



INDUSTRIAL BAKERY

CROISSANTS, PASTRY, BISCUITS PRODUCTS

The industrial Bakery is an industry the origin of which goes back to the end of the 50s in the Anglo-Saxon countries avid to industrialize their manufacturing of sandwich breads. The techniques of this industrialization were adapted in France in the 80s for the manufacturing of traditional breads and croissants and similar products. Today it allows the production of 4 categories of different products:

- Breads/croissants/pastries cooked & fresh
- Breads/croissants/pastries cooked & frozen
- Breads/croissants/pastries precooked & frozen
- Breads/croissants/pastries raw & deep-frozen

» APPLICATIONS :

- Topping of side dishes
- Injection/feed of side dishes
- Dosage/preparation of ingredients

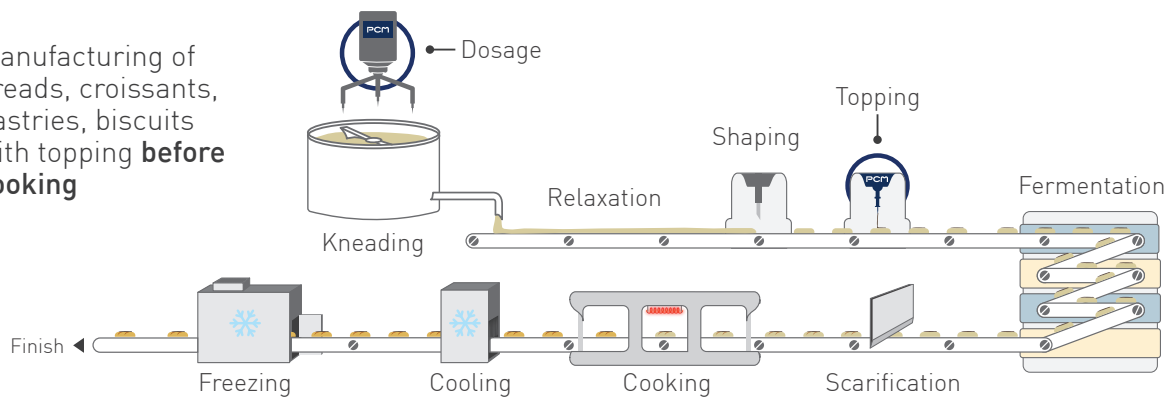


1 ACTIVITY AND MANUFACTURING PROCESS

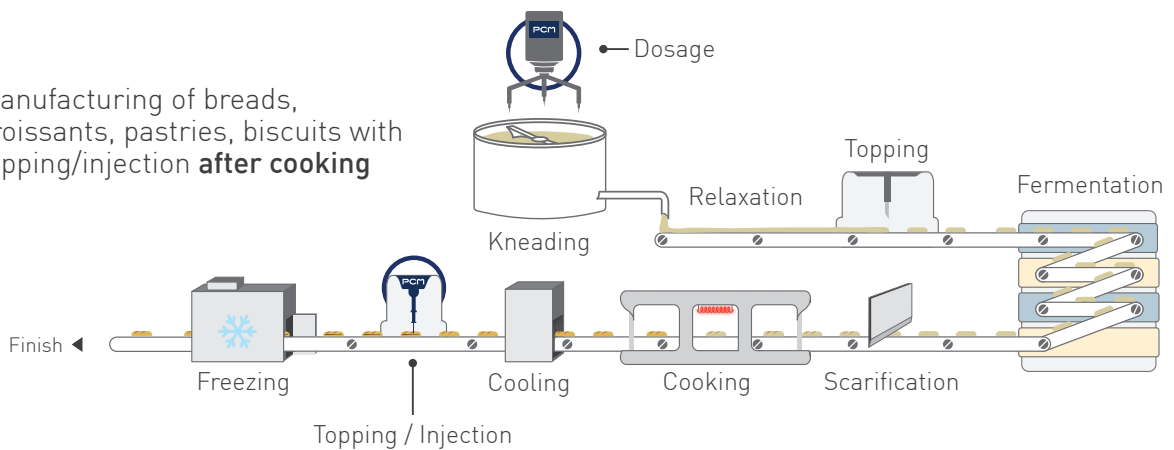
The PCM technology can be integrated within diverse applications bound to the dosage, to the topping or to the injection of ingredients in diverse stages of the processes of manufacturing of croissants, pastries and similar products mainly.

- Continuous topping of chocolate on puff paste for realization of chocolate croissants,
- Topping (chocolate, jam) of biscuits,
- Topping of icing sugar on pastries,
- Topping of chocolate decorations or confectioner's custard on pastries,
- Topping of side dishes (chocolate, honey, caramel, jam) on pancakes,
- Injection of feeds (chocolate, honey, caramel, jam) in bread rolls,
- Injection of aromas in bread rolls,
- Feed of puff pastry in profiteroles,
- Fruit side dishes on fruits baked in batter,
- Dosage and mixing of diverse liquid or pasty preparations,
- ...

Manufacturing of breads, croissants, pastries, biscuits with topping **before cooking**



Manufacturing of breads, croissants, pastries, biscuits with topping/injection **after cooking**





2 TECHNICAL DATA & MANUFACTURING CONSTRAINTS

Viscosities: 1 to 10 mPa.s for the most liquid (aromas), 1 000 to 5 000 mPa.s for the intermediate (caramels, jellies), up to 20 000 mPa.s for the most viscous (chocolates)

Topping/injection rates: can reach 100 000 units/h (20 to 30 000 units/h in average)

Topping:

- Single or multi-points, simple or complex shape for punctual topping
- Controlled width and thickness for continuous topping
- No drop after topping

Injection/feed:

- 3 possible types: balls / trail / diffusion
- 1 or several injection points per unit
- Vertical or lateral injection
- No drop and no outside marking after injection

Cleanability: Equipment must be cleaned in place

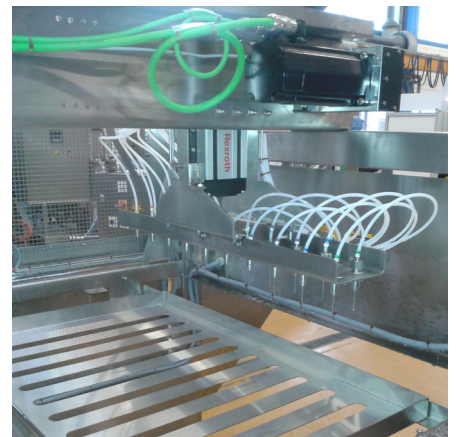


3 EQUIPMENT & PROCESSING RECOMMENDATIONS

When products to be dosed and to be topped or to inject are too viscous, it is recommended to warm them to lower their viscosity. This heating can be operated throughout the stage of dosage and topping/injection thanks to the use of pipings and tanks with double envelope.

Possible supply of an autonomous CIP station

Possibility of realization of prototypes for validation of the system parameters





4 PRODUCT RECOMMENDATION

A PCM topping/injection/feeding system is made of 2 main subsystems:

DOSAGE SUBSYSTEM:

- System based on Moineau™ pumps for continuous topping
- System based on membrane pumps (MDS) for topping and injection of liquid products, without solid pieces and small quantities (1.6 cc max.)
- System based on DOSYS™ pumps for topping and injection of products with high viscosity and with solid pieces
- Automatic containers changeover without production stop
- Possibility of water push
- Full Cleaning In Place



TOPPING/INJECTION SUBSYSTEM:

- Multi-cellular nozzles for ponctual topping
- Tail of carp nozzles for continuous topping
- Custom-made nozzle dimensions according to the sizes of the topping to be done
- Single or multi injection needles, beveled (for balls type injection), with side holes (for dragged injection type or distribution type)
- Single head or multi-head system
- Head(s) mounted on up-and-down motorized system (pneumatic or electric)
- Head(s) which can top/inject following the movement of breads/croissants/pastries (tracking)
- Automatic doses priming with possibility to control weight before production start (sampling)
- Detection of the presence of breads/croissants/pastries before topping/injection
- Control of the absence of drops (reaspiration nozzles)
- Full Cleaning In Place (outside and inside of the topping nozzles/injection needles)

