Strayfield

World Leaders in
Radio Frequency Processing

RF Dryer for Latex Foam Drying

RF drying

Conventional drying of foam has always been a challenge since the outer layers dry first; forming an insulating barrier which increases the drying time.
A longer drying time increases the chance of the chemical properties of the foam being undesirably altered and the uneven nature of conventional drying systems also produce inconsistencies in the product quality.

Strayfield's Radio Frequency drying provides uniform drying of the entire foam-based product, ensuring superior product quality. In addition, the amount of energy absorbed by the product depends directly on the amount of water present within it and the power density set for the product. Thus, energy is used only where it is needed.

Drying Quality and Control

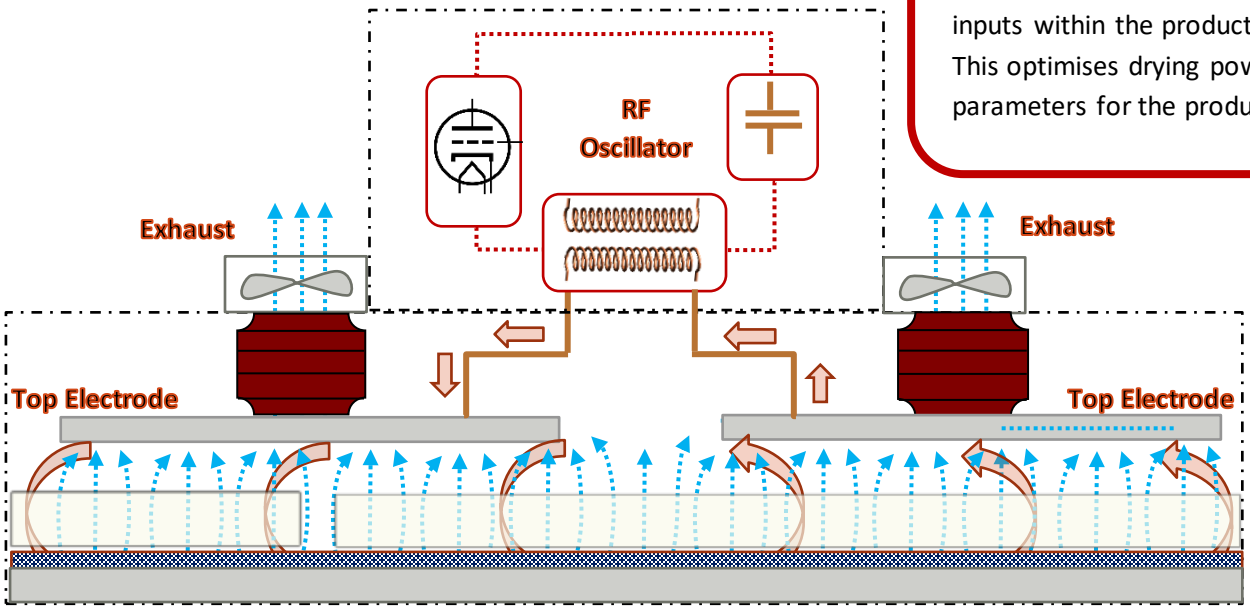
For a given moisture content, the amount of RF power applied to the foam is carefully controlled by a PLC with a feedback loop which continuously monitors the moisture in the product. This avoids energy wastage and overheating of the product that causes processing problems that are characteristic in conventional Heaters/Dryers.

The Feedback mechanism ensures a gradual buildup of power applied to the product. This results in a steady, volumetric rise in product temperature i.e. A uniform temperature rise across and along the entire product. This ensures uniform drying throughout the product, guarantees higher quality, and eliminates the chance of discoloration or yellowing, implosion through steam pockets and de-sizing of the foam.

Careful balance and grading of energy levels is Strayfield's inherent design strength

Features of the Strayfield Design

Moving electrodes respond to the varying moisture inputs within the product. This optimises drying power parameters for the product.



Balanced Output

The double ended output design of the Strayfield Electrode system ensures that RF currents find an easy return path via the electrodes. The RF energy polarity oscillates between the two electrodes thereby causing the RF current to pass from one electrode to another via the product and completing the circuit. This reduces the current passing through the machine structure, increases efficiency and reduces emission levels.

Uniform Air Flow

Air flow is directed from the bottom electrode towards the top electrode thus flowing evenly through the foam product. The air is then sucked into the top electrodes and eventually extracted through exhaust blowers present over each of the top electrodes. The air flow has been designed to provide uniform flow over the foam and throughout the oven.

Low Power Density Electrodes

Strayfield's Flat Plate electrodes offer a larger surface area for the RF energy, thereby reducing power density applied to the product. A lower power density ensures optimum temperature v/s time drying curves and allows for moisture to be extracted from the foam gently. Careful selection of power density and drying time eliminates the chance of yellowing, implosion, or expansion of the foam.

The Strayfield Advantage

Uniform Air Extraction

- Even airflow over the latex mattress and high airflow inside the oven ensures complete moisture extraction and uniform drying.

Fully Welded Structures

- No use of hollow tubes and sheet metal covers for the oven and generator. A completely welded structure to create high condutivity paths and greater mechanical rigidity.

Balanced RF output

- A double ended RF output design that allows power to couple into the load efficiently. High ground currents are avoided by not using the structure as the primary RF return path.

Strayfield offers unmatched experience and expertise in successful commissioning of Latex RF drying lines