

Product feeding systems for sacks, big bags, drums and containers

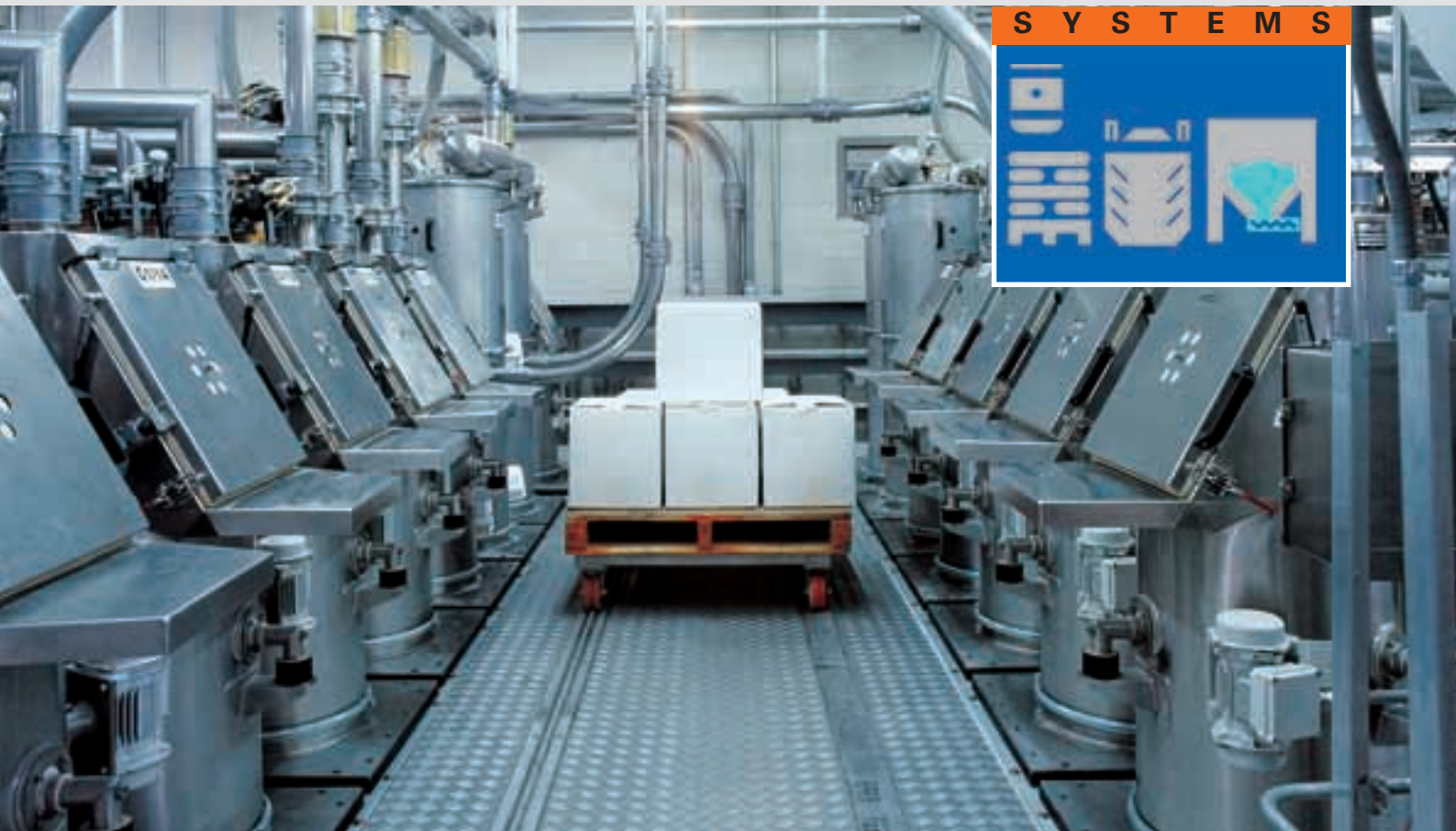
To achieve cost-effective automation in the processing industries, AZO offers proven solutions for product feeding to match any system capacity or special requirement.

All the systems shown here offer the user numerous advantages:

- a dust-free working environment
- better working conditions for your employees
- processing of raw materials without contaminates
- no contamination
- first in, first out material flow
- reliable batch tracking

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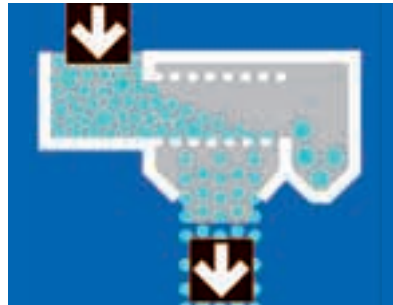
The AZO product feeding systems at a glance



Monitoring, controlling and recording



Product feeding systems for all types of containers; identification of raw materials



Safety screening of incoming ingredients: The AZO cyclone screener



Automated storage of interchangeable containers and DOSITAINER®s for raw materials awaiting further processing

Ingredients supplied in bags

Operator controlled



Preferred applications

Frequently used for low to medium throughputs.



Identifying raw materials with a bar-code reader



Dust-free discharging of bags into the bag dump stations

Operating principle

The bags are placed on an elevating platform or a vacuum lift at an ergonomically ideal height and then transferred to the dump station. A bar-code reader ensures that the correct materials are being used. The dust collector fan, automatically started as soon as the feed hopper is opened, provides a clean operation. The operator uses a knife to open the bag and then empties the contents into the dump station. A safety grating is incorporated to support the bag during discharge.



Bag dump station with bag cleaning

Options

- The integral safety screen with vibratory drive serves as a primary screen, breaking down any lumps that may have formed and catching any pieces of packaging material.
- The bag dump station can be supplied with mounting feet or support brackets, depending on the particular installation.
- Combining a compactor with the dump station provides an easy method of disposing of the empty bags
- The elevating platform and vacuum lift ease the handling of the bags.



Feeding station with bag cleaning

The advantages of the AZO system

- Dust-free feeding of ingredients into closed systems.
- Different sizes of bag dump stations are available to match the required capacities. The dump station also serves as a surge bin for lower usage ingredients.
- Dedication to production lines and the built-in dust collectors prevent cross-contamination of raw materials.



Integral safety screen

Feed hopper with compactor for empty bags



Automatic bag discharge unit with scissor lift and empty bag compactor



Operating principle

In the automatic bag discharge station, the bags are placed in the machine, automatically opened, emptied completely, and the empty bags disposed of.

An integral screen ensures that no pieces of packaging material enter the process.

Empty bags are compacted into easy-to-handle bales for easy disposal.

Automatic

Preferred applications

Suitable for very large quantities of ingredients in bags, i.e. when raw materials cannot be delivered in bulk trucks and when very large amounts of ingredients in bags have to be transferred to storage silos.

Products supplied in big bags

Operator controlled



Preferred applications

An environmentally friendly solution, for medium throughputs and ingredients which are changed frequently.

The advantages of the AZO system

- Efficient and dust-free feeding of bulk ingredients into closed production systems.
- Environmentally friendly because of the reduction in packaging materials which requires disposal.
- Also can be used as an intermediate storage container.

Options

- Big bags can also be fitted with an enclosed outlet connection depending on sanitation requirements.
- The docking station can be equipped with a vibrating discharger to ensure complete discharge of the ingredients which do not flow easily.



Big bag feeding stations incorporated into a production process

Dust-free feeding of big bags into a pneumatic conveying system



Operating principle

The big bags delivered in trucks are unloaded by a forklift and transported to the correct docking station on a roller conveyor. In most cases the big bags are connected to the pneumatic docking station with an expanding collar. The inner sleeve protrudes into the surge bin of the pneumatic docking station and is accessed through a

door. After closing the door and activating the vibrating discharge unit, the big bag is emptied into the feed station completely dust free. All feed stations are provided with a level indicator which indicates that the bag is empty, thereby ensuring that the big bag is changed in time.

Products supplied in drums



Feeding liquid minor ingredients supplied in drums



Drum heating cabinet



Drum discharge unit with docking cone

Another interesting solution for products with poor flow characteristics is to rotate the drum and convey the ingredient with a vacuum conveying system



Operator controlled



Preferred applications

For liquids and dry ingredients.

Operating principle for liquids

Liquids with different viscosities (i.e. syrup, oil, etc.) require heating prior to feeding and processing. To accomplish this, heating chambers can be used which heat the liquid to the required temperature. Two drums are used, connected one above the other. The top drum is changed while the bottom drum always remains connected to the automated feed system.

Operating principle for dry ingredients

A docking cone with discharge valve is connected to the drum. The drum is then rotated for discharge. After opening the discharge valve, the ingredient can then be transferred dust free into the next stage of the process.

Temperature-stabilized drum storage



A few words about handling containers



The advantages of the AZO system

- Easy-to-clean, rugged design
- Suitable for bulk goods with poor flow properties
- Particularly efficient handling of batches in automated production processes
- Allows accurate batch tracking

Preferred applications

As a transport and storage container for medium throughputs. Also ideal in automated systems as a transportable storage container for bulk materials received in bags. In such systems, bulk materials are emptied into the containers during the reconfiguration step. The two most recent innovations in this area are the AZO interchangeable container and the AZO DOSITAINER®.



The solution for the future:
the AZO DOSITAINER®

The AZO interchangeable container

Operator controlled



Features

- Four support feet, frame made from closed structural profiles
- Stackable, transportable with fork-lifts
- Equipped with clamping surfaces for securing to docking station
- Nom. 400 mm diameter inlet with cover, clamp ring and integral silicone seal
- Outlet flange for manually or pneumatically actuated closing gate

Method of operation

The AZO interchangeable container can be mounted on the docking station and locked in place pneumatically. Identification errors are eliminated by the electronic ID system. The patented docking sleeve ensures dust-free feeding of the product into the system. The interchangeable container remains on



The new container generation:
the AZO interchangeable container

the docking station as long as that ingredient is required for the recipe. To change the container, merely close the gate and release the pneumatic restraint. The interchangeable container can then be returned to its proper position in the warehouse.



The flexible alternative:
the folding AZO FLEXITAINER®



Docking station for interchangeable
containers with metering screw

The AZO DOSITAINER®

Method of operation

Handling is similar to the interchangeable containers although in this case the feeding station itself is provided with a friction-wheel drive for the metering screw. The vibrating discharge device guarantees complete discharging and consistent filling of the meter-

ing screw, even on bulk ingredients with poor flow properties. The coarse to fine switching of the dosing screw enables precise metering into weighing systems, even for high throughputs. The stop valve at the screw outlet prevents dribble.

Operator controlled



The advantages of the AZO system

- Easy-to-clean, rugged design
- Suitable for bulk materials with poor flow properties
- Enables accurate batch tracking
- AZO DOSITAINER®s can be changed without leaving residue, thus eliminating the need for intermediate cleaning of the metering screw.
- The integral dosing screw is a highly accurate metering device for downstream weighing systems.
- A very accurate feeder, even with high throughputs, due to the frequency controlled drive with coarse to fine metering and the quick acting pneumatic stop valve at the outlet of the metering screw.

Features

- The features are the same as the interchangeable container except.
- A metering screw with frictional wheel is permanently mounted on the container instead of a discharge valve.



AZO DOSITAINER® in use with AZO COMPONENTER®

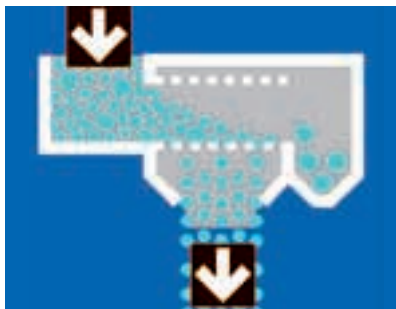
AZO DOSITAINER® feeding station



Frictional wheel for metering screw



Cyclone Screener



Preferred applications

The AZO Cyclone Screener functions as a safety screener before and during the processing of dry ingredients. It also helps to break agglomerates and remove any contaminants.

Operating principle

The ingredient to be screened is fed into the inlet of the Cyclone Screener. The feed screw moves the product into the screening chamber where it is gently swirled through the screen by the blades mounted on the rotor.

The finely screened material discharges through the main outlet, while coarser pieces, such as agglomerates and contaminants, are continuously discharged through a separate outlet.

The screen is fastened to a screen frame and vibrates due to the material being fed against it. This natural vibration provides self-cleaning of the screen.

Inspecting the screen is easily done with the large inspection door.



Cyclone Screener with integral metering apparatus

Safety screening is part of the incoming ingredient inspection



The in-line Cyclone Screener becomes an integral part of the conveying system

Modular Cyclone Screening incorporated in a reconfiguration station



AZO GmbH + Co. Rosenberger Str.28
D-74706 Osterburken, Industriegebiet Ost
Telefon: 0 62 91/92-0, Fax: 0 62 91/89-28