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ABB drives double rate of tomato packing

ABB machinery drives have doubled the packing rate of a tomato handling machine, while making it easier for the machine's original equipment manufacturer (OEM) to build.

The ABB machinery drives control the speed of the tomato handling conveyors, matching the speed of the packing machine and ensuring that the tomatoes are packed quickly and accurately. Another ABB machinery drive runs rollers on the conveyors, allowing the tomatoes to be turned automatically and inspected for quality.

The handling machine was designed and built by D&D Engineering (Hull) Ltd, a manufacturer of conveyors and product handling equipment. Eighty percent of its customers are in the food industry, mainly in the prepared produce sector with some involved in the production of chilled products and bakery goods.

Many of its products are tailor made for individual customers' needs. The order for the tomato handling machine was for John Baarda, a company specialising in the growing of tomatoes.

The two feeder conveyors are each driven by an ABB machinery drive in master-slave configuration, with the master receiving an encoder signal from the wrapper. This ensures that the drive knows where the wrapper is in its cycle and can control the speed of the conveyor precisely to ensure the tomatoes arrive at the wrapper at the correct time. If the speed of the wrapper changes, the drive can alter the speed of the conveyor accordingly to maintain the correct timing.

Tim Howarth, Business Development Manager with John Baarda, says the new system has allowed far higher production rates than with previous mechanical systems: "With mechanical systems, we can achieve a maximum rate of around 60 packs per minute. With stoppages, this averages around 40 packs per minute. The drive based electronic control system gives us an average of 70 to 80 packs per minute."

Product changes are also far easier with the electronic system. The drive is programmed by D&D Engineering (Hull) Ltd with product menus, allowing different products to be run on the conveyor and with quick changeovers.

The product can be delivered into trays or can be delivered unsupported subject to the flow-wrapper being able to handle unsupported product. The Ulma Atlantic flow-wrapper can package product both in trays and unsupported for reduced use of packaging material.

Gavin Walker, Engineering Sales Manager of D&D Engineering (Hull) Ltd, says: "The speed of the conveyor must be co-ordinated with the speed and timing of the Ulma Atlantic Flow wrapper to ensure that the tomatoes are delivered to the flow-wrapper at exactly the right time. Any required machine settings can be entered and stored in the pre-programmed product menu with any required running changes at the push of a button. In a mechanically interfaced machine, this co-ordination is achieved with a series of chains and sprockets. These are subject to wear and stretch, causing inevitable maintenance problems, with any timing adjustments having to be made mechanically."

This method also causes production disruption when the speed of the flow wrapper is changed. The speed of the conveyor must be altered to match the new speed of the wrapper, involving changing the

timing mechanically by advancing or reversing the chain. The time needed for changeover cuts into production time and reduces output.

For the John Baarda project, D&D Engineering (Hull) Ltd decided to use a totally electronic method, one that would eliminate the mechanical links and their associated problems.

To co-ordinate the speed of the conveyor with the wrapping machine, D&D Engineering (Hull) Ltd chose the ABB machinery drive. It can be used with both synchronous and induction motors and its modular design and flexible software make it suitable for use in a range of machinery applications, including those of the food and beverage industry, material handling and packaging.

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Caption: ABB machinery drives have doubled the packing rate of a tomato handling machine, while making it easier for the machine's original equipment manufacturer (OEM) to build.

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For more information please contact:

Layla Hewitt
Marketing Communications
Phone: 01925 741517
Email: layla.hewitt@gb.abb.com

ABB Ltd.
Daresbury Park
Daresbury
Warrington WA4 4BT

Emma Jenkinson
Armitage Communications
Phone 020 8667 2218
Email: emma.jenkinson@armitage-comms.co.uk