How to eliminate oil waste in industrial bakery

An industrial bakery equipment manufacturer solves a baking tray lubrication problem with PNR Italia atomizers

INDUSTRY
Food

APPLICATION OF PNR ITALIA PRODUCTS
Lubrication

PROBLEM
Lubricate the baking trays with the right amount of oil

PNR ITALIA SOLUTION
Manifold system
and air assisted atomizers

SCENARIO FOR THE SECTOR

How is industrial bread made?

The bread and leavened products that we find in large distribution chains come from elaborate and strictly regulated industrial processes to ensure the high quality of the finished product.

Often, for the production of large quantities of product, the dough and the bread are subjected to an **automated production process carried out through the use of tunnel ovens and conveyor belts.**

The automated production process of industrial bread

According to the type of bread to make, the production process can consist of different phases. In general, however, we can identify 6 steps common to the vast majority of processes:

1 | DOUGH: all the ingredients are mixed until a homogeneous mixture is obtained;

2 | PORTIONING: the mixture is portioned and carried to the next stage with conveyor belts;

3 | MODELING: in this phase, the dough is modeled according to the desired finished product;

4 | LEAVENING: the previously portioned dough rises in leavening cells;

5 | COOKING: the bread is baked in tunnel ovens;

6 | PACKAGING: the finished and cooled product is packaged and sent for distribution.

THE PROBLEM OF OUR CLIENT

The customer who turned to PNR Italia is an industrial bakery equipment manufacturer.

The need was to lubricate with the right amount of oil the molds where the bread is baked to ensure that the product detaches easily once cooked.

During the industrial process of bread production, the dough, after being portioned, rises in particular cells. Its path then continues towards the tunnel oven. While the dough proceeds, another line sprays with oil the trays to cook the product. This operation is essential because it ensures that the baked bread easily detaches from the molds, avoiding ruining the finished product.

PNR ITALIA SOLUTION

Our Technical Department developed a system consisting of a manifold with 12 MX air actuated atomizers. It sprays the trays with oil at 3-second intervals at a pressure of 1 bar.

Each tray stops under the spray unit for 3 seconds and continues in the production line. The system uses 15 liters of oil for the lubrication of 2600 trays with 12 cells each.

ADVANTAGES FOR OUR CLIENT

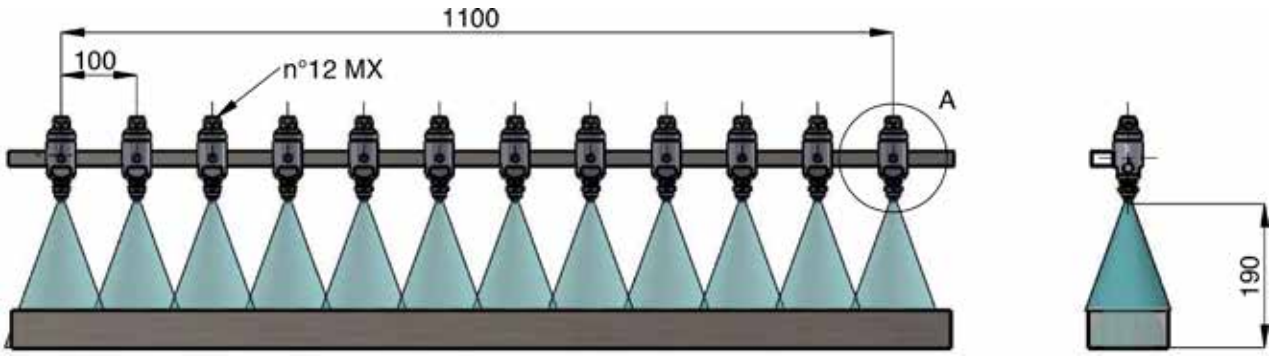
Before our intervention, the customer used other lubrication methods that did not guarantee the precise results of the MX sprayers. The quantity of oil was excessive and compromised the finished product, generating economic losses.

The system developed by PNR Italia can carefully calibrate the amount of oil required for each cell and spray it accurately.

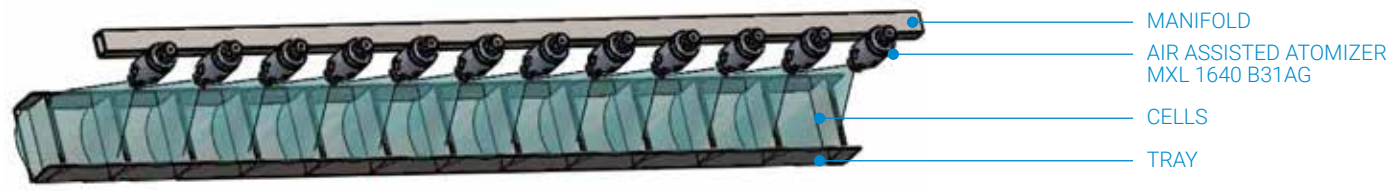
FOCUS ON THE PRODUCT

MXL 1640 B31AG
AIR ASSISTED ATOMIZER

MX bodies contain an air-actuated cylinder that controls the spray operation through a needle, opening or closing the water inlet in the liquid nozzle.



MANIFOLD AND TRAY
FRONTAL VIEW AND DETAIL



MANIFOLD AND TRAY
ISOMETRIC VIEW

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