

AZO Container Systems: Flexible, high-precision design, hygienic and ready for full automation.

SYSTEMS



The AZO container system: from standard specialized containers – depending on your



The basic model of the container line is the AZOTAINER with filling cover and manual outlet door.

AZO IBC system:

AZO engineers have many years of experience in bulk material handling. Few companies have developed such trail-blazing innovative ideas and advancements in container handling which render the old standards obsolete. Various raw materials with different characteristics have been automated successfully in our individually designed container systems. No matter whether bulk materials have a tendency to core flow, segregate or bridge – AZO will find the optimum solution, even for high-viscosity products. The AZO container program

ranges from the standard economy model to high-end designs to meet the highest demands in the food and pharmaceutical industry.

The AZOTAINER:

The basic model of the AZO container line is the AZOTAINER. Made of stainless steel, the AZOTAINER has a steady under-frame which, along with its circular design, results in an exceptionally sturdy and quiet unit. The AZOTAINER also offers an uniquely geometric outlet design. An AZO quality container for transporting, storing and collecting bulk materials.

Container type	Preferred applications	Features	Standard accessories	Optional accessories
FLEXITAINER®	Transportation and storage container, space-saving back transportation	Low-cost, flexible standard container. Galvanized frame. Container made of high-strength TREVIRA® in industrial and food versions	<ul style="list-style-type: none"> Inlet pipe with cover Hinged frame Outlet with manual butterfly valve 	<ul style="list-style-type: none"> Nickel-chrom steel frame
AZOTAINER	Transportation, storage and collecting container	Low-cost standard container Nickel-chrom steel Material-no. 1.4301, 1.4541 Protection polished	<ul style="list-style-type: none"> Inlet pipe with cover 4 legs with support frame and forklift trucks Outlet with manual butterfly valve 	
BATCHTAINER®	Transportation, storage and collecting container Mixing container in free-fall mixer	Can be automated, optional accessories are available Nickel-chrom steel material-no. 1.4301, 1.4404, material-no. 1.4541, 1.4401, material-no. 1.4404, 1.4571 Versions with protection polish to electrolytic polish depending on customer requirements	<ul style="list-style-type: none"> Inlet pipe with cover 4 legs with support frame and guide for lift truck fork Stacking edges Aeration and vent pipe Outlet with manual butterfly valve 60°/90° discharge angle 	<ul style="list-style-type: none"> Retaining device for pneumatic rapper Aeration nozzles Underpressure valve I Aeration membrane Connection for suction pipe Jack rings with container cross bar DIN A5 card holder Identification in metal Barcode tags Transponder systems Rollers Suitable for single- and double-sided roller conveyor operation Clamping brackets for vibration discharge operation Outlet with module slide valve Butterfly valve with pneumatic rotary drive for automatic opening and closing Fully automatic, contamination-free product pickup with pneumatic twin valve
DOSITAINER®	Transportation, storage and collecting container for precise metering into weighing processes with residue-free ingredient changeover	Can be automated, optional accessories are available Nickel-chrom steel material-no. 1.4301, 1.4541 material-no. 1.4401, 1.4404, material-no. 1.4571 Versions with protection polish to electrolytic polish depending on customer requirements	<ul style="list-style-type: none"> Inlet pipe with cover 4 legs with support frame and guide for lift truck fork Stacking edges Clamping brackets Aeration and vent pipe Symmetric outlet with integrated metering screw Outlet with flanged metering screw Automatic opening and closing of the metering screw 	<ul style="list-style-type: none"> Jack rings with container cross bar DIN A5 card holder Identification in metal Suitable for single-sided roller conveyor operation Asymmetric outlet for pasty products with integrated metering screw
MIXTAINER®	Transportation, storage and collecting container for mixing the ingredients in the container	Can be automated, optional accessories are available Nickel-chrom steel material-no. 1.4301, 1.4541 material-no. 1.4401, 1.4404, material-no. 1.4571 Versions with protection polish to electrolytic polish depending on customer requirements	<ul style="list-style-type: none"> Removable container cover and inlet pipe with cover 4 legs with sturdy support frame, retaining device for container mixer and pockets for lift truck fork Stacking edges Aeration and vent pipe Outlet with manual butterfly valve 	<ul style="list-style-type: none"> DIN A5 card holder Identification in metal Suitable for single- and double-sided roller conveyor operation End door with pneumatic rotary drive for automatic opening and closing Fully automated, contamination-free product pickup with pneumatic twin valve

rd economy to highly our specific requirements.



Fully automated IBC system.

A space-saving innovation from AZO: the FLEXITAINER®.

Need more room in a confined space? AZO's FLEXITAINER® can do it.

The FLEXITAINER® is installed with a few simple touches. The FLEXITAINER®, made of high-strength TREVIRA®, is filled through the top opening. The discharge operation can be supported by flexing motions.

The FLEXITAINER® is a highly versatile and practical delivery and storage container. Its greatest advantage is the space-saving return transportation: The empty FLEXITAINER® can quickly and easily be collapsed for simple and cost-saving transportation.



Quick installation and removal: FLEXITAINER®



From container to the AZO IBC system: Systematic automation.

The AZO container program forms a system which is well-suited for different requirements. The BATCHTAINER®, DOSITAINER® and MIXTAINER® can be fully automated and, due to their coordinated design and precise fitting, are compatible with each other.

Thus it is possible to achieve systems in which containers are incorporated into fully automated logistics and production processes, from dust-free product pickup (via dosing and weighing of the ingredients to the gram) to homogenization in the precision mixer or in the free-fall container.

The ingredients are collected according to the recipe by computer-controlled linear vehicles or automated guided vehicle (AGV). Batch documentation and tracking is ensured through barcode or similar identification systems. Dust-proof docking at the pickup station can also be fully automated.

AZO containers: a circular solution!

If you analyze the advantages of containers, it will soon become obvious that the circular design is the greatest benefit:

Extreme stability due to the circular design, resulting in a reduction in noise during transportation and discharge. No fluttering of the side elements.

Unique geometrical design of the outlet cone eliminates build-up of bulk material at the corners.

Highly precise fitting of the containers and the add-on devices. Full automation is possible.

Quick and easy to clean. No dead spaces due to uniform distances from the center.



Special solutions are also available: from angular to circular design.

The advantages of the AZO container family in summary:

- A great selection of containers from standardized bulk containers to special containers for the pharmaceutical industry
- The circular design offers many advantages for production processes and handling
- Container systems with high flexibility which can be fully automated



AZO BATCHTAINER®: a container for transporting, storing and collecting which can be automated.



AZO DOSITAINER®: a transportation, storage and collection container which can be automated for exact metering in automated weighing processes. Product changeover without residue.



AZO MIXTAINER®: collects, weighs and mixes with high mixing efficiency in a single container.

The AZO BATCHTAINER®: a container for collecting which can be automated.



BATCHTAINER® with outlet door.

Dust-proof, quick and simple: docking at the BATCHTAINER® pickup station.

It is quite amazing how easily the BATCHTAINER® is docked on the pickup station: the BATCHTAINER® is placed on the pickup station where the flexible material of the patented docking collar establishes a dust-proof connection between the container and the following system.

The docking collar itself has no mechanical or pneumatic moving parts. Therefore, there is no need for manual involvement during the docking process.

Vibration support is recommended for discharging flow-resistant products. For this operation the BATCHTAINER® is pneumatically fixed in position.

For product changeover, the outlet door is simply closed and the pneumatic positioning unlocked. Now the container can be transferred back into storage.

There is no simpler, quicker nor safer method.



The patented docking collar is easy to clean.



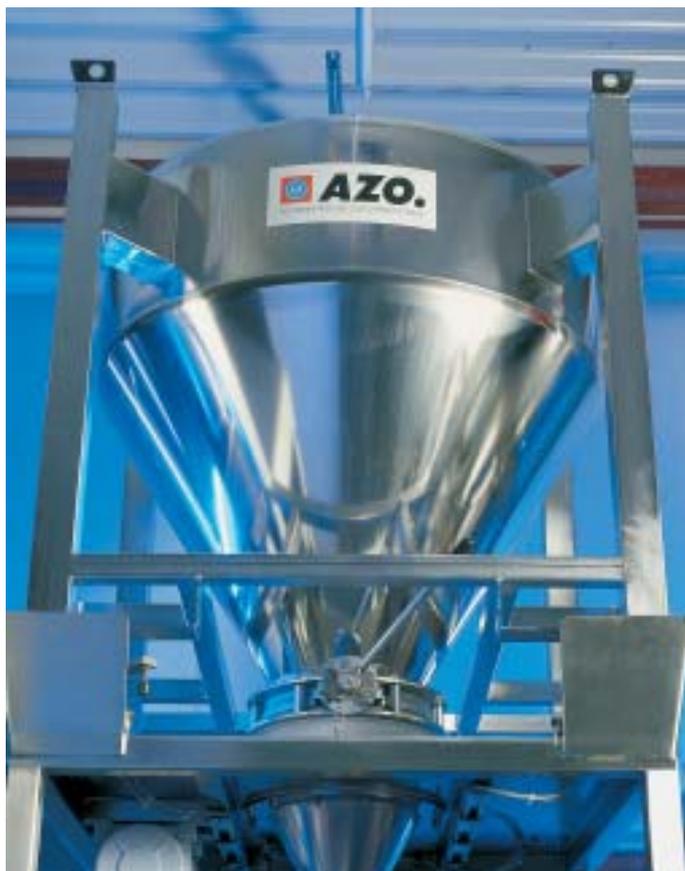
Dust-free docking at the pickup station or other systems using the self sealing collar or the patented docking collar.

The BATCHTAINER®: useful everywhere from raw materials storage to automat production.

Among the many transportation, storage and collecting containers available on the market, the AZO BATCHTAINER® impresses with its high efficient handling of batches in fully automated production processes. The high-precision manufacturing of the container and all of its add-on devices makes it especially suitable for automated application.

Even bulk materials delivered in sacks can be transferred into the BATCHTAINER® quickly with very little dust through transition stations.

Equipped for manual or automated docking without dust formation or contamination.



transporting, storing and



The BATCHTAINER® used as a tablet container in the pharmaceutical industry.

Accessories for the BATCHTAINER®:

Various accessories are available for manual or automatic handling of the BATCHTAINER®:

- The standard design with a manually-operated outlet door.
- The modular gate valve for manual product pickup without contamination.
- The manual outlet door can be automatically opened and closed using a pneumatic rotary drive.



Contamination-free, manual product pickup via a modular gate valve.



Automated opening of the manual outlet valve using a pneumatic rotary drive.



Fully automated, contamination-free product pickup using a pneumatic double door.

The pharmaceutical design of the BATCHTAINER®:

Based on the BATCHTAINER®, AZO has designed special tablet containers for the pharmaceutical industry which can be automated. The high demands of the pharmaceutical industry with regard to hygiene have been satisfied with a special surface treatment.

A separate filter is placed on the vacuum-proof container. Then the tablets can be conveyed directly at the production point into the container. A special shut-off element permits gentle discharge and shut-off in the materials flow without damaging the tablets.

Fully automated product pickup with the pneumatic double door. First the door at the container establishes a contamination-free connection with the door at the pickup station. The double door opens and the product can flow without contacting the outside.



The advantages of the BATCHTAINER® in summary:

- **Dust-free discharge of the BATCHTAINER® using the patented docking collar**
- **Quick and flexible product changeover**
- **Extremely true to size, therefore suitable for automation**
- **Highly efficient handling of the batches in the automated production process**
- **Precise batch documentation and tracking (lot tracking)**
- **Mass flow due to the unique geometrical design of the outlet cone**

The AZO DOSITAINER®: The transportati container which can be automated for e without residue.



The DOSITAINER®: transportation, storage and metering plus product changeover without residue.

The DOSITAINER®: extremely flexible and reliable. Typically AZO.

If your production process demands frequent product change-over in combination with precise metering, AZO's DOSITAINER® is the solution:

Because the DOSITAINER® is more than just a container. It goes without saying that the DOSITAINER® can handle tasks such as storing, transporting and collecting of bulk materials easily. But things become more interesting if particularly tricky demands are in store for the DOSITAINER®. Residue-free discharge of the DOSITAINER® permits immediate reuse of the container without time-consuming cleaning of the metering screw. Achieving more flexibility is virtually impossible.

Optimal metering into the weighing process even with high throughputs.

The precision metering screw provides a constant volume of product for dosing, regardless of the product level in the container. A coarse/fine flow switch-over device at the metering screw ensures precise metering into the following weighing processes. Even if the throughput levels are high, precise metering and weighing accuracy is achieved.



Pickup station for the DOSITAINER® with automatic metering screw opening.



Closed friction drive.

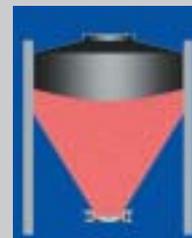
As soon as the DOSITAINER® is attached, the drive in the pickup station establishes a friction connection with the metering screw at the container. Docking is achieved by simply placing the DOSITAINER® on the pickup station. More manual involvement is not required.

After the DOSITAINER® is pneumatically locked in place, vibration support allows reliable and quick discharge of even flow-resistant bulk materials. The extractable metering screw is freely accessible and easy to clean.



Pickup station with integrated metering screw drive and attached DOSITAINER®.

on, storage and collection xact metering and discharge



Centralized weighing of active and carrier ingredients into drums via the DOSITAINER®.

The asymmetric outlet: reliable discharge, ideal for problematic and slightly damp bulk materials.

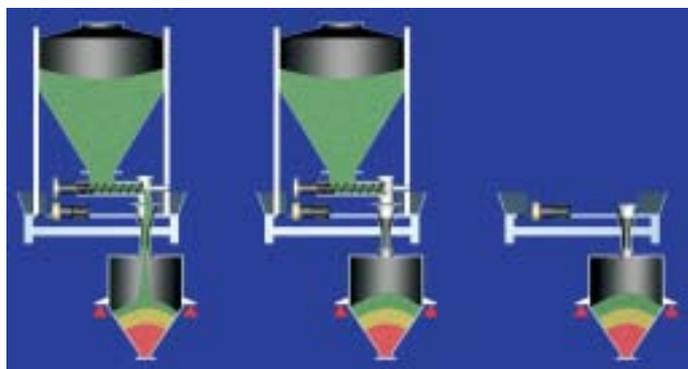
The circular construction of the AZO containers is the ideal geometric design for products with normal flow characteristics. The discharge behavior of problematic or slightly damp bulk materials can be improved with an asymmetric geometric design of the outlet. This effects uniform filling of the metering screw.



DOSITAINER® with asymmetric outlet.



View into the DOSITAINER®.



Use of the DOSITAINER® in weighing processes.

The locking device at the screw head prevents trickling of product after metering.

Due to an optional automatic identification system impossible to mix up the mobile DOSITAINERS®.

The advantages of the DOSITAINER®:

- Precise metering into automated weighing processes
- Dust-proof discharge of the DOSITAINER® using the patented docking collar
- Changeover without residue and cleaning of the metering screw in between
- Exact batch documentation and tracking (lot tracking)
- Mass flow due to optimal geometric design of the outlet, even of problematic or slightly damp bulk materials

Partially automated container systems w and the AZO container mixer.



In addition, micro ingredients are manually weighed with the highest precision under operator guidance and then transferred into the container.

The AZO BATCHTAINER® is placed on a floor scale for monitoring. After filling, the container is sealed with a cover.

Low-dust filling of containers through vacuum venting.

High flexibility with minimum cleaning effort.

Containers are more and more successful as bulk material handling systems in the chemical, food, pharmaceutical or plastics industry. AZO containers, which can easily be used in automated systems, meet the modern demands on batch tracking, identification and documentation as well as easy cleaning. External bundles can be transformed into internal ones quickly and without contamination. These are ideal for transportation within the plant.



An elaborate container concept, individually tailored to customer requirements.

Transformation of external to internal bundles.

The pre-weighed product (received in bags) is filled manually into a BATCHTAINER® with a butterfly valve through an ergonomically designed hopper with a large-dimension filter and additional vacuum venting.

A vibration screen or an AZO DA cyclone screener (for simultaneous metering and weighing) prevents coarse contamination from entering the container.

During filling operation, the BATCHTAINER® is placed on a floor scale for monitoring.



With the AZO BATCHTAINER®

The AZO container mixer.

Due to the demands of a bulk material processing operation in which flexibility for the production of more than 100 formulations containing up to 10 ingredients and requiring frequent formula change-over, a container system with a container mixer was designed.



All ingredients are free flowing and ideally suited to this mixing process due to their similar bulk density.

The container is taken to the mixer by means of a fork-lift truck. Then the container is pneumatically locked in the pickup device. The speed and the mixing time can



The container mixer can be set to the parameters of the ingredients to be mixed.

be set so that a high mixing efficiency is ensured even if the characteristics of the ingredients to be mixed are very different. The circular design of the AZO containers ensures high stability and is optimally suited to container mixing processes. Static mixing aids in the containers can be removed completely, mixing without damage of the product is ensured. This mixing method in the free fall mixer is especially recommended for dry mixes. If the mixing task requires a precision high-performance mixer, this can also be done with this system.

However, a change of bundles is necessary in this case: the batch is transferred from the BATCHTAINER® to the precision mixer and has to be picked up underneath the precision mixer after the mixing process. Therefore, the batch leaves the container for a short time.

Feeding the packaging lines.

The BATCHTAINER® pickup stations are located above the packaging machines. The containers are pneumatically locked in the pickup station where they are docked by means of an inflatable collar which also prevents the emission of dust. After opening the discharge door, the homogeneous mixture is ready for packaging.

Due to their optimal geometric outlet design, the circular AZO BATCHTAINERS® can also be used for flow-resistant bulk materials when fitted with a vibration support.

The metering screw integrated in the container pickup station receives a signal from the low-level indicator in the packaging machine and starts metering into the machine.



The BATCHTAINER® is taken to the individual filling stations by means of a fork-lift truck.



The advantages of the partially automated container system in summary:

- Higher flexibility with a minimum cleaning effort
- Quick and simple formula changeover
- Particular efficient handling of the batches in the automated process
- Gentle free-fall mixing method

The AZO MIXTAINER®: A fully automated and precision mixer.



Collecting, dosing and mixing in one container. Without contamination and fully automatic.

The MIXTAINER® is a real specialist for multi-stage production processes. It combines the advantages of absence of contamination with the high flexibility of container handling. Before changing a formulation, the AZO MIXTAINER® is thoroughly cleaned in a partially automated operation. It can even be sterilized if necessary.

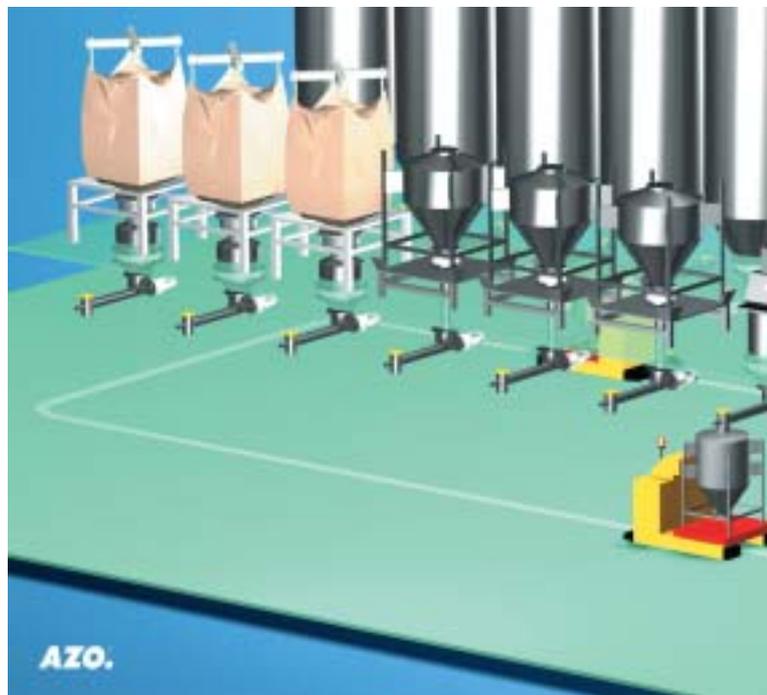


The MIXTAINER® with a removable cover and corresponding inlet pipe.



The MIXTAINER® is ideally suited to automation due to its high-precision manufacturing.

The circular design ensures very high stability and optimal discharge characteristics.



Innovative mixing technology for container systems.

The idea to dose, collect and mix the ingredients of a formulation in one container originally came from the pharmaceutical industry.

Batch documentation and tracking, hygiene regulations and the absence of contamination were the deciding factors for the development. AZO's answer to these demands was the development of a new generation of mixer containers: the AZO MIXTAINER®.

To pick up the individual mixing products, the MIXTAINER® is moved along underneath the metering points by means of a linear vehicle. Automated Guided Vehicles (AGV), which are either controlled via a camera, laser navigation or similar systems, are even more flexible.



Collecting and weighing of ingredients with the AZO MIXTAINER® and AGV.

container system with AGV

Precise metering and weighing.

The individual ingredients of a formulation may vary highly in weight and consequently may have considerably different tolerances. In the case of the MIXTAINER®, the ingredients are directly dosed into the container, which is then placed on a floor scale.

To improve the weighing accuracy, it is possible to preweigh

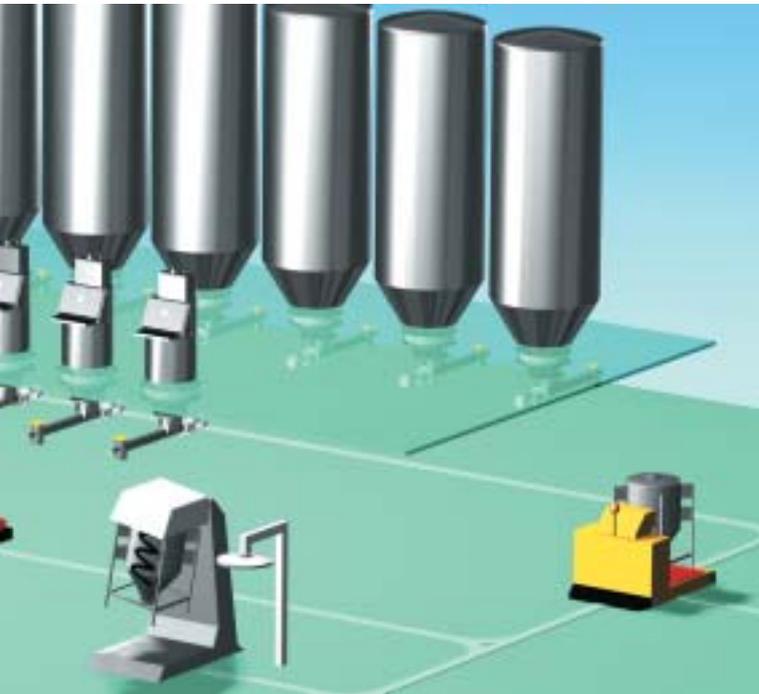
ingredients AZO has developed the COMPONENTER®. It precisely weighs the individual ingredients, collects them and automatically transfers them to the respective mixing process.

Mixing the ingredients.

The MIXTAINER®, which has been filled with the ingredients according to the formula, is taken to the mixing station where it is locked in place and its cover removed. The spiral mixing tool

For flow resistant and hard-to-mix products, the adjustable slanting position generates an additional space-controlling cross flow without dead areas resulting in ideal mixing results.

After the mixing operation the system returns to its vertical position and the mixing tools screws itself out of the mixed product.



Innovative container systems: fully automated, precise and flexible.

micro-ingredients or use a loss-in-weight weighing system. After calling at the dosing points on the AGV, all ingredients have been precisely weighed into the MIXTAINER®.

The data transfer between the centralized process control, the VDU monitoring system and the individual dosing points is accomplished using infrared interfaces without any interference from outside sources.

For perfect automation of minor

screws itself into the container until the mixing head rests on it and forms a dust-proof unit together with the container.

The screw-belt mixing tool rotates within a small tolerance from the container wall causing the materials to be screwed upward in the periphery and generating a downward trickle in the center. In addition, multi-stage blade tools protrude into the mixing chamber. These effect intensive mixing and a micro-fine distribution of liquid additives.



Automated transportation to the container mixer.



Insertion of the mixing tool.

At the same time a plastic scraper takes off any residues from the mixing tool. The cover is automatically replaced and the MIXTAINER® with its precisely mixed formulation is ready for collection.



The advantages of the MIXTAINER®:

- **Ingredients are weighed, collected and mixed in one container**
- **Reduced contamination, as much as possible**
- **Avoidance of cross contamination**
- **Application of the MIXTAINER® in partially and fully automated production systems**
- **Maximum avoidance of product degradation**
- **Ideal mixing quality for all dry, moist and liquid materials regardless of filling level, type of mixing product and speed of the mixing tool**
- **Optimal discharge characteristics**



Automatic docking at the container pickup station.

AZO – Right to the point.

AZO – For certain the right partner for you.

At AZO, we know all about our business. For decades our company has led the way into the future with a constant stream of ideas and trend-setting technology.

We cannot imagine the technology of bulk materials handling without products and systems such as the DOSITAINER® and the fully automated container system with the AZO COMPONENTER®. They carry the trademark: Invented by AZO.

Let AZO design a dependable, cost-effective individual solution for your needs, or a complete system specifically tailored to your requirements.

Our expertise in the business is reflected in the different industries where AZO experts work. They know exactly what you want.



AZO®Food

Economical, automated feeding of bulk materials, additives, minor ingredients and liquids for the production and processing of food basics, bakery products, nutrients, ready-cooked meals and spices.



AZO®Vital

Systems for hygienic, closed handling of bulk materials, carrier and active ingredients and active substances as well as liquids for the production and processing of diet food, sweets, semi-luxury goods, beverages, dairy products and pharmaceuticals with high demands on quality.



AZO®Chem

Automated conveying systems for closed handling of bulk materials, additives, small ingredients and liquids for the production and processing of chemicals, glues, cosmetics, detergents, protective products, paints and lacquers.



AZO®Poly

Efficient, automated feeding systems for bulk material additives and liquids for the production and upgrading of plastics dry blend, pastes, plastics additives, and rubber including recycling.



AZO®Plast

Automated pellet feeding systems for storage, drying, feeding and colouring of plastics, regrind and master batch for injection moulding, blow moulding and extrusion operations.

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