

Chivas Brothers

Chivas Brothers' success in its drive to become the global leader in Scotch's fast-growing premium sector required a significant increase in production from the company's Palletisation and Automatic Despatch facility in Dumbarton on the outskirts of Glasgow. The facility plays a key role in the distribution of brands such as Ballantine's, Beefeater Gin and Chivas Regal 25 Year Old. A recently completed project to upgrade the palletising and conveyor systems included a significant quantity of motorised rollers and Zero Pressure Accumulation controls from Itoh Denki. The system is designed to ensure maximum production from the site and provide Chivas Brothers with an estimated 50% increase in output.



Challenge

- ▼ Reliable transport of fragile product over distance underground
- ▼ Increase production capacity
- ▼ Energy efficiency

System

- ▼ 1,140 24v motorised rollers manufactured by Itoh Denki
- ▼ Zero Pressure Accumulating logic controls with built-in communication links
- ▼ Adjustable speed and transfer configuration
- ▼ Smooth, low noise transport of goods on precision bearing rollers

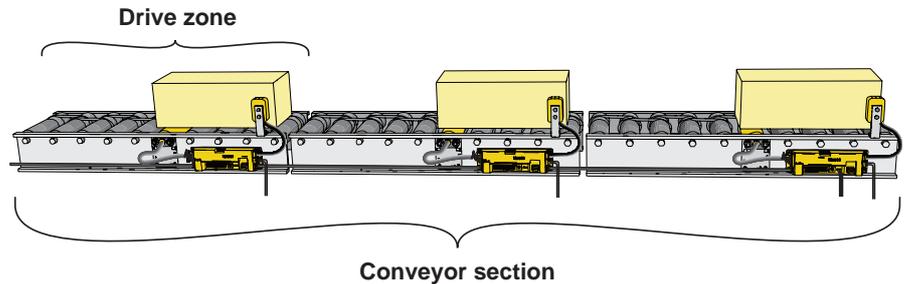
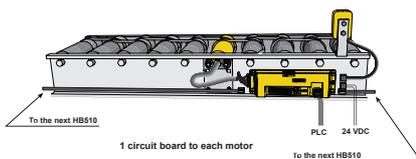
Solution

- ▼ Energy efficient, run-on-demand low voltage motorised rollers
- ▼ Self-managing accumulation logic prevents collisions and breakages
- ▼ Dynamic product buffering automatically adjusts to production throughput
- ▼ Cost effective built-in controls without the need for complex or expensive PLC I/O modules

The new conveyors transport different sized cartons containing a variety of bottle sizes, from eight existing production lines in the Clyde bottling hall to a completely new palletising system. Cases leave the bottling hall on eight separate conveyor lines at speeds of up to 60 cases per minute. All eight lines then travel underground for approximately 100m and around several bends before returning above ground to the feed eight new palletisers. The solution from Itoh Denki was selected because it offered significant energy savings over traditional technology. It also incorporated simple and reliable Zero Pressure Accumulation controls which ensure that the high value cartons arrive safely at the palletisers, on demand.

Itoh Denki's unique logic controls not only prevent cases colliding, they also manage the flow of cartons between the bottling hall and the palletisers. This provides a significant level of product buffering which dynamically accommodates the throughput required by the palletisers or changes in production output.

The controls work in conjunction with a photo-electric-cell in each conveyor zone. Each zone comprises a single motorised roller and several slave rollers.



The rollers are pitched to support the cartons and provide a clear and distinct product space that segregates the cartons from one another. The controller detects the arrival of cartons in upstream zones from the production line as well as monitoring the buffering of cartons in downstream zones. Providing the next section is clear and ready to run, it will start the motorised roller and transfer cartons from one zone to the next. If a controller detects the conveyor zone in front is occupied and stationary it will hold product until the downstream zone becomes free. The system ensures a steady and regular flow of cartons is fed into the eight palletisers and maximises throughput to the despatch area without interruptions or breakages.

At times of reduced throughput or changes in production the motorised rollers are automatically stopped by the controllers and remain in standby ready to start when signalled to do so. This run-on-demand methodology ensures minimum energy usage and maximum efficiency with the use of Itoh Denki's 24v Power Moller motorised roller technology. Power Moller motorised rollers and controls can achieve an estimated 60% reduction in energy use compared to conventional industrial drive solutions.



HB510P

Zero Pressure Accumulation

Chivas Brothers, Project Manager Stephen Trainor describes the solution: **“The system is handling high value goods and the loads are quite fragile, so the combination of self-managed conveyors with Zero Pressure Accumulation provides very effective protection for the valuable throughput”.**

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