



Unique vacuum solution meets grueling production requirements

Transports droplet-shaped hot-melt adhesives at rates of up to eight tons per hour

By Sharon Marshall

Global supplier Jowat Adhesives, with U.S. headquarters in Archdale, North Carolina, ships more than 75,000 tons of adhesives annually. To maintain and increase its business, it continually invents new products to meet customer bonding requirements in the paper and packaging, wood processing, furniture manufacturing, textile and automotive industries. In fact, it's the products that are less than three years old that deliver its greatest sales.

Jowat took an inventive approach to the transport of its hot-melt adhesive product at its North Carolina production facility, choosing to vacuum convey it from the production line to the packaging operation.

Packaging hot-melt lays flat with a cone at the top, similar to a droplet. Though some believe the "flat side" causes restriction in vacuum conveying, Jowat had been moving packaging hot-melt adhesives under vacuum for several years.

The time had come to improve efficiency on

The line processes more than 5,000 tons of hot-melt adhesive annually, with product put in bulk bags or super sacks.

the line, and Jowat turned to Volkmann to engineer a solution.

Just does it better

"We had successfully used vacuum conveying for this product line, but we needed to upgrade to improve productivity," says Mike Kuhn, Jowat plant engineer. "Our system was not as efficient as we would like, and we felt we could certainly increase the rate of transport."

The line processes more than 5,000 tons annually. Jowat needed to convey product from the lower-level production line to an upper level where product was put into bulk bags, super sacks or 33-44 lb. bags used for customer shipments. Transport distance is 30-45 linear feet



36 Conveyors

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Using vacuum to convey product from a lower level to an upper level presented challenges, but substantial benefits as well.

Packaging hot-melt lays flat with a cone at the top, similar to a droplet.

After about four months, a damper was installed to smooth valve operation and relieve stresses that otherwise led to fatigue.

and up another 25 feet so as to clear the various packaging containers. A conveying powerhouse would be needed to meet this grueling schedule and transfer the uniquely shaped adhesives effectively without damage.

Volkmann, headquartered in Bristol, Pennsylvania, uses high-vacuum-rated pumps in its conveying systems, which can transport material with a higher negative pressure than alternative pump technologies, pulling up to 28"

Hg of vacuum. As a result of this high negative pressure, the specified vacuum system easily and quickly draws the irregularly shaped glue chips through the conveying pipeline without damaging them.

"We specified the VS450, our largest receiver, to meet the Jowat conveying requirements," Nick Hayes, president, Volkmann, says. "This equipment has successfully transported powders, granulates and tablets at rates up to eight tons per hour."

Installation included identification of a "quick exchange" filter best suited to cope with the unusual properties of an adhesive. All went well in production. The VS450, specified for 500,000 cycles, runs a "convey-discharge-filter clean-convey" 20-second cycle.

One little fix

Running 20-hours a day and seven days a week, the unit reached its initial design limit after four months of operation at Jowat and suffered a fatigue-related valve failure as a result of the continual loading and unloading operation. Even though the expected life had been exceeded, Volkmann engineers subsequently configured a unique solution to handle Jowat production levels day-in and day-out.

A new damper smoothed valve operation and eliminated the excessive stresses that led to the valve replacement. The part was factory tested and then installed at Jowat in a live production environment.

"Not only did Volkmann improve our production, they were quick to react to the fatigue situation and developed a solution that has kept us going strong and at no cost to us," states Kuhn.

That was nearly three million cycles ago.

Rapidly responding to customer issues is critical to improving Volkmann products and maintaining its philosophy of manufacturing the highest quality vacuum conveyor available today. Listening and partnering with its customers has been a key element to the company's growth over the past 40 years.

Volkmann engineers and manufactures vacuum conveyors, bag-dump stations, unloaders and other powder-handling equipment. To see Volkmann conveyors in action visit booth #4953 at Pack Expo 2014 at Chicago's McCormick Place, November 2-5. In addition, see Volkmann equipment convey Jowat adhesives at Jowat's Pack Expo booth, Booth# 4828.

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