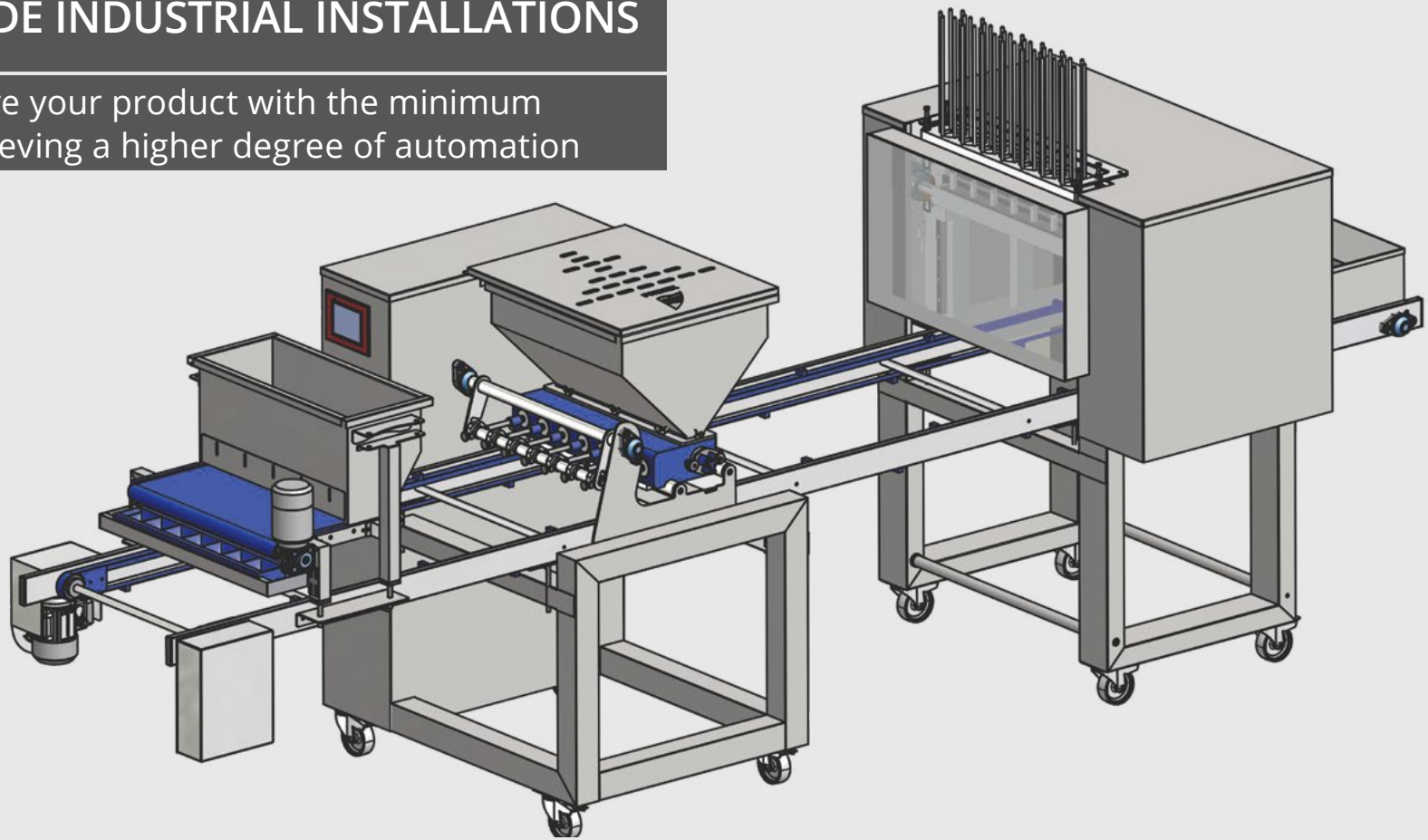
FORMEX
FABRICAMOS SOLUCIONES PARA DOSIFICAR TU PRODUCTO

TAILOR-MADE INDUSTRIAL INSTALLATIONS

Manufacture your product with the minimum handling, achieving a higher degree of automation



We design the workstation according to your product requirements and your production needs. Our machinery is modular and can be combined to set up a new working line. It can also be integrated into a production line that is already in operation.

TOMATO SAUCE DOSING MACHINE ATTACHED TO A PIZZA PRODUCTION LINE

AUTOMATIC FILLING MACHINE DA

standard model

FILLING MACHINE DA ADAPTED

Tailor-made

A producer of pizza dough needed to add a tomato sauce dosing machine to their line.
The line's conveyor belt works continuously, it cannot stop to dose, so it has to be done in a very short time.
The sauce must be spread over the entire surface of the pizza except for the edges.
The customer will make **four different pizza diameters.**
The product must not drip as it would stain the conveyor belt.

We integrate a tailored DAS dosing machine with 4 dosing nozzles shower-shape.

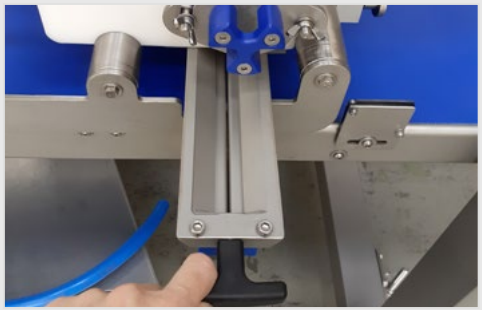
- Different programs depending on the product.
- Possibility of modifying, by means of a touch screen, the quantity of doses, dosing speed and loading speed.
- The dosing control is managed by a servomotor system that gives the machine greater speed, smoothness and precision.
- Nozzles with anti-drip system and self-cleaning system for the dosing heads.
- Quick format change according to the pizza diameter.

AUTOMATIC FILLING MACHINE DA

standard model

FILLING MACHINE DA ADAPTED

Tailor-made



TAILOR-MADE FILLING MACHINE TO DOSE SPONGE CAKE SHEETS

This machine model, MAS, is a tailor-made design, adapted to the product needs **-continuous sponge cake sheet-** and which is **coupled to a production line.**

- **Continuous dosing** as the belt advances.
- Manual adjustment of the height of the dosing head, which lowers automatically for each dose.
- Belt speeds adjustable by screen.
- The dosing control is **managed by a servomotor system** that gives the machine greater speed, smoothness and precision.

PAPER-CUP MACHINE CA

Standard model

TAILORED PAPER-CUP MACHINE

Tailor-made

AUTOMATIC FILLING MACHINE MA

Standard model

TAILORED FILLING MACHINE

Tailor-made

PAPER-CUP AND FILLING MACHINES TAILORED TO WORK IN A CUSTARD PRODUCTION LINE

This machine is part of a custard dosing line composed by this dispenser and a dosing machine.

It was tailor-made to **dispense 5 circular cups** and position them on the conveyor belt for subsequent filling in the automatic dosing machine with 5 nozzles.

The **conveyor belt is silk-screened** to facilitate the manual positioning of the containers in case they are square and the dispenser is not used.

The MAS filling machine was also modified to add a **heated reservoir** and the dispensing assembly and reservoir were protected with a polycarbonate structure to help maintain the heat from the heater.

DOSING-DROPPING MACHINE GTF

Standard model

TOPPING UNIT DTA

Standard model

INDUSTRIAL LINE GTF + DTA

MODULAR LINE: GTF + DTA TO MAKE ALMOND BISCUIT

The client makes a **spongy dough elongated biscuit,** by hand, and decorates it with almond shavings. **Previously the dosing was done manually.** Manual filling is: slow, not uniform, heavy for the worker's arm and wrist, causing injuries.

SOLUTIONS PROVIDED: GTF + DTA MODULAR LINE WITH CONVEYOR

With the GTF + DTA modular line, the operator places the tray with moulds at the beginning of the conveyor and picks it up full at the end, recovers the excess almond that has not stuck to the biscuit and places it on the oven trolley.

- **Improved dosing, uniform pieces, faster production.**
- The dough does not de-gas.
- Option to change moulds to make products with different number of fixed or rotating nozzles; smooth or curled.
- Option to make other types of products in semi-liquid or hard dough.
- **Greater ergonomics for the operator.**
- Removable head for complete cleaning and disinfection.

PRODUCTION LINE:
BISCUIT DISPENSER + DA30

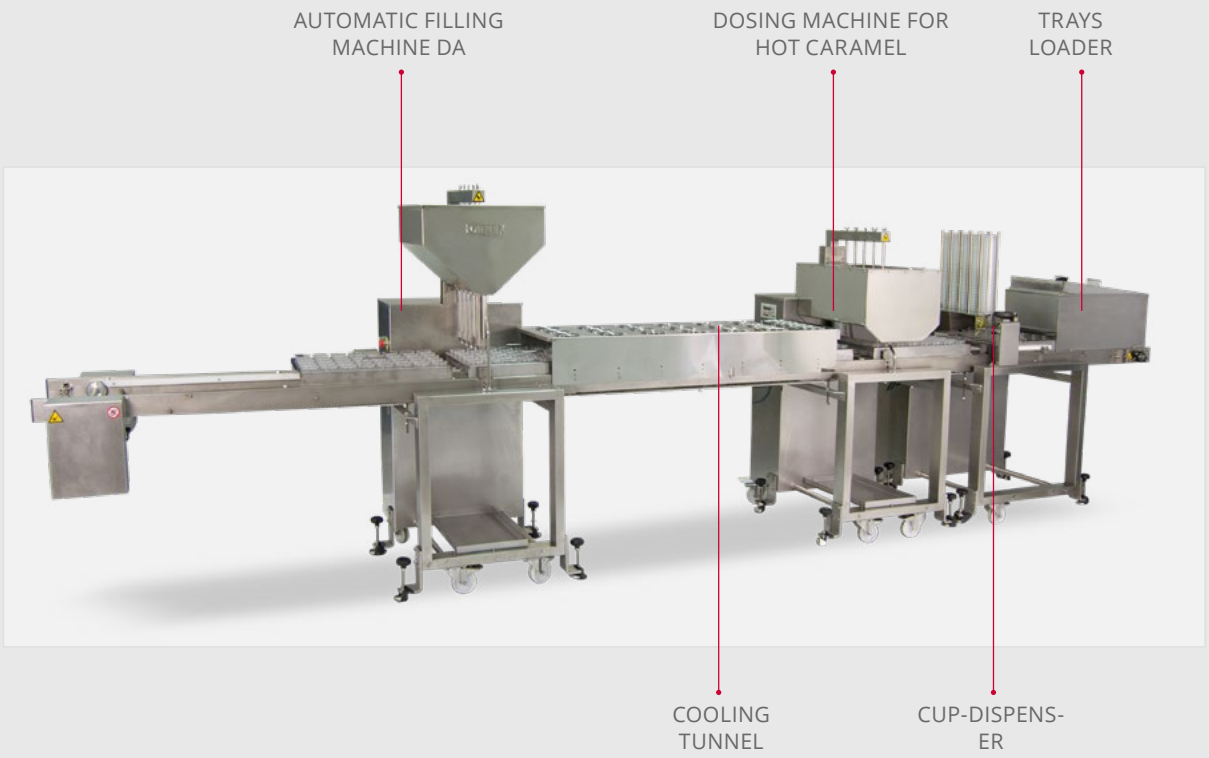
Modular line consisting of three **tea biscuit loaders and** a DA30 **automatic filler with 4 nozzles.**
Each biscuit loader is designed for different sizes of biscuits; We place the biscuits by hand. We can adjust the height at which the biscuits fall by of handwheels.

The first conveyor of the line is made up of finned belts, so it **drags a row of biscuits** to the next smooth belt, where a pneumatically driven aligner aligns them **before the pneumatic dosing station, where jam or other products can be dosed onto the biscuit.**

It should be noted that **one of the loaders is the base biscuit** on which a second type of biscuit is placed, so that **the line can be used for single or double biscuits.**

This line automates the process of biscuit assembly and manual dosing with a corresponding increase in production. Depending on the type of dough and biscuit, the output can reach **up to 4,000 biscuits per hour.**

WORKING LINE TO MAKE FLAN

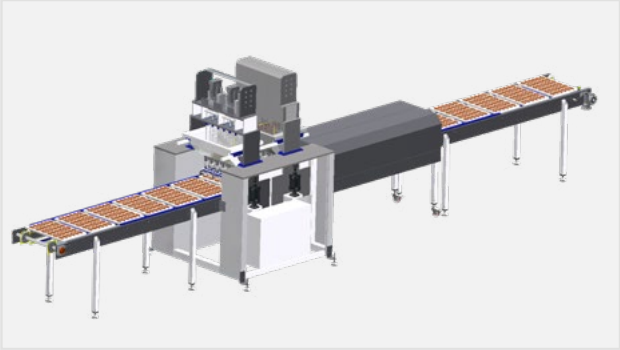


Automated flan production line, at the beginning the cups would be placed automatically and at the end obtain the flan already sealed and ready to be packaged or refrigerated.

Several stations are necessary to carry out the whole process:

- At the beginning of the line **we manually place the trays in the loader.**
- In the next module the **dispenser** automatically **places the flan cups in the tray.**
- The next unit is a tailor-made filling machine in which we **dose the caramel at a temperature of 170°.**
- Before reaching the next dosing unit, the trays pass through a tunnel with several fans to **cool the caramel.**
- Then, in the DA dosing machine, we **dose the custard.**
- And finally, the line ends with the **thermosealing unit for the cups.**

WORKING LINE TO FILL DIFFERENT FLAVOURS INTO THE CROISSANTS



The customer needed to add a **line of filled croissants to their production,** taking into account that initially the croissants arrive in 40x60cm trays with 36 croissants per tray. The product arrives directly from the oven, so a station is needed after injection so that they can be unmoulded without difficulty. It is also necessary to be able to produce croissants with different fillings at the same time.

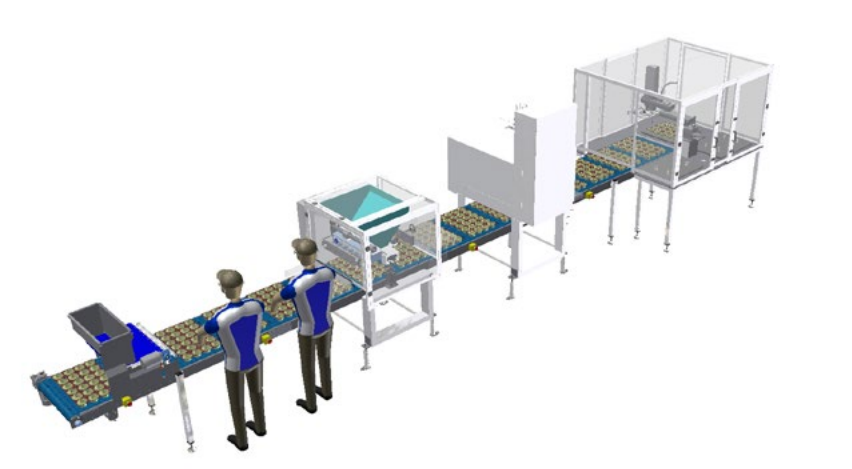
Once again, we adapt the machine design to the customer's needs. In this case, the fact that **different fillings have to be injected at the same time** and the fact that **thousands of units have to be injected every hour** is a challenge.

SOLUTIONS PROVIDED:

The solution to meet the requirements was an **injector machine with two injection heads,** thus making it possible to simultaneously produce croissants with different fillings while increasing production to achieve our objective.

As the tray has a capacity of 36 croissants, the heads are three rows of 6, so each head can inject 18 croissants, half of a tray. Both heads go up and down at the same time so that in one cycle a whole tray is injected.
The injection system allows both cream and chocolate to be dispensed, bearing in mind that the chocolate must be warm to avoid straining the machine. The inclusion of servomotors for the injection process allows us to control the parameters through the screen.
After injection, we incorporate **a heating station,** the trays pass through a heating tunnel with electrical resistances so that the product is heated and as a result we **avoid the trays sticking** and facilitate demoulding.
This line is part of a larger one.

WORKING LINE TO MAKE MUFFINS AND MACARONS



The customer needed to add a complete and versatile **production line for various product types and formats.** The line includes everything from tray handling to having the product ready to be taken to the oven for baking.

The main challenge in this project was to **automate part of the line to achieve the desired productivity increase** with maximum efficiency and higher throughput. With the addition of achieving a single versatile line that can **operate with different types of trays and paper, with the consequent reduction of space, resources and time.**

SOLUTIONS PROVIDED

The solution to meet the objectives was a working line for large productions consisting of:
- An **Omron technology robot arm** with three interchangeable platens and nine tray loaders (different sizes, cardboard, metal and paper sheets) that **places the corresponding tray on the conveyor belt.**
- CA **Paper-cup machine for two different types of paper** (muffins and fiancer) that places the capsules on the tray.
- MA **muffin filling machine with seven nozzles,** with volumetric dosing regulation.
- Interchangeable DTA **topping dispensers.**
- A conveyor that transports the trays from the tray magazine to the end of the machine, passing through the different work stations.

The inclusion of the robot at the beginning of the line allows us to increase the versatility and efficiency of the assembly, since the same robot can work with the different tray formats, even placing a metal tray first and then a sheet of paper on it.

The automation of the assembly allows us to obtain a production of approximately **8,400 macarons/hour with the 7 nozzles or more than 8,000 units/hour with muffins,** madeleines or fiancer.

WORKING LINE TO MAKE CUPCAKES FILLED WITH TWO FLAVOURS, WITH CHOCOLATE ICING AND TOPPING

Working line consisting of **two injectors machines, and a filling machine for chocolate coating and a topping dispenser.**
- The injection and fondant tanks are tempered in a **heated urn to keep the filling and the fondant at the optimum working temperature** and to achieve a fluid dosing.
- In order for the line to be operated by a single person, **a double conveyor belt system** is proposed, so that at the end of the upper belt, **the tray is automatically** lowered to a lower belt that **moves** the trays **to the beginning of the line,** where the same operator who has placed them at the beginning can remove the completed product trays.

ADVANTAGES
- Touchscreen process control.
- High precision dosage and speed control by servomotors.
- High output in a small footprint.
- Removable injection tanks for quick product change.
- Level detectors in the tanks for automated filling.
- All materials (including tanks) can be removed for cleaning and disinfection.
- Very safe, CE-compliant working line.
- One operator controls 4 processes:
    - 1st filler injection;
    - 2nd filling injection;
    - Dosing of hot fondant (white, chocolate or coloured) on the cupcake or muffin;
    - Decoration on the piece with nuts, chocolate chips, sugar shavings.

WORKING LINE TO MAKE CLASSIC CUPCAKES, MUFFINS AND MARBLE SPONGE CAKE

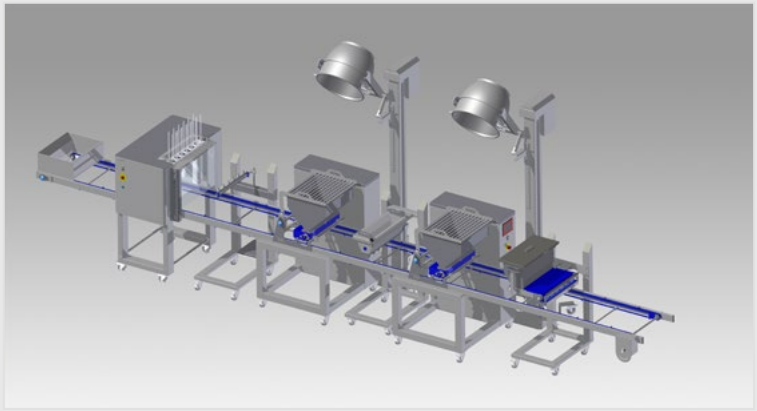
Work station to produce - in different sizes - classic cupcakes, muffins and marble cake.

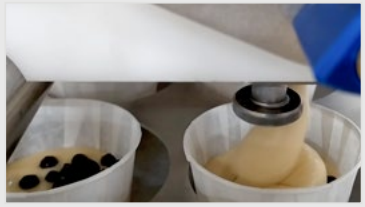
In a length of **only 7 mt,** an entire industrial production line is integrated to make **more than 95,000 muffins during a working day.**

Composed of the following modules:

- Double tray loader for 40x60cm trays.
- CA-120-XL paper-cup machine adapted to work with three different paper cups.
- Filling machine with servomotor MAS-120 with 14 dosing pistons and with separation in the hopper to work with two-colour masses.
- Filling machine with servomotor MAS-120 with 10 pistons and double outlet nozzle for dosing 2 rows of trays in each cycle.
- TPT-120 topping decorator, to spread on te top product: chocolate pieces, pieces of nuts and seeds.
- Tray elevator and lower return conveyor. **Only one operator places the tray in the tray loader and picks it up at the same station at the end of the process.**

HIGHLY VERSATILE INDUSTRIAL LINE FOR MULTI-PRODUCTION





It consists of **different stations - several of them removable - to make products with different cups and moulds, with/without trays, doughs with product inside and with different final decorations.** Large and small muffins, filled with blueberry, with sugar topping, chocolate shavings, plumcake, etc.

Consisting of:

- Removable tray loader, in some products with a deep-drawn tray the loader is used and in others it is removed to place the mould manually, for example silicone moulds on a flat tray.
- CA60 paper-cup machine.
- Two bowl lifters.
- Removable sprayer for spraying release oil on the silicone moulds.
- Muffin filling machine MAS60.
- TPS60 topping dispenser on removable trolley.
- Muffin filling machine MAS60.
- TPT60 conveyor topping machine on removable trolley.

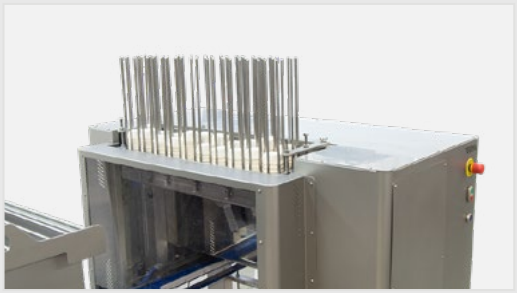
Features:

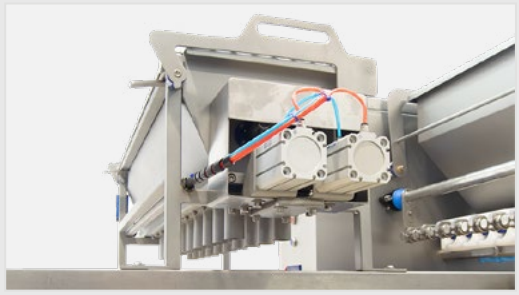
- Each station can be activated or deactivated independently by means of a display.
- Removable modules for easy cleaning.
- All the dosing modules are easy to clean, both the MAS and the TPS, as the tanks are removable, and the TPT has an IP69K hygienic motor so it can be taken directly to be cleaned with a hose.
- **Production between 5400-7200 pieces/hour depending on the product.**

WORKING LINE TO MAKE A HUGE RANGE OF MUFFINS WITH DIFFERENT FILLINGS AND TOPPING. THIS LINE CAN MAKE CREAM OR CHOCOLATE FILLED CUPCAKES DECORATED WITH PIECES OF ALMOND OR CHOCOLATE SHAVINGS TOPPING, MUFFINS, ETC. IN A QUICK WAY AND EFFECTIVE.

This factory produces a wide range of muffins with different fillings and toppings.

Formex Maquinara designed a Modular Line installation made up of a CA Cup-Dispenser Machine plus a Muffin Filling Machine MA and, after baking, an Injector Machine IA.





INDUSTRIAL DOUBLE-OUTPUT LINE TO PRODUCE MUFFINS

The special feature of this line, apart from being tailor-made to the 750 mm width, is that **it is a double-output line.**

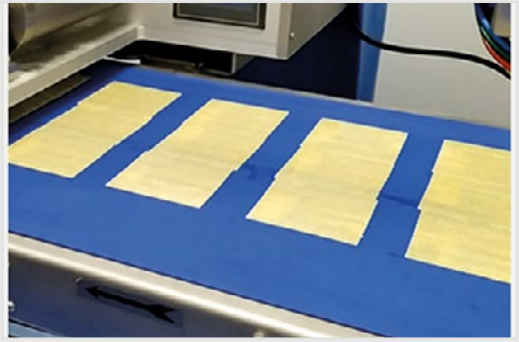
At each station, **two rows of trays are filled** at each stop, with the corresponding time saving, **which means higher production.**

In the case of the paper-cup machine, the uncapping arm is made up of two rows of 10 suction cups, which means that 20 capsules can be placed at the same time.

As for the Muffins machine MAS, it is made up of 10 dosing pistons and at the outlet the nozzles are double so that 20 muffins can be dosed simultaneously.

Likewise, the seeds depositor are designed with a double row for the same purpose.

Maximum production of approximately **20,000 muffins per hour, depending on capsule and product conditions.**



COMPLETE AND AUTOMATED PRODUCTION LINE TO MAKE LASAGNE OF DIFFERENT SIZES

It automatically **produces lasagne in moulds with layers of pasta, bolognese, béchamel sauce and cheese on top.**

Three distinct zones connected by conveyor belts:

→ Pasta sheet cutting zone, placed by the operators in the moulds.
→ Dosing area with 5 multi-purpose dosing machines for the different layers.
→ Dosing area for the spun cheese at the end of the line.

The whole line can be easily disassembled for easy and effective cleaning, and its components are suitable for cleaning with pressurised water.

Approximate production: 250 - 1450 lasagne per hour, depending on size.

FORMEX

CREATING SOLUTIONS TO DOSE YOUR PRODUCT

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