



QUIN BUILDS A BETTER CASE PACKER FOR NORTHERN FOODS

Automating case packing, the last manual process on its production line, was proving a challenge for Northern Foods, the manufacturers of Fox's Biscuits, until a radically new case packer from Quin Systems provided a convenient and very cost effective solution.

At Northern Foods, biscuits are produced at a rate of over 100 packets per minute. The production line has, for some time, been fully automated except for the final step of case packing – loading the finished packets of biscuits into the cardboard boxes (cases) which are used for shipment. Recently, the company decided that it was time to automate this last remaining manual process.

This is not as simple as it sounds. The case packer must handle the packets of biscuits gently to avoid damage, and must place them accurately within the outer cases. Further, the pattern of placement varies with the type of biscuit being produced. And, of course, the packer must be able to handle the required 100+ packets per minute throughput.

Searching the market for equipment to meet its needs, Northern Foods quickly discovered that conventional solutions were unsuitable. In particular, these solutions, most of which are robot-based, would struggle to reach the required operating speeds. They would also need to

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use at least two pick up heads, leading to a complicated – and costly – installation which would also be difficult to reconfigure to suit new pack sizes and formats.

Other shortcomings of conventional case packers were also revealed, including their large size, which meant that extra space on the factory floor would have to be found.

There were also doubts about whether the machines, when operating at high speed, could provide a smooth enough motion to ensure that fragile biscuit packs were not dropped or damaged. Another concern was the high level of maintenance which would be needed to keep these complex mechanisms in good working order.

At this stage, Northern Foods became aware of the Rtheta™ Casepacker from Quin Systems, which takes a new and innovative approach to the challenges of case filling. Unlike robot-based systems, this new machine uses unique Rtheta™ technology to provide exceptional levels of performance in end-of-line packing.

This arrangement minimises inertia, allowing the high operating speeds needed by Northern Foods to be achieved easily. In conjunction with Quin's specially developed control algorithms, it also ensures that all motion is smooth, thereby eliminating the risk of product damage.

The Rtheta™ Casepacker is based on direct drive from two brushless servomotors. No gearboxes are needed, which not only eliminates positional errors due to backlash, but also greatly reduces maintenance requirements. The machine is compact, and suitable for

mounting above the production line. In the case of Northern Foods, this meant that no additional factory floor space was needed to install it.

"When we first saw the Rtheta™ Casepacker, we were a little wary of its radically different design," said Rick Lloyd, Chief Engineer at Northern Foods. "However, the specification appeared to meet all of our requirements and the price – about half that of the other systems we'd looked at – was certainly attractive. Accordingly, we decided to install one of the machines on a trial basis."

In operation, the machine quickly proved its capabilities, meeting Northern Foods' target of handling over 100 packs per minute with ease, using just a single vacuum pick-up head which can be changed rapidly to suit different types of biscuit packaging.

The new machine controls the flaps of the cases, which it receives from a carton erector also supplied by Quin, collates the biscuits, then loads them into the cases. According to the product type, there are between two and six layers of biscuit packs per case, which means that high positional accuracy is essential if product damage is to be avoided.

The Rtheta™ Casepacker features a touch-screen interface which makes it possible for the machine operators to change in seconds between the fourteen different products which the line currently handles.

Further, the straightforward menu-driven programming system used by Quin means that technicians at Northern Foods can quickly and easily reconfigure the system to handle any

new pack sizes which may be needed in future, without having to rely on external support. A similar menu-based interface gives access to the powerful yet easy-to-use diagnostic facilities which are built into the system.

The new Casepacker and its associated carton erector also proved easy to link with the production line's existing control systems enabling, for example, upstream processes to be halted temporarily if the case packer runs out of cartons.

After exhaustive trials lasting several months any reservations which Northern Foods may originally have had about adopting new technology were entirely dispelled.

"The installation easily meets all our requirements, and we have had no hesitation in making it permanent," said Rick Lloyd. "By eliminating the need for manual case packing, it has cut our costs substantially, and it will have a very short pay-back period, especially when its low initial cost is taken into account."

"It has now been operating 24-hours a day over the last couple of months, and its reliability has proved to be excellent," he continued. "Based on our experiences, we believe that Quin's Rtheta™ Casepacker has huge potential within Northern Foods, and beyond."

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