

# TOP QUALITY SUGAR

A mass flow silo & closed loop conveying system all conditioned by dried air keeps **CHEQUER FOODS** sugar in top quality condition.



Chequer Foods of Telford are one of the UK's major suppliers of sachet sugar for use in restaurants and catering establishments.

Due to high product demand Chequer Foods required an automated bulk handling system to replace the manual 25kg sack handling system. Top on the list was a system that could handle the sugar carefully, preserve the quality, minimise damage and segregation and prevent caking.

Sugar is hygroscopic and will take on moisture from the atmosphere that it is stored and conveyed in. Sugar is also fragile and if not handled carefully, breakage can cause excess fines. If storage hoppers and vessels are not designed correctly the fine and coarse particles segregate leading to a batch of fine particles followed by a batch of coarse particles.

Aptech's dried air closed loop storage and conveying system with mass flow design vessels, fulfilled all the criteria and offered a cost effective solution. After careful consideration Chequer Foods awarded Aptech a turnkey contract to supply the complete system.

This included a mass flow 60 tonne aluminium sugar silo located outside which is filled by blowing sugar from road tankers. The silo is fitted on load cells to display the contents weight and linked to a telemetry system to give automated stock control and re-ordering direct with the sugar supplier. A de-humidifier purges dried air into the silo to eliminate condensation, prevent caking and ensure the sugar stays dry and in good condition.

Sugar discharges from the silo via a specially designed hopper and screw discharger to promote mass flow. This prevents segregation and ensures a first in first out principle for good stock rotation. The sugar is pneumatically conveyed into the factory using a closed loop pneumatic conveying system which uses dried air for the conveying air stream. The return loop pipework allows the dried air to be re-circulated instead of being expelled at the end of the line and as a result the drier required is very small and economical. The conveying system has pressure monitoring and product velocity is set to absolute minimum to reduce product damage. A day bin holds a batch of sugar which is then transferred to a 1 tonne IBC on demand via an automatic filling head. The IBC's are then mounted above the sachet packing machines.

A Siemens PLC control system and operator interface provides the automated control, system interlocking and weigh control.

The project was designed, supplied and installed by Aptech as a Turnkey project, on time and to budget.