TELSONIC
ULTRASONICS

Telsonic Expand Automated Food Portioning Capabilities With 800 mm Ultrasonic Blade

PLASTIC WELDING | METAL WELDING | CUTTING | CLEANING | SIEVING

Bronschhofen (CH), 10/2020

A growing tendency to eat-on-the-go, convenience for the consumer at home, time savings for retailers and the obvious hygiene benefits of foodstuffs being handled and portioned within a tightly controlled and clean environment, are amongst the factors driving an increased demand for pre-portioned food products.
Ultrasonic cutting technology is now established as a mature and very successful technique which is used by a wide range of food producers. The increasing number of applications for automated portioning and cutting reflect the industry's demands for greater productivity and reduced waste.
Over time, ultrasonic cutting blades have become wider enabling them to span typical tray bake size products, and when used in conjunction with automation, particularly 6 axis robots, achieve higher productivity levels with fewer cut cycles. Telsonic have, for many years, pioneered the development of lightweight wide ultrasonic blades and have now recently been challenged to go even wider to reduce edge margin waste and optimise further the yield per tray.

01/02 The flexibility of the ultrasonic process means that it can easily be integrated to either dedicated automation systems, incorporating one or more wide 500 mm or 760mm blades and now up to 800 mm ultrasonic blades, or as seen here highly flexible multi-robot systems

The ongoing application of Telsonic's field proven ultrasonic technology has not only eliminated many of the the challenges relating to soft and delicate products, but also

played a key role in driving efficiencies, greater productivity, higher yields and improved product quality and portion control when used for food cutting and portioning.

The flexibility of the ultrasonic process means that it can easily be integrated to dedicated automation systems, perhaps incorporating one or more ultrasonic blades, or highly flexible multi-robot systems, capable of producing cuts in different positions and orientations. The many benefits of the ultrasonic process, together with these innovative automated production concepts, mean that a growing number of items such as sandwiches, cheesecake, gateaux, cheeses, and increasingly tray bake products including brownies, flapjacks and protein bars etc. are now being successfully cut and portioned automatically using this efficient and clean process.

The relatively simple configuration of the ultrasonic process means that the sonotrode and its associated converter can easily be mounted to multi-axis robot systems, which has definitely had a positive impact on the uptake of the technology. The increase in the number of systems being integrated to robots can in part be attributed to Telsonic's previous development of special 500 mm and 760 mm wide sonotrodes, with IP rated booster-less systems and special double length yet lightweight "T" sonotrodes for deeper products, all driven by Telsonic's flexible compact 20 kHz. MAG - S type generators. Telsonic also supply a range of 35 kHz equipment for various and diverse cutting applications.

Expanding Upon Previous Success

The latest challenge has been to add an 800 mm wide 20 kHz blade to the range to reduce edge margin waste created by the widening of the product at the first cut in 30" bake tray production thus maximising further the yield per tray. This development has involved an acoustic design with several technical challenges involving stress modelling to a design failure mode and effective analysis (DFMEA) and influenced by the experience gained from Telsonic's 500 mm and 760 mm blade business. The new 800 mm blade is powered by Telsonic's MAG2036-S / Booster / SE2036-C – IP67 systems.

The relatively low-weight of these sonotrodes offer the possibilities for automation specialists and system integrators to use smaller robots, which in turn makes for a more compact cost effective system, taking up less valuable floor-space. The flexibility of the process, especially when combined with a robot, makes it simple to change the portion size or shape as required for different customers.

The clean cutting nature of the process also improves product aesthetics by providing consistent portion control and eliminating crumbs, which are important considerations for customers viewing products on the shelf. Manufacturers also realise increases in yield, due to the consistency in cut, and the ability to cut very thinly and of these attributes can also have a positive impact on downstream packaging operations, again by eliminating issues related to product cut edge shape inconsistency or particles produced from the cutting action.

Significant productivity gains are achieved through the speed of the process, and as the cutting sonotrodes do not suffer from the same contamination problems as traditional cutting blades, uptimes are much higher. It is also possible to introduce automated cleaning cycles on dedicated cutting systems or robot based systems if desired, either by dipping the sonotrodes in a cleaning bath and activating the ultrasonics, or by jet washing within the machine.

by Martin Frost, UK Sales Manager, Telsonic UK Limited, United Kingdom