



Powder Handling & Processing Systems from Spiroflow Ltd

Spiroflow Ltd are a leader in the design, manufacture, installation and commissioning of Powder Handling and Processing Equipment and Systems. They have factories in the UK, USA and India.

For numerous years now, Spiroflow have supplied complete storage, handling and processing systems. Several have been supplied to repeat customers, who are pleased with the longevity and operation of Spiroflow equipment and who have first-hand experience of Spiroflow's technical capabilities. These capabilities have been expanded and now, more and more, existing and new customers are relying on Spiroflow to handle their turnkey systems. Spiroflow's in-house electrical control design and manufacturing resources play an important part in convincing customers of their ability to handle large and complex projects. Many of these systems have to comply with ATEX regulations.

An excellent example of what Spiroflow can offer is the skid mounted system built for an overseas customer. So pleased was the customer with the system, which they took delivery of back in 2008, that they have recently ordered a second. It is designed to allow the safe, efficient, reliable and accurate sack tipping, conveying, storage and dosing of Hydrated Lime (Calcium Hydroxide) into a liquid stream, prior to it being used in an upstream process.

The system comprises a sack tip station connected to a reverse-jet filtration system, a sifter below the sack tip station to remove any lumps or tramp material, a tubular drag conveyor to transfer product into a silo, an aluminium silo mounted on load cells – which allow the rate of emptying to be controlled and provide indications (a) when the silo is full and (b) when it needs to be replenished. A level probe is installed to shut down the filling sequence in the event that the 'silo full' indication is ignored.

Discharge of the Calcium Hydroxide from the silo is via a metering feeder the output of which is controlled by the loss-in-weight monitoring of the silo contents. Regulation of the speed of the metering feeder is by way of an inverter. Discharge rates of between 0.85 and 3.5m³ per hour are manually set at the control panel and are based on the required consistency of the liquid stream to suit the process requirements. The system is designed not to start unless there is adequate material in the silo to treat the volume of liquid to be conditioned – and at the rate set on the control panel.

Calcium Hydroxide from the metering screw is introduced, through an educator, into the liquid as it is re-circulated by heavy duty pumps from a large capacity tank next to which the Spiroflow dosing system is installed. Again, the controls will not allow the dosing of any material until the liquid pumps are in operation. The silo is fitted with arch



'Spiroflow' Lime Dosing System

breakers to promote the flow of material that might have become compacted when stored for extended periods. The operation of these is an automatic function whenever insufficient flow is detected.

To add to the challenges of this application, the dosing system is externally sited with temperatures ranging from -25°C to +37°C (-35°C is possible), humidity ranging from 54 to 83 and in an hazardous area rated at 'Zone 2 Eexd IIB T4'. The control panels, their enclosures and the vibratory motors on the sifter are all fitted with internal heating and, in temperatures below -15°C, have to be brought up to temperature before the system is operated.

Spiroflow pioneered the development of the Flexible Screw Conveyor with which their name is now synonymous. 'One size does not fit all' so, accordingly, over the years the company has added other types of conveyors to its portfolio. Today, Spiroflow offers 4 distinct types of Mechanical Conveyor and Vacuum Conveyors too. The latest addition to their range is two types of Tubular Drag Conveyors: one for the gentle handling of extruded

foodstuffs and the other for heavy duty chemical and power generation applications. Their involvement in bulk bag discharging and filling is a natural extension to their conveying activities and, today, Spiroflow offers one of the most comprehensive ranges of bulk bag handling equipment in the business.

Like any company in the powder handling industry worth its salt, Spiroflow has a comprehensive Test Centre in which customers can witness trials on their product. These trials not only confirm that the required conveying rates can be achieved but also that the chosen conveyor can handle fragile products with little or no damage – for applications where that is an issue. When it is impractical for customers to visit the Spiroflow Test Centre, live video links can be set up or alternatively the tests can be videoed and sent to the customer over the web. The Test Centre now boasts two new Tubular Drag Conveyor test units.

To learn more about Spiroflow's product range and their systems capabilities, visit their web site at www.spiroflow.com or call them on +44 (0)1200 422525 to discuss your specific requirements.