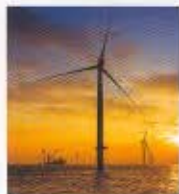




Lights out?

Turning off plants to prevent blackouts



Balancing act

Wind farm grid costs may see plant owners paid to use electricity ►06



Globetrotter

BASF boss Kurt Bock on his favourite countries to invest in ►12

Powder play

Poor knowledge of powders' behaviour limits process efficiency ►45

Bulk bags offer sweet solution

New bulk bag dispensers reduce manual effort, contain dust and improve the working environment at Nidar.

Nidar, Norway's leading supplier of confectionery, manufactures 150 products under 35 brands on 10 production lines.

The company's plant was built in 1950 and has been updated regularly with modern bulk handling equipment to improve productivity and the working environment.

In fact, the five-level plant (four storeys plus basement) has been extended six times to accommodate growth in production, explains Tor Ove Kvingedal, one of three maintenance engineers. "But as with most old buildings," he says, "the original layout was not always optimal for modern production."

Where gravity feeding of materials is not possible, the plant transfers bulk materials using bulk bag dispensers, flexible screw conveyors,



▲ The newest of the bulk bag dispensers is a twin half-frame unit, which handles two types of starch in a tight space.

rigid augers and pneumatic conveyors - equipment that reduces manual labour, contains dust, and fits in very tight spaces, as recently demonstrated with the addition of a twin half-frame bulk bag discharger.

Ingredients such as milk powder, sugar, starch, and sour coating powder arrive in 1.1 tonne bulk bags. Nidar dedicates a number of bulk bag discharge stations to unload them, including six supplied by Flexicon Europe.

The newest of the bulk bag dispensers is a twin half-frame unit, which handles two types of starch in a tight space on the plant's fourth floor.

Previously, starch was purchased in 25 kg sacks which operators carried from the third floor to the fourth floor where it was dumped into two large vessels, each holding 200-300 kg. Since the process consumes 100 kg/hour of



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starch, 32 sacks were handled manually per eight-hour day. "The operators were climbing stairs numerous times a day to keep the vessels filled," Kvingedal says.

As well as hard work, unloading sacks of starch by hand was a dusty process "The starch dust is not harmful, but is unpleasant and can be very sticky," he says.

The new Bulk-Out BFH-C-X twin half-frame bulk bag discharger, also from Flexicon, holds two bulk bags side-by-side, providing enough starch to keep the line running for two or more days. "The system also reduces manual effort, contains dust and improves the working environment," says Kvingedal.

Starch powder originally flowed by gravity from the two large vessels on the fourth floor, through a pair of knife gate valves and 150 mm diameter steel chutes leading to the third floor.

The large vessels could not simply be replaced with two separate bulk bag dischargers because the distance between the discharger outlets would have exceeded the distance between the existing chutes, requiring new holes through the fourth floor and relocation of the chutes.

The ceiling height also posed a problem, since insufficient headroom above the units would

“The operators were climbing stairs numerous times a day to keep the vessels filled.

Tor Ove Kvingedal, Nidar maintenance engineer

prevent loading and removing of bulk bags using a forklift.

To surmount both problems, Flexicon's agent in Norway, Maskiner & Pulver Teknologi, recommended a twin half-frame bulk bag discharger which holds two bulk bags side-by-side. The two-in-one unit discharges through two outlets spaced closely enough to avoid relocation of the knife gate valves and chutes, while the low profile design allows suspension of bulk bags from a hoist, saving an extra 10 cm of headroom. "It was very tight," says Kvingedal.

Removing the original tanks and installing the twin half-frame discharger above the chutes was straightforward. "We installed the discharger in two days in November 2011. A local company provided the hoist. It was critical to have the

equipment installed quickly, because the starch is a key ingredient on this production line," says Kvingedal.

Once a bag is hoisted into position, an operator pulls the bag spout over a Spout-Lock clamp ring, which creates a secure, dust-tight connection between the clean side of the bag spout and the clean side of a Tele-Tube telescoping tube. As the bag empties and elongates, the telescoping tube maintains constant downward tension, promoting complete discharge.

Flow-Flexer bag activators raise opposite bottom sides of the bag into a steep "V" shape.

After descending through the telescoping tube, the starch passes through the knife gate valve and then through one of the two vertical chutes to a weighing station on the second floor. A horizontally-oriented auger on the third floor can run in either direction, so each discharger can supply either of the two weighing stations, which sends signals to open or close the knife gate valves to regulate flow. "The twin half-frame bulk bag discharger is easy to keep clean using compressed air or a damp rag, and maintenance needs are very low," says Kvingedal. "I don't have any issues at all with the twin discharger." ■



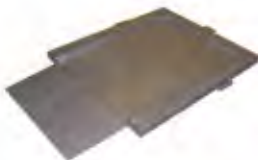
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