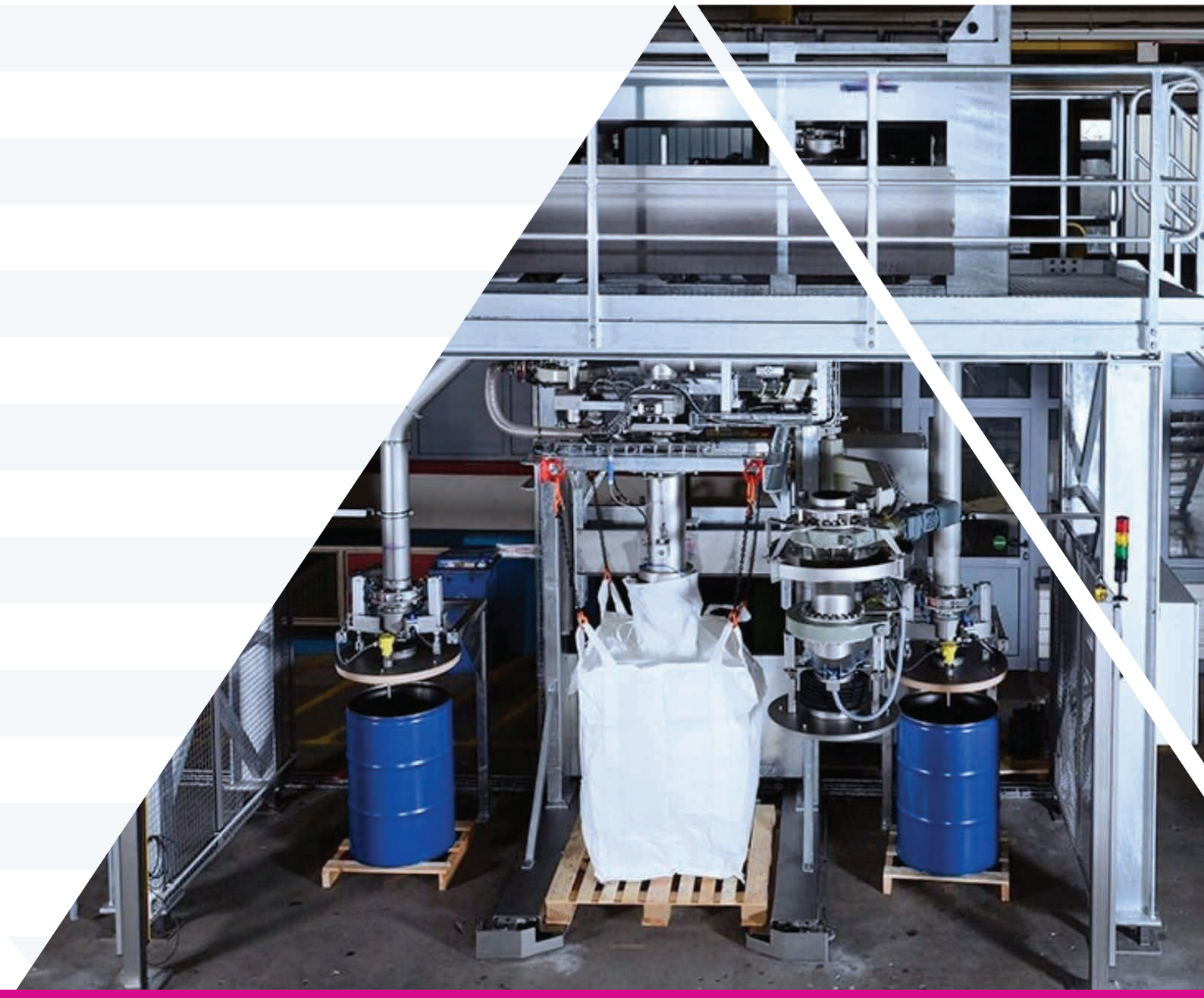
J. ENGELSMANN AG

The Experts for bulk solids processes

Plants for intelligent product handling



About Us

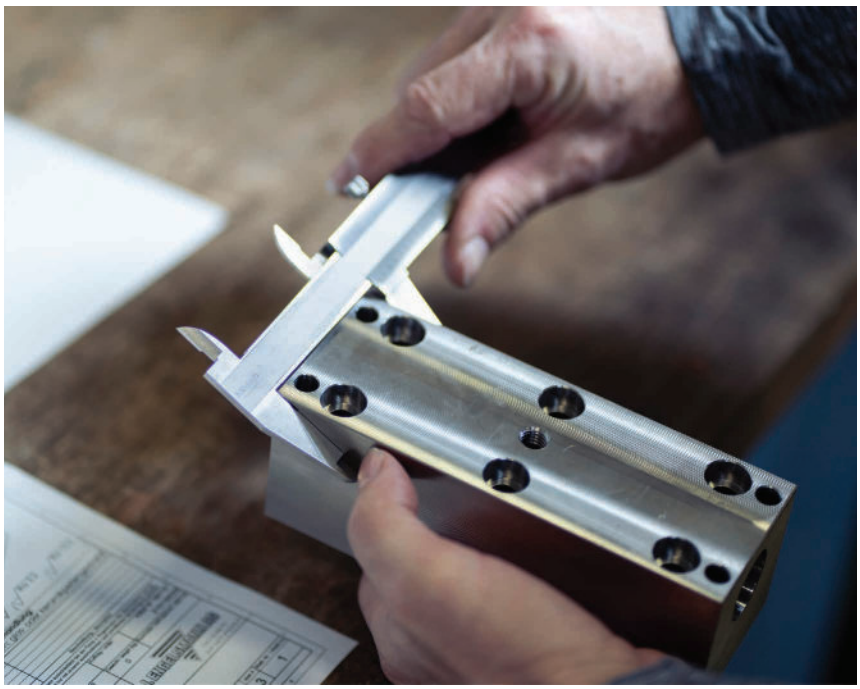
J. Engelsmann AG

J. Engelsmann AG was founded in 1873 and today ranks among the world's leading suppliers of solutions for process engineering applications involving bulk solids. Our components and systems are used to empty and fill a wide variety of containers, and to sieve, mix, dose or convey a wide range of products. This also applies to production areas with the highest hygiene requirements or containment.

Customised plant engineering

Our plant engineering stands for technically sophisticated, individually designed solutions in bulk material handling. With in-depth expertise and the corresponding mechanical engineering competence, we implement process-reliable plants with high functionality.

Our plants have proven themselves in the chemical and plastics industries, in hygiene-sensitive areas such as pharmaceuticals and food, and in containment applications with toxic substances, such as in battery manufacturing.

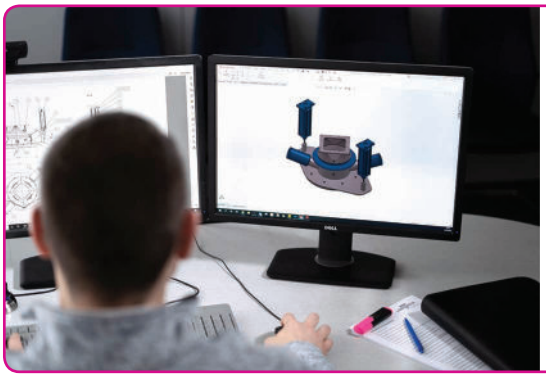


From idea to live operation

Engelsmann as an experienced partner on the path to the optimal plant

Consulting & conception

We analyse your product, your process and your technical objectives and develop tailor-made plant concepts based on decades of experience. The result is your solution – optimally adjusted to your production process.



Project planning & design

With detailed planning, structured project management and close cooperation with you, we ensure that your project runs smoothly. Pilot plant trials provide valuable insights for the optimal design of all plant components. We use state-of-theart CAD and simulation technologies in our design work – for maximum efficiency and process reliability.

Manufacturing & acceptance

Your system is manufactured in our production facility exactly according to the design specifications – with maximum precision and high-quality materials and surfaces.

During the joint Factory Acceptance Test (FAT), we check all functions, safety aspects and control interfaces. This ensures that your system is completely ready for installation and use.

Assembly, commissioning & service

Our experienced team of fitters will professionally install your system on site. During commissioning, we will also train your team and ensure the long-term performance of your system with reliable maintenance and spare parts services.

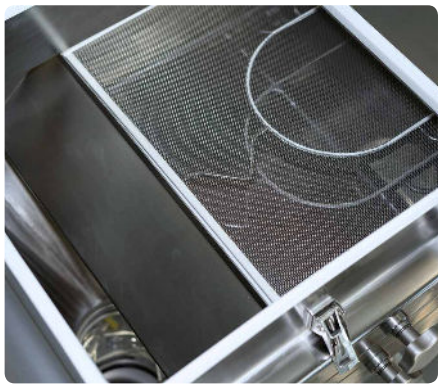
Our plant engineering at a glance

Our systems are based on a profound understanding of your requirements and products. We combine our own proven developments with state-of-the-art technology from selected partners. This results in systems that are not only high-performing, but also conserve resources and integrate seamlessly into existing production environments.

Flexibility at its best

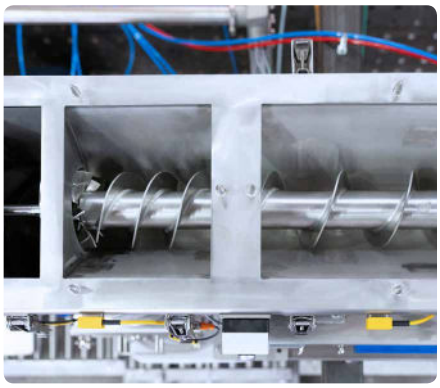
Every production process has its own challenges – that is why our plants are modular in design. From product discharge to filling, all functional areas can be individually designed and precisely tailored to your processes and spatial conditions. Our plants offer maximum adaptability, ensure high operational reliability and, as future-proof solutions, remain capable of growing with your requirements.

Sieving



Emptying

Conveying



Mixing

Filling

Dosing & Weighing

Crushing

Dedusting

Controlling

Sieving technology

Screening machines improve the processability of bulk materials, prevent foreign particles from entering the product and ensure consistently high end product quality. Our screens, made from high-quality materials, guarantee excellent separation accuracy even with demanding products.

- Classification screening, protective and control screening, screening of oversize and fine grains, and deagglomeration
- Vibrating, swinging and centrifugal or passing sieves
- Integrated process chain: product feeding, screening, processing, conveying. Suitable for all common processes
- Hygienic design solutions for applications with the highest hygiene requirements or containment

Emptying technology

Whether big bags, barrels, bags or containers: our emptying technology ensures reliable processes even with difficult products. Well thought-out and, if required, flexibly combined with downstream process technology, we ensure smooth emptying processes that are efficient, clean and, above all, safe.

- Fast and complete emptying of different containers and products
- Low-dust and dust-tight concepts – up to and including applications with containment
- Integration of downstream process technology for e.g. processing, weighing, conveying or mixing the product

Conveying technology

Appropriate conveying technology is essential for connecting individual process steps. We select suitable components depending on the properties of the bulk material, the required conveying capacity, conveying length, height difference and environmental conditions.

- Mechanical conveyor elements such as screw conveyors, vibrating chutes or bucket elevators
- Pneumatic conveyor systems
- Conveyor solutions for batch and continuous production

Filling technology

Our filling systems for big bags, drums and small containers enable fast and low-dust filling processes – even with multiple containers and challenging bulk materials – and impress with maximum flexibility, process reliability and consistently high throughput rates.

- Various filling techniques depending on the container, e.g. filling heads with sealing systems or filling nozzles with onehand buckles
- Inflation devices and filling aids such as vibration tables for fast, even filling
- Addition of filter solutions for dusty products
- Integrated dosing and weighing technology
- Level monitoring
- Various control options

Mixing technology

Our mixers ensure even mixing of powders, granulates or pastelike products. From gentle mixing of sensitive ingredients to intensive homogenisation – we offer the right mixing technology for your mixture.

- Free-fall and compulsory mixers for different recipes and mixing processes
- Various mixing tools and other options for optimum mixing results
- Solutions for continuous and batch production
- Mixing systems including upstream and downstream processes such as emptying, filling, dosing, sieving or conveying

Dedusting technology

We integrate efficient filter units and targeted extraction points and ensure dust-tight interfaces to minimise health and explosion risks. This enables us to create low-emission work areas, avoid product losses and comply with all relevant safety and environmental regulations (e.g. ATEX, TA Luft).

- Installation of suction or displacement filters
- Versions with aspiration connections for connection to existing filter systems on site
- Different filter types such as hose, cartridge or bag filters
- Various filter elements and media
- Dust extraction solutions also for hygiene-sensitive applications in the pharmaceutical and food industries

Dosing and weighing technology

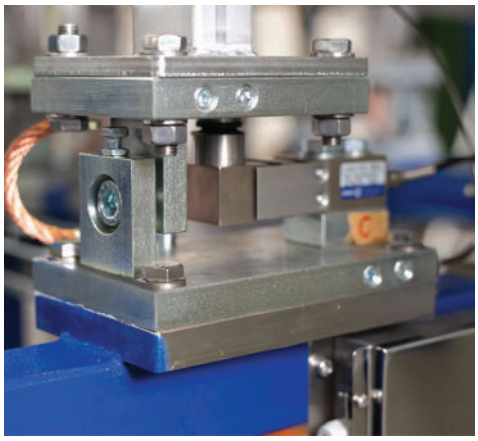
Reliable dosing and weighing technology is essential for precise quantity control and consistent product quality. We offer solutions for the accurate feeding and weighing of products in combination with processes such as mixing or filling.

Our dosing devices:

- Dosing screws for powders and free-flowing solids
- Rotary valves (discharge and blow-through valves)
- Dosing belt conveyors for coarse-grained and heavyflowing materials
- Vibrating chutes for sensitive and bridge-forming products
- Dosing flaps

Our weighing technology:

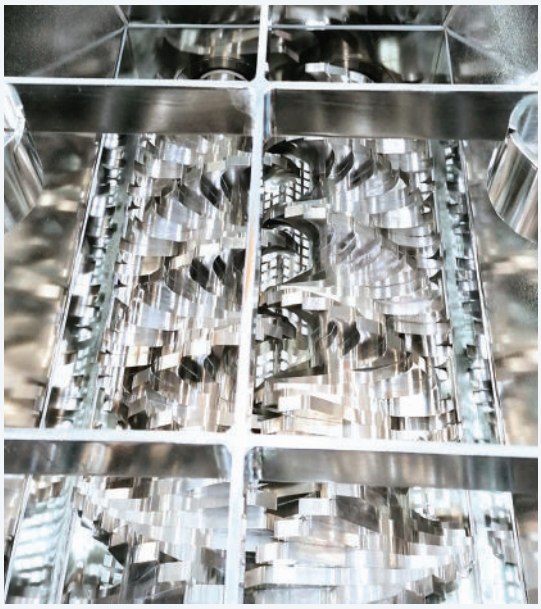
- Differential dosing scales for continuous weighing
- Big bag hanging scales for precise filling
- Platform or U-scales: Floor scales for controlling the material flow up to the target quantity



Crushing technology

Our lump breakers efficiently break down solid agglomerates into defined grain sizes, thereby improving flowability, dosing accuracy and homogenisation. The design focuses on the degree of comminution, energy consumption and wear resistance.

- Two or more crusher waves with adapted tool design (crusher stars)
- UVV-compliant feed hopper
- Screen inserts at the outlet in various designs and hole sizes
- Stationary, integrated into plants, or as a mobile version with roller frame



Control technology

A well-designed control system visualises important parameters, simplifies operation and actively protects against errors and accidents. This ensures maximum process reliability and dependable plant availability.

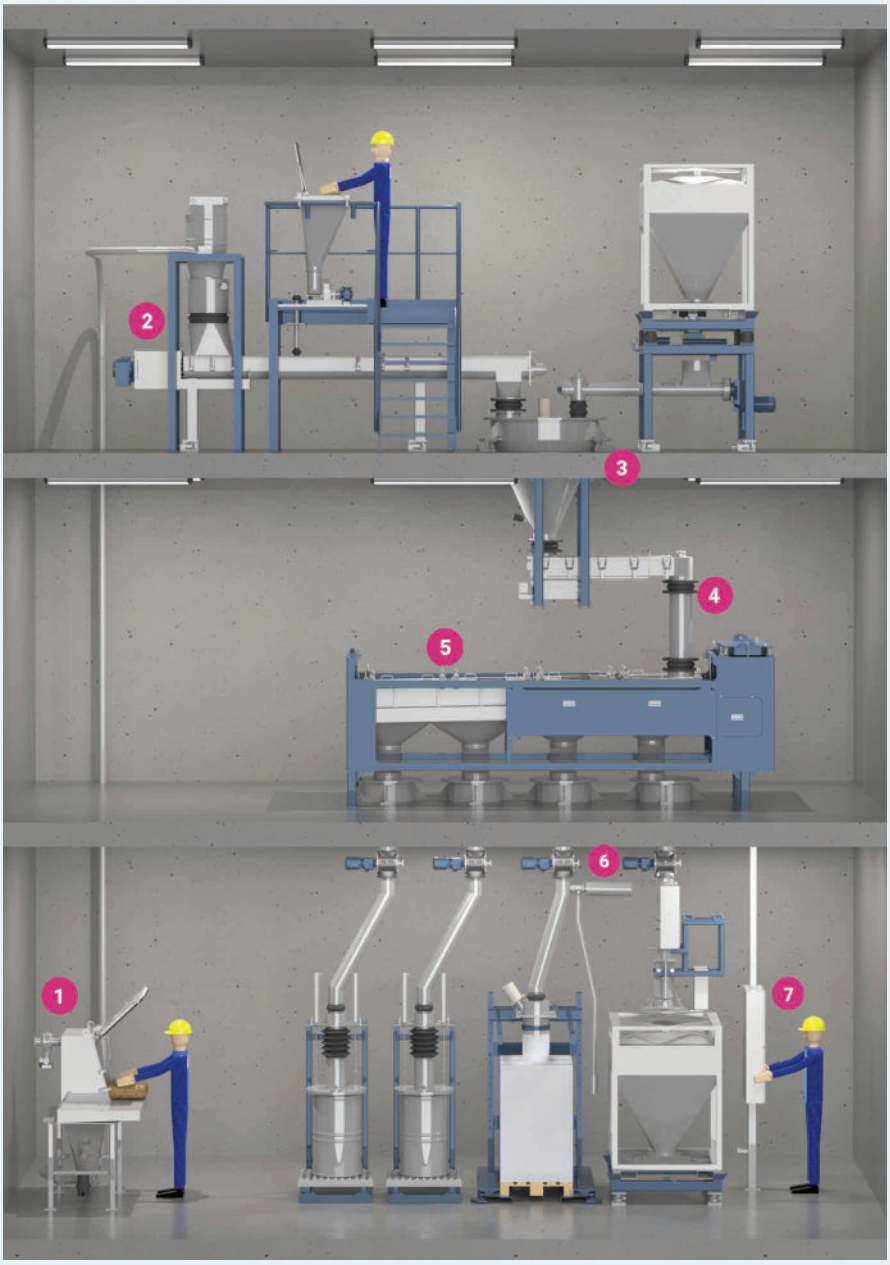
- From simple analogue controls to more complex, programmable control systems with touchpad operation
- Connection options to existing process control systems
- Visual and acoustic warning messages
- Safety features such as two-hand operation to safeguard particularly critical process sections

Plant solutions for the Chemical industry

The chemical industry offers a particularly wide range of products: numerous solids with different properties place diverse demands on product handling. Efficiency, productivity, process and operator safety must be ensured by intelligent process and plant technology. There is a demand for flexible solutions which can be adapted to changing products and processes, yet still guarantee high throughput rates and reproducible quality, minimise downtime and are both economical and sustainable. These are requirements of the chemical industry that we are familiar with and for which we have been providing tailor-made solutions for decades.

Process example

1. Manual bag feeding via bag emptying cabin with vertical suction conveyor to the third floor.
2. Screw mixer, fed via bag chute on the ground floor and a second manual feeding station directly above it.
3. Dust-tight intermediate container as floor installation with level indicator. The product is fed via the screw mixer and the container emptying station with discharge screw.
4. Product discharge from the intermediate container into a vibrating chute on the floor below.
5. Classification screening into four fractions with a linear vibrating screen, fed via the intermediate container and the vibrating chute.
6. Collecting hopper below the screen outlets with optional sampling. Butterfly valves regulate the product flow to the floor below for filling.
7. Filling of the three good particle fractions into containers, big bags and drums; rejects are fed into a waste container.



- Safe handling even with toxic, explosive, flammable or corrosive chemicals
- Explosion and fire protection: ATEX-compliant design
- High-quality materials (e.g. stainless steels, special alloys, linings) to prevent corrosion, material release or diffusion
- Maximum flexibility in function and integration into your plant environment, especially when handling different products
- Maintenance-friendly, low-emission and energy-efficient solutions
- Intelligent control solutions for maximum process control and operational safety

Project examples: Chemical industry

Efficient product handling for agglomerating raw materials – an example from adhesive production

This project example shows a plant solution for an adhesive manufacturer. The initial product is very moist before drying and tends to form agglomerates and bridges. In addition, the product sticks together at ambient temperatures above 40°C.

The process to be visualised: emptying the product from drums, pre-breaking the agglomerates, transferring to big bags, emptying the big bags, crushing the remaining agglomerates; after drying, classifying screening to separate the good product from the oversized and fine grains, finally filling the good product into big bags and collecting the defective grains in collection containers.

To the project example

Our concept:

- Lump breakers for pre-crushing
- Big bag emptying station with discharge aids
- Passing sieve
- Product feed hopper with level indicator
- Vibrating sieve for classification screening
- Big bag filling solution and collection area for rejects

Mobile solution instead of an extra production line – flexible filling of small containers

Engelsmann developed a mobile small container filling station for plastic granulate, which can be inserted into an existing big bag emptying station with a forklift truck if required.

The system unit, which is made entirely of high-quality stainless steel and has an integrated vibrating round sieve, enables both protective sieving and the filling of the end product into small containers. The highlight: this simple, compact ‘insertion system’ allows the big bag filling process to be converted to small container operation with little effort, without the operator having to invest in a new, independent filling line.

To the project example

Our concept:

- Robust frame with forklift attachment
- Vibrating circular sieve (control sieving)
- Dust-proof intermediate container with level indicator
- Filling head with suction nozzle and clamping device for filling small containers
- Platform scales for monitoring container filling up to the target quantity
- Control system

Plant solutions for Pharma & Food

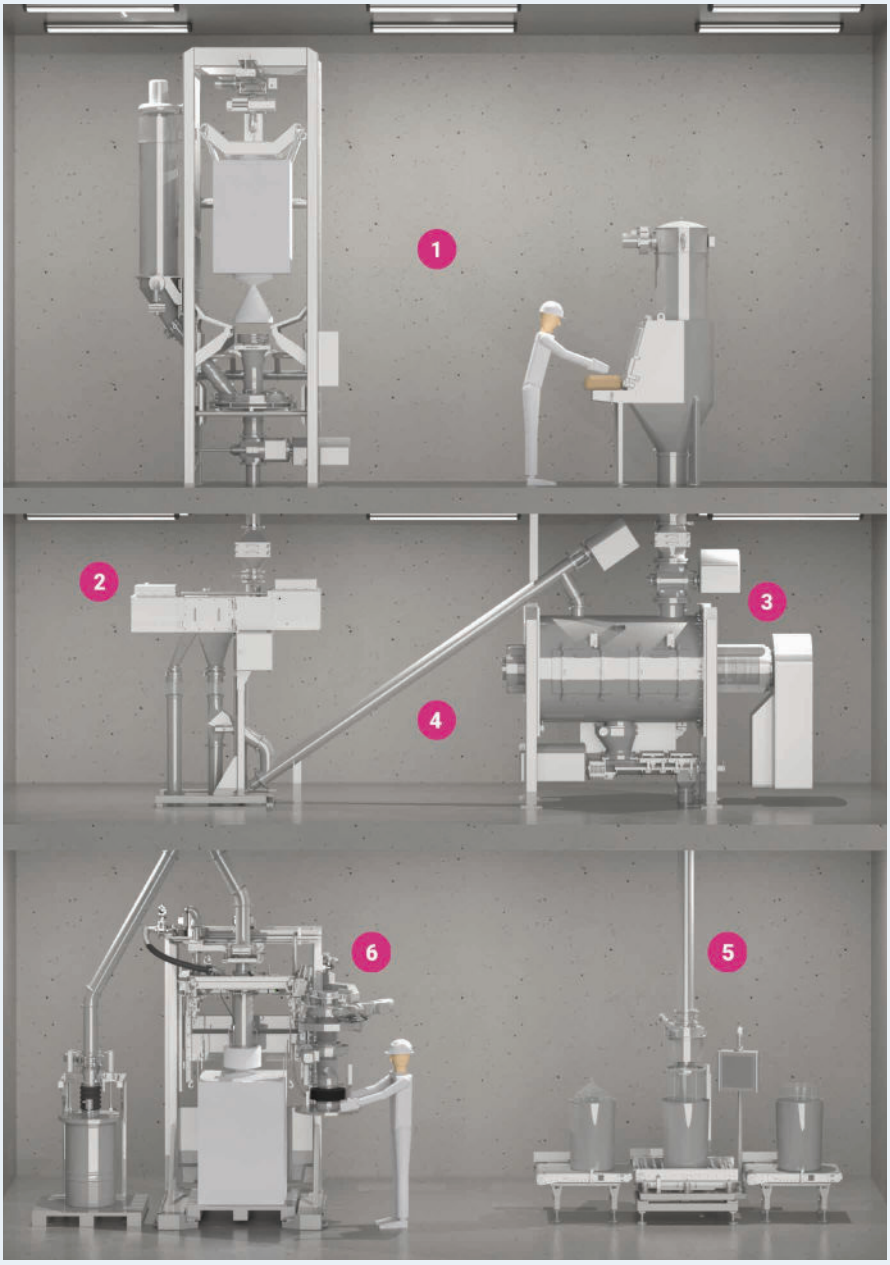
Safe. Clean. Reliable.

Hygiene and safety are paramount in the manufacture of pharmaceutical products and foodstuffs. Our plant solutions for pharmaceuticals and food ensure both – functional, safe bulk material handling and the best possible protection against contamination by bacteria, foreign bodies or residues from other products.

To ensure compliance, we supply the appropriate documentation packages in accordance with GMP, FDA or EC1935/2004, for example.

Process example

1. Product feeding on the upper floor via a big bag emptying station (left) and bag emptying cabin (right).
2. Classification screening of the product from the big bag into coarse, medium and fine fractions, which are processed differently.
3. Drum mixer, fed by the bag chute above and an inclined screw conveyor that transports the product from the screening machine. A magnetic separator in front of the mixer inlet separates out any metallic foreign bodies.
4. The coarse material from the big bag is conveyed into the mixer via an inclined screw conveyor under the screening machine.
5. The fully mixed product is transported via a downpipe to the filling area on the ground floor, where it is filled into barrels at a barrel filling station.
6. Separate filling area for the medium and fine fractions after the screening machine. The medium grain is filled into either big bags or barrels. Only barrels are used for the fine fraction.



- Protection against contamination: all components feature hygienic design for optimal cleaning
- Component design in accordance with GMP, FDA or EC 1935/2004 to ensure compliance
- ATEX-compliant system solutions for the best possible explosion protection for dusty products
- Consistently high product quality thanks to gentle product handling and maximum process control
- Emptying, filling and sieving in containment for toxic or highly active substances and allergens
- Complete documentation packages for your qualification (IQ, OQ, DQ)

Project examples: Pharma & Food

Compact multifunctional system for big bags: clean, safe and versatile

The big bag discharge station for lactose was to be connected both to a pneumatic conveying system for silo loading and be used for dust-free container filling – without time-consuming changeovers and under the strictest hygienic conditions.

The entire discharge station is designed in accordance with hygienic design: enlarged radii, closed round pipes, and chamfered corners in the frame construction prevent unwanted product deposits.

To the project example

Our concept:

- Stable frame construction made of stainless steel
- Kneading paddles as discharge aids
- Dust-tight big bag hygienic hopper
- Protective screen (JEL Fix) with attached suction filter
- Metal separator
- Container filling head with sealing plate and cartridge filter
- Swivel arm with downpipe for connection to a rotary valve and a pneumatic conveying line

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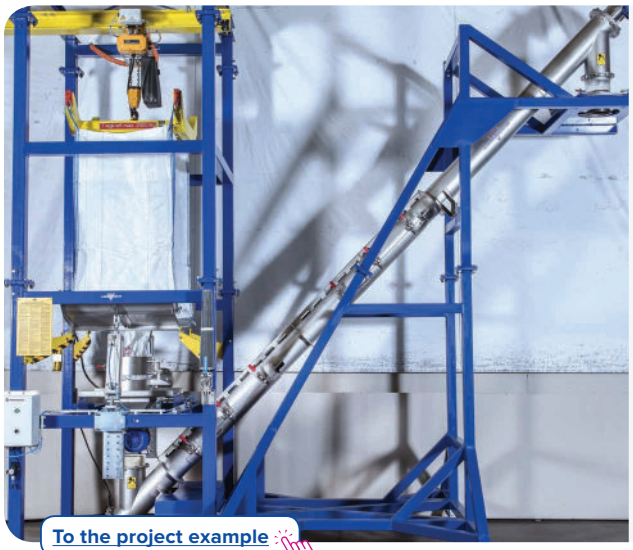
Multifunctional system for contract packers – emptying big bags, straining and protective sieving, conveying

In this specific case, the customer was looking for a flexible system for big bag emptying to set up a discharge line consisting of three big bag stations. The stations were to be seamlessly integrated into existing production processes and be suitable for both small and large-volume batches. To ensure that the system is also suitable for products in the food and pharmaceutical industries, all parts that come into contact with the product are FDA-compliant and easy to clean. A robust design additionally ensures a long service life, even under high utilization.



To the project example

Our concept:

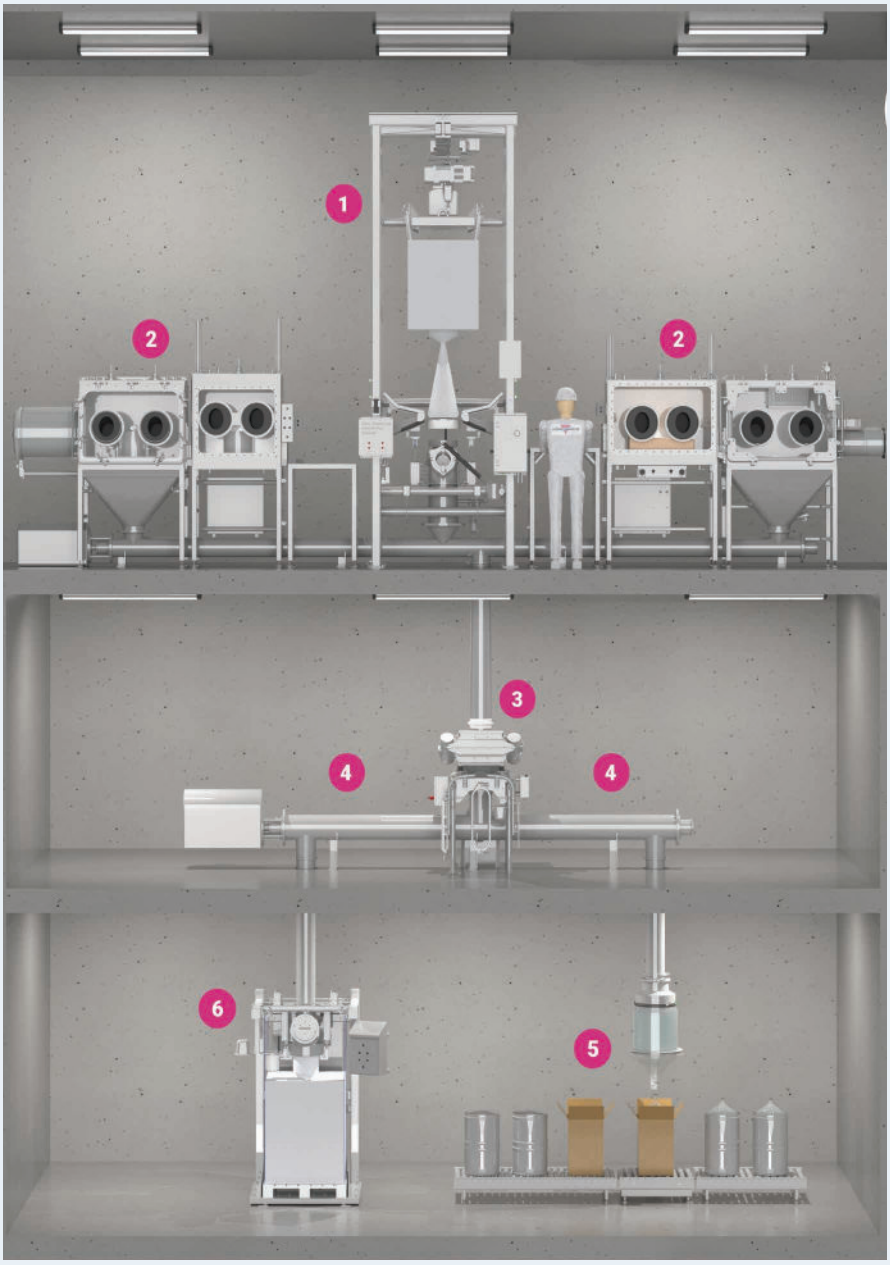
- Big bag emptying station
- Pneumatic kneading paddles
- Sieve under the discharge hopper
- Conveying via inclined screw conveyor
- Protective screen at the outlet of the inclined screw conveyor
- Connection to a pneumatic suction conveying line as a second conveying option
- FDA-compliant

Plant solutions for Containment

When handling bulk materials with high hazard potential, such as highly active pharmaceutical substances, allergens, or toxic battery materials, maintaining containment is mandatory. Hygienic design, optimal cleanability, and tightness of production equipment protect operators from exposure and prevent cross-contamination to ensure the purity of the final products. Our plant concepts provide containment solutions with the highest process safety and control.

Process example

1. Containment emptying station on the upper floor for product feeding via big bags.
2. Bag feeding via specially sealed bag emptying cabins with protective gloves (isolators) for safe loading, opening and emptying of bagged goods.
3. Protective and control screening with a containment screening machine, which can be fed either from the big bag discharge station or the two bag hoppers.
4. Screw conveyor under the screening machine for transferring the screened product to the filling station on the ground floor.
5. Filling of the product in a containment filling solution for various small containers.
6. Alternative filling into big bags via a containment big bag filling station.



- Containment solutions for emptying, filling and screening processes up to OEB 5
- Hygienic design for fast and thorough cleaning
- Clean connection of components such as dosing or conveying devices for transferring the product to upstream or downstream processes
- High operational safety through intelligent control systems that largely prevent operator errors
- Dedusting solutions for particularly dusty products, ATEX concepts for optimal explosion protection
- Comprehensive documentation packages according to GMP, FDA, or EC 1935/2004

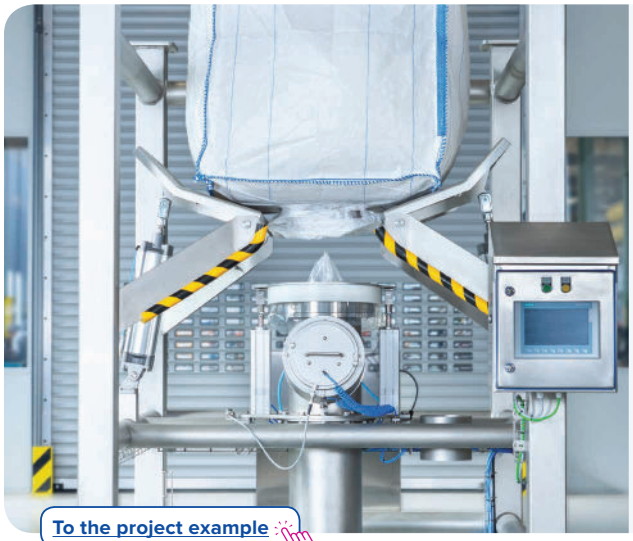
Project examples: Containment

Safe emptying of big bags under containment conditions

Safety meets efficiency.

When handling toxic bulk materials – from highly active pharmaceutical ingredients to active materials in battery cell production – containment is essential. Especially when using big bags, emptying solutions must guarantee absolute tightness so that critical substances can be handled reliably and safely.

However, maximum safety alone is not enough: productivity and efficiency are also crucial to ensuring economical processes. Engelsmann knows how to combine uncompromising protection with maximum performance.



To the project example

Our concept:

- Hygienic frame with round profiles
- Crane track for safe insertion of big bags into the station
- Containment connection module with continuous film and patented sealing system for securing the big bag inliner
- Kneading paddles as discharge aids
- Intelligent control system with various safety features to prevent operator errors

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Vibrating screening machine in quick-cleaning design for use in OEB areas

Toxic or highly active products often need to be screened during processing. Whether for classification or protective screening, or for separating oversized and fine particles, containment must always be maintained during screening processes. The most critical points, besides the screening process itself, are the changing of the screen inserts and cleaning of the machine.

The JEL Konti II CTM from Engelsmann is a versatile vibrating screen for containment applications up to OEB 4. It allows quick insert changes without decoupling the machine and, thanks to its hygienic design, is easy to clean – either manually or as a self-cleaning variant (CiP or WiP).

To the product page

Our concept:

- Frame, sieve housing, inserts, and motors made of stainless steel
- Insertion shafts for screen inserts with special sealing and foil system
- Foldable support table for comfortable insertion and removal of screen inserts
- Available with one or two sieve decks
- Stationary installation or with roller frame for mobile use
- Integration of upstream and downstream processes such as emptying or filling
- ATEX design
- Designed according to GMP, FDA, or EC 1935/2004

Pilot plant trials: From the idea to the reliable process

Testing on a small scale so that it works on a large scale

Engelsmann offers you tailor-made solutions for your tasks. In our technical centre, we have the opportunity to simulate concepts for optimising your process technology on a small scale in a realistic manner. In our tests, we coordinate all components of your system, thus creating the basis for an efficient, economical and reliable production solution – even for difficult products.

It's the fine-tuning that counts!

In our technical center, we test your original product and use a pool of different components to simulate numerous technical processes. Based on the product properties and your process requirements, we conduct tests to identify critical points that could cause problems during later operation.

Our technical centre tests provide valuable information for functional or design adjustments – as a basis for the optimal design of your plant and components. This ensures that your process functions reliably even with demanding products and conditions.

Maximum process reliability is systematic and clearly documented!

Our technical centre team coordinates the test objectives with you and that everything is built-up and running on the day of the trial. We take possible challenges into account as early as the planning stage and create optimum test conditions.

During the tests, we document all important steps with photos and videos to make technical details comprehensible.

We transfer the results to your plant in a practical manner and provide a detailed evaluation with parameters, collected insights and recommendations for optimum design. This creates a reliable basis for safe and efficient production.

Engelsmann as your Partner!

Engelsmann combines engineering expertise with practical experience to create systems that set standards in bulk material handling. Precisely planned, equipped with high-quality components and tested under real-life conditions, our solutions deliver maximum efficiency, safety and cost-effectiveness – reliably throughout their entire life cycle.

Not convinced yet?
Our strengths at a glance

- Tailor-made concepts for efficient and productive bulk material handling – even with demanding products and processes.
- For maximum process reliability, we test your plant concept on a small scale with your original product in our own technical centre.
- Whether you need individual components, a complete system or just engineering services, you will receive consistent quality from us – right from the initial consultation
- Designed for high utilisation and a long service life – regardless of whether you produce in batches or continuously.
- No compromises on functionality. By integrating solutions from our partners, we offer a variaty of functions that goes far beyond our own product range.
- Professional and reliable support even after commissioning, when it comes to maintaining your plant or spare parts.

EC 1935/2004 · GMP Good Manufacturing Practice Certified · Ex · EHEDG European Hygienic Engineering & Design Group · FDA · TÜVRheinland ZERTIFIZIERT Management System ISO 9001:2015 www.tuv.com ID 9105028414

Find out more:
Discover our solutions and interesting practical examples

Plant engineering

To our Plant Engineering

Case Studies

To our Case Studies

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