

# Volkmann Vacuum Conveying Applications



**Systems** and **Solutions** for the  
**Hygienic** and **Safe Handling** of Powders  
for the Chemical, Food, Pharmaceutical  
and Pigment Industries



**VOLKMANN**  
IDEAS AHEAD

[www.VolkmannUSA.com](http://www.VolkmannUSA.com)

# Quality Vacuum Conveying Systems for 30+ Years

VOLKMANN vacuum conveyors are the first choice for safe and hygienic powder handling.

## ENERGY EFFICIENT

Volkman Multijector® vacuum pumps use the Venturi principle to generate vacuum.

Unlike single stage pumps, they create energy efficiency with their reuse of generated air as it passes through a series of Venturi in multiple stages. This process provides a greater level of vacuum, down to 27" Hg, and high airflows.

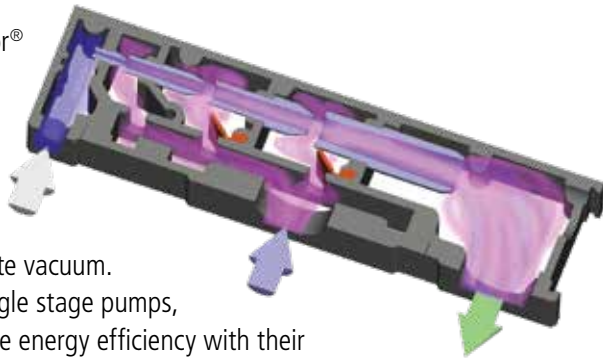
The pumps are lightweight, quiet and use up to 50% less compressed air in any given application than their competitive single-stage units.

Multijector pumps can be adjusted by varying the inlet pressure so that a conveying system need only use sufficient air to achieve conveying. This capability is in strict contrast to the electric pumps used by alternative systems where they are sized by motor, typically 7 1/2 hp, 10 hp or 15 hp in the competing capacity range. In these, the motor energy level is defined regardless of demand.

In addition, Multijector pumps can be turned on and off without fear of damage to the unit, offering more efficiency than electrical pumps restricted by the number of starts and stops allowed per hour.

## HIGH CONTAINMENT

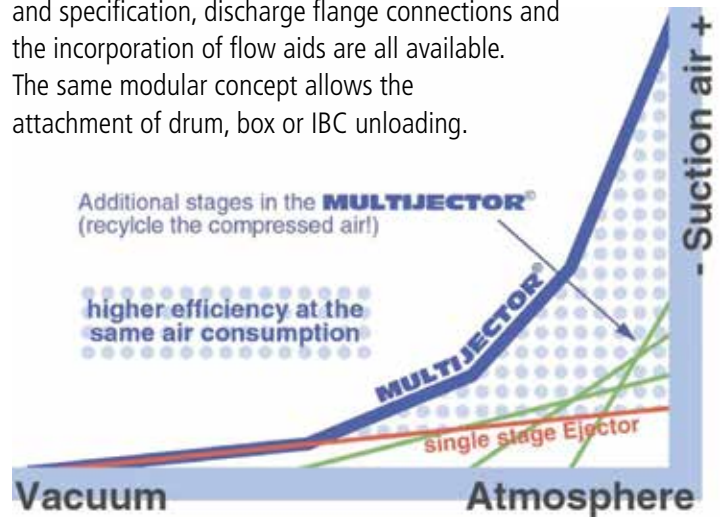
Whenever powders are transferred, dust emissions are a potential concern – a situation complicated by the need for production changes from product to product. Volkman conveyors are adaptable, allowing handling of a wide variety of powders by the same unit. The ability to adjust inlet air volume and vacuum level allows the velocity of transfer to be carefully controlled.



## FLEXIBILITY OF DESIGN

All Volkman conveyors use modular designs to allow for adaptation to specific production needs. Variations in filter area, type of material entry to the receiver, pump size and specification, discharge flange connections and the incorporation of flow aids are all available.

The same modular concept allows the attachment of drum, box or IBC unloading.



Conveying of dust, powder, pigments, flakes, granulated material, tablets, capsules, small parts, etc.

**SPECIAL DESIGNS ARE AVAILABLE TO FULFILL THE DEMANDS OF THE CHEMICAL, FOOD, PHARMACEUTICAL AND PIGMENT INDUSTRIES.**

## WHY VOLKMANN?

- VACUUM CONTAINED
- FLOOR LEVEL LOADING
- DRUMS, BOXES OR 2000 LB BAGS
- ENCLOSED CONVEYING
- NO TOOLS CLEANING
- HIGH QUALITY FILTERS
- DUST AND DAMAGE FREE
- SEGREGATION FREE DENSE
- PHASE VACUUM OPTION
- ULTRA CLEAN DESIGN
- "PLUG AND CONVEY"
- SUPERIOR FILTRATION, WITH 3µ AS STANDARD AND HEPA OPTIONS
- ALL PNEUMATIC OPERATION
- ATEX CERTIFIED FOR EXPLOSION APPLICATIONS

# Vacuum Conveying Applications in the Food Industries

Aspiration, Suction, Transport and Loading of Powders, Granules, Flakes, Pellets and All Kinds of Bulk Materials



## Suction from/ discharging of...

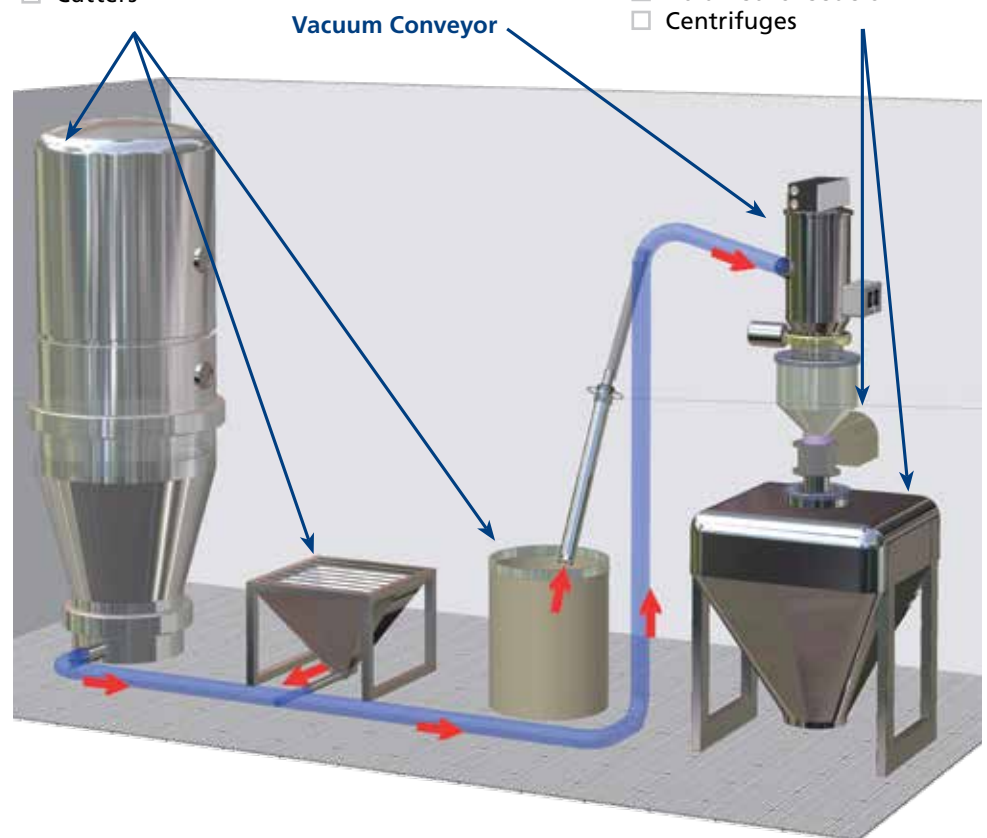
- Hoppers
- Big-Bags / FIBCs
- Silos
- Bags
- Bins
- Trays
- Dryers
- Sieves
- Cutters

## Product supply/ feeding into...

- Stirring vessels / Reactors
- Filling machines
- Weighing containers
- Sieving machines
- Mixers
- Tablet presses
- Big-Bags
- Casks
- Silos
- Loss-in-weight feeders
- Volumetric feeders
- Centrifuges

## ADVANTAGES

- Gentle Vacuum-Plug-Flow conveying, no segregation/ separation
- Hygienic design (FDA, GMP, WIP, CIP...)
- Purely pneumatic – no mechanical friction
- Full ATEX certified by German TÜV, free of ignition sources
- Small, lightweight, silent, easy installation, easy to clean
- Suitable for multiple-purpose transport, mobile installations possible
- Modular for individual configurations
- Capacities from 10 kg/h to 8000 kg/h, transporting distances up to 100 m
- Lifts powders to up to 50 m high
- Transfer of ALL kind of bulk materials, conveying even of difficult powders & bulks



# VOLKMANN Vacuum Conveyors Inside Food Industries



Conveying of spices from a hopper and loading of a sieve.



Transport of salami-slices for pizza-topping.



Loading of Cream-Fat powder (70 % fat) into a hopper and filling Big-Bags.



Flour transfer system in a bakery.



"Cherries in alcohol" transport; filled chocolate production.



Feeding from a tumbling-sieve into a hopper for Vacuum Transfer.



Loading of a multiple-bucket-weighing and dosing system.



Granulated meat conveying in sausages-making process.



Vacuum Transport and loading of a mixer with powders for sauce-making.

# Food Applications

**VOLKMANN VACUUM CONVEYORS ARE IDEAL FOR THE TRANSFER OF FOOD PRODUCT POWDERS AND GRANULES TO MIXERS, PACKERS OR FILLERS FROM:**

- Drums
- Bulk Bags
- IBCs
- Gaylords

**And we can do it:**

- Cleanly
- Gently
- Damage-Free
- Segregation Free



The loading of food product powders and granules into process, filling and packaging machines has become an increasingly demanding requirement as a result of the need to increase both productivity and safe practices when handling foods. This presents specific challenges in terms of the in-plant transfer of product. The Volkmann VS and PPC range of vacuum conveyors uniquely addresses these challenges specifically in their ability to maintain the integrity of the food product, be it in terms of avoiding segregation, maintaining hygiene or containing nuisance dusts.

Volkman's range of designs has been developed with quick release QX series filters; modular receiver designs featuring common seals throughout; a true, full-bore discharge valve **WITHOUT THE OPERATOR IN THE PROCESS**; and the most efficient vacuum pump available in today's marketplace. They are easier to clean and use less energy than competitive products, and are manufactured from 316L stainless steel as standard. Plus, the system uses vacuum for the transfer process resulting in a totally contained product transfer when coupled to specially designed rip and tip bag stations or IBC unloading units.



VS and PPC conveyor ranges—clean, adaptable, contained.



# VOLKMANN Vacuum Conveyors Inside Pharmaceutical Industries



Emptying of drums and loading of a mixer (left) with pharmaceutical powders. The same conveyor is used on a mobile trolley for the discharging of the fluidized-bed dryer (middle) and is loading a drum again (right).

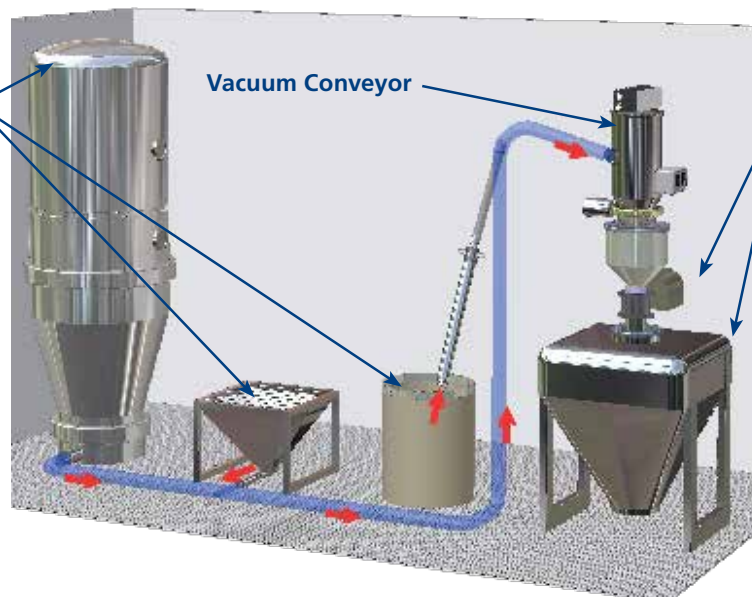
## APPLICATION PICTURES

- 1 Feeding of powder into a tablet press.
- 2 Feeding of a capsule-filling machine with the empty capsules (top left) and the filling-powder (top right).
- 3 Loading of a reactor in a pharmaceutical primary plant.
- 4 Supply of a mixer with Paracetamol powder.
- 5 Vacuum conveyor (top) for the loading of a sieving/milling process and filling of bags.



### Suction from/ discharging of...

- Hoppers
- Big-Bags / FIBCs
- Silos
- Bags
- Bins
- Trays
- Dryers
- Sieves
- Cutters



### Product supply/feeding into...

- Stirring vessels / Reactors
- Filling machines
- Weighing containers
- Sieving machines
- Mixers
- Tablet presses
- Big-Bags
- Casks
- Silos
- Loss-in-weight feeders
- Volumetric feeders
- Centrifuges

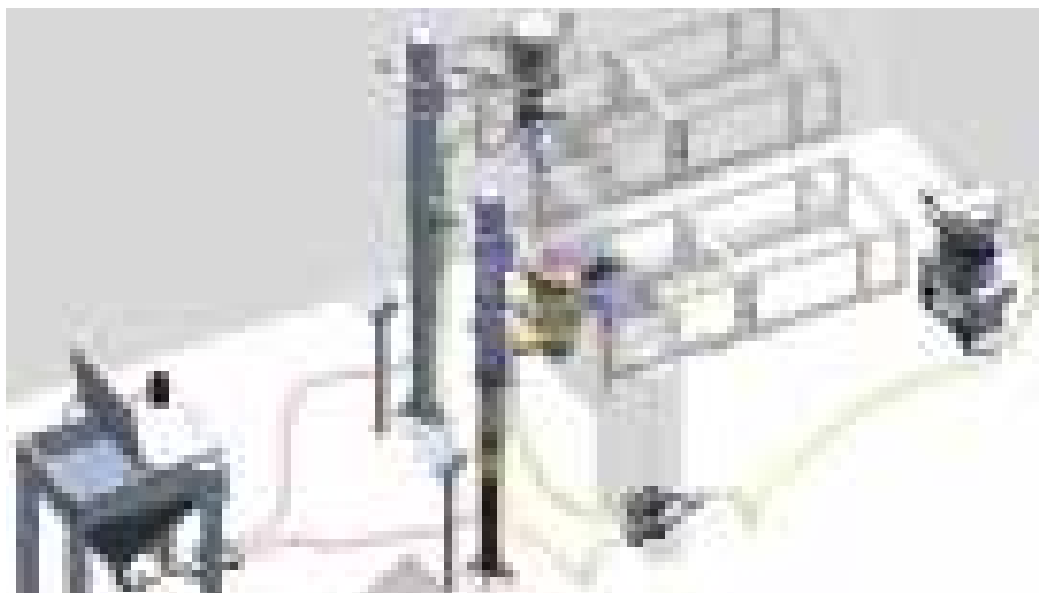
# Tablets and Capsules

**VOLKMAN VACUUM CONVEYORS ARE IDEAL FOR THE TRANSFER OF TABLETS AND CAPSULES TO MIXERS, PACKERS OR FILLERS FROM:**

- Drums
- Bulk Bags
- IBCs
- Gaylords

***And we can do it:***

- Cleanly
- Gently
- Damage Free
- Within a Contained OEL



The loading of tablets and capsules into filling and bottling machines has become increasingly important in the pharmaceutical and nutraceutical industries due to the rise of production outsourcing to contract manufacturers. Volkmann's PPC range of vacuum conveyors is uniquely qualified to address the specific challenges of operator exposure and avoiding product damage that arises in loading tablets and capsules.

Just consider, Volkmann's PPC range of conveyors:

- Are true cGMP designs.
- Feature one-piece bodies, split butterfly discharge and unique filters.
- Transfer product under vacuum, easily achieving product containment. In the unlikely event of a leak, air is drawn into the process - material is not blown out. When coupled to specially designed rip and tip bag stations, or IBC unloading units, this contained transfer results.

Dense phase and low velocity conveying, achieved by the Volkmann Multijector® vacuum pump, avoids the impact damage often associated with typical lean phase pneumatic conveying systems.



PPC 170 conveyor during testing in our test facility.



# Powder Transfers into Tablet Press Applications

Aspiration, Suction, Transport and Loading/Feeding of Powders, Dusts, Granules, Tablets, Fibers, Capsules, Flakes, Pellets and All Bulk Materials

## VACUUM CONVEYORS FROM VOLKMANN OFFER MANY BENEFITS, INCLUDING:

- Gentle vacuum-plug-flow conveying
- No segregation / separation
- Hygienic design  
(FDA, GMP, WIP, CIP)
- Dust-free POWDER TRANSFER in a closed vacuum system
- Purely pneumatic – no mechanical friction
- Fully ATEX certified by German TÜV, free of ignition sources
- Small, lightweight, silent, easy installation, easy-to-clean
- Suitable for multiple-purpose transport
- Mobile installations possible
- Modular for individual configurations
- Capacities from 10 kg/h to 8000 kg/h, transporting distances up to 100 m, up to 50 m in height
- Transfer of ALL kinds of bulk materials, conveying even of difficult powders and bulks
- Increases health and safety in production plants





# Chemical Applications

**VOLKMAN VACUUM CONVEYORS ARE IDEAL FOR THE TRANSFER OF FOOD PRODUCT POWDERS AND GRANULES TO MIXERS, PACKERS OR FILLERS FROM:**

- Drums
- Bulk Bags
- IBCs
- Gaylords

***And we can do it:***

- Cleanly
- Gently
- Damage-Free
- Segregation Free



The need for a simple, safe, economic and CONTAINED system for powder transfer is paramount. In the transfer of filter aids, pigments, salts or corrosive chemicals, whether in powder or prill form, Volkmann's VS range of vacuum conveyors meets all of these parameters and does so with a design that can be adapted to almost any installation.

Volkman VS range of conveyors is completely enclosed and transfers product under vacuum. In the unlikely event of a leak, air is drawn into the process - material is not blown out. This keeps the material where it should be - inside the conveyor, maintaining environmental cleanliness and avoiding noxious fumes escaping into the atmosphere. When coupled to specially designed rip and tip bag stations or bulk bag unloaders, transfer is achieved without spillage or emissions. Volkmann conveyors are ATEX certified. Ask for details of applicable zones.



Carbon black toner transferred via a Volkmann conveyor to a bottle filling machine.



# Carbon Black and Pigments Applications

**VOLKMANN VACUUM CONVEYORS ARE IDEAL FOR THE TRANSFER OF FOOD PRODUCT POWDERS AND GRANULES TO MIXERS, PACKERS OR FILLERS FROM:**

- Paper Sacks
- Bulk Bags
- IBCs

***And we can do it:***

- Cleanly
- Safely
- Segregation Free



Carbon black toner transferred via a Volkmann conveyor to a bottle filling machine.

Carbon black, toner and pigment transfer, whether in powder or prill form, present a number of specific challenges during product transfer including environmental cleanliness and the avoidance of product segregation or degradation. These challenges are uniquely addressed by the Volkmann VS range of vacuum conveyors.

The Volkmann VS range is completely enclosed and transfers product under vacuum. In the unlikely event of a leak, air is drawn into the process –material is not blown out. This keeps the material where it should be, inside the conveyor. When coupled to specially designed rip and tip bag stations or bulk bag unloaders, product transfer is achieved without spillage or emissions.

In addition, because of the dense phase conveying achieved by the Volkmann Multijector® vacuum pump, product being transferred does not suffer from the impact damage or segregation associated with typical lean phase pneumatic conveying systems and equipment.



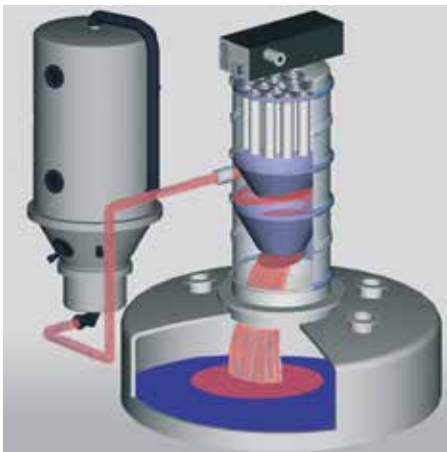
# Energy Saving Conveyor Applications

**VOLKMANN "ENERGY SAVING" VACUUM CONVEYORS ARE IDEAL FOR THE TRANSFER OF POWDERS, GRANULES, OR TABLETS TO MIXERS, PACKERS, ETC. FROM:**

- Drums
- Bulk Bags
- IBCs
- Gaylords

**And we can do it:**

- Environmentally Friendly
- Quietly
- Economically
- Dust Free



Vacuum conveying principle—self contained.



The transfer of powders and solids from bulk containers to processing stations in a dust-tight, environmentally acceptable and economic manner is an increasingly important requirement of today's manufacturing processes. Be it in food, pharmaceutical or chemical applications, this requirement presents specific challenges in terms of handling uniquely addressed by the Volkmann range of vacuum conveyors.

Contrary to some opinions, the use of compressed-air-driven systems is often the most economical choice. Volkmann's range of vacuum conveyors transfers product under vacuum. In the unlikely event of a leak, air is drawn into the process – material is not blown out. When coupled to specially designed rip and tip bag stations, or IBC unloading units, contained transfer easily results.

In addition, the dense phase and low velocity conveying achieved by the Volkmann Multijector<sup>®</sup> vacuum pump uses minimum air consumption, translating to more energy savings.

Volkman Offers Rip and Tip  
and Bulk Bag Unloading Systems  
to Complement Our Conveying Solutions



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IDEAS AHEAD

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