



# The Cookie Capper

## A Simple Solution Gives Sweet Results

Recent research studies confirmed that the USA is without a doubt a snack-loving country. Machine Builders and Design, a privately held company located in Shelby, NC, recognized the potential of the snack food industry early on and successfully carved out a niche in the biscuit cracker-manufacturing segment of the Snack Baking Industry. “In 1974, Bud Mims started the company with the notion, “You have a problem? We’ll solve it, tell you how much it will cost, and guarantee the solution”, describes Darryl Mims, President of Machine Builders and Design, the early philosophy and success of the company.

Through the years, the company’s focus has narrowed and Machine Builders and Design has become a leader in providing quality, value added cookie processing and

packaging equipment. “Our flagship machine, “The Cookie Capper” is the worldwide leader in providing a simple and highly flexible solution to our customers. The flexibility makes our equipment especially popular with small businesses, thus allowing us to expand our market share”, explains Darryl Mims. The Cookie Capper is currently in operation in over 40 countries worldwide with approximately 300 applications. Proven reliability and guarantee to perform – features our customers can depend on.

### The Application

In general the Cookie Capper can be described by the following main processes: indexing, flipping, depositing and assembling of the cookies. Once the cookies pass through the baking process, the Cookie Capper accepts the full oven capacity of cookies via cooling conveyors. The cookies enter the machine

through an alignment device which lane and buffer the product. The ROTODEX I indexes each cookie to ensure proper spacing and machine registration. The infeed conveyor moves the now assorted cookies to a controlled FLIP-STATION which turns over every other row of cookies to prepare them for the depositing process. At the ROTODEX II the cookies are final registered before filling is applied. This ensures maximum accuracy through the depositing sequence. During the next step of the process, the DEPOSIT, filling is applied to every other row of cookies followed by the CAPPING, where the tops are positioned onto the bottoms of the cookies before they are finally packaged and ready to be sold all over the country.

### Versatility and Precision

“The Cookie Capper is designed to run delicate soft cake, wire-cut and rotary molded cookies that fluctuate in size and shape because of upstream processes that lack adequate control. We control placement of filling and top cookie within + or - 1 mm. We control filling target weights to within  $\pm 1\%$ , saving cost on ingredient usage. Our depositing methods allow the customer to aerate crèmes offering indulgent eating textures and cost savings on raw ingredients” explains Darryl Mims.



The B&R controlled Cookie Capper which was successfully introduced in 2004 at the Las Vegas Bakery Show is characterized not only by its simplified design. The main selling features of the Cookie Capper furthermore include its versatility, precision and throughput capability. Some machines run as many as 6,600 finished sandwiches per minute and up to 33 different variations of product ranging in sizes from 25 mm to 125 mm diameter - as well as square and rectangular shapes - accomplished on the same machine with quick changeover characteristics possible because of servo drives. Minimizing changeover times to mere minutes is an important value added for smaller companies that cannot dedicate process lines to one item only. Additionally, this allows for multiple deposit shapes and multiple fillings to be deposited in parallel or sequentially. Last but not least the Cookie Capper offers the advantage that no ancillary equipment is required for cookie alignment, laning, feeding or orienting of the product.

### Power Panel & Servo Drive Technology

This is all achieved with a mobile machine featuring the B&R Power Panel 200, for central control and visualization functions. The Power Panel furthermore provides consolidation of many discrete controls components on the mechanical machine into a single software environment. The machine, which was developed by Integrated Motion in only two weeks, also features B&R's ACOPOS Servo drives. The development of the application using servo technology allows the customer to synchronize up to 19 axes, phase locked. With the push of a button, ratios, profiles and speeds can be

*“Machine Builders and Design has been a customer of Integrated Motion, Inc. since 1991. Automation Studio and the flexibility of the B&R hardware allows us to offer customers a single, integrated control package.”*

Charles Williams  
President  
Integrated Motion, Inc.



changed to expedite changeovers in the plant environment. Only servo technology offers this kind of flexibility. Additionally, the hardware is highly scalable thus making it possible to use the same Power Panel from the two-axis mechanical Capper up to the 19-axis Electronic Capper. This makes it very simple to add or subtract servo axes based on the end user's requirements.

The B&R solution allows the customer to execute the following:

- Programming of the PLC, operator interface and servos from a single software environment.
- Simple integration of AC induction motors and direct drive servo motors with the ACOPOS servo drives. Using direct drive motor technology to achieve smooth motion profiles, simpler mechanical design and elimination of gearboxes.
- The B&R ETHERNET Powerlink technology provides high speed synchronization in real-time between the servo axes with a standard Ethernet interface.
- The inertia feedforward servo algorithm provides superior performance for axes that have changing mass between setups.
- Single communications connection

used to examine and diagnose the entire machine (Ethernet TCP/IP).

- If a component fails, the replacement is automatically configured for immediate use; no local user interaction is required. Software upgrades are simple, one compact flash card.

“Through our vital partnership with Integrated Motion, we have come to learn about the B&R Solution, which provides machine sequencing, motion control and operator interface at a very competitive price. We are very happy with the robustness, simplicity and the added functionality of the B&R system. There has been significant cost savings in wiring time due to the networking of drives and elimination of several discrete components (i.e. relays, PLS, timers). A new B&R system takes less time to checkout due to the added diagnostics and simple wiring.

Additionally, being a global company, it is vital that our controls package is global and has worldwide recognition. We have implemented this B&R package on series machines and are pleased with the performance and cost savings we experience. We are excited to offer this package as our standard” says Darryl Mims, President of Machine Builders and Design.



With a size ranging from 600 - 1700 mm wide to 5 meters long the Cookie Capper also saves precious floor space in the production environment.

