

Flatbreads at high speed

RADEMAKER HAS DEVELOPED A HIGH PERFORMANCE FLATBREAD PLANT WITH A WORKING WIDTH OF 1,600 MM WHICH, BY USING MODULES, ENABLES THE FLEXIBLE MANUFACTURE OF LAVASH, PITA BREAD, TORTILLAS AND OTHER FLAT BAKED GOODS WITH DIFFERENT SHAPES AND IN VARIOUS WEIGHT RANGES



++ figure 1
Rademaker's high performance line for flatbreads

Since 1977 Rademaker has offered its customers high-quality customized production plants to manufacture a very wide variety of baked goods. At the same time the Netherlands firm has specialized in the areas of plants for bread and small baked goods, pizza and flatbread lines, croissant plants, laminators, universal lines, make-up lines, pie and quiche plants and in metering technology. Rademaker also offers special industrial plants for particular products such as twisted cheesesticks, steamed ravioli, potato crisps etc. The company, which employs a total of 450 staff,

approx. 20 % of them working in the research and development department, regards customized client requirements as an exciting challenge, and develops tailor-made plants. The company also offers to plan and build complete turnkey plants via its specialist System Integration division, as well as to integrate individual processes and lines into an existing production facility.

Flatbread production

Rademaker offers a variety of solutions to manufacture flatbread and baked goods. These plants are available in different working widths, depending on the customer's requirements. They start at 600 mm and extend up to 1,600 mm for a high-performance plant. For example, the highest capacity line with a dough ribbon thickness of 1 mm processes 4,800 kg of dough per hour. The process begins with filling the dough hopper at the start of the plant. A hopper with a dough capacity of 500 kg is used for a plant with a working width of 1,600 mm. The wheat dough does not stick to the plant due to a special stoved-on coating in the hopper and there is no need to oil the hopper. From the hopper the dough is fed gently through a five-roll extruder and onto the plant's flour-dusted belt. The different profiles of the five rollers in the unit ensure that the dough is drawn in with a low level of stress and is free from tension.

After the first shaping, the dough sheet enters the servo-driven cross roller unit, where the thickness of the dough sheet is reduced. This is followed by the quick reductor. This

Rademaker

The family-run Rademaker B.V. from Culemborg, the Netherlands, business exports around 98% of its plants. Production is located at the headquarters in Culemborg, Netherlands, and since 1999, at the Považská Bystrica site in Slovakia. Having started with 10 employees, today it employs a staff of approx. 100 to manufacture standard components, for example, fat pumps. In addition to subsidiary companies in Germany, China, France, Italy, England, Russia and the USA, there are sales representatives in almost every country in the world. This is important, because the customers appreciate quick service. This is also why Rademaker's customers can contact the company 24 h a day on every day throughout the year. +++



++ figure 2
The offtake station at the end of the plant ensures that the residual dough is removed



++ figure 3
The working width of the bread line is 1,600 mm

roll-out/calibrator unit operates with a total of twelve rollers and a separately driven lower roller. In this way the developers have ensured that the dough sheet is gently rolled out to the required dough sheet thickness. Trimming the dough sheet edges is followed by three 2-roll calibrator units to achieve precise calibration. Solid stainless steel rolls ensure that the dough ribbon reaches the required final thickness (1–5 mm). This is now followed by an optional stainless steel roller to prick the dough. Depending on the product, this needle roller ensures that the breads develop the typical surface,

and there is no bubbling on the surface of the bread during baking. Next in line are the interchangeable plastic rollers, the cutting rollers, which shape the breads from the dough sheet. Here Rademaker offers a special module. This is a carousel on which a total of five cutting rollers are installed, allowing a product change to be carried out quickly and without complications. Cutting the dough sheet is followed by an offtake station in which the residual dough is removed by a plastic belt so it can be recycled into the processing operation. According to Sales Director Paul Groenewegen, “Hygiene ▶

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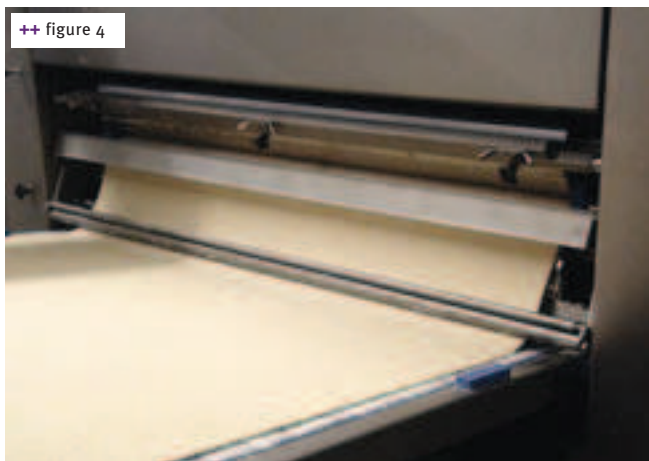
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++ figure 4
A cross roller unit, a quick reductor and three 2-roll calibrators reduce the thickness of the dough sheet



+ figure 5
The solid stainless steel rollers run very quietly

and energy saving are exactly the topics that are increasingly important to our customers.” That’s why all Rademaker’s plants comply with the highest standards of hygiene, for example, all the belts are removable by quick tension release when necessary. The entire plant can also be wet-cleaned. The plant is controlled through an SPC controller that automatically regulates the speed and height settings. In addition it is only the latest generation of motors and gearboxes that are used, so as to run with the greatest possible energy saving.

As required by the customer

The plant allows the customer to decide, depending on the product, whether proofing takes place after cutting out the

baked products or immediately after rolling out the dough sheet. Thomas Wimmer, Executive Director of Rademaker Deutschland GmbH, Würzburg, explains that, “A few customers want the fully proofed dough sheet to be cut; other clients prefer the dough to be rolled out, cut, and then proofed. This affects, for example, the pore pattern of the baked goods. However, we can offer both variants by the use of bypass stations.” The high-performance plant for flatbreads, lavash (Turkish flatbread), pita breads, naan, roti, chapati, wraps etc. processes baked goods with a dough sheet thickness of 20 mm to 0.6 mm, depending on the recipe and raw materials. A module for seeding the baked products, e.g. with sesame or other seeds, can also be integrated into the plant. +++



++ figure 6
Flatbreads with a diameter of 40 cm