



PICTURED: An RBS rotary moulder producing pet treats.

## WHITE PAPER

RBS Baked Pet Food Systems:

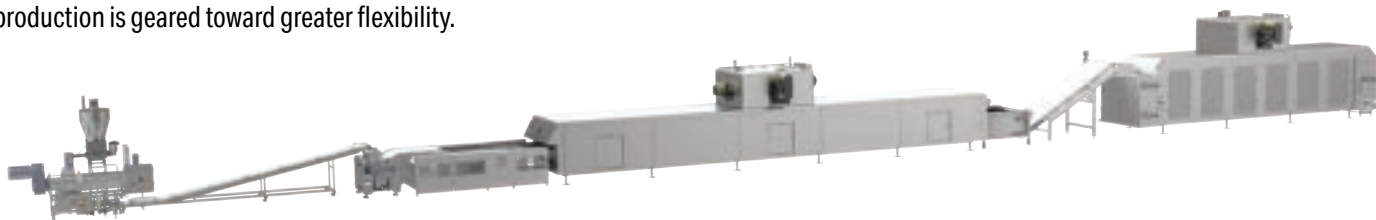
# Optimized, Automated Solutions for Baked Pet Treats and Baked Kibble

Due to the increase in the humanization of pet food and the desire for more premium products, the global pet food market is growing at a rapid rate. Since 2010, sales have been growing at an annual rate of about 10%, reaching \$102.6 billion in 2021<sup>1</sup>. Baked pet foods – kibble and treats – offer an enticing opportunity within the larger pet food market.

While baking pet food is a costlier, lower throughput process than high pressure extrusion, it promises much higher profit margins. Pet food owners perceive baked pet foods to be healthier and more humanized, so they are willing to spend more on them. Baked pet food production lines can produce kibble and treats, making them more flexible than high pressure extruded systems. That flexibility also enables innovation in new product development.

Baked kibble and treats share the same five production steps: mixing, feeding, forming, baking and drying. With baked kibble, outputs are higher and involve fewer shapes and ingredients than treats, so production is geared for greater throughput. With baked treats, outputs are lower but involve more shapes and ingredients, so production is geared toward greater flexibility.

Accordingly, your system and production processes will depend on your product portfolio. As the only OEM that offers a dedicated pet food system from mixing through baking, RBS can help you select and optimize a baked pet food system for your current and future product mix.



PICTURED: A side view of a complete RBS pet food production line, from mixing system at far left to drying system at far right.

<sup>1</sup> <https://www.statista.com/statistics/253953/global-pet-food-sales/>



## AUTOMATED, BAKED SYSTEM SOLUTIONS

Backed by 130 years of baking industry experience, RBS has been developing baked pet food systems and solutions for over 20 years. Our move into the baked pet food market was a natural evolution, as cookie and pretzel production are very similar to baked pet food production. And just like our cookie and pretzel systems, RBS baked pet food systems are engineered for sustainability, energy-efficiency and cost-effectiveness.

For most RBS customers, the introduction to our baked pet food systems and solutions begins at our state-of-the-art Science & Innovation Center. This unique research and development facility allows our customers to test products and processes on RBS equipment before purchasing. Our engineers will work with you to demonstrate our process machinery, validate product ingredients, produce market samples and more. It's a key part of the RBS system selection and optimization process, and it allows us to educate our customers on the many equipment considerations at each production stage.

## RBS MIXING OPTIONS



**PICTURED: A batch mixer, dough feeder and kibbler feeding a rotary moulder.**

All RBS automated baked pet food systems start with either a batch or a continuous mixer. Depending on your products, each has its pros and cons. Batch mixers are generally best for low-to medium-capacity production lines, especially those with multiple recipe changeovers. In contrast, continuous mixers enable a much higher throughput and are usually the preferred choice for high-capacity lines. Continuous mixing offers several important benefits over batch mixing, including a fully automated system that reduces labor, saves energy, improves consistency and simplifies your mixing process.



**PICTURED: Baked kibble dough mixed by an EX Continuous Mixer feeds into a rotary moulder.**

## RBS DOUGH HANDLING OPTIONS

The selection of a batch or continuous mixer will affect your dough handling equipment choices. With a batch mixing system, the larger batch sizes need to be broken down and metered into the forming equipment, a process that requires larger and more feeding equipment. With a continuous mixing system, the dough stream is discharged in smaller sizes, which enables smaller and less equipment. RBS has a portfolio of dough handling equipment for batch or continuous systems.

## RBS DOUGH FORMING OPTIONS



**PICTURED: Co-extruded pet treats produced on an RBS pet food line outfitted with a Low-Pressure Extrusion System.**

RBS baked pet food systems are available with a variety of forming equipment options. Representing the industry standard, our rotary moulders can handle higher fat doughs and are flexible enough to produce kibble and treats. RBS wirecut machines are great for softer cookie-like products and bars. Our low-pressure extruders can produce unique shapes and are ideal for rugged-looking kibble or kibble with a 60% or higher fresh meat content. Co-extrusion and sheeting systems are available for filled and cracker-type products.

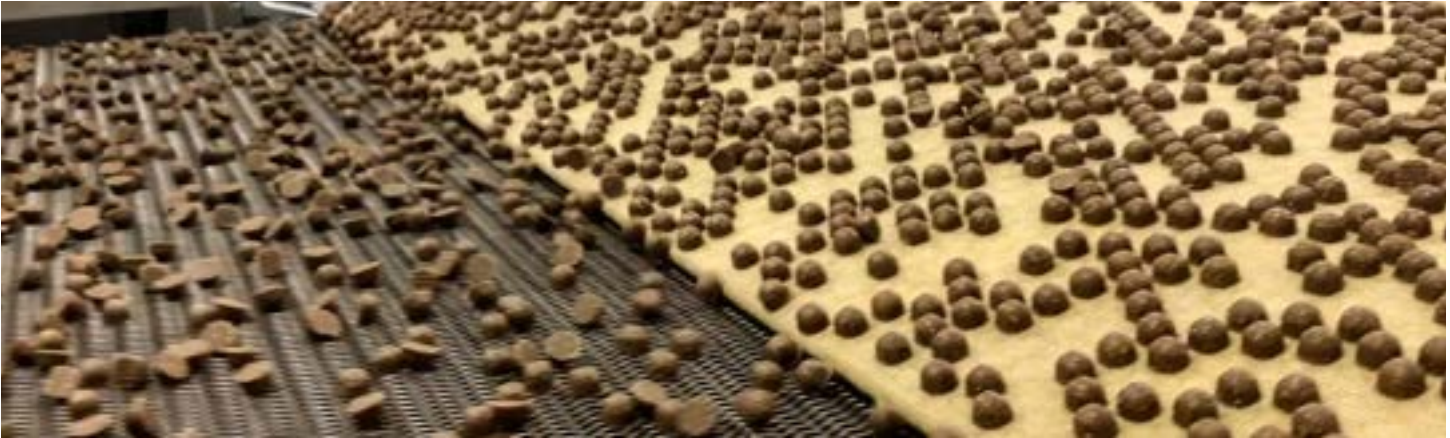


**PICTURED: An RBS wirecut machine forming cookie-shaped pet treats.**



**PICTURED: An RBS rotary moulder producing baked pet kibble.**





**PICTURED:** Baked kibble exits RBS rotary moulder and feeds into the convection oven.

## RBS BAKING AND DRYING



**PICTURED:** An RBS single pass convection oven for baked kibble and treats.

Unlike cookie baking, which involves a mix of sugars and butters that need time to develop, pet food baking uses meat-based fats that require a faster, even bake. This is why pet kibble and treats are typically baked in a convection oven on an open mesh belt. Precise and uniform heat and airflow controls are essential, since too much heat in the first zones of the oven will cause case hardening of the product that keeps it from reaching proper moisture removal targets.

The Prism convection oven addresses all of these concerns and more. This RBS oven system features automated airflow and conveyor speed controls that support an even bake for higher product quality and consistency. For baked kibble and small treats, RBS offers a proprietary oven over kiln for the most efficient space usage.

While the final oven zone can be used as a dryer for lower throughput lines, most baked pet food products, particularly treats, require more drying. To ensure optimal product quality and shelf life, final baked pet food moisture targets should fall

within the 8 – 10% range. The RBS Multi-Pass Dryer will help you meet these targets more effectively.

Our Multi-Pass Dryer features three mesh tiers that allow the product to tumble from level to level to promote more even drying. Hot air is forced through the product pile from above and below each conveyor belt, and each conveyor tier can be set at different speeds for greater production flexibility. The Multi-Pass Dryer also features full-length doors on each side that open both ways for easy access and cleaning.



**PICTURED:** The RBS MultiPass Dryer on a pet treat production line.

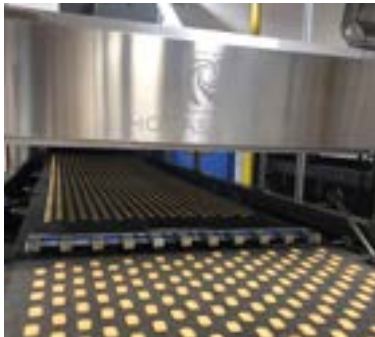
As part of our sustainability initiatives to manage oven emissions and energy usage, we build our ovens with better insulation to minimize the conductive heat paths from the interior of the oven to the exterior. RBS also uses lighter-weight oven belting to help conserve energy, and we offer items like high-efficiency motors and heat reclamation systems that can assist by reheating the oven makeup air. Alternative heat sources and electric oven options are available for all RBS oven configurations.



## ADVANCED BAKING MEASUREMENT AND MONITORING

To further support product quality, our proprietary SCORPION® 2 Data Logging Measurement System provides essential data during product development, system installation and commissioning and daily operation. The system features sensing bars and product probes that measure product temperatures as well as surrounding oven temperatures, air velocity, humidity and heat flux.

During product development and oven set up, the SCORPION® 2 can eliminate guesswork and save time in taking a product formula from pilot scale to production. During production, the SCORPION® 2 detects cold spots that can interfere with the kill step, and hot spots that can overheat the product and destroy nutrients. Measurements can also be saved as part of an overall safety log to validate the kill step. The SCORPION® 2 is a single user-friendly platform for data collection, analysis and problem-solving.



**PICTURED: The Scorpion® 2 data logger with temperature sensor array.**



**PICTURED: SCORPION® 2 product temperature probes are suitable for the product core measurement of small product pieces.**

## HEALTHIER PET FOOD STARTS WITH RBS

If you're ready to capitalize on the expanding and profitable baked pet food market, look to RBS. Our automated, energy-efficient systems leverage many decades of cookie, pretzel and pet food production expertise, while our Science & Innovation Center provides system and product development support that other manufacturers can't match.

For more information about RBS Baked Pet Food Systems, please visit [www.readingbakery.com](http://www.readingbakery.com).



**See the RBS pet treat line in-action.**



**READING BAKERY SYSTEMS**

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