VOLTAGE OSCILLATION

ECOSS STAINLESS STEEL EVAPORATIVE CONDENSER

ANEEL - Agência Nacional de Energia Eléctrica (Brazilian Electricity Regulatory Agency), is the entity responsible for establishing and supervising quality parameters in the supply of electricity (EE) by the utility.
Within the regulated parameters are the values of variation of voltage levels that must be met at all levels below 230 kV.

For the supply in 220 V, we have:
• Suitable voltage: between 202v and 231v;
• Precarious voltage: between 191v and 202v or between 231v and 233v;
• Critical voltage: below 191v or above 233v

The voltage drop at a point so out of the nominal (380V ±10%) damages the fan by lack of phase or overvoltage, with the possible resulting damage: compromise of some component, unbalance, overheating of internal components, excessive wear and/or failure of the electric motor of the fan.
In addition to the normative voltage oscillation values, it is also necessary to meet the voltage drop standards, since these values add up at the load terminals, increasing the likelihood of equipment problems. The maximum permissible voltage drop percentage values per connection scheme are defined according to ABNT NBR 5410, as shown in Figure 1 (Page 2).

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Below are the main requirements for the fans supplied by Güntner.

At any point of use of the installation, the verified voltage drop shall not exceed the following values, given in relation to the rated voltage value of the installation:

a) 7%, calculated from the secondary terminals of the MT/BT transformer, in the case of transformer owned by the consumer unit(s);
b) 7%, calculated from the secondary terminals of the Electricity Distribution Company's MT/BT transformer, when the delivery point is located there;
c) 5%, calculated from the delivery point, in the other cases of delivery point with supply in secondary distribution voltage;
d) 7%, calculated from the output terminals of the generator, in the case of own generator set.

Comments:
In no case can the voltage drop in the terminal circuits be greater than 4%;

In cases A, B and D when the main lines of the installation have a length greater than 100 m, the voltage drops can be increased by 0.005% per meter of line greater than 100 m, without, however, this supplementation being greater than 0.5%.

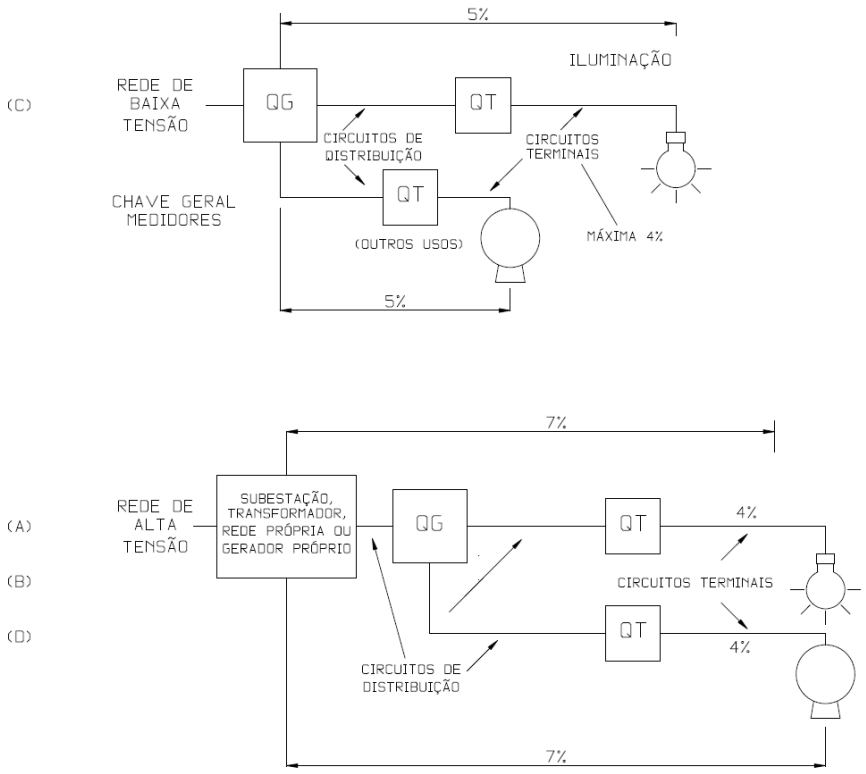

Figure 1 - Schematic diagram: Voltage Drop Limits

Effects of voltage variation

Equipment that is exposed to a voltage above its limit, for which it was designed, suffers an overload and it is in this situation that the loss of equipment occurs, since its internal circuit is damaged and ends up “burning”.
EC fans keep a fault history stored in their memory, which can be viewed through manufacturer-specific instruments. If a large number of failures due to voltage variation, phase failure, phase imbalance, undervoltage or overvoltage appear in the fault history, the fans will not be covered by the warranty.

Important!

For more information, refer to our technical department.

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