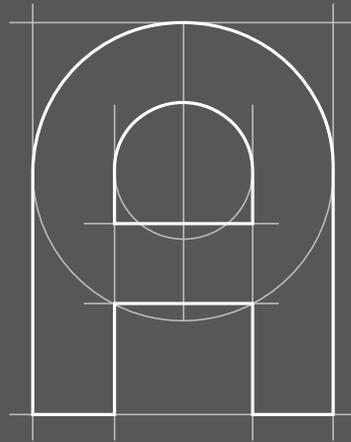


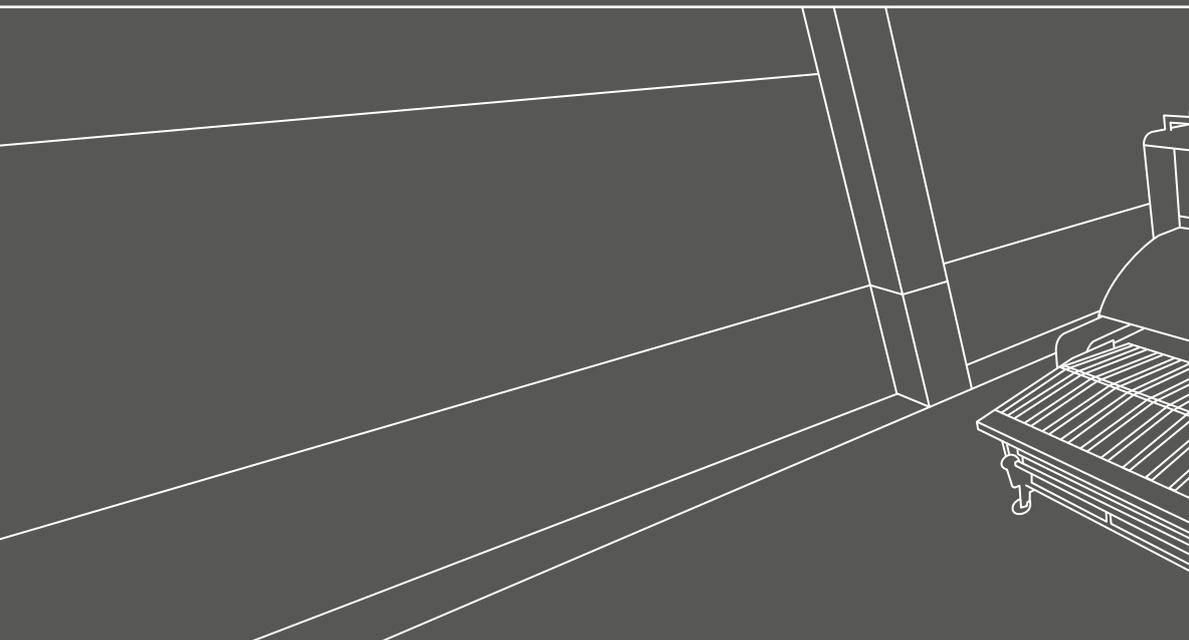


ALITECH
industrial baking systems

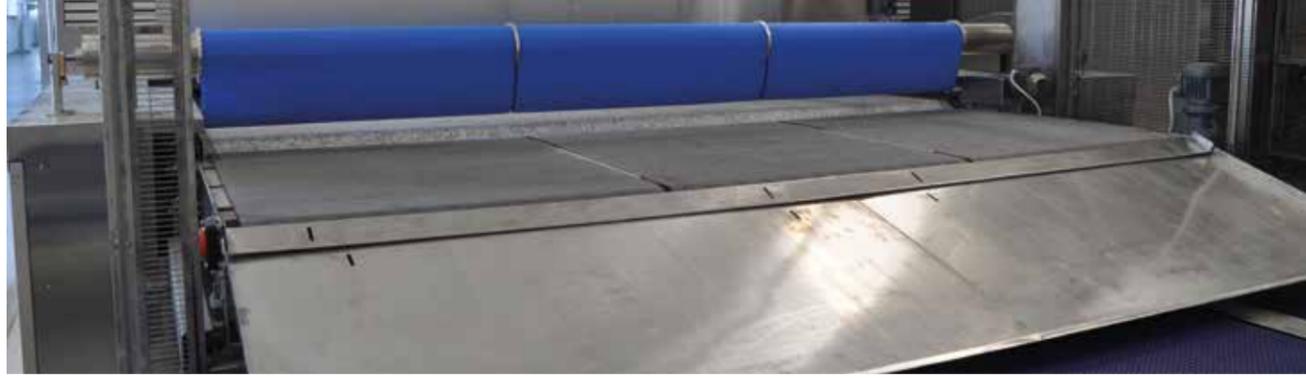


**TRAVELLING
TUNNEL OVEN**

**BKR S
BKR G**



Made in Italy 



BAKERUNNER STEEL / GRANITE OVEN

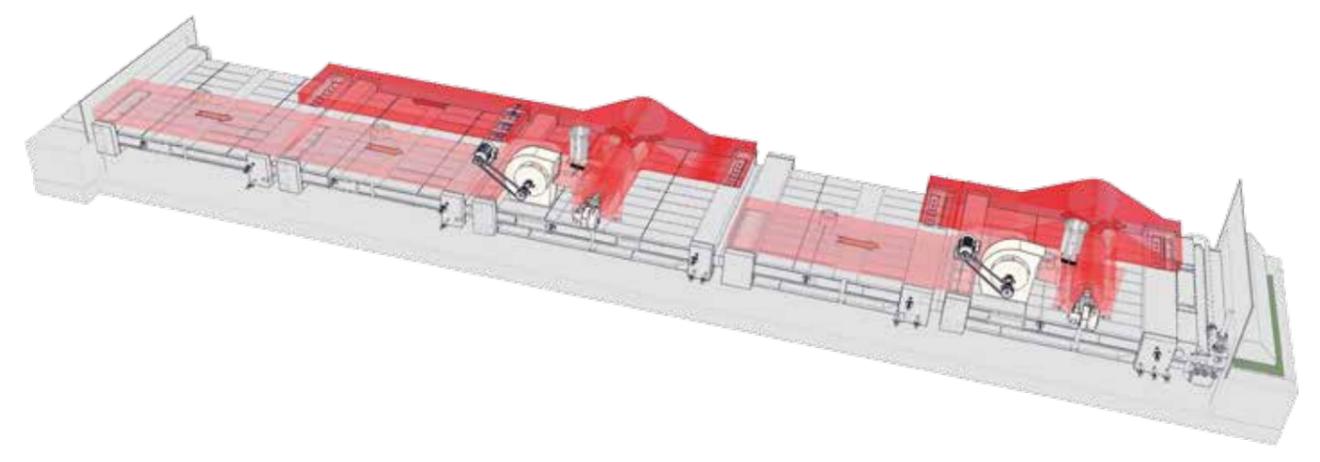
Experience is a basic asset and since 15 years Alitech is supplying his products all over the world.

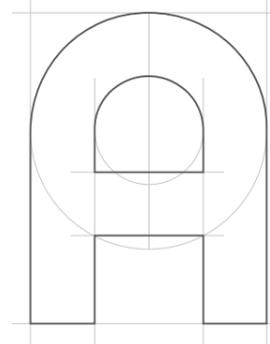
Alitech produces and assembles in his own premises, which is fully equipped for all the manufacturing phases. The production area is around 6.500 sqm, the surface of the technical and administrative offices is around 800 sqm. Most of our machines are pre-assembled in our premises before shipment. Installation at the customer premises is executed by our skilled staff. The supervision software is also designed internally by Alitech.

The "indirect" heated oven (Bakerunner) is powered by one ore more gas or oil burners, the heated air is then moved around in the heating circuit thus transmitting the heat to the final product in the required way.

The baking inside the tunnel happens by means of heat radiation, heat convection (contact with baking surface) **and/or heat conduction** (Turbolence). The predominance of the one or the other baking type depends on the oven type and on the combination of the baking chambers.

This is a modular oven, as it can be assembled in different styles, depending on how the different types of chambers are combined; moreover, with the available settings the same oven can be adapted to different products. It can be considered as an "UNIVERSAL" oven as the same oven **can bake a wide range of products**, from Bread-rolls to Tin-bread, only by means of changing the baking parameters: this peculiarity is not common among all the ovens available today on the market.





DEFINITION / THE OVEN PROJECT

An oven is a combination of different types of baking chambers:

- Infeed chamber with steaming unit;
- Neutral baking chamber;
- Burner chamber;
- Turbulence baking chamber.

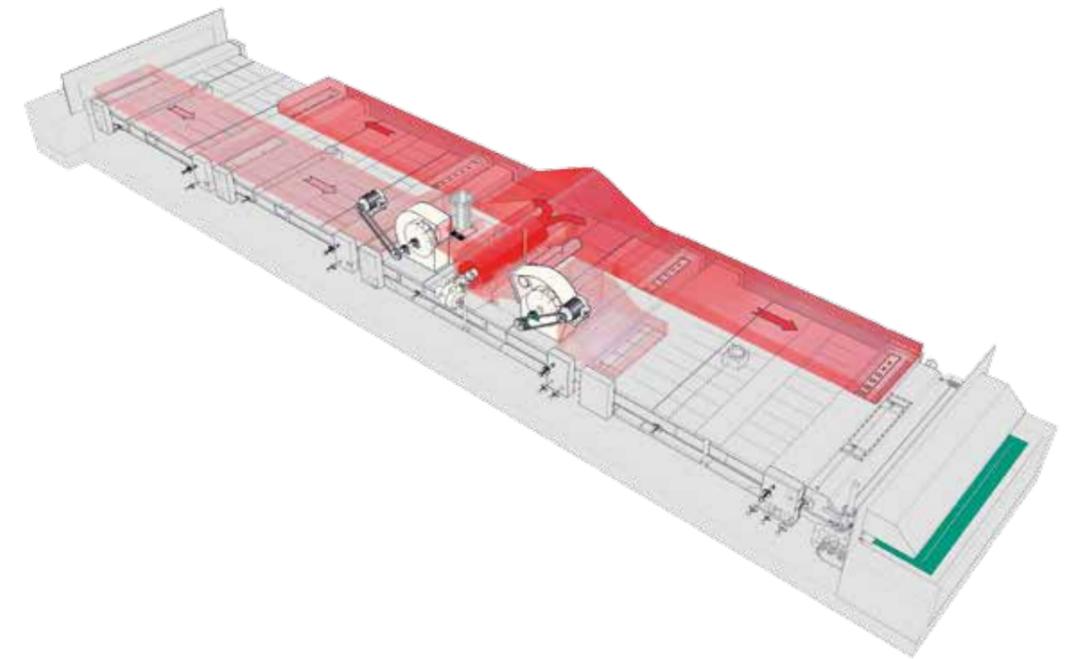
The sequence and the types of chambers (which are decided during the project definition according to the kind of product to be baked) as well as the available settings allow reaching the desired baking results with a wide operational range.

TECHNICAL FEATURES

Air distribution technology: burner position

In the BAKERUNNER Oven **the burner is located on the side of the oven**, perpendicular to the product run direction, this allows more flexibility in the air circulation and therefore in the baking profile regulation as well as a better efficiency: in most of the ovens the burner is in fact positioned parallel to the oven, with the hot air moving only in 1 direction (backwards); for this reason the designer is obliged to design the burning chamber ALWAYS at the beginning of the oven, having ALWAYS a descending baking curve.

The burner positioned on the side, perpendicularly to the oven, avoids these restrictions: **actually the hot air flow can be directed towards 2 opposite directions at the same time.** It is not necessary for the burner chamber to be the first chamber and the baking curve does not have to be descending! Moreover, the baking circuit can be split in 2 sections with 2 independent blowers and a single burner. Last but not least the freedom to place the burner in any position gives much more flexibility in the design of the line in case of space restraints like for example with the presence of a proofer on top of the oven.



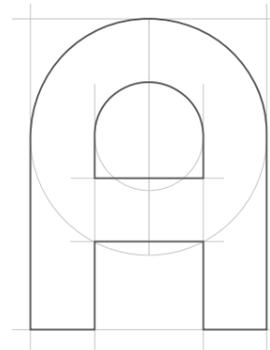
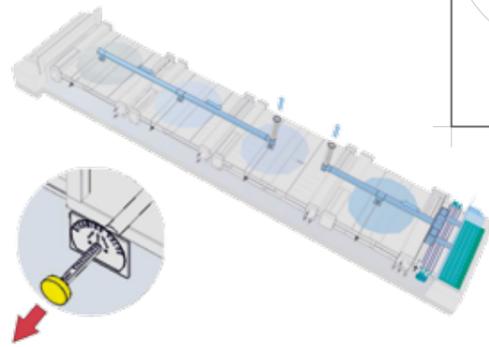
Baking profile/Operating of the Oven

The oven is divided in baking zones each with independent regulations, the max length of a zone is 6 meters.

The main regulations on the side of the oven are:

- **Top heat regulation;**
- **Bottom heat regulation;**
- **Baking surface preheating heat regulation;**
- **Oven heat regulation at infeed;**
- **Steam exhaust regulation;**
- **Steam infeed regulation at oven infeed;**
- **Hot air circuit blower speed regulation;**
- **Turbulence Blower speed and direction regulation;**
- **Baking speed regulation;**
- **Burner flame regulation (only by means of PLC).**

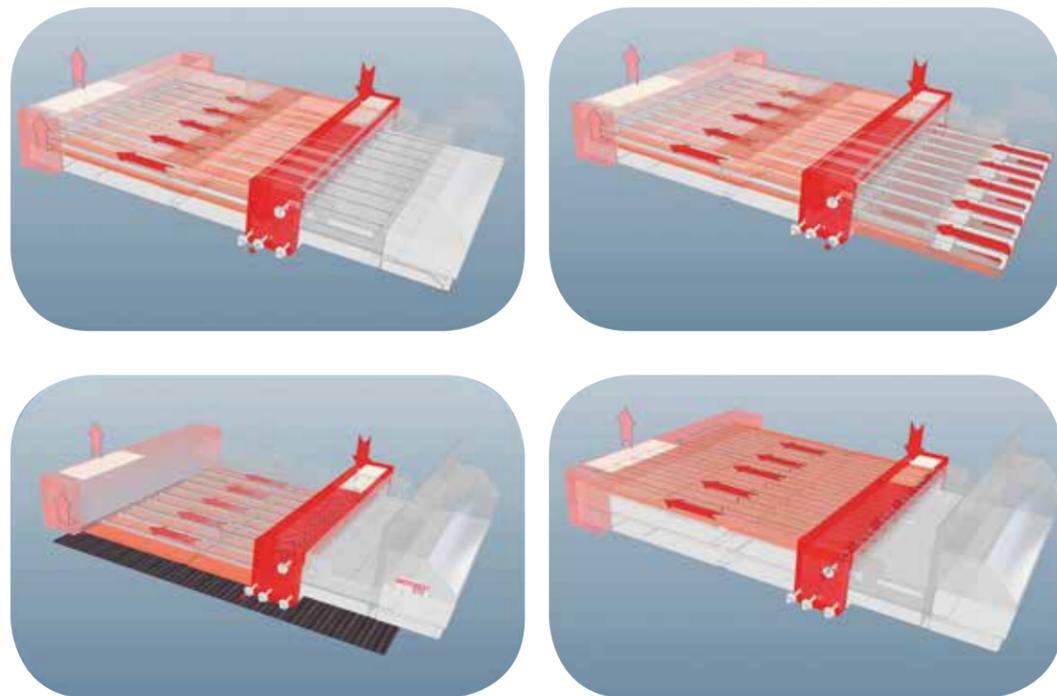
While baking the regulation happens by means of opening or closing the damper plates to adjust the amount of heat or steam entering or exiting the heating circuit and by changing the speed and/or temperature parameters on the control panel.

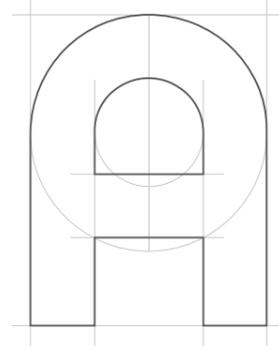


The baking surface

The Bakerunner oven is supplied with different baking surfaces, each with its own "character":

- **Steel mesh.** Typical for the baking of bread on trays or in tins, but also for free standing bread. Baking is predominantly by means of heat radiation and heat convection (turbulence).
- **Granite stone.** Typical for the baking of free standing bread with high water content and clear "Artisan" character. Baking is predominantly by means of heat radiation and heat conduction from the stone plate sole. The stone, for its physical specs (specific heat per kilogram) will release the heat to the product for a consistent longer time and the spot temperature under the dough won't drop during the baking time, this will allow, besides a better quality, a lower baking time. The stone helps the crust's building resulting in a product with more humidity.
- **Continuous steel band.** Is more indicated for the baking of sweet or sticky products where the cleaning and the stripping off of the products at the oven exit is problematic. Baking is most of all by means of radiation.
- **Steel plate.** Is similar to a closed mesh, allows a better cleaning and doesn't leave marks on the product.
- **Teflon coated band.** Configuration for special products with sticky ingredients or topping. Can replace the baking paper and it's easy to clean.





User Interface / An intelligent oven

From the operator panel the supervisor can manage the baking process completely:

It is possible to put several parameters (SET-points) and verify the actual status (IS); alarms are showed with an explanation and position on the line; the maintenance page advises about maintenance status of the different components; the recipes page can memorize the baking parameters of the different products.

The oven automation level can be increased according to the customer requirements, it is actually possible to manage automatically the baking profile of the oven automatizing the heat-dampers and/or the steam extraction dampers in the different zones; in this way the operator can set up the oven for the different product types simply by choosing the correct recipe on the control panel.

Moreover with this system it is possible to detect the product's gap inside the oven and modify the baking conditions accordingly.

The oven is equipped with different sensors, the acquired datas allow the operator to verify the process, the trend and even the baking efficiency. The main sensors are:

- Hot Gas temperature at infeed channel;
- Hot Gas temperature in the return channel;
- Hot gas temperature at chimneys exit;
- Pressure inside the Hot Gas circuit;
- Opening of the Burners gas flow valve.

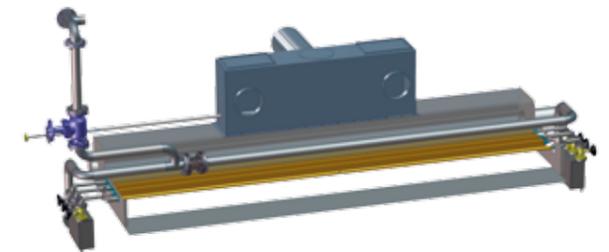
It is clear that by crossing some of the data acquired by these sensors and knowing the product hourly output it is possible to determine the energetic efficiency of the oven together with other productivity coefficients.



SOME DETAILS

■ Steaming of the oven

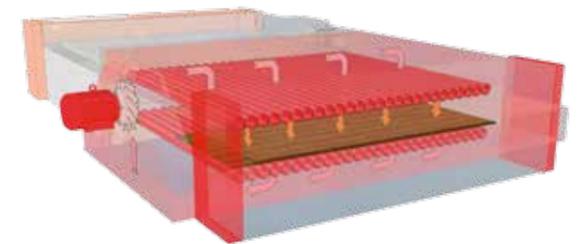
At the oven infeed the steam pipes are steaming from both sides allowing a better distribution of the steam on the width of the baking chamber. The steaming zone is stainless steel. Each zone is provided with its independent steam extraction.



■ Turbulence

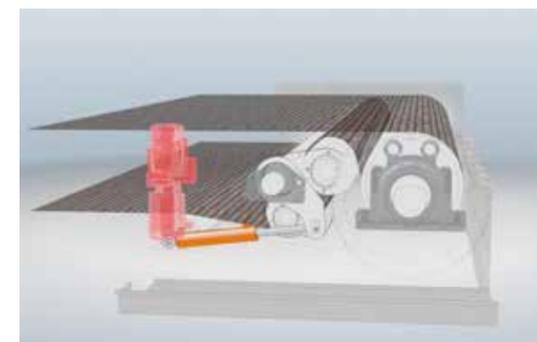
This is a baking chamber where, besides the radiation, the baking happens also by means of convection: the hot air is actually blown by a blower directly on the product. The direction of air flow is adjustable (up-down/down-up). The speed of the air is adjustable. The turbulence can be switched off, in that case the baking chamber works as a "neutral" chamber.

The turbulence section is particularly helpful while baking bread in tins or on trays: it allows to overcome the barrier represented by the mold, to quickly equalize the color and even to lower the baking time of the product.



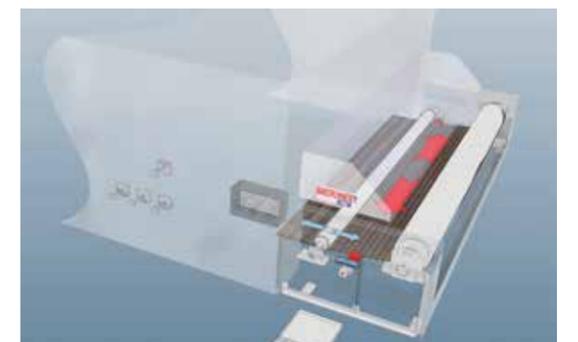
■ Hydraulic tensioning of the baking surface

Hydraulic pump for mesh or chain tensioning with programmable oven start and cool down sequence.



■ Automatic tracking device

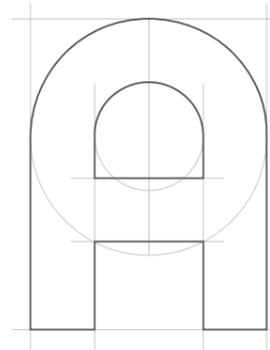
Mesh tracking device: by means of pneumatic cylinders actuated by "feelers" the mesh is constantly guided.



■ **Automatic dampers**

Hot air and steam dampers can be motorized. The motor sets the dampers to the exact opening position, according to the active recipe.

This option is particularly helpful for very long ovens that bake a variety of products or if the supervisor doesn't want that the operator moves the dampers' positions manually.



■ **Extraction blowers**

Forced extraction blowers can be mounted on the steam extraction chimneys on request: they allow a better management of the steam conditions in the chambers and to manage the production gaps in a better way.



■ **Automatic oil device for the stone plate oven chain**

Programmable automatic oil device with toothed wheel and oil distribution pump. The wheel couples with the chain, in this way the oiling point is always met.



■ **Infrared sensor to read the stone plates' temperature at oven infeed**

An infrared sensor at oven infeed measures the temperature of the baking surface and allows the operator to "find" the ideal temperature at oven infeed.



■ **Cramps Collecting drawers**

The oven is equipped with collecting drawers at the infeed and outfeed as well as underneath the baking surface.



■ **Motorized brush**

A motorized brush cares for the cleaning of the baking surface and is particularly helpful for the stones cleaning. The brush can be removed sideways with collecting drawer.



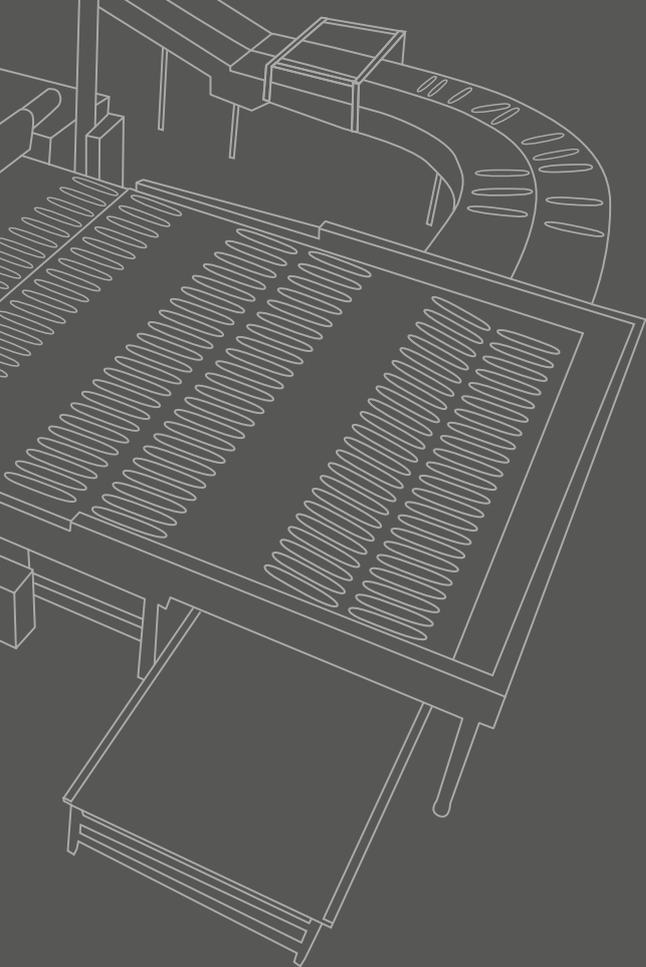
■ **Product's gap management**

The photocell detects the product's gap before it arrives to the oven, the software modifies the parameters and follows the gap to the oven discharge.

■ **Oven in-feed and out-feed**

The manufacturing of the stone plate ovens led to the construction of innovative systems to transfer the products to and from the oven surface. The conveyor at oven discharge, for instance, has a double movement: there is a gear motor that keeps the band running and another one moving the pick up nose horizontally, thus following the stone plate polygonal profile at the oven out-feed. A motorized star strips the product from the oven plate.





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industrial baking systems

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