Sugar Silo and Handling System

Case Study 22:

STB completed the installation of a sugar silo and handling system for a multi national manufacturer in 2011.

The customer required a way of reducing manual handling and cutting costs by replacing liquid sugar with granulated.
Plant/ System Description

STB Engineering have over 40 years experience working with major food manufacturers in the UK.

We have designed, manufactured and installed various sugar handling systems over the years and recently completed a large system including a 50T sugar silo for one of the country’s biggest food producers.

Our client required solutions for two specific problems. The first was that they were adding sugar to some of their mixes using 20 kilo sacks, requiring a lot of man handling and the second was that they were buying in liquid sugar, at extra expense, as they had no way of conveying granulated sugar to their weighers.

Our objectives were to reduce man hours and save money by designing a purpose built dry sugar dosing system for our client which would convey the sugar directly from the storage silo to the weighing system, whilst working within the constraints of the existing plant structure and ensuring minimal plant disruption.

After close consultation with the client, our engineers decided on the following system. A 60m³ granulated sugar storage silo was installed along with a positive pressure pneumatic conveying system, allowing the transfer of sugar at a nominal rate of 9TPH.

The system pre-weighs the sugar prior to integration with the existing mixing tanks.

The sugar is bulk delivered to site and blown from the tanker in to the silo.

System Components

Silo:
- 50T aluminium sugar silo
- 3.8m dia x 11.5m tall to roof hp level
- Insulated with 50mm mineral wool
- Clad with profiled plastic coated steel sheeting
- Manufactured in our Stroud factory
Plant/ System Description

Silo Discharge Equipment:
- Compact dehumidifier located at the base of the silo, connected via the fill pipe to the ulage. Required to provide dry air to reduce the moisture level on the intake air to the pneumatic conveying systems.
- 2 off heavy duty, stainless steel silo discharge screw conveyors.
- 2 off stainless steel blowing seals.

2 off Blowing Systems:
Providing feed and interface with mixing tanks. Each blowing system was fitted with a dedicated Omega 43, 18.5Kw blower with an acoustic enclosure included.

One system incorporated a weigh hopper with 800kg capacity and the other a weigh hopper with 1600kg capacity. Both weigh hoppers were supplied with flame quench units.

The conveying system was run from the weigh hoppers into the existing mixing tank feed chutes using the necessary valving to ensure the controlled feed of sugar into the tanks.

All equipment supplied was ATEX certified and all support structures were included.

This system has now been operational for the last 18 months and has successfully fulfilled the client’s aims and objectives.

At the time of installation we put in two silo bases at the site, it is expected that as output increases we shall be back for a secondary installation.
STB Engineering:
Bulk Materials Handling & Pneumatic Conveying Specialists

STB Engineering Ltd was founded in 1969, and had soon established itself as one of the UK’s leading Bulk Materials Handling and Pneumatic Conveying specialists.

STB’s success is the result of combining innovative and cost effective design concepts with the highest quality of engineering technology, all brought together by having the advantage of decades of in house engineering design and manufacturing experience.

We specialise in:
- Pneumatic conveying systems (dilute and dense phase)
- Weighing and feeding
- Storage and discharge
- Big bag and sack handling
- Control systems
- In house: project design and management, manufacture, installation and commissioning.

STB offer a total, end to end, in house solution for bulk materials handling, giving one point of contact and a system tailored to suit each specific application.

Using the latest Solidworks & AutoCAD design packages we manufacture our silos, vessels and conveyor systems in our purpose built factory in Stroud, Gloucestershire.

We are an ISO 9001 Quality Assured Company.

The people at STB are passionate about what they do and take great pride in their work. Our engineers have many years experience in solids handling and a thorough understanding of our customers’ process needs and objectives.

Our dedication and commitment to our customers is at the forefront of everything we do which is why our customers keep coming back to us.

“Engineers who do what they say they will do”