



A dust-free solution to stick packaging

Stick packaging can be a particularly dusty business with the transfer of fine particles and powders into the hoppers of the packaging machine. At T.H.E.M., a packaging solutions provider tucked away off a commercial thoroughfare in the bustling, residential community of Marlton, N.J., dust and its associated housekeeping had become a major problem. Many of the country's leading consumer goods companies test pilot or run larger production runs of new brands into stick packaging at their facility, creating a lot of unwanted dust. To solve this problem, T.H.E.M. turned to their South Jersey neighbor, Volkmann, Inc., and its VS series of vacuum conveyors.



Powder Transfer Issues in a Stick Packaging Operation

Founded in 1973 to provide innovative packaging solutions, T.H.E.M. (Technical Help in Engineering and Marketing) began representing Sanko stick packaging in North America in 1996, and has quickly established itself as an authority in this packaging solution. The single-serve, on-the-go aspect of stick packaging has made it a popular choice for many leading consumer products, including powdered beverage brands, snack items, nutraceuticals, pharmaceuticals and personal care/healthcare products. As a result, T.H.E.M. must be equipped to handle the wide variety of materials its diverse clientele bring to it, and do so in pilot and larger production runs within its seven-room production area, housing 15-20 packaging machines of varying sizes.

Such production diversity can be a nightmare when handling food powders. Dust becomes quickly airborne and readily affixes itself to machine parts, slowing down the ability to effect the quick changeovers needed to maintain manufacturing efficiencies in small run production, and leaving a less-than-clean manufacturing environment.

T.H.E.M. was initially handling the transfer of powders and granules by dedicating an employee to scoop the material out of totes or hanging bulk bags directly above the packaging machine hopper. This labor-intensive hand transfer of powder resulted in a lot of airborne dust in this busy facility where changeovers occurred often on a daily basis. Cleaning for new runs became extraordinarily time consuming. The presence of dust throughout the production floor was also less than acceptable to a company priding itself on best practices, and continually demonstrating production capabilities to new customers. In addition, this method of hand transfer put the worker at risk as most product transfer required being positioned on top of the machine.

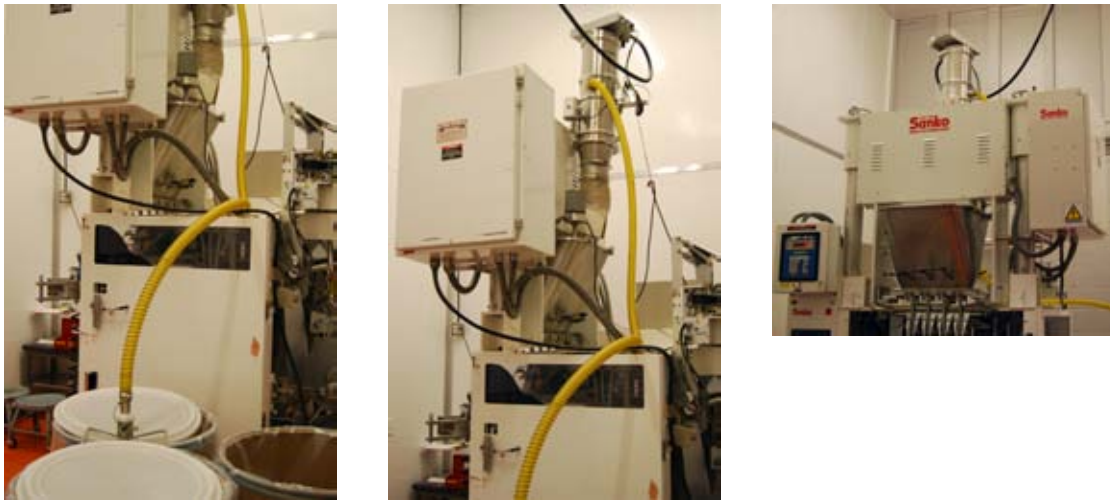
T.H.E.M believed vacuum conveying might provide the solution to its problems of dust and safety, but when broaching the subject with clients, concerns about product segregation and separation were raised. To resolve this issue, T.H.E.M turned to a neighboring manufacturer, Volkmann, Inc. located only a few miles away in Hainesport, N.J. Volkmann has been manufacturing sanitary vacuum transfer systems for over 40 years. These systems gently and efficiently transport powders in lean, dense or plug flow conditions without segregation and separation, and do so without dust escaping during the process.

Volkmann VS Series Solves the Problem

T.H.E.M conducted its own in-house testing on the VS conveyors, quickly recognizing that by using the Volkmann vacuum conveying systems, it could satisfy client concerns that separation and segregation of product does not occur and the facility would remain free from dust. As a bonus, not only would client product waste be eliminated in its transfer from the bags and open top containers to the packaging machine hoppers, but the absence of product “hang up” areas within the Volkmann unit also led to minimal product retention within the unit — both factors resulting in greater efficiencies and output. T.H.E.M would also be able to save the labor costs for an employee dedicated to scooping powder by hand, and use a single employee to monitor several production areas running suction wands.

Volkmann VS series conveying systems provide conveying capacities from 22 lbs./hour to 18,000 lbs./hour, transporting material over distances up to 300 feet and up to 120 feet high. Based on the specifications of the materials to be transferred and the physical

set-up of the production equipment within the T.H.E.M facility, Volkmann selected its VS200 conveying system as an appropriate solution. The VS200 conveyors offered T.H.E.M the flexibility it needed for its diverse production needs by covering conveying distances up to 16 feet and heights up to eight feet with a transport capacity of 400 lbs./hour for granular particle sizes of 100-500 μm and a bulk density of 40 PCF. The standard full bore discharge valve that completely isolates the valve actuator from product contact offers an additional, highly desirable VS system asset.



Left to right: Product is suctioned from open containers by the VS200 positioned on top of the Sanko machine. Product then flows through the Sanko machine into stick packsTM

Volkmann paired the VS200 with the Multijector[®] Vacuum Pump MX360 that had recently been reengineered to use less energy and produce higher output than earlier pump versions. The MX360 offered an operating pressure of 5.5 bar with vacuum levels down to 26" Hg and compressed air consumption of just 12 scfm (344 l_N/min.). It requires a compressed air supply line with a minimum 1/4" NPT adequately meeting T.H.E.M.'s conveying requirements. QX filter modules with combined axial and radial sealing to prevent leaks; suction, discharge and filter modules customized to suit T.H.E.M.'s applications; an anti-static FDA compliant suction hose; a double-suction wand; and a Pneutimer PT2 for automatic control of suction and discharging times from 1-30 seconds were included to round out the package.

Volkman conveyors are known for their simplicity and modularity of design, and precision manufacture. Adjustable clamps that can easily be misplaced during cleaning and re-assembly on other systems are not required. Parts are easily interchanged to meet different production setting requirements, a feature enhanced by the common seal size that fits each module; again avoiding the possibility of misplaced parts during cleaning. All Volkman contact metal parts are made of corrosion-free 316L stainless steel for easy maintenance. No tools are required to take the units apart or re-assemble for cleaning. This was particularly attractive to T.H.E.M. which relies on contract labor to meet its constantly changing production requirements and staff production engineers. Easy disassembly, cleaning and reassembly made line changeovers far more expedient and cost effective. The compact, lightweight nature of the VS system also made it easy to move from one production room to the next.

Satisfaction with the first unit led to the installation of two more VS200 conveying systems in 2010. One is currently dedicated to a mezzanine mount directly feeding to the unit below.



Left: VS200 is mounted on mezzanine above machine behind plastic sheeting. Right: Close up of VS200 in mezzanine mount.

According to Stephen Belko, Vice President of T.H.E.M., **“Volkman’s ability to work with the broad array of different products we need to convey has been a great solution for us.”** So great that plans are in the works to install enough units to cover its entire production facility.

For more information, contact Volkmann at 609-265-0101 or visit
www.VolkmannUSA.com.