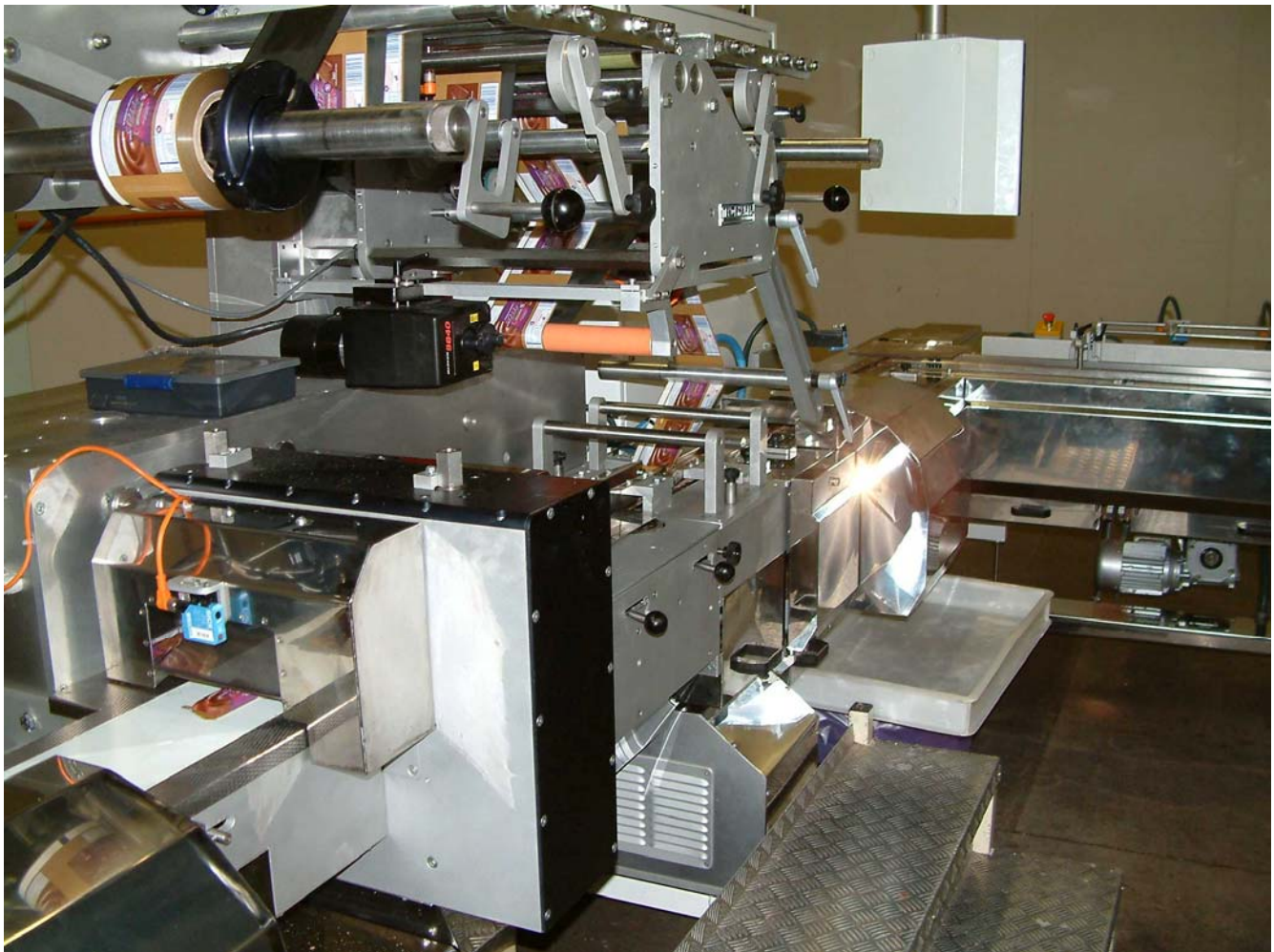


## NEWS RELEASE January 2005

### *Trio Wraps It Up For Daco...*

Leading packaging machinery rebuilder, Daco Engineering Services, discovered hidden benefits when the company standardised on Trio Motion Technology Motion Coordinators for its range of flow-wrapping machines.



Established in 1985, Daco Engineering was the brainchild of Dave Harris, an engineer with a lifetime's experience in the development and maintenance of food processing machinery. Concentrating on the reconditioning and upgrading of flow-wrapping machinery, Daco rapidly earned a reputation for high quality work and personal service. The company specialises in solving individual problems at economic prices, building often highly complex machines from existing plant.

A visit to their rural factory in Wiltshire reveals a thriving company with an impressive amount of machinery undergoing refurbishment, although in some cases there is little of the original equipment to be seen. "True," said Managing Director Dave Harris, "We have always seen ourselves as rebuilding and refurbishing experts, but in fact many of our recent projects have really been completely new designs to fit in with existing installations. In particular, we are employing fully automatic, computer-controlled drive systems to replace older mechanical systems. The new systems are far more reliable, much easier to service and allow very fast changes from one product to the next with minimal operator involvement. As a result, our customers gain from increased productivity, greater flexibility and a substantial reduction in maintenance costs."

The move from mechanical drive and clutch systems to electronic control was aided by the advice of Lenze and the programming skills of Tim Oxtoby of Machinery Control Systems. Lenze provided a package of drives and motors to suit each application, all controlled by Trio Motion Technology Motion Coordinators. "Lenze recommended Trio for their systems," commented Dave Harris, "and we found them to be completely dependable. We have since standardised on Trio Motion Coordinators, originally using the MC 216 for its blend of capability with considerable flexibility at low cost."



A former Trio employee, Tim Oxtoby set up Machinery Control Systems to provide technical and programming support for engineering companies using automation products, including the entire range of Trio Motion Coordinators. His expertise has been utilised by Daco Engineering to develop a wide variety of flow-wrapping machines for customers throughout the UK and Ireland.

The latest machine to be built has recently been delivered to OP Chocolate in Merthyr Tydfil, South Wales. OP Chocolate is a member of the Groupe Cémoi, a privately owned food company based in Perpignan, South West France. The Welsh plant concentrates on the production and packaging of both its own brand and customer labels of biscuit and confectionery. The plant has facilities for marshmallow production, wafer ovens with automatic cream, jam, caramel and savoury filling stations and chocolate enrobing and moulding, all to the highest international standards.

Maintenance Development Manager for OP, David Wilding, commented: "Daco have supplied three other flow wrapping machines which all worked very well. When we needed a new machine to package a range of chocolate bars, we naturally asked Daco to completely rebuild an existing machine to take full advantage of modern technology."

"In particular," he continued, "We needed to reduce the time taken to change from one product to another, and to operate at up to 200 units per minute. As with all food-related machinery, we also required high precision of control, guaranteed elimination of substandard product, careful handling to cut product damage and waste, and reliable operation with simple programming."

Daco Engineering effectively redesigned and rebuilt the original machine to provide a series of input belts to align the product, incorporated an extensive range of optical sensors to check product position, length and height, and supplied a servo driven horizontal flow wrapping machine using three Lenze servo motors and drives with a Trio MC216 Motion Coordinator.

Input belts and sensors are linked to three Trio CAN16 Input Modules and one Analog Module. All drives and controls are housed in a single cabinet attached to the flow wrapper, with operator input through a colour touch screen. Two levels of control allow an operator to adjust settings and change product, whilst a password-protected supervisor mode is used for setting up to 20 individual product programs. Control symbols and messages are in plain English, using commonly accepted industry (or even purely local) terms to reduce operator training and avoid input errors.



The machine has features to reduce waste and save on packing film costs. For instance, the long and cross seal will wait until product is sensed in position, ensuring that no empty bags will be produced. On non-foilised film, sensors detect whether there is a gap between products, protecting them from being hit by the cross seal if they are misplaced.

As installed, the new machine has a wide belt to carry bars from the chocolate enrober. Bar distribution is sensed and aligned by a lifting gate, which ensures that the leading edges of each batch are straight. Any misalignment will result in the batch being shunted on to an holding belt for inspection. If accepted, the group of bars will travel to the end of the wide belt where a narrower belt, moving at right angles, rises up to accept the batch. As this belt rises, the larger belt is shortened to make space and discharge the batch.

Now travelling towards the flow wrapper in single file, the chocolate bars traverse three further conveyor sections equipped with sensors to ensure that the product is present, meets pre-set height and length parameters, and conforms to the speed and density requirements of the wrapping system.

Again the product flow moves through a right angle to enter the wrapper, where a reel of packaging film is supplied to a series of discs. These may be cold or heated, and may even be water-cooled for some applications. The film is wrapped around the chocolate bars, sealed, and passed to the next section where the continuous film is cut to length by a rotating knife. The cutting action also seals each end of the bar pack. A conveyor then removes finished product to the packing area.

For some applications, the film may carry printed index marks. Where required, the flow wrapper can employ the Registration Input of the Trio Motion Coordinator which allows a sensor to locate the index mark and then synchronise the whole motor system to ensure that the chocolate bar is accurately placed within the film. Whether using this feature or not, all servo motors are controlled to provide the best balance of throughput speed with maximum reliability. Film breakages are minimised by synchronising the cross cutter action precisely to the product conveyor speed and automatically making fine adjustments during production. Trio's powerful and easy to use BASIC language allows the programmer to set up such complex features with minimum effort.

"This new machine has met all of our expectations," commented OP's David Wilding. "We no longer need to employ an engineer to make product changes, as an operator can do the job in less than 10 minutes. Formerly we would have had to lose the use of the machine for at least 30 minutes or more. It is easy to use, very flexible in what it can handle, and has proven very reliable. The only problem was that we specified the machine to run normally at around 150 units per minute and then realised we needed more - up to 300 per minute."

Mark Gerrish, Commissioning Engineer for Daco, takes up the story: "To effectively double the performance of a flow wrapper is a tall order for most companies. We first tried the existing machine as supplied, but found that the MC216 Motion Coordinator had problems at the highest rates as a result of the very large number of input signals from the conveyors and sensors. The MC216 is a 16 axis controller working at 60MHz, and ideally suited to the original specification of the flow wrapper, but could not operate at the highest speeds."



“We discussed the problem with Lenze and MCS, who suggested changing the controller for the newer MC224 Motion Coordinator. This is capable of controlling 24 axes and operates at 150MHz, but actually costs very little more than the earlier unit. We were pleasantly surprised to find that the programs used on the MC216 could be quickly transferred using a flash memory stick, so we had no trouble in changing the controller in the field. It is an impressive demonstration of Trio’s philosophy of making controllers which can be upgraded without extensive retraining, reprogramming or rewiring. And the good news? Our Flow Wrapper will happily run at the new speed all day.”