

Cause of melting of capacitors: improper grounding, the capacitor did not discharge the surplus to the ground, and it soon overheated.

Grounding and power cable sizing

Grounding

The grounding is based on NBR 5410:2004 which, in Table 58, deals with the section of the protective conductors (ground) according to the section (gauge) of the phase conductors of the building.

The only exception that the standard makes is that the conductive material is the same for the grounding cable, that is, if the phase cable is copper, the grounding cable must also be copper.

Seção dos condutores de fase S mm ²	Seção mínima do condutor de proteção correspondente mm ²
$S \leq 16$	S
$16 < S \leq 35$	16
$S > 35$	S/2

Tabela 58 - NBR 5410:2004 - Seção dos condutores de proteção.

Keep in mind that the table above is valid for both input conductors and secondary circuits.

It is important to verify that the grounding of a specific circuit (in this case, of the equipment EcoSS) must connect to a larger sizing grounding system, responsible for protecting the whole place.

Power cables

Calculating the current that each wire or cable must withstand is essential for the correct sizing of the conductor section. But NBR 5410 stipulates criteria that must be considered when dimensioning a conductor.

The drop of electrical voltage is an anomaly caused by the distances traveled by the electric current in a circuit, the longer the length of the conductor the greater the voltage drop, this is due to the increase in electrical resistance due to the greater amount of material used to make larger conductors.

Power and grounding connection of evaporative condenser ECOSS

Always connect the power and grounding cables according to the electrical diagram provided by Güntner with the equipment. Figure 1 below shows the location of the cable connections.

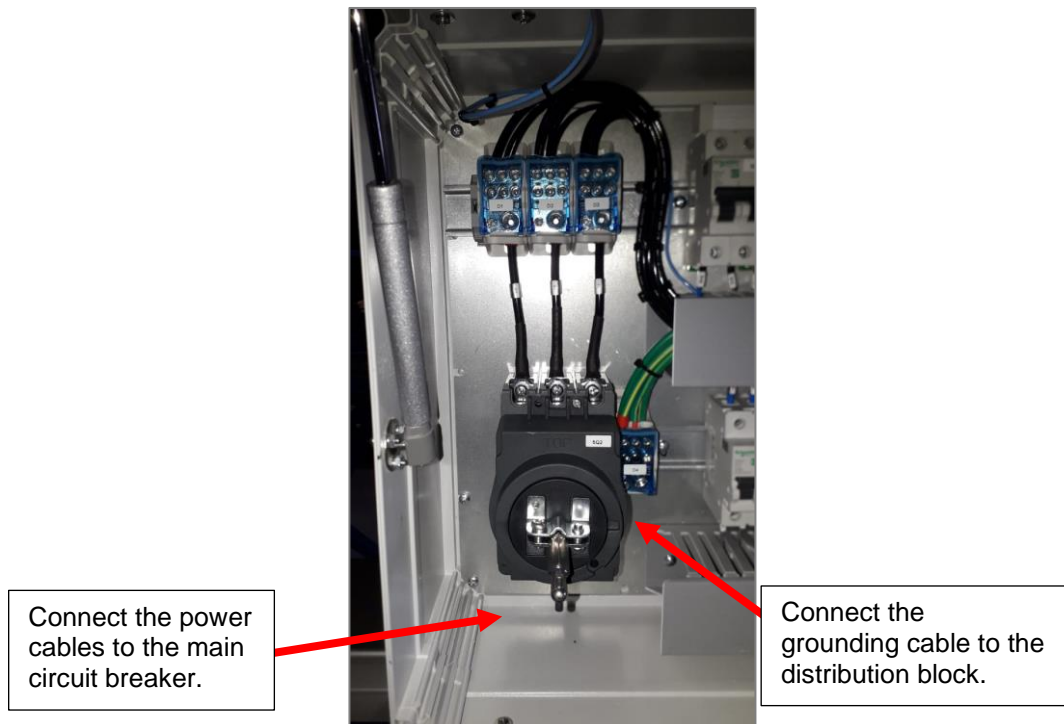


Figure 01 – Connection of the cables

Important!

The ohmic resistance of the ground should be as close to zero as possible, the maximum allowed being 5Ω.

Failures related to incorrect grounding do not constitute a guarantee.

For more information, refer to our technical department.