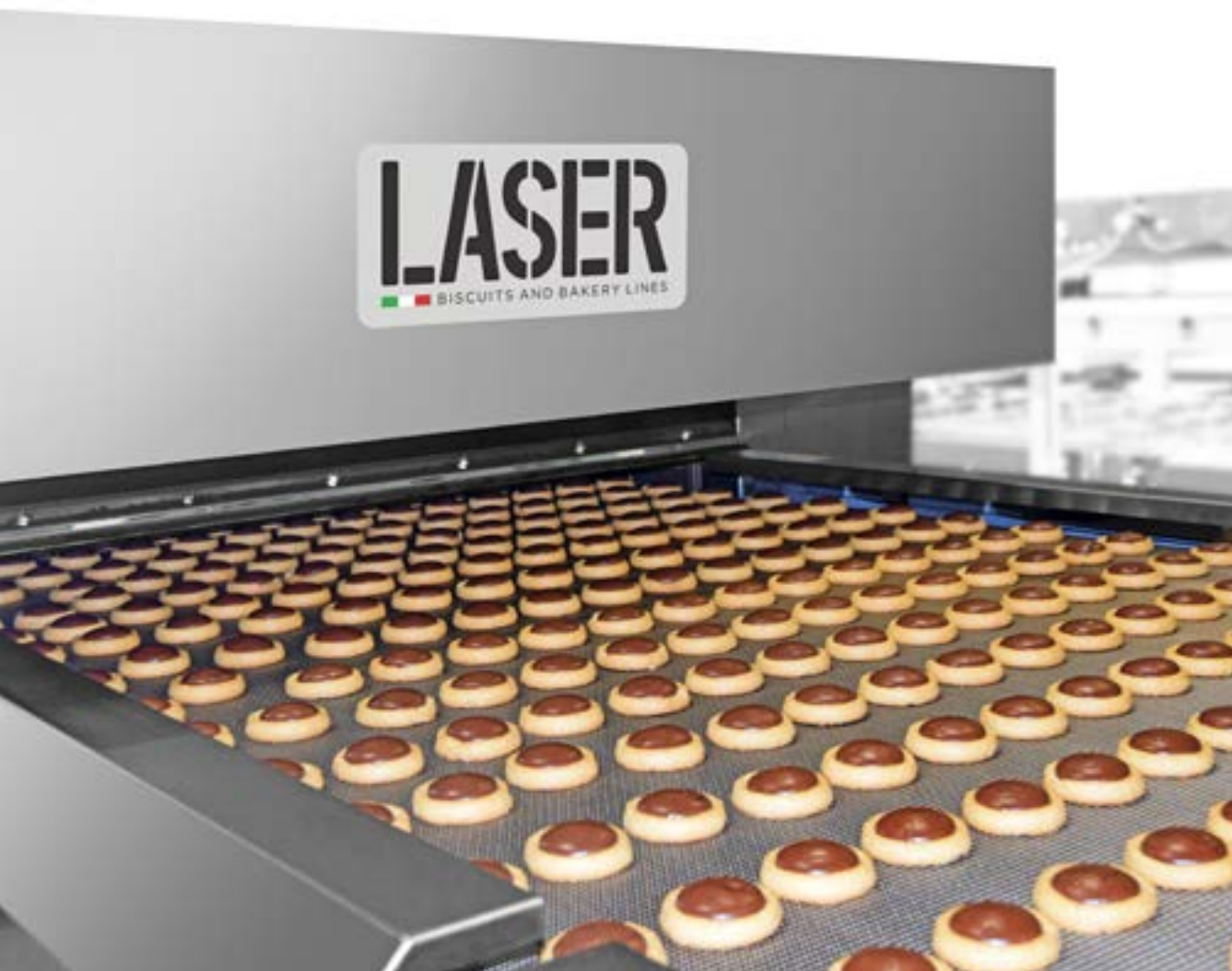


Industrial production line for **soft, extruded and drop biscuits**





The shortbread (soft) biscuit is certainly the most popular baked product in the world after bread and is widespread without distinction in all markets, from the poorest to the richest. All the products that are present in the recipe, from modest to high quantities of fats and sugars, fall into the category of shortbread (soft) biscuit and because of this broad meaning the biscuit can be formed in different ways depending on its recipe: from pastry products such as extruded cookies or drop biscuit to moulded products such as Glucose, the bases for sandwich biscuits, up to ice cream biscuits.



In any type of shortbread (soft) biscuit the following process steps are found: the preparation of the dough, the feeding to the forming machine, the actual forming of the product before baking, its decoration (where necessary), baking and cooling before packing. Laser provides an integrated solution of the whole process from start to finish with the experience of more than 500 lines installed worldwide in the last 20 years. This allows to obtain an optimal result, constant over time and efficient in all stations.

50⁺
MIXERS MANUFACTURED
EVERY YEAR

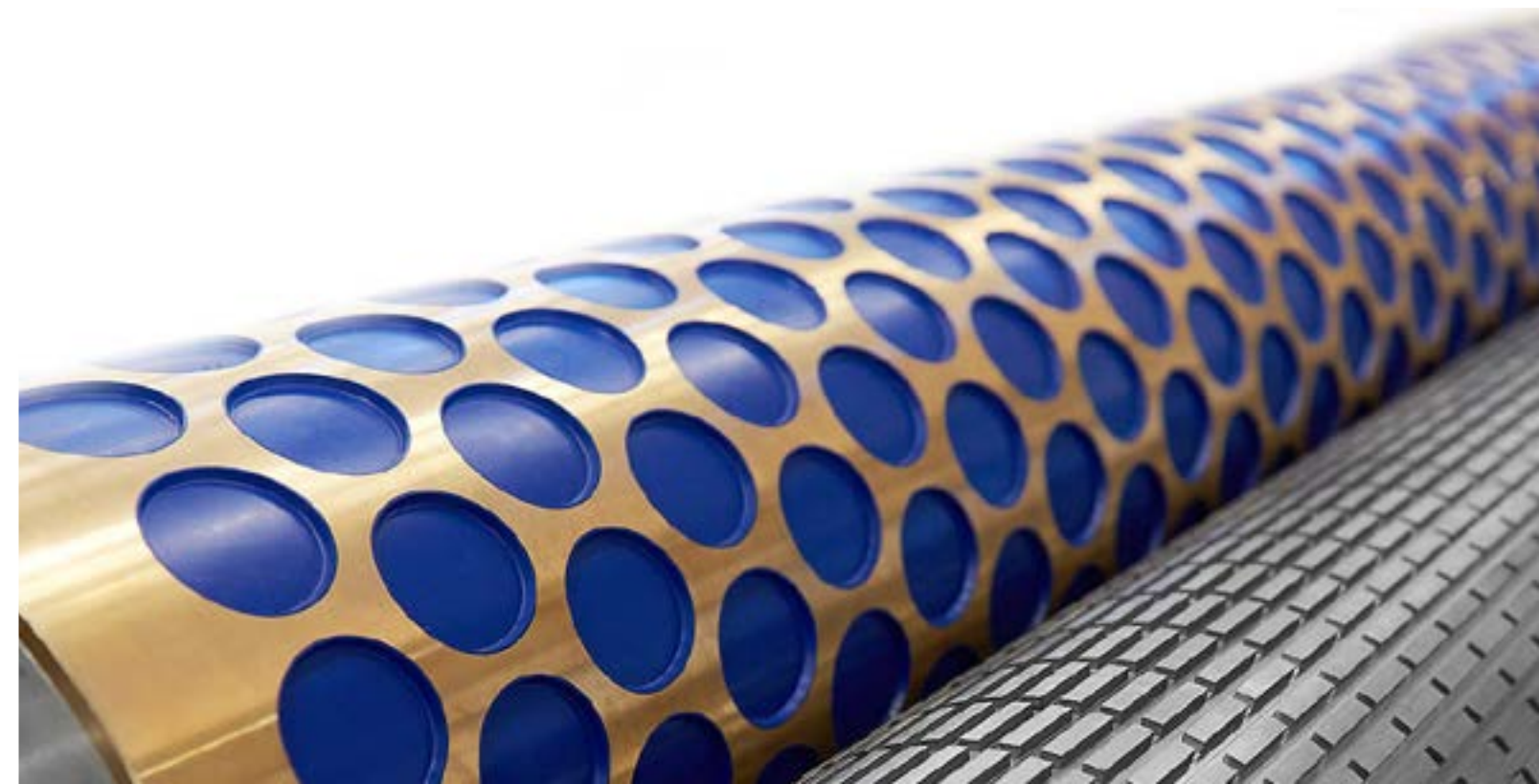
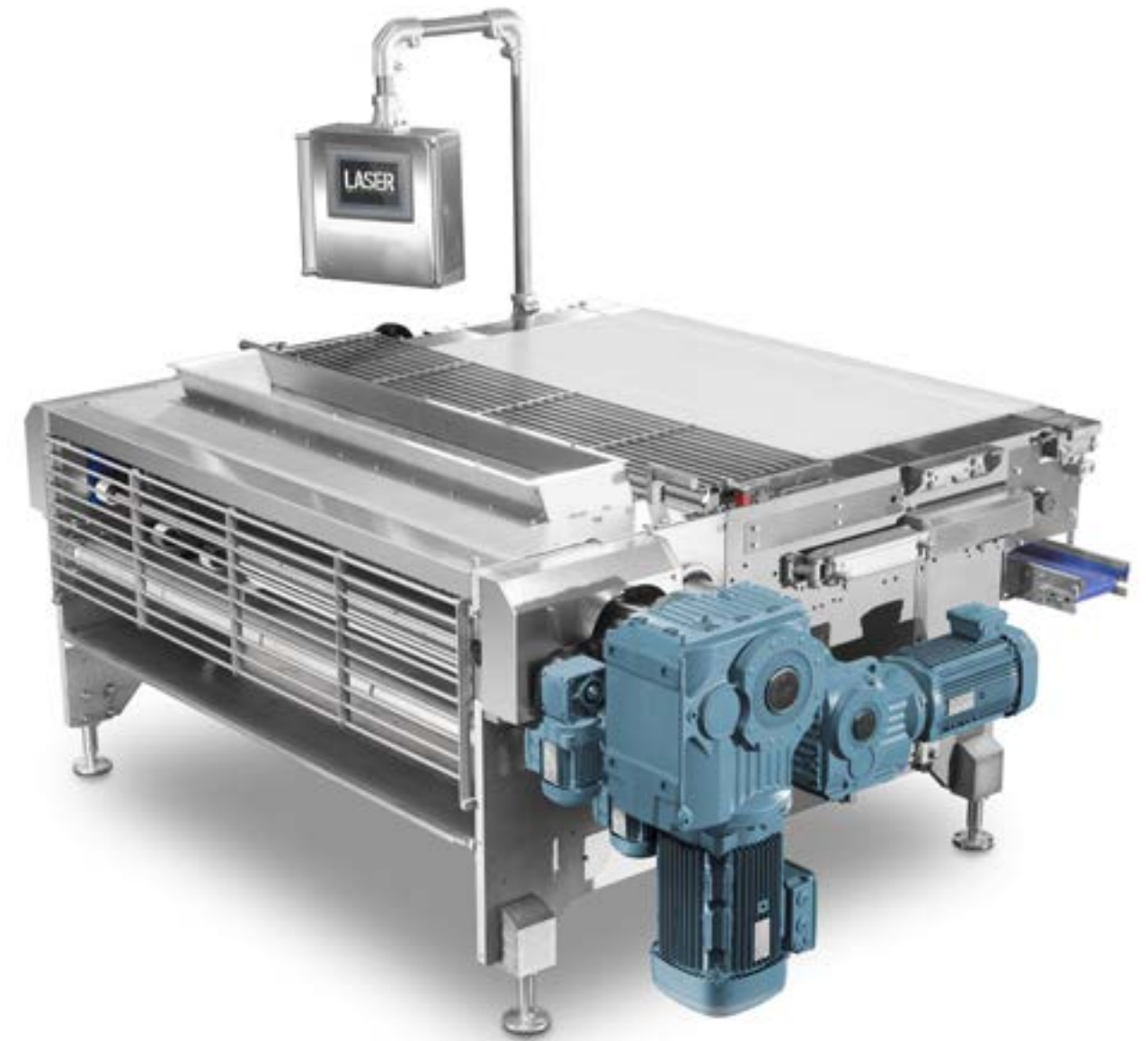
3
FEEDING
SOLUTIONS

30⁺
PRODUCTION LINES
INSTALLED EVERY YEAR

4
TYPES
OF TUNNEL
OVEN

3,5⁺
KM OF COOLING CONVEYORS
MANUFACTURED
EVERY YEAR

99
RECIPES
STORED



50 MIXERS MANUFACTURED
EVERY YEAR



The dough is the first phase of the process and one of the most critical: great importance is given to the homogeneity of the dough and its characteristics. How the ingredients are dosed, blended and incorporated, producing the correct amount of gluten during mixing and developing the correct temperature is essential to have a constant and machinable product in the subsequent phases. Laser can count on different types of mixers produced internally through years of experience gained in contact with its customers all over the world.

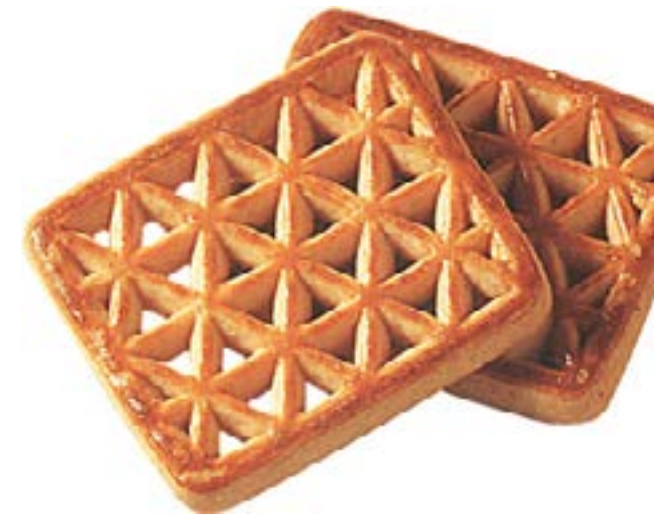
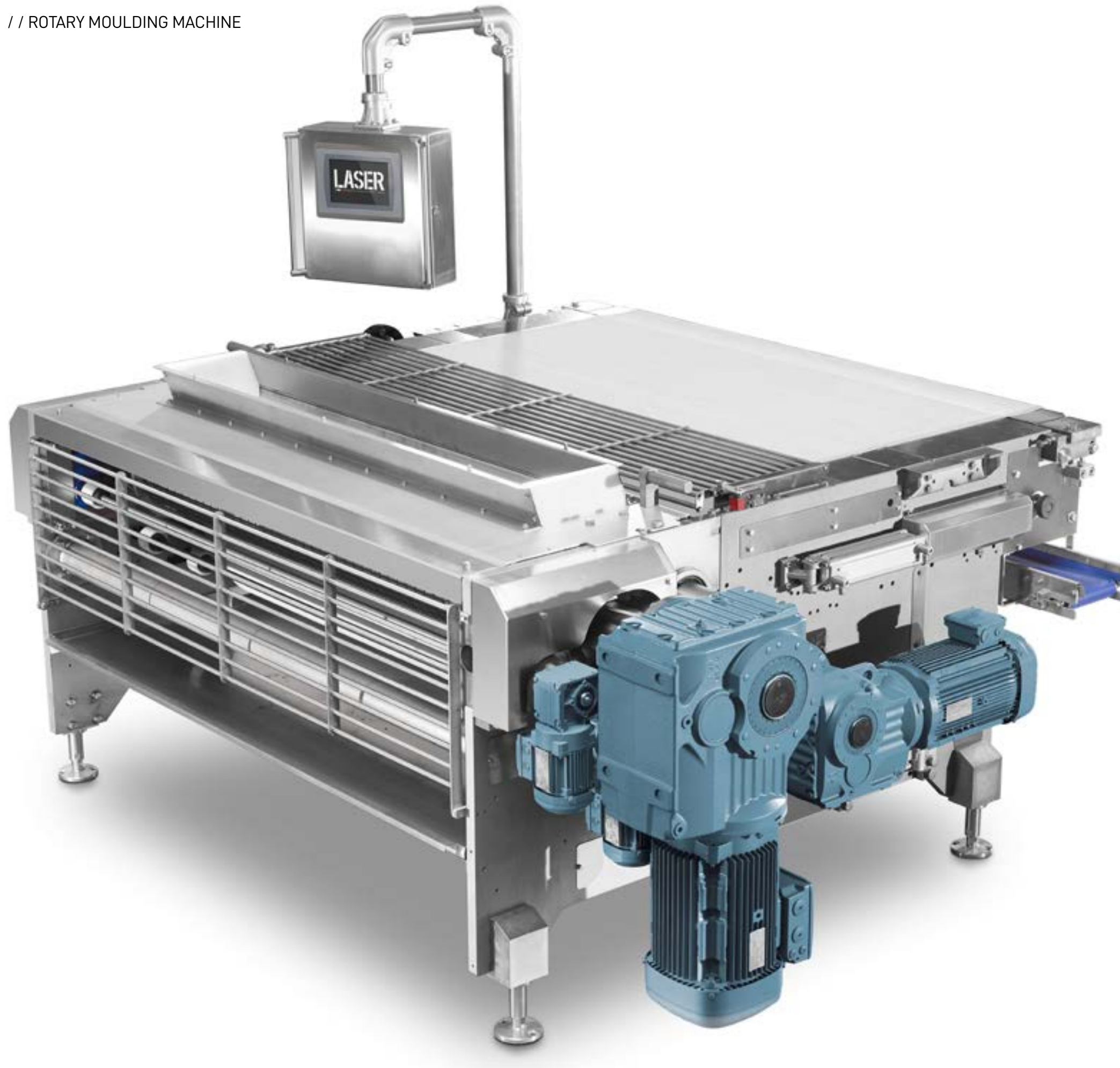
3

3 FEEDING SOLUTIONS: DIRECT FEEDING, INTERMEDIATE SHORT REST, LONG FERMENTATION ON BOWLS

Once the dough is created it must be transferred to the production line. It could be a direct process, with resting period of a few minutes, or require a fermentation of several hours. The mixing room could be near the process area, or on a separate floor. In any case Laser has various technical solutions to automate this phase. Often the dough is also checked to avoid the presence of contaminating materials that could damage the following stations.



// ROTARY MOULDING MACHINE



The rotary molding machine compresses the biscuit dough generally with a low quantity of fat and medium sugar thanks to a motorized grooved roller, suitably designed, inside the rotary mold so as to fill the alveolus with the shape of the finished product. The excess of dough is scraped with the knife and then the pressure roller pushes the cotton belt into the mold allowing the pieces of dough formed to stick to the canvas and to be extracted from the mold. A wide range of products is created with this machine and a wider range of customizations can also be made with the machine in order to adapt it to the different products and the space available. The rotary machine is nowadays the most flexible and used machine for the production of biscuits as as it is simple and quick in production changes and essentially foolproof with any dough.

EXTRUSION,
COEXTRUSION,
WIRE CUT

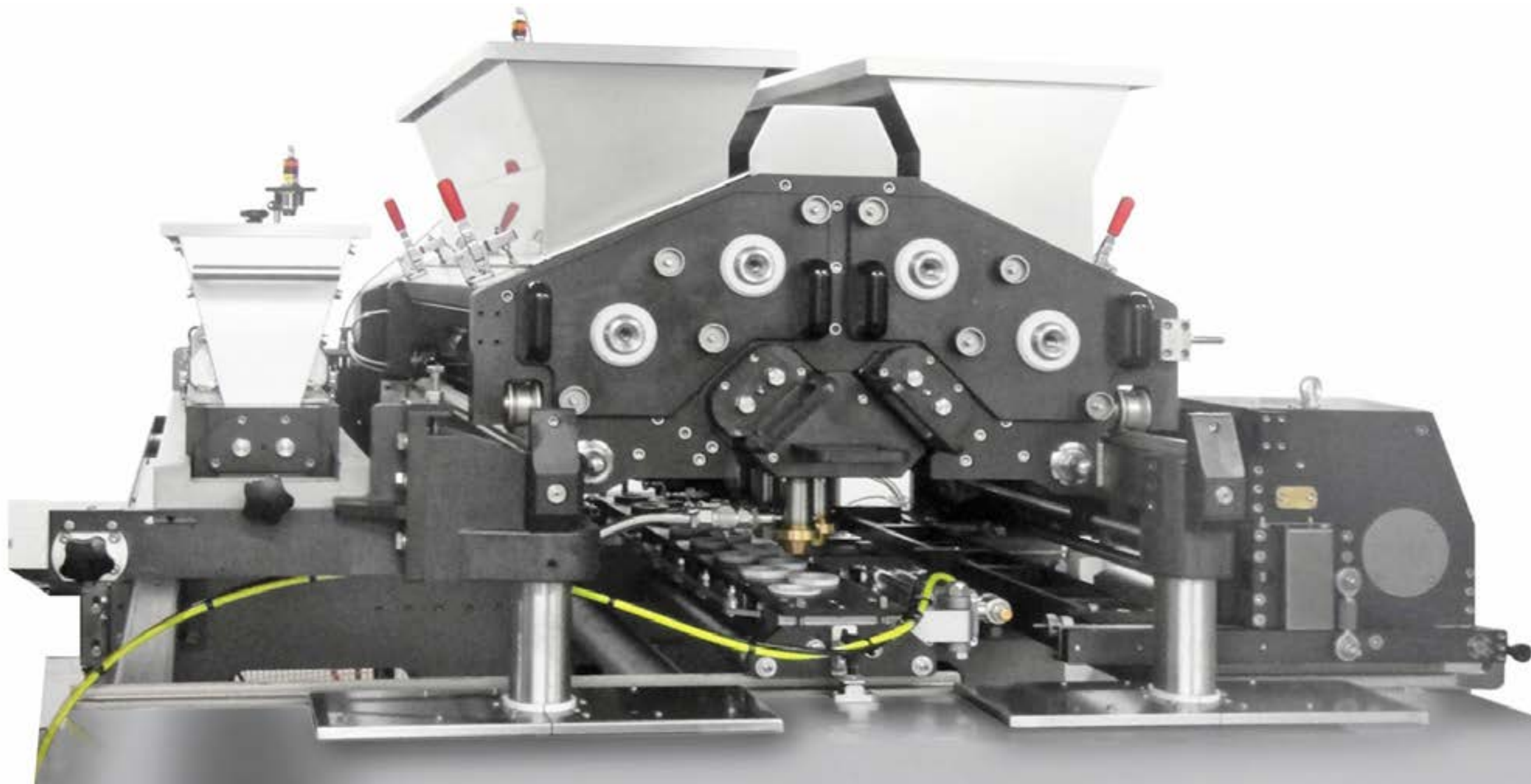


The biscuit extruder compresses the dough of the extruded biscuit by means of two motorized grooved rollers of generous dimensions in order to be conveyed to a dosing system which can be through filler block or through motorized lobe pumps. The doughs are generally containing moderate amounts of fat and sugar. Extruded products are extremely popular in America, where the main product is the Choco Chip Cookie, and in northern European countries where various "shortbread" or "butter Cookies" can be appreciated. The extruder can also be configured with an additional hopper to produce stuffed products such as grisbi or fig bars and also be equipped with product portioning systems such as wire, knife, diaphragm or guillotine cutting and other accessories.



// COOKIE DEPOSITOR

The roller drop machine is supplied in both single and double color versions and allows to dose liquid or semi-liquid products. Being mounted on a motorized base it can follow the progress of the underlying conveyor and thus create different product shapes according to the nozzle profiles and movements required. The products are generally very rich in fats and sugars and are mainly industrial pastry products. The drop machine can be customized with an additional hopper to produce filled products such as grisbi or fig bars and also be equipped with product portioning systems such as wire, knife, diaphragm or guillotine and other accessories.



// OPTIONAL

50⁺ SOLUTIONS FOR CUSTOMIZING THE FINAL PRODUCT



Each production line can be customized with various accessories to make the final product unique in its kind or make the same line more flexible and capable of responding to market demands. Several forming machines can be installed on the same line to work alternately or even in synchrony and expand the range of products. Distribution systems for granules, wetting and glazing can be easily integrated into the line layout to ensure that each product is unique in the market.



4

TYPES OF TUNNEL OVEN

The oven is the master of reference for the entire line and determines its production capacity. Proper baking and correct profiling of the parameters of each zone is the secret to obtain a constant and efficient production. Whether the oven is powered by gas, diesel or electric, which it bakes by radiation or convection, Laser has a solution for every need. Different types of baking and fuel can be combined to give an optimal and at the same time flexible result for modern industry



DIRECT GAS FIRED OVEN



INDIRECT OR DIRECT
OR ELECTRIC
CONVECTION OVEN



ELECTRIC RADIANT
OVEN



CYCLOTHERMIC OVEN

2 TYPES OF MACHINES TO PAIR COOKIES

Once out of the oven, the cookies move on to the cooling station. In case you want to make coupled filled biscuits, Laser has thought of two different solutions, both able to fully satisfy the needs of speed and quality of production



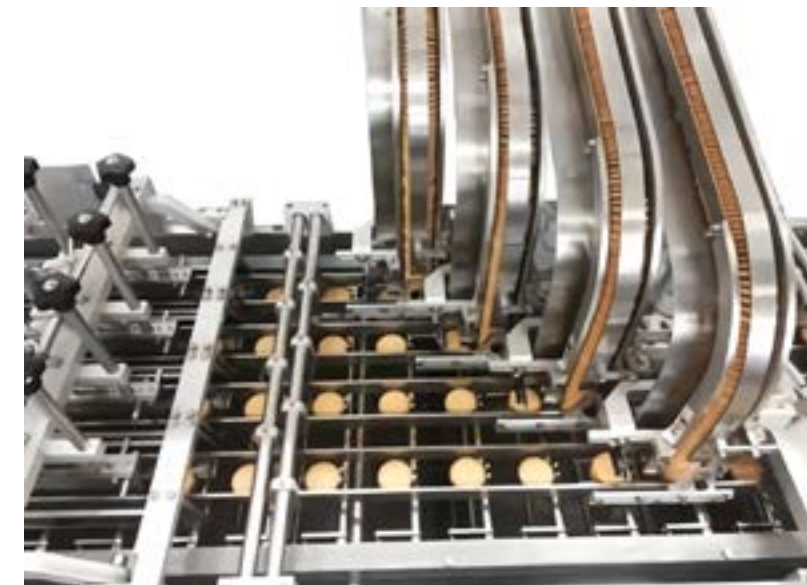
LASERCAP
IN-LINE SANDWICH MACHINE

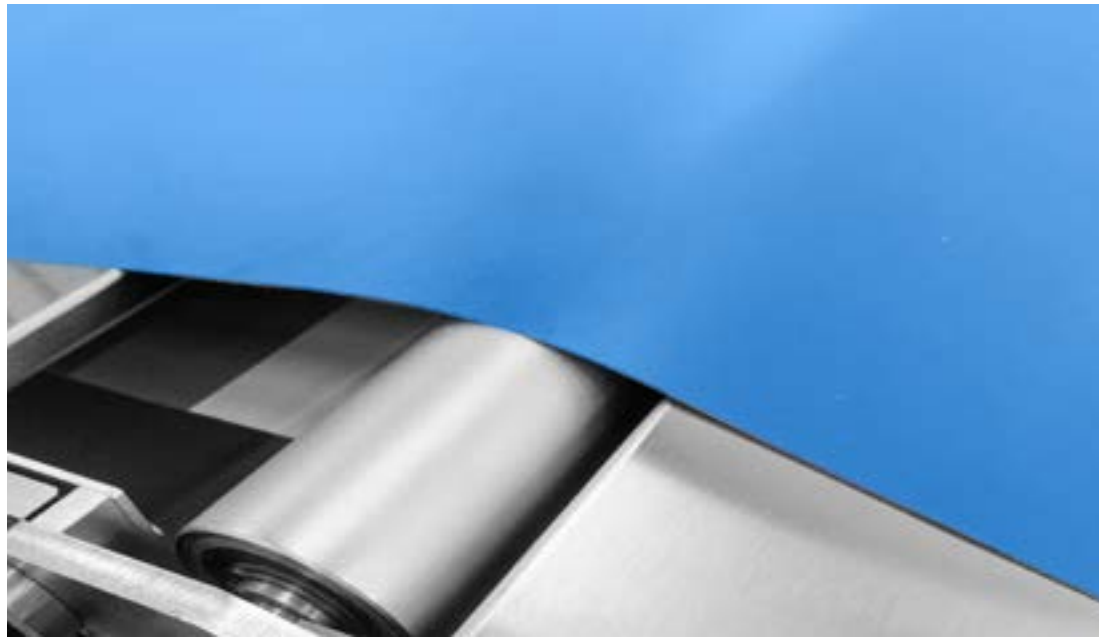
The LASERCAP machine can produce both filled biscuits and sandwiches, directly in line with the oven, considerably limiting the amount of human resources required by traditional systems



SM
SANDWICH MACHINE

Available in different models, the SANDWICH MACHINE SM with cream dispenser is able to produce sandwich products with an extruded and wire-cut cream in the center through vibrating feed channels from which the biscuits enter on rails.





3.5

KM OF COOLING CONVEYORS MANUFACTURED EVERY YEAR

Once baking is over, the biscuit must be cooled and transported to the packaging "islands", which may be in various positions in the factory. Maintaining a constant alignment and non-aggressive cooling are essential for obtaining a whole product that does not break, can be easily stacked and packaged. Nobody wants a package of crumbs! More than 3,500 meters of cooling conveyors are carried out each year, transporting each cookie to stacking stations. Subsequently, the biscuit can be conveyed to the packaging machines automatically or manually depending on the system and the speeds. There could be several packaging "islands", or several production lines, in this case an integrated system allows a production flexibility necessary for the modern industry.

99

RECIPES STORED IN OUR SOFTWARE MANAGEMENT SYSTEM FOR A FLEXIBLE AUTOMATION

The entire system is managed completely automatically by one or more PLCs. The software allows to manage the recipe and production parameters and also be connected to the customer's company networks if necessary. Extensive customization and on-line assistance give the customer a support according to his production needs (Siemens, Rockwell/Allen Bradley, Omron).





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