

The efficient first step into automation

MLC RONDO-DOGE HAS DEVELOPED AN AUTOMATIC LAMINATING LINE WHICH MAKES IT POSSIBLE FOR THE ARTISAN BAKERIES TO TAKE THE FIRST STEP TOWARDS AUTOMATION



++ figure 1
Rondo MLC in a bakery

+ Rondo MLC consists of six basic versions for the automatic production of laminated dough blocks and for feeding make-up lines.

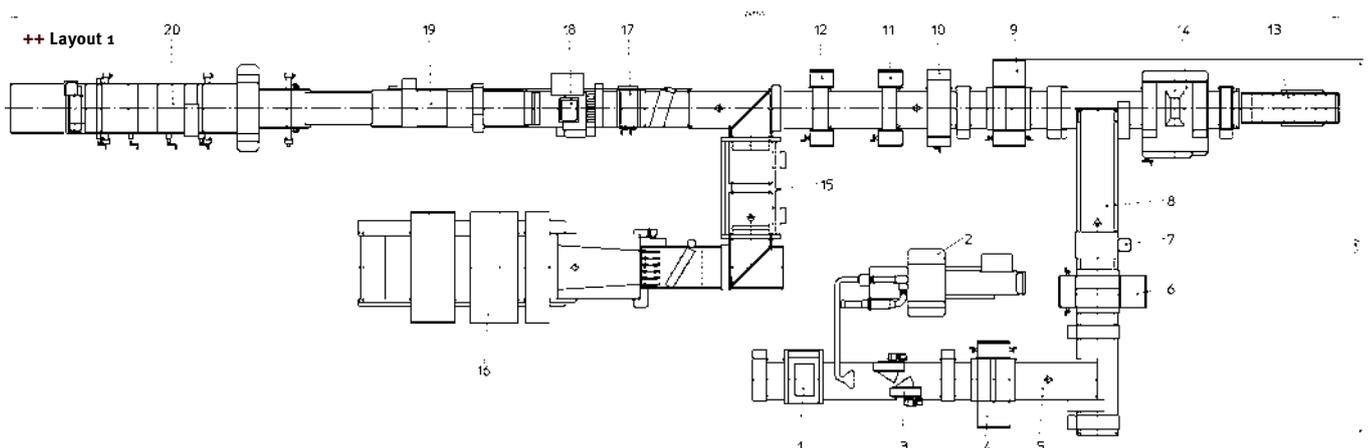
The MLC block line is used for the production of a dough band with a fat sheet that is cut into pieces and manually folded into dough blocks. This is the step by step description of the process: The dough band former produces a continuous dough band. The fat pump delivers fat. Alternatively fat sheets can be placed manually. Folding belts wrap the fat in producing a continuous dough band with one fat layer. A satellite head gently reduces the thickness of the dough-fat band. A rotating knife cuts the dough band into rectangular pieces. They are folded by hand into dough blocks with three (simple fold) or four fat layers (double fold). The block line can be converted into an L-shape or U-shaped line by completing it with sections 2 and 3, with one fan-folding device and satellite heads. Each folding station can produce between 4 and 10 layers and therefore blocks with a maximum of 100 layers can be produced. The feeding line configuration of MLC is used to produce a continuous dough band and to feed a pastry make-up line. Here again is the step by step description: The dough blocks are brick-stacked onto the in-feed

belt. With this technique the number of layers is doubled. The satellite head produces a continuous and uniform dough band. Lower belt dusting is located after the satellite head. A cross pinner rolls the dough band transversely. The calibrating unit is used to reduce the dough band to its final thickness. It is then transferred to the pastry make-up line. At this point there is also the possibility of increasing automation by converting it into an L-shaped laminating line i.e. by adding a fan-folding device for creating further layers and a second section for final sheeting and feeding the make-up line.

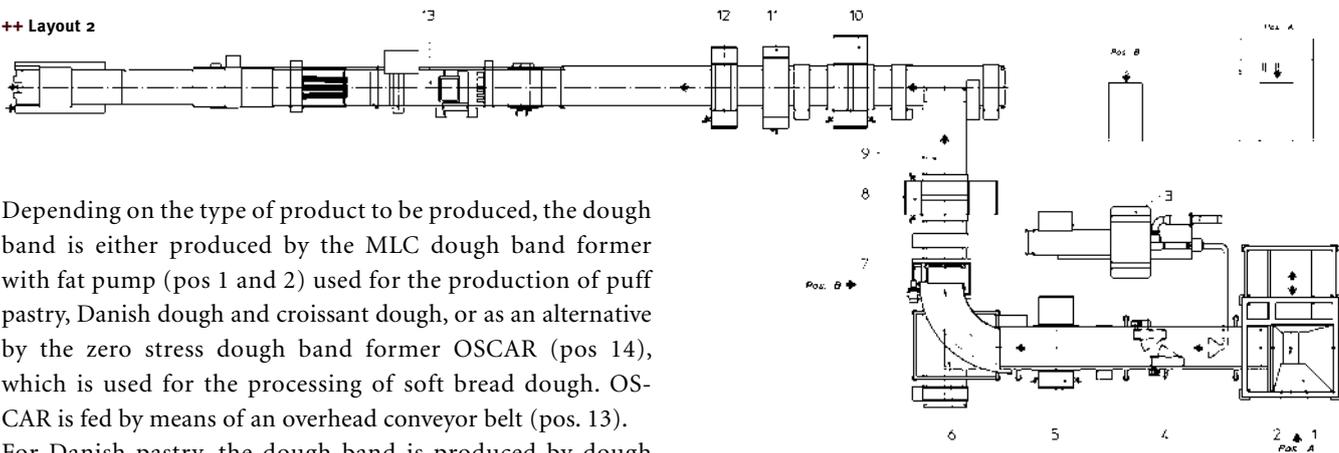
The story gets even better with the possibility of combining the existing laminating line with other modules. As a result it is possible to produce a large variety of products made from different types of dough. Here are some examples of installations that show the flexibility of the MLC system.

++ Layout 1: MLC for the production of fine pastry products, croissants and bread

A good example of showing the comprehensive program is an MLC U-laminating line feeding a pastry, croissant and bread production line.



++ Layout 2



Depending on the type of product to be produced, the dough band is either produced by the MLC dough band former with fat pump (pos 1 and 2) used for the production of puff pastry, Danish dough and croissant dough, or as an alternative by the zero stress dough band former OSCAR (pos 14), which is used for the processing of soft bread dough. OSCAR is fed by means of an overhead conveyor belt (pos. 13). For Danish pastry, the dough band is produced by dough band former (pos.1), after which fat is applied by the pump (pos. 2), wrapped in (pos. 3), and layers are produced by the first fan-folding device (pos. 5) and second fan-folding device (pos. 8). The finished Danish pastry is then transferred to the make-up line, where the pastry products of desired shape are produced and automatically deposited onto baking trays (pos. 20).

For croissants, the same procedure is applied: the dough band is produced in dough band former (pos.1), followed by fat application (pos. 2), folding (pos. 3), first fan-folding (pos. 5), second fan-folding (pos. 8), then the dough band is guided over a double reversing belt onto the croissant machine (pos. 16).

Puff pastry is produced in a two-stage process that allows for the dough to rest in between: The dough band is produced by the dough band former (pos.1). It is followed by fat application (pos. 2), folding (pos. 3), fan-folding (pos. 5), cutting of dough pieces (pos. 7). Right after the cutting station, dough blocks are folded manually and then given a resting time. After resting, in stage two, the dough blocks are moved to section 3 of the MLC, brick-stacked on the conveyor belt (between positions 9 and 14), rolled out into a continuous dough band by satellite head (pos. 9) and transferred onto the make-up line, where pastries are produced and automatically deposited onto baking trays (pos. 20). For the production of ciabatta or baguettes, the dough is delivered by an overhead conveyor belt (pos. 13) into the Oscar (pos. 14), where a dough band is gently formed without stress. The dough band is transferred to the make-up line where it is cut and long-moulded into baguettes. The dough pieces are automatically deposited onto baking trays (pos. 20).

++ Layout 2: MLC for the production of laminated and the production and folding of whole grain bread roll dough as well as sweet yeast dough

This is a line in a Z-shape. This configuration allows the dough band former to be used in two different positions (pos. A and B). For the production of puff pastry, it is placed in pos. A, allowing a maximum number of layers to be achieved. With the dough band former in position A it is fed directly by the stocking hopper with lift for the mixer bowl. The dough band is formed in the usual way; fat is applied and wrapped in etc. For production of dough for bread rolls and sweet yeast

dough, where a few layers need to be produced for better dough structure, the dough band former is brought to position B. The dough is then transferred from the stocking hopper to the dough band former by means of a conveyor belt. The dough band from the dough band former (pos. 7) travels to the fan-folding unit (pos. 9), is then rolled out to the required thickness by the satellite head (pos.10) and transferred to the make-up line for further processing. The advantage of this configuration is that with one and the same lift and stocking hopper the dough band former can be fed into both positions, and that both types of dough can be treated individually and in the optimum way. It goes without ►

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++ figure 2



++ figure 2
Rondo MLC L-block line

saying that numerous further combinations and layouts with Rondo MLC can be realized. The flexibility of the concept is increased further through its modularity. It allows the integration of additional modules in the simplest way.

++ Layout 3: Production of laminated dough and production and folding of whole grain bread roll dough as well as sweet yeast dough, plus the production of bread made from highly hydrated dough

Layout 3 shows a real multi-purpose production line for all of the above mentioned product types. A Smartline dough band former (pos. 7) is integrated into a MLC L-shape laminating line followed by a Jumbolino make-up line with cutting station, filling depositor, guillotine and panning machine. The Smartline with its adjustable satellite head has been designed for zero stress processing of soft bread dough with up to 80% hydration.

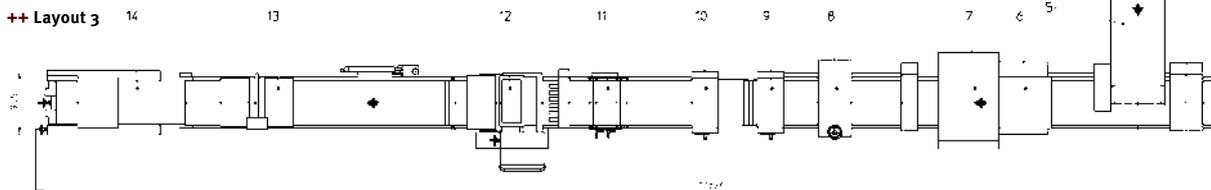
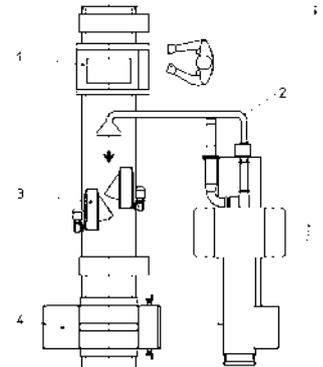
Production and handling of laminated dough with the two-stage method is similar to the previously described layout: Stage 1: dough in dough band former (pos.1), fat application (pos. 2), folding (pos. 3), fan-folding (pos. 5), reducing thickness by Smartline (pos. 7), dough band cutting with the guillotine of the Jumbolino make-up line. Folding the pieces into dough blocks is done manually. Stage 2: The puff pastry

blocks are put onto the conveyor belt between Position 1 and 3, and rolled out into a dough band by the MLC satellite head (pos.4), fan-folded and transferred to the make-up line.

Danish dough or crois-sant dough blocks are put on the in-feed belt of the Smartline (in front of pos. 6), rolled out into a dough band and transferred to the make-up line.

In order to get a better dough structure for bread rolls and sweet yeast dough, the dough band from the dough band former (pos. 1, without fat application) is given some layers by the fan-folding unit (pos. 5). After fan-folding, the dough band is rolled out by the adjustable satellite head (pos. 7) of the Smartline. The dough band is then transferred to the make-up line.

The production line as described in this layout, borne by expanding the existing Smartline with Jumbolino, so that the customer, who so far has produced yeast and bread dough exclusively, can also go into products made from laminated dough. +++



++ figure 3
The dough band former produces a continuous and homogeneous dough band



++ figure 4
The fat pump delivers a uniform fat sheet which is folded afterwards

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