



(Patent n. 01266633)

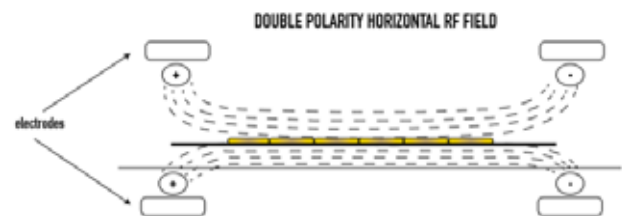
DOUBLE POLARITY APPLICATOR

Double the polarity, boost the efficiency

A horizontal-like RF field can be generated by using staggered through-field or stray-field type electrodes. However, none of these electrode configurations ensure a perfectly horizontal field, nor the field can be concentrated as desired within the product in a controlled manner.

STALAM has developed and patented a new electrode system, the so-called DOUBLE-POLARITY electrode, specifically designed to process thin and/or flat products like biscuits, textile fabrics, web materials, etc. This electrode is able to generate a highly-concentrated RF field that is also perfectly symmetrical in respect of the upper and lower surfaces of the product. The field strength can be modulated as desired either by adjusting the mutual position of the opposite electrode rods (having the same polarity) at a certain distance from the product and by modulating the voltage applied by the RF generator through the variable-capacity coupling circuit (another specific, outstanding feature of STALAM's RF equipment).

The double-polarity electrode can be used with optimal results for products having thickness from a few microns up to a couple of centimetres.



RF field generated by the double polarity applicator

BENEFITS

- It can deliver a high amount of RF power per unit surface of product (kW[RF]/cm²) while working with low electrode voltages
- Thanks to the electrode geometry, the RF field lines can be concentrated specifically where the energy is most required (e.g. in the core of a biscuit, where the moisture to be evaporated is located, rather than on the crust which is already dry)
- Thanks to the individually insulated multiple-rods design and to the electrode geometry, the field strength and symmetry can be adapted to the product characteristics to optimise the process even in specific portions or areas within the product or among different products processed simultaneously
- Thanks to the low electrode voltages required, the arching (electrical discharge) risk on the product is drastically reduced and there are less energy losses in the air and in the circuitry, so that the energy efficiency is correspondingly higher (lower power consumption). Also, the high voltage components and circuitry are less solicited and the machine is more reliable (reduced maintenance cost)