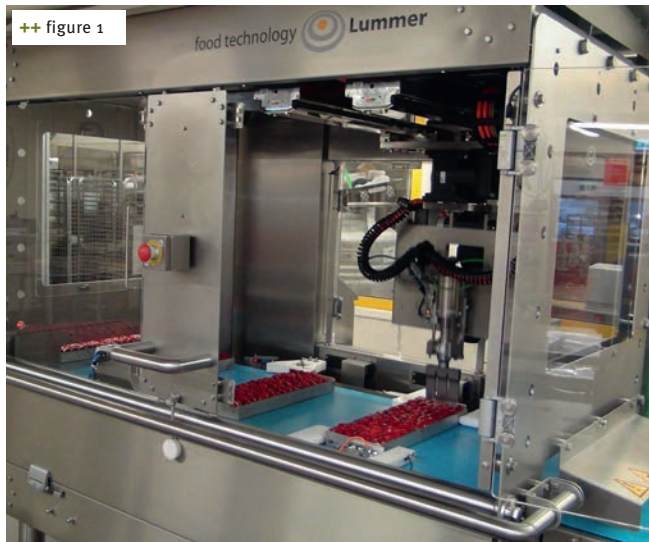


Razor-sharp calculation

AUTOMATION IS ALSO WORTHWHILE FOR MEDIUM-SIZED BAKERIES LIKE THE ARTISANAL COMPANY GEIPING, WHERE CAKES AND GATEAUX ARE AUTOMATICALLY PORTIONED BY A SLICING MACHINE MADE BY THE PLANT CONSTRUCTOR LUMMER FOOD TECHNOLOGY



++ figure 1
The compact cake-cutting machine in use at Geiping



++ figure 2
Ultrasonically assisted cutting for a perfect cut – lengthwise or crosswise

+ Hubertus Geiping, the fourth generation manager of the family business founded in 1924, says “At Geiping – in spite of the most modern technology – we place importance on the artisan quality and absolute freshness of our bakery and confectionery products.” Since the 1980s he has developed the business into a successful chain store bakery/confectioners that now employs a workforce of around 430. W. Geiping GmbH & Co KG headquarters remains at Lüdinghausen in the Münsterland region, Germany. The current network of branches includes 47 company-owned retail stores and eight franchise shops – many of them with their own bistro and café area. The branches, which are at a distance of up to 40 km and extend far into the neighboring Ruhr district, are supplied centrally from the modern production facility which was commissioned in 1998 and has been consistently maintained at the latest state of the art.

Chief Executive Hubertus Geiping explains that “The job profile of a baker and confectioner has changed markedly. Whereas in the past the focus was on physical labor, it now involves manufacturing artisan products at the highest level of quality. This requires appropriate technology and qualified, motivated employees. These must all go hand in hand – and must complement each other meaningfully.” Accordingly all the processes at the Bäckerei Konditorei Geiping (Geiping bakery and confectioners), from raw materials delivery and manufacturing to sales and cleaning, are subject to a sophisticated logistics system. Daily monitoring inspections by the company’s own quality management during production operations ensure that all the processes run hygienically perfectly and that the manual and technical work is also faultless.

Freely programmable cutting technology

When it comes to hygiene and flexibility, an optimally automated slicing plant is the latest addition to the machinery at Geiping’s central production facility, which can be entered only in protective clothing and work-wear and via hygiene airlocks. It enables all the cakes and gateaux to be cut quickly and precisely: the previously stored recipe is called up at the push of a button and is used to load all the parameters and mechanical settings, which can then be implemented for the required product without any further manual adjustments. The machine is “Made in Germany” and is part of the modular, scalably designed U-300 model series from the machine and plant constructor Lummer Food Technology in Delbrück. When designing the plant, which is fabricated from stainless steel and can be cleaned easily right down to the last corner, Lummer relied on the Hygienic Design (HD) toolkit from the global housing and switchgear cabinet market leader Rittal GmbH & Co. KG at Herborn in the German federal state of Hesse. In the HD series, developed specifically for the food industry, design features such as the 30° sloping roof so water and contamination can run off, overhanging drip edges or internal threads and hinges ensure guaranteed residue-free cleaning. Housings were used specifically to provide safe and secure accommodation for the sensitive electronics, sophisticated control technology and user-friendly touch panels. The HD housings, which are docked directly onto the plant, function simultaneously as housings to enclose the machines – thus ensuring an exceptionally compact layout for the U-300 series of models, which make do with a length of 2 m and a width of 1.7 m. The machine, which is designed as a ready-to-use plug&play solution, can be installed in the most limited space.



++ figure 3
Feeding the machine manually at Geiping (visible on the left: the Rittal HD housing with pitched roof etc. & control panel)



++ figure 4
Cleanliness as top priority – the hygiene lock in the Bäckerei Konditorei Geiping

The Lummer plant in Lüdinghausen is equipped with the very latest ultrasonic cutting technology originating from the system partner Branson Food Processing, which has worldwide operations. Delbrück's mechanical engineer Alfons Lummer explains that "The ultrasonically assisted cutting in which 20 kHz, for example, is selectively applied to the titanium blade, represents an almost self-cleaning alternative to conventional cutting techniques in the food sector. At 20,000 oscillations per second, as a rule nothing remains adhering to the knife. Smearing and losses are prevented even with multi-layer products of different consistencies." All the bakery and confectionery products that are manufactured overnight are cut on the U-300 plant, which at Geiping is loaded manually – and go out to the branches fresh at 7 o'clock in the morning at the latest. The spectrum extends from snack or school lunch bread rolls and all the tray cakes (up to 250 trays per day at peak times) and gateaux to specialties such as baumkuchen, which are sliced directly on the conveyor belt. According to company boss Geiping, "In contrast to the conventional slicing machines we were also using already, the Lummer plant is a real universal genius. From clean cutting directly in the standard branch tray, through more complex geometries such as triangles or continuous cross-cuts, and all the way to the 'delicate', precise cutting of cakes and gateaux with a wide variety of layers and consistencies, regardless of whether they are apple pies, with or without an almond topping, cream or a layer of crème – the machine is always ready with the right cut." This is made possible by five energy-efficient servomotors that provide the drive with a planetary gearbox, 0.75 kW of power and a freely programmable controller. Lummer explains that "In this way we can define individually all the parameters such as geometry, cut depth, edge cut or cutting speed – and can match them exactly to the product that is to be cut." These are recorded and combined into so-called formulas that are stored in the plant controller and are called up quickly and reliably by the operator

via the touch panel. Currently around 50 formulas are in use at the Geiping bakery.

Aiming at economy and added value

Geiping stresses that "The important aspect of a machine with an investment impact of more than EUR 100,000 EUR is its cost-effectiveness." The automatic slicing plant, which is in continuous use for an average of 8 h per day, is already achieving a good level of utilization now. According to Geiping "Compared to what we did in the past, today we cut all our products by machine. As a result we were able not only to halve the time spent on this task within the factory but also to get a grip on the perpetual problem of tenosynovitis. Anyone who has spent hours cutting tray cakes will know what a torment that is." The plan in the near future is to use the plant more intensively in the daytime as well – namely to decorate cookies and cakes. Lummer says "Our machine concept is designed to be so universal that we can optionally use an agile handling or pick&place robot instead of the cutting tool on the flexibly movable axis and positioning system. Equipped with a nozzle and heatable hose, the system can be used for individual chocolate lettering, for example – thus ensuring additional cost-effectiveness." +++

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