schenck process

APPLICATION REPORT WEIGHING CEMENT

Weighing up the benefits

A leading worldwide cement, concrete, and aggregate corporation that generates over €2bn in revenue annually continually looks to partner with suppliers that maintain the highest quality levels. One of its cement plants located in North America follows this philosophy when sourcing weighing equipment. With the ability to reach production capacities of 1Mta, consistency and accuracy are critical in reaching the essential product quality requirements. For years, the company has relied on Schenck Process for supplying weighing and feeding equipment to meet the necessary demands of handling raw materials in its cement operation.

As part of an initiative for increasing the live storage space of three existing flat bottom silos containing silica, iron, and limestone, the company had to evaluate how its weighfeeders operating under each of the silos would be impacted. It was determined that meeting the increased storage capacity required the weighfeeders to be retro-fitted to a longer length or replace them with new equipment. After thorough analysis retro-fitting was not a cost-effective solution.

Therefore, a decision was made to place an order for new equipment. After listening to offers from a number of equipment suppliers, Schenck Process was chosen to provide the new weighfeeders and controls based on the overall value package that was offered. With the ability to feed up to 500 tph at a ±1/2 per cent over a 10-1 range accuracy helped finalize the company's decision to purchase three DMO Weighfeeders and INTECONT® controls from Schenck Process.

Each weighfeeder was placed under a flat bottom silo for the accurate and reliable weighing and feeding of silica, iron and limestone at 30 tph on to a conveyor as part of the raw meal production process. All three weighfeeders were equipped and mounted in the field with an INTECONT® control to provide precise accuracies.

The DMO Weighfeeder is designed to feed silica, limestone, iron, fluff, TDF and numerous others

DLM Solids Flow Meters

At the same time the cement plant made the DMO Weighfeeder purchase, they also placed an order for two DLM Solids Flow Meters. The completely dust tight DLM is designed with a curved measuring chute that receives a material stream free of impact and compensates for material friction. Handling flow rates from 30 to 600 tph and material temperatures up to 500°F (260°C) made the DLM Solids Flow Meter the logical choice for metering raw meal from one air slide going to another air slide.

From there, the materials are conveyed to the preheater tower and then to the kiln. Each DLM was installed with a modular DISOCONT® electronic system controller. System operators from the company commented they liked using both the INTECONT® and DISOCONT® control platforms as they are easy to program and calibrate and can be used on any of the Schenck Process equipment.

DLM Solids Flow Meter with a curved measuring chute receives material free of impact

Adding a DMO weighfeeder for TDF and fluff

The cement company needed a customized weighfeeder to handle the very difficult to feed tyre-derived fuel chips (TDF) and fluff as part of its process to meter fuel to the burner. They came to Schenck Process to design a weighfeeder for meeting the specific needs of feeding these difficult materials. The solution was utilizing a 36” (914 mm) wide belt with special v-shaped cleats that facilitated the movement of the stringy “cotton candy-like” material across the weighfeeder. Operating at 12 tph, the DMO Weighfeeder accurately meters the TDF and fluff on to a conveyor and from there the fuel makes its way to the burner. The DMO Weighfeeder operates using an INTECONT® Control and DeviceNet fieldbus communication.

INTECONT® Control for maintaining system accuracy and fieldbus communication

DMO Weighfeeders for finish mills

Shortly after the installation of the TDF and fluff DMO Weighfeeder, the cement plant needed two more weighfeeders for its finish mill. Purchased were two 610 mm (24”) wide DMO Weighfeeders for metering limestone and gypsum. Both additives are fed at a rate of 30 tph on to a conveyor prior to the finishing mill. The limestone is quarried by the company with the gypsum purchased from an outside source. Each DMO Weighfeeder utilizes as INTECONT® Control with a local control panel and a variable frequency drive that is part of a motor control center (MCC). Fieldbus communication is handled through DeviceNet.

Summary

The company utilizes Schenck Process weighing equipment for raw meal production, fuel processing, and cement finishing. Machine operators mentioned they trust having the Schenck Process equipment in multiple areas throughout the plant due to the high level of accuracy received from each system.

Additionally, there has been less wear and tear with the Schenck Process DMO Weighfeeders, compared to other weighing equipment the company has used in the past. This has resulted in fewer part replacements and maintenance-related requirements.

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