

Minis from the multifunctional plant

BVT BAKERY SERVICES BV IN OSS, THE NETHERLANDS, HAS DEVELOPED A MULTIFUNCTIONAL SOLUTION FOR THE PRODUCTION FOR MINI-CROISSANTS AND OTHER MINI PRODUCTS THAT CAN ALSO MANUFACTURE TOAST BREAD, HAMBURGER BUNS AND BREAD. THE TURNKEY PLANT IS DESTINED FOR NON-EUROPEAN FOREIGN COUNTRIES



++ figure 1

++ figure 1

A mini-croissant weighing approx. 10 g, still unfilled

+ Mr. Bassa, Mr. Vos and Mr. Temminck founded the bakery machine manufacturer BVT Bakery Services in 2001. They thereby not only gave the company its name but also brought with them their competencies as Project, Sales and Technical Managers at Rijkaart, a major Dutch supplier of lamination technology. Today BVT and its 120 employees offer mainly customised industrial plants and service solutions in the areas of dough forming, handling and conditioning. Because the emphasis is on technical innovations, the engineering department with a staff of approx. 25 is well positioned. For many years BVT has also intensified

its collaboration with machine builders in the upstream and downstream areas. Consequently turnkey solutions executed through the Dutch company have increased greatly.

Big line for small products

A turnkey project of this kind for a foreign client, who does not want to be named for competition reasons, is now in the final fabrication phase in the 11,400 m² hall in Oss. 70 % of the project originates from BVT. As with all plants, this is also being tested by BVT technicians with products on the spot before it is delivered to the client. The line's impressive aspect is the variety of sweet and savoury products: from mini-croissants, cinnamon rolls and fatayers (savory pie pastries, famous in Middle Eastern cuisine) to hamburger buns and toast-bread. The plant's modular construction helps make the change between laminated and non-laminated dough easy and quick. Another special feature is the size of the laminated dough pieces: at 10–12.5 g the dough pieces are very small, so the development of this area of the plant required precise craftsmanship. On average the plant produces up to 30,000 small baked items per hour.

The installation starts with one dough hopper for three lines. Whereas the dough for the baked goods goes the usual way via the make-up area, the dough from which the large

The Verhoeven Group

Verhoeven Oss is an engineering and production centre founded in 1968, with about 125 employees. The company has a specialized expertise in handling and conveyor technology and supports its clients in order to find the way to the optimal solution for (complicated) product handling and transport systems. The Verhoeven Group consists of three subsidiaries: PWR-Pack International, Verhoeven Machine fabriek and finally BVT Bakery Services. +++



++ figures 2+3

The dough sheet goes through the movable bypass station to be processed into cinnamon rolls and fatayers (on the right: the overview of the line for cinnamon rolls and fatayers)

bread dough pieces are made runs through machines from a different supplier before re-entering the BVT handling system. The dough sheet for the mini-croissants, mini-fatayers and mini-cinnamon rolls is continuously coated with margarine via the fat pump and folded inwards from the sides, the dough thickness is reduced by a roll unit called multi-roller with twelve rollers and it is then folded continuously by a folding station. However, BVT does not use another folding unit after the second multiroller. Instead the company decided to use

a retracting belt that cuts the dough into dough sheets and stacks these offset one on top another. Maarten van der Coer, Director Marketing & Organization at BVT, explained that this removes the tension from the dough so it can undergo further processing stress-free. The eight plastic rollers of the multi cross-roller station, which roll the dough sheet into a uniform shape from inside to out, also serve to remove the stress from the dough. The dough sheet is then calibrated by the 2-gauging roll finishing station. ▶

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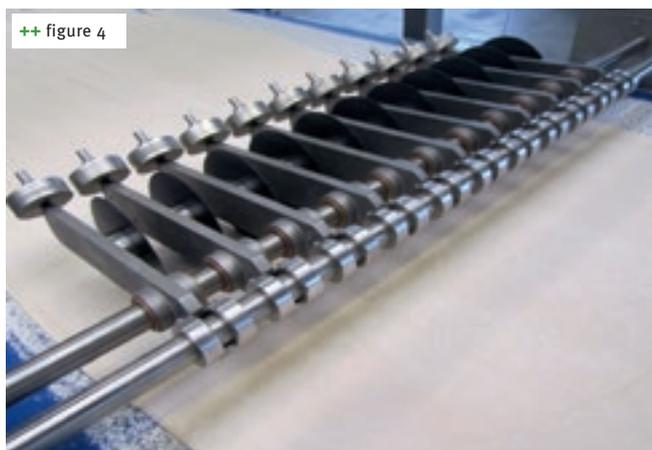


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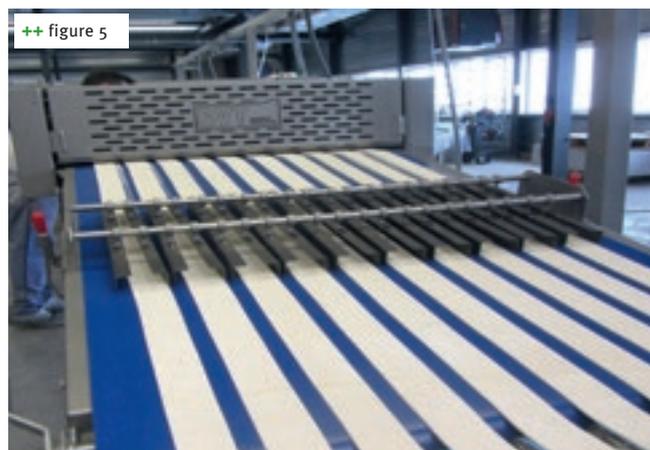


Iron: 4,1 mg, Magnesium: 122,8 mg, Calcium: 222,2 mg, Folic Acid: 43,1 µg, Vitamin D3: 1,0 µg / 100 g of bakery product.





++ figure 4



++ figure 5

++ figures 4+5

For mini-croissants the dough sheet is cut into ten long rows, which in all cases are straightened again based on limits

Various alternatives

At this point the client now decides which route the dough sheet will now take: the line can carry on straight ahead via a conveyor belt and produce mini-croissants, or can turn aside and can process the dough sheet into fatayers or cinnamon rolls. For the latter product the dough is cut, yellow cream is dispensed onto it by a depositor, and the dough sheet is dusted with cinnamon and sugar and rolled up. Knives then cut the long rolled-up dough snail into small circles. On the other hand for the fatayers the dough sheet is only cut into two parts, one of the halves being topped with a special cheese filling. The other half of the dough is put on top of it and the whole is cut into squares measuring approx. 35 mm, put onto baking trays and pushed into the oven.

To manufacture mini-croissants, the sheet is cut into ten long rows after the 2-roll system instead of turning aside. A spreading device moves the rows apart from one another so a space of a couple of centimetre is present between them. In addition the path of each of these dough sheets is defined by stainless steel limiters so they lie exactly correctly for the following stamping out. The stamping tools punch triangles from the rows, whereby two triangles lie with their long sides together, thus forming a rhombic shape. In the next step they must therefore be turned and moved an appropriate distance from one another. For this they are turned through

90° so finally the triangle's shortest side is in the belt's direction of travel. Ten nozzles moisten the rows of triangles with water, so they can now be rolled up into straight croissants by the oppositely directed movement of an upper and lower roller and deposited onto a baking tray.

Four different types of baking tray coming from the central tray storage in the middle of the plant are available for the various products: flat trays for samoullis, fatayers and cinnamon rolls, indented trays for hamburger buns or mini-croissants, and finally toast bread straps with lids for the toast-breads. The line's modular construction, in which all the individual components can easily be exchanged, enables fast, problem-free product changes. The same is also true for the tray store, which can switch over to a different tray format within minutes. After being baked in ovens, all the products are cooled down to approx. 25 °C in a vacuum cooler, which is an advantage with regard to shelf life. The mini-croissants are also not filled with jam or hazelnut cream until after they have been baked. Van der Coer explains that "A long shelf life is an important criterion for our clients, which is why we have decided to bake the croissants first of all, then cool them in vacuum and finally to inject the cold filling as the last step. That gives the products a longer shelf life." Mini-croissants etc. are marketed in dozens as fresh products. +++



++ figure 6

++ figure 6

The triangular dough pieces that are rolled to form croissants must first of all be moved apart and turned



++ figure 7

++ figure 7

The minis, here a cinnamon roll, fatayer and a croissant, weigh approx. 10 g when fully baked, as they lose some water due to the baking process

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