

A new performance generation

Fritsch has reached a new level of performance in the pretzels area. The plant builder has installed the first of its machines that is capable of producing 20,000 pretzels per hour and can also manufacture twisted products, baked rings, bread rolls and small round baked goods.



++ When the dough pieces have been uniformly distributed, this is followed by depositing the products onto a conveyor belt. A turning/lifting unit picks up the dough pieces and turns them through 90° for onward transport to the final proofer

+ Up to now, the limit for fully automatic pretzel manufacture was 16,000 baked products or dough pieces per hour. Fritsch GmbH, a world market leader in the area of pretzel looping robots, has now raised the hourly performance once again: ten looping modules (MULTITWIST) can now be integrated into the production line instead of eight as in the past. This raises output capacity to 20,000 pretzels per hour.

Anna-Maria Fritsch, Head of Marketing and Process Management, explains “In the twisted products area there is also a clearly recognizable trend towards high performance combined with the highest possible flexibility, because the lines produce not only a wide variety of pretzels, baked rings and bread rolls in large numbers, but also round bread rolls.” The company has already sold and installed several of these systems. Although these various plants differ slightly, they are very similar from the design viewpoint. For example, dough is kneaded in a central mixing system. Bowl tippers then feed it into the FRITSCH pre-portioner and distribution system, which distributes dough batches to two FORTUNA divider-rounders with pre-proofers. The divider-rounders divide and mold the dough into uniform portions without creating any scrap dough. Depending on the end product and required dough and final product properties, the raw pieces can also be manufactured using sheeting roller plants, whose characteristic feature is considerably greater flexibility. They also allow the

dough pieces to be positioned accurately at a high throughput rate, and a sheeting roller plant is usable in a much more versatile way than a divider-rounder.

Pretzel strand machine

The hourly output rate of each these divider-rounders is 10,500 pieces. The weight accuracy of the dough pieces should be +/- 3% to guarantee a smooth pretzel looping process. If the products are “bread rolls”, the dough pieces leave the pre-proofer via a separate exit and are deposited directly onto transfer belts for further processing. For “pretzel” products, the dough pieces relax further while moving on conveyor belts into the MULTITWIST sections and thus to the looper feeder. At this point, before looping, the dough balls are first of all positioned in the middle of the conveyor belt in the centering and press-flat station, where they are pressed flat and then carried onwards to the pretzel strand machine. Here the dough, which has been pressed flat, is rolled into an elongated dough strand and counter-current molded in two stages before being conveyed to the looper. The moldboards are interchangeable to produce a variety of pretzel shapes, e.g. cylindrical pretzels (the diameter of the dough strand is the same at each point, different to the Bavarian or Swabian type of pretzel, for example, in which the diameters of the dough strand ends are reduced to give the baked products their typical “fat middles”).



++ A total of ten looper modules enables an hourly output rate of 20,000 pretzels, bread rings, bread rolls or rolls



++ Looping the dough strands. Exchanging the tool also allows the production of other baked products, e.g. plaits or knots

Product diversity

The pretzel strand machine’s molding gap is individually adjustable to achieve the required strand length, e.g. 400 to 600 mm, and weighing 85 g. Anna-Maria Fritsch explains that “Motorized adjustment of the molding gap is a possible option, combined with automatic strand length measurement at the strand machine exit.” Next a module belt conveys the dough strand to the Multitwist. An interposed blower unit ensures optimum skin formation on the strand. The Multitwist machine positions the strand so both ends are at the same height to allow the gripper arms to pick them up. The pretzel looper machine picks up the ends of the pretzel strand, twists them and presses the ends down to obtain the looped pretzel shape. Different variants, e.g. a pretzel, are produced depending on the length and diameter of the dough strands and the two press-down points. The following are examples of possible end products:

+ Lye pretzels

- Height x width, weight
- 180 x 160, approx. 170 g
- 140 x 120, approx. 100 g
- 130 x 110, approx. 80 g

+ Bread rolls

- Product dimensions: typically 150 - 250 mm
- Piece weight: typically 50 - 100 g

+ Sesame rings

- Baked product diameter: 150 mm
- Weight: 60 g

The pretzel looping machine’s tools are interchangeable depending on the product. For the new performance generation with ten sections, each Multitwist has a gross output of 2,100 pieces/hour.

The Multitwist also has an SPC controller with 20 programs and a touchscreen for simple, easily understandable plant operation.

Looping the dough pieces is followed by deposition. For this, it is important that each strand machine or each looper works at the same cycle rate, to guarantee uniform deposition of the pretzels after looping at the high hourly throughput rate. When the dough pieces have been distributed uniformly, this is followed by depositing the products onto a conveyor belt. At this point a turning/lifting unit is used to pick up the dough pieces and turn them through 90° for onward transport. Here for example, the dough pieces can also be deposited into a swing-tray post-proofer, onto peelboards or onto baking trays, depending on the customer’s requirements. When necessary, this is then followed by proofing, optional scoring and, depending on the product, lye-dipping the dough pieces. The freezer or oven is then waiting at the end of the flexible, high-performance production line. +++

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