STALAM

Radio Frequency Equipment

Vulcanisers and dryers for latex and other foamed polymers

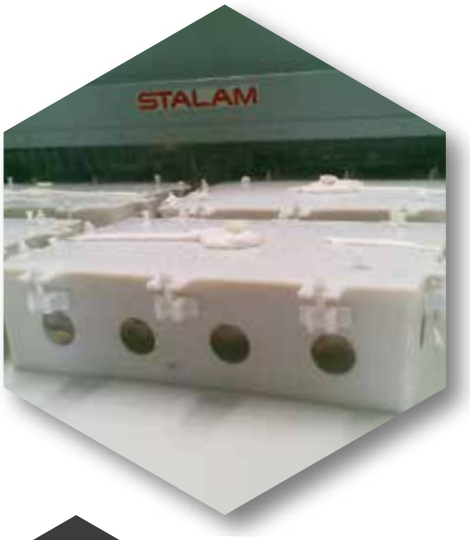
RF VULCANISING AND DRYING

The one-stop solution provider for latex foam vulcanisation and drying

A very successful and well established application of STALAM's RF technology is the vulcanisation and drying of foamed natural and synthetic polymers (mainly natural latex, also blended in various proportions with SBR, and hydrophilic polyurethane).

Radio Frequency drying does not rely on heat transmission, so even thick, shaped and dense items (casted blocks, mattress cores, anatomic pillows, etc.) vulcanise and dry quickly with no surface overheating or yellowing effects; it is selective towards water, so even that contained in the core absorbs the RF energy instantly and migrates quickly towards the surface, leaving no wets spots anywhere in the product; the energy delivered to (absorbed by) the product can be adjusted as required, thus enabling to control accurately both the evaporation rate and the residual moisture content.

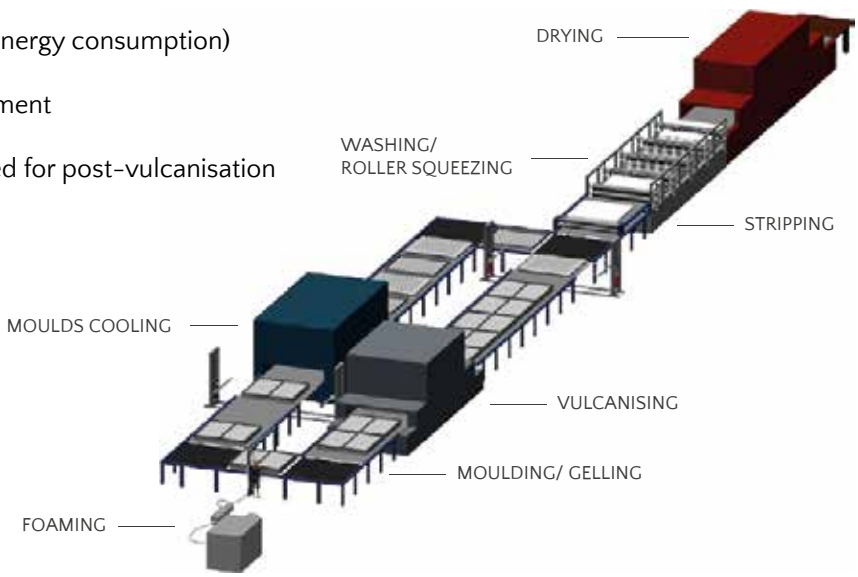
RF vulcanisation



STALAM has developed specific Radio Frequency equipment to vulcanise natural latex and SBR foam either inside moulds (mattress cores and pillows) or as a continuous sheet (LPC).

The RF vulcanisation equipment are much smaller (shorter) compared to the conventional carousels or tunnels working with steam having the same hourly throughput, and the energy consumption can be cut by 50% (this value can be adequately documented). Moulds are made of light and inexpensive composite materials that allow weight reduction of over 60% compared to traditional metal moulds: the reduced mould mass contributes significantly to the lower energy consumption. Moreover, mould materials developed by STALAM in cooperation with specialising suppliers, allow for an easy and quick stripping of the vulcanised product. Last but not least, mould design is more flexible, not being bound to the presence of pins.

- Energy- and cost- efficient process (-50% energy consumption)
- Faster vulcanisation, shorter (smaller) equipment
- Uniform and complete vulcanisation, no need for post-vulcanisation
- Cheaper, lighter and versatile moulds
- Easy product stripping



STALAM works in partnership with other equipment manufacturers (European and Asian) to supply complete production lines for latex foam products. STALAM also provides consultancy on latex compounding and related chemistry with all the necessary know-how.

RF drying

In the past 30 years STALAM has developed and supplied a large number of RF dryers featuring specific technical solutions for natural or synthetic latex products (mainly mattress cores, pillows, anatomic seats and continuous sheet) after vulcanising, washing and squeezing or centrifugal hydroextraction, highly hydrophilic polyurethane foam after wet casting for health-care and medical uses, and other high-porosity polymeric substrates.

Our RF equipment provides fast and uniform drying: about 20 minutes are sufficient to dry even thick and dense mattress cores below 1% residual moisture content, without any wet spots; also shaped products like pillows and anatomic seats dry perfectly uniformly in thicker parts as in thinner portions. No yellowing of the product surface, due to low temperature in the drying tunnel (RF heats the product core, not its external surface).

STALAM machines can accomplish the entire drying process or work in conjunction with existing tunnel or cabinet type hot air dryers (ie. for partial drying) to increase the capacity (speed) of the production line, maximise the energy efficiency and, especially, improve the quality of the end product.

- Fast and uniform drying
- No yellowing of the product surface
- Short conditioning time, so the product can be packaged for shipment quickly after drying without any risk of moulding on the way to customers
- Significant reduction of drying equipment footprint, thanks to the short process time
- Energy-efficient in-line process, reduced drying and product handling costs
- Reduced carbon foot-print, being an electro-thermal technology

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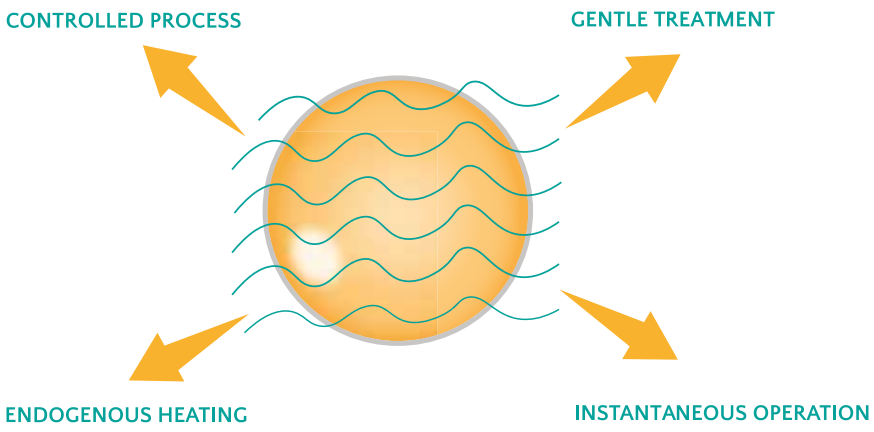
RF TECHNOLOGY

Radio Frequency (RF) is a drying and thermal processing technology based on the dissipation of electromagnetic energy within the product.

Unlike conventional techniques, where heat is transferred to the product through its surface from an external heat source by conduction, convection or irradiation, a Radio Frequency field generates heat directly inside the entire product mass – that is why the related mechanism is called “endogenous” or “volumetric”.

The heat generation is instantaneous and allows a rapid, uniform and perfectly controlled process, thus delivering outstanding results in terms of product quality, operational flexibility and energy savings.

2500+
machines sold



Established in 1978, STALAM is the world leader in the development, design and manufacture of Radio Frequency (RF) equipment for the drying and thermal processing of raw materials, intermediates and finished industrial products. More than 2500 STALAM machines are in operation in more than 60 countries, having rated output power values ranging from 3 to 450 kW; from the simple, manually operated machine, to the fully automated line complete with computerised control and supervision systems. Exporting more than 95% of its products to the five continents, STALAM provides professional and prompt commercial and technical assistance in all relevant industrial areas throughout the world, thanks to its well-structured sale and servicing organisation.

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