

## Braby make 'Muller Light' work of storage system

Muller Dairy controls 40% of the yogurt market in the UK. Their 16,000 square metre factory in Market Drayton produces over 4 million yogurts a day and consumer demand for their popular desserts has never been bigger.

As part of a £55 million project to extend its Market Drayton facility, Project Manager Martyn Steadman had the complex task of equipping a brand new factory with a complete storage and conveying system for the fruit cooking operations. This was to include a 100 ton external aluminium vessel for the storage of granulated sugar which would be attached, via a conveying system, to three stainless steel internal weigh hoppers, each capable of holding 3 tonnes of sugar.

Martyn approached three bulk-handling firms in the UK and Europe with his specific requirements. The contract was far from simple. The successful company would need to be able to install three of the internal hoppers, suspended from an overhead gantry, 10 metres in the air. Bristol-based Braby, one of the UK's leading manufacturers of aluminium and stainless steel vessels, won the contract by "demonstrating their confidence and proficiency in such a complicated project", says Steadman.

Braby have been involved in a number of storage systems for the food industry over the past years. Their qualified engineers used this experience to assess the exact needs of Muller and design an efficient storage solution within Muller's allocated budget.

Martyn Steadman comments, "We knew this project would be extremely difficult. The nature of sugar means that the vessels had to be suspended from the roof and trying to find a company capable of both design and complex installation was near impossible". He goes on to say, "Their expertise throughout the actual installation was tremendous."

The vessels, along with the overhead gantry were transported to Shropshire and installed by three Braby staff in under a week. Using a scissor lift and specially erected cranes, Braby were able to install the system safely and securely. Stewardson Powder Handling were then responsible for attaching a conveying system using DMN Westinghouse valves.

Braby also equipped the internal hoppers with Stuvex Fire Explosion Protection. This unique suppression system works by detecting an explosion within the vessel and releases powder to suppress the flame and thus limit the pressure - keeping the explosion contained. Steadman explained the importance of safety precautions within a factory environment.

"Sugar can be a very volatile material and when there's a potential for the vessel to explode, we can't take any chances. The consequences could be catastrophic."

The complete system is now successfully in operation and Steadman is planning towards the next stage of the development. Marketing Manager,

Paul Mayer comments, "The project at Muller was a unique opportunity to show how a complex storage handling project can be executed with careful planning, experienced designers and a dedicated workforce - who aren't scared of heights!"



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## Flexicon take a firm hold on Eastern Europe

Statestrong Ltd., have long been a successful manufacturer of toiletry products both at home and abroad. Such is their success, trade with the eastern bloc countries like Poland, Russia and Ukraine have earned them two Queens Awards for Export and the very promising future has secured a production facility in the Czech Republic.

Their principle product, hairspray, is produced at the Lytham manufacturing facility and, success apart, had its own limitations and difficulties generated by the manual handling procedure. At the front-end stages of production, amphomer, a powdered resin compound additive, was decanted into separate containers of 12Kg weighments, then poured manually into a high shear mixing vessel containing alcohol - the 'batch'.

The disadvantages were many. Amphomer is very unstable and will easily fluidise when handled, demanding measures to minimise health risks through inhalation. It is also very sensitive to humidity and the procedure left the additive exposed to the air in the drum and while in transit to the mixing vessels.

As the additive was poured manually into the mixing vessels control over the flow rate was often insufficient to prevent "balling" which then required longer mixing and costlier filtration procedures to eliminate the small particles.

Also, because the operator needed easy access to the vessels it was necessary to locate them close to the ground and through space availability, were inevitably small capacity. This restriction resulted in smaller 'batches' and, in small volumes, accurate dosing was compromised.

To overcome these difficulties, Statestrong enlisted the help of bulk solids handling specialists, Flexicon (Europe) Ltd. (FEL), who designed, manufactured and installed a full drum tip discharge and conveying system incorporating a drum tip unit, receiving hopper, model 1450 (114mm dia) Flexicon flexible conveyor with a UHMWPE outer tube, housing a flat configuration screw, activated via a control panel. This system would eliminate the manual handling procedure and all the associated difficulties.

The new installation now enables the operative to position a 91Kg drum manually onto rollers that are hinged at the base of the Drum unit and folded out. The point of this was to overcome the limited floor space available and the rollers could be folded back again after discharge. The seal is then



removed from the drum and easily maneuvered into position where it is hydraulically lifted to meet the clamping lid of the drum discharger. Once positioned, it is totally sealed. A manual butterfly valve in the lid remains closed as the drum is mechanically raised and rotated through 180° until the neck of the butterfly valve is securely positioned against a rubber seal located on the top of the receiving hopper. The butterfly valve is then manually opened allowing the additive to flow freely into the hopper with minimal dust emission and maximum operator safety. The receiving hopper has a low level sensor to alert the operator of the status.

From the control panel the Flexicon flexible screw conveyor is then started, gently conveying product through 450 to the 5000 litre capacity shear mixing vessel at a consistently steady flow rate. This control over delivery eliminates "balling" and maximises mixing efficiency and product throughput. At this point in the process various liquid chemicals are then added e.g. Aminomethyl Propanol (AMP) to neutralise the mix and make it water soluble, conditioners, perfumes etc. The mix is then transferred to a second, similar sized vessel via a 25p filter for clarification in readiness for pumping a perfect mix to the in-line filling process. From here it is transferred downline to the filling process where the mix is afterwards sealed in their canisters and pressurised, ready for shipment to the wholesaler and eventual use by the consumer.

By opening a valve at the base of the screw conveyor and reversing the screw, cleaning-in-place is enabled quickly and efficiently, delivering further savings on downtime.

The success of this recent installation has already elevated another similar drum tip to the drawing board which will be configured at a different location within the factory.

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