

VALUE INNOVATORS BY NATURE

DINNISSEN 
PROCESS TECHNOLOGY



FEEDING AND WEIGHING





Feeding and weighing

A correct registration of volume and weight is essential for the preparation of products in the feed, food, pharmaceutical and chemical sectors with a maximum degree of accuracy and reproducibility. To serve clients in these sectors, Dinnissen Process Technology has been developing and producing a complete range of products and solutions for the continuous as well as batch-based feeding and weighing of powders, granules and granulates since 1948. Our goal is simply to ensure that our clients have the best possible solution for feeding a wide range of ingredients accurately and reproducibly into grinding installations, mixers, vacuum coaters, packaging units, reactors and other types of production equipment.

Validated processes for accurate feeding and weighing

The ability to weigh ingredients accurately and reproducibly is an essential step in the production process if your goal is to optimize product quality and manage your stocks as efficiently as possible. To that end, Dinnissen Process Technology develops and produces continuous as well as batch-based weighing systems that are appropriate to the desired level of feeding accuracy required by your company. The weighing systems supplied by Dinnissen can be integrated into production processes from feeding levels of 800 g per hour and upwards and weighing accuracies of 0.1% (3 g per 3 kg) or better.



Over 60 years of experience

Over 60 years of experience in bulk handling and solids processing for the food, feed, pharma and chemical industries.





Validated feeding and weighing for batch-based processes

Dinnissen provides solutions that deliver extremely accurate feeding and weighing capabilities for batch-based production processes. When feeding and weighing ingredients into a batch-based mixing process, we can realize a coefficient of variation of ± 0.75 to 1.5%. For example, if 400 g of an ingredient needs to be added to a batch of substrate material weighing between 100 kg and 1000 kg, the ingredient can be added with an accuracy of ± 3 g. These results have been validated in various product sectors, including baby foods, pet foods, and detergents.

Batch-based feeding and weighing of one or more components

For batch-based feeding and weighing, the weight of one or more ingredients is measured in a weighing hopper. This is done by adding ingredients to the hopper (gain-in-weight) or by removing ingredients from the hopper (loss-of-weight). For batch-based weighing, the desired weight of ingredients is set beforehand. In the first phase of the feeding process, the ingredients are then added or removed fairly quickly and approximately. In the final phase, the ingredients are added or removed slowly and in small amounts. Dinnissen has developed an automated, self-learning system to manage and control this feeding process as effectively as possible and to make the necessary adjustments when needed. As a result, the feeding process is adjusted in real time to take the current characteristics of the ingredients into account and provide optimum feeding accuracy and reproducibility.

If components need to be added to the weighing hopper, a single weighing system is adequate for weighing several components, so that batch-based weighing systems are particularly effective for production processes requiring three or more components. Depending upon the required level of weighing accuracy, Dinnissen can supply digital as well as analogue weighing cells for batch-based weighing systems.



Your products tested beforehand

Your products and / or processes tested beforehand on our machines, guaranteeing optimum results.

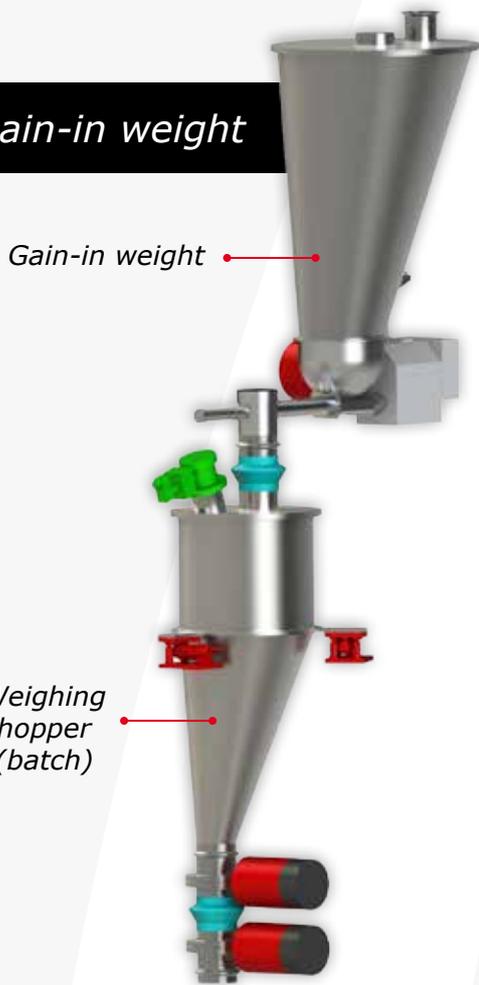


Continuous weighing for continuous processes

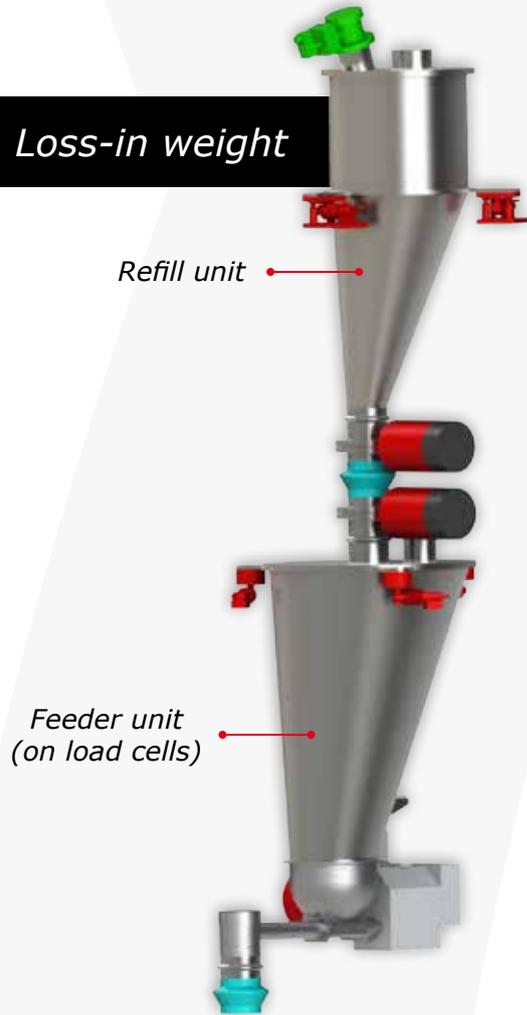
For continuous weighing, the amount of ingredient is determined by measuring how much ingredient is removed via a feeding system from the weighing hopper per unit of time (loss-in-weight). A special weighing cell is used to measure the decrease in the quantity of ingredient present in the weighing hopper per unit of time, in combination with a special microprocessor or set-point PLC (programmable logic controller). The microprocessor controls the feeding capacity, i.e. the quantity of ingredient that leaves the weighing hopper per unit of time, and also ensures that the weighing hopper is topped up in a timely fashion, thereby ensuring that the production process can proceed in a continuous fashion. Continuous weighing systems are suitable for continuous processes, such as ovens, extruders, and continuous mixers.



Gain-in weight



Loss-in weight



In-house development and manufacturing

Our products and custom-made solutions are developed, tested, manufactured and installed by our own people, providing you the best possible assurance in terms of quality and delivery time.



Validated feeding and weighing for continuous processes

Dinnissen provides solutions that deliver extremely accurate feeding and weighing capabilities for continuous production processes, with a coefficient of variation of 1.55% to 5%. For example, in a continuous production process involving a substrate flow of 800 kg per hour, 800 g per hour of an active ingredient, such as vitamins and probiotics, can be continually weighed and fed. These results have been validated in various product sectors, including baby foods, pet foods, and detergents.

Dinnissen develops and produces continuous weighing systems and supplies weighing, measuring, and control components designed to work seamlessly together. Depending upon the accuracy, speed, and capacity required by the client, we use analogue (3000 to 6000 scale units) or digital weighing cells (up to 1 million scale units) and microprocessors with various speeds. The special batch-mix-startup procedure developed by Dinnissen prevents startup losses in your production process and saves ingredients as well as energy.



We take care of your entire process

Product intake, transport & handling, feeding, weighing, mixing & processing, milling, sifting and packaging: your entire process chain is in good hands at Dinnissen.





Feeding components as well as integrated feeding solutions

The effectiveness of your feeding system depends upon its reproducibility, i.e. performance quality at a single point, linearity, i.e. performance quality at different volumes, and stability, i.e. performance quality over time. A constant feeding rate per unit of time is crucial. Dinnissen can provide you with appropriate feeding components or an integrated feeding solution for each of your production processes depending upon the specific situation and required level of accuracy at your company.

Volumetric and gravimetric weighing solutions

Dinnissen Process Technology specializes in volumetric as well as gravimetric weighing solutions for loss-in-weight as well as gain-in-weight feeding applications. Depending upon your specific needs and production processes, we can provide you with the best possible combination of feeding and weighing options available. We will be happy to provide you with advice based on our years of specific experience and expertise in this area.



Integrated approach to dealing with complex challenges

When dealing with complex challenges, we start by putting together a project team of our most experienced specialists. By working together as a team from day one, we can solve even the most difficult challenges.

Feeding components

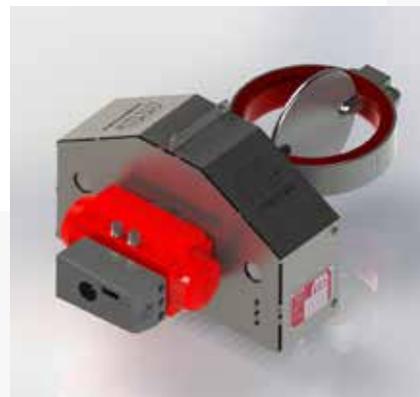
To ensure an efficient, flexible, and accurate production process, it's crucial to be able to add or remove ingredients to or from the weighing hopper reliably and accurately at the required speed, quality and level of control. Dinnissen supplies a complete range of feeding components for various sectors.

Feeder Valve: easy-to-clean with large capacity range.

The Dinnissen Feeder Valve is based on a new and easy to clean feeding technology with an enormous capacity range. The capacity of this innovative feeding valve can be easily and quickly adjusted between 6 kg and 50 tons per hour, making it an ideal choice for situations in which a wide range of ingredients need to be feeded and/or weighed using a single valve. The Feeder Valve is based on a compact and simple design with only a single drive unit, requiring only 150 mm of vertical clearance and greatly facilitating its integration into existing production lines. Its compact and simple design also prevents product residues from remaining behind and makes it quick and easy to clean. It is also very energy-efficient, suitable for use in many different sectors, and significantly less expensive to purchase in comparison to similar existing products on the market. The Feeder Valve delivers shorter feeding times and high levels of feeding accuracy, which means that smaller mixing systems and hoppers can be used. It has been validated by leading producers of a wide range of products, including cocoa powder, creamers, sugars, whey powders, lactose, premixes, and baby foods.

Screw feeder for difficult to feed products

Dinnissen supplies single, double, and concave feeding screws (2 to 4 overlapping screws) for feeding difficult ingredients that are sticky or tend to clump together, such as cheese spread, filter cake, and wood chips. Our screw feeding systems can achieve quantities ranging from only a few grams to 150 tons per hour very accurately and reliably. For production environments that need to comply with strict hygienic requirements, we supply special feeder screws that can be easily removed or have no shaft at all, thereby facilitating quick and efficient cleaning. We also supply feeding screws with low fill percentages that are particularly suited for fragile products. Feeding screws can be used for transporting products diagonally or even around a bend over distances of one to several metres as well as for continuous feeding processes.



Service and warranty near you all over the world

A global network of reliable dealers and agents guarantees you fast and accessible service wherever you are.



Vibrating feeding feeders: energy-efficient and very gentle

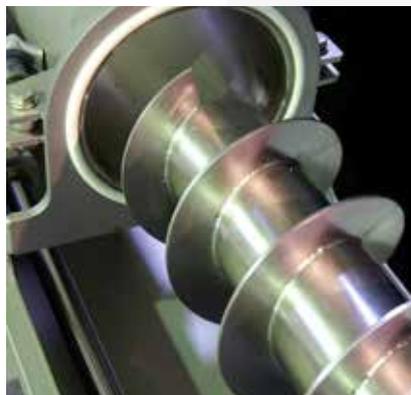
Vibrating feeding systems convey ingredients via a pipe or duct with the help of vibration, making it possible to bridge large horizontal distances. These types of feeding systems consume very little energy. As there are no interlocking or moving components, vibrating feeders can also be cleaned very easily and efficiently, making them very suitable for environments requiring a high degree of hygiene. Finally, such systems are particularly well-suited for fragile powders and granules.

Basic Pump Feeders: feeding liquids via spray-based systems.

Dinnissen supplies RPM-controlled Basic Pump Feeders for feeding liquids, in powder mixing environments, via spray-based systems onto powders and granules in the mixer, coater and screw section. These feeders allow you to realize the desired capacity for the mass flow feeding process via one or more nozzles and can be used in batch-based as well as continuous production processes. Dinnissen can also provide for the pre-mixing of several liquids in a day storage tank, which means that the number of ingredients that can be added is practically limitless.

Feeding slides: quickly feeding large quantities

Feeding slides are used for feeding granules into or out of a storage bunker, silo or hopper. As such slides have a large throughput surface, they are particularly well-suited for quickly feeding large quantities at rates of up to 250 tons per hour.



In-house service department

Our in-house service department helps prevent problems and resolves any issues that may arise quickly and efficiently.

Chain and disc-based conveyors: transporting abrasive, fluidizing, and fragile products

In chain-based conveyors, plastic discs are attached to a transport chain or cable, and the freely suspended discs transport the products to wherever they are needed. Such systems are particularly suitable for abrasive, fluidizing, and fragile products. They can be used to bridge large distances, ranging from 3 m to 15 m and can also achieve high transport capacities, ranging from 5 to 200 tons per hour.

Rotary airlocks: high-capacity feeding applications

Rotary airlocks have rotating vanes, whereby the pockets formed by the rotating vanes each deliver a specific quantity of ingredient. Rotary airlocks are suitable for feeder capacities of between 500 kg and 30 tons per hour when an accuracy of 300 g above or under the required amount is sufficient.

Feeding belts: handling with care

Feeding belts have the advantage of being able to transport products without disturbing them, making them very suitable for transporting fragile and sticky ingredients as well as ingredients that pose an explosion hazard. Belt feeders generally deliver transport capacities of between 1000 kg and 250 tons per hour, making them suitable for situations requiring high throughput capacities. Dinnissen ensures that all the feeding belts supplied are properly aligned, thereby delivering smooth and trouble-free operation, and that the conveyor belts are also operated at the proper tension and load levels. In combination with special accessories tailored to the specific ingredient in question, our feeding belts ensure that the ingredient being transported remains securely in place on the belt even in the case of vertical or diagonal transport (up to angles of 60°).



Your products tested beforehand

Your products and/or processes tested beforehand on our machines, guaranteeing optimum results.





Intelligent production processes by Process Automation

Dinnissen can automate and manage your complete production process to ensure that it becomes an optimum and self-regulating process. We start by preparing a functional description of your requirements and wishes based on our years of experience and expertise in your specific sector. We can take care of PLC controls for machines and transport systems at the field level as well as linking these to process controllers, variable speed drives, and master control centres in your operational network. We can also organize the collection, reporting, processing, and visualization of measurement & control signals from your production process via SCADA systems. This enables you to visualize measurement data in your control rooms and to manage and control your production processes more effectively and efficiently. The SCADA systems supplied by Dinnissen simplify your work when it comes to preparing reports and implementing and responding to alarms. It goes without saying that Dinnissen implements all its automation projects using the communication protocols of the most popular ERP systems, such as SAP and Oracle, thereby greatly facilitating all necessary links and integration activities. We also provide support to the users of our automated systems via remote control and remote assistance to ensure that your production processes can be remotely monitored and controlled. We offer remote control as a service so that we can respond quickly and effectively and minimize downtime and production losses.



In-house development and manufacturing

Our products and custom-made solutions are developed, tested, manufactured and installed by our own people, providing you the best possible assurance in terms of quality and delivery time.



All the necessary expertise and experience bundled at one location

With over 65 years of experience in production technology, our expertise is not limited to feeding and weighing. We are also a preferred and expert supplier when it comes to sieving, grinding, crushing, mixing, transporting, and packaging powders, granules, pellets and granulates. We have our own in-house design and development facilities as well as extensive manufacturing and service departments.

Tested beforehand to guarantee the desired result

Our D-innocenter® is an in-house testing facility that enables us to develop new and innovative techniques, carry out automation projects, and test your product beforehand using our facilities and equipment. By working closely together with our clients, we can then develop an optimum solution and test it beforehand to ensure that the desired result is achieved.



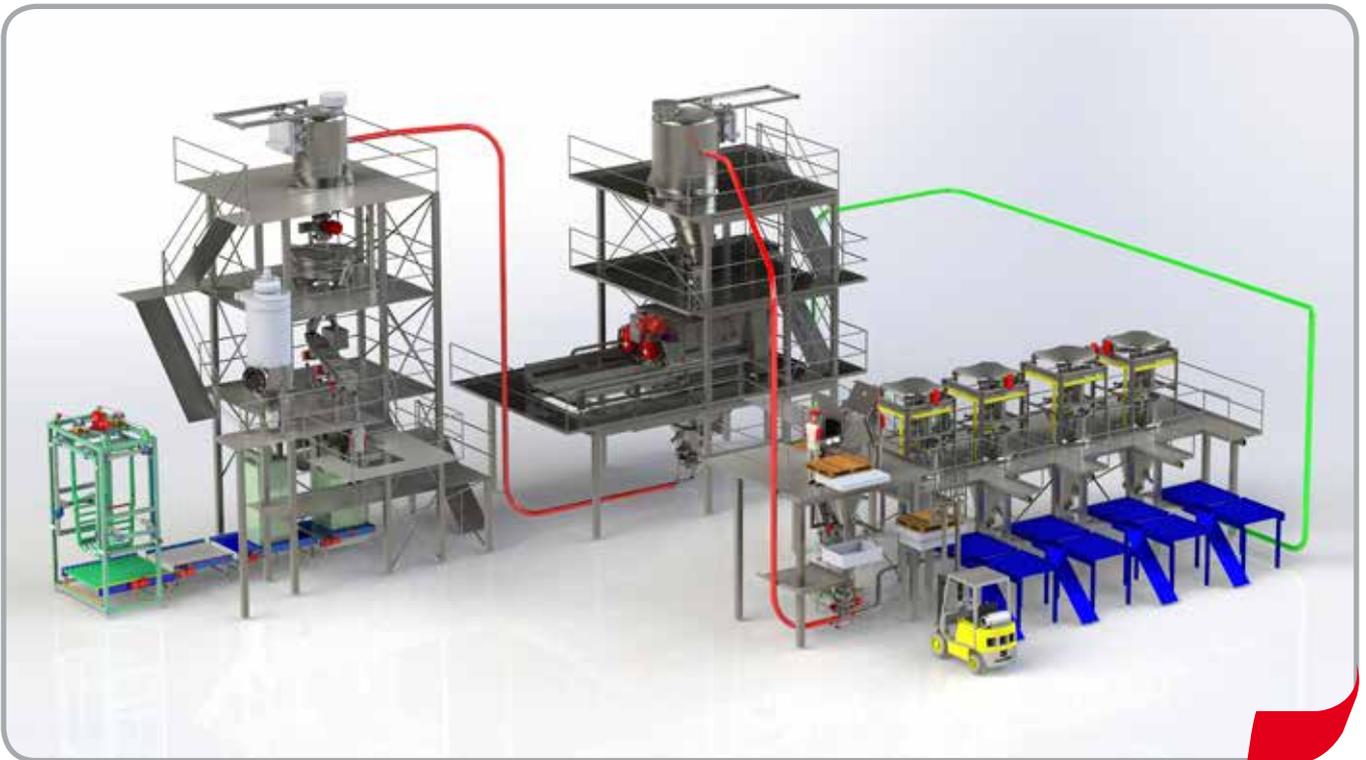
Characteristics of our feeding and weighing solutions:

- Extra hygiene
- Extra flexibility
- Very precise and accurate
- Very compact
- For micro or macro applications (smart flow)
- Compliant with specific standards such as GMP, EHEDG, FDA, ATEX etc.
- Liquids/dry ingredients
- Multi-stream
- Low-budget/High-end
- Extra robust for difficult conditions



We take care of your entire process

Product intake, transport & handling, feeding, weighing, mixing & processing, milling, sifting and packaging: your entire process chain is in good hands at Dinnissen.



Total process: feeding, pneumatic transport, inline sieving, grinding, crushing, mixing etc.

Seven forces of Dinnissen

- More than 60 years of experience
- Your products and/or processes tested beforehand on our machines
- In-house development and manufacturing
- We take care of your entire process
- Integrated approach for dealing with complex challenges
- Service and warranty all over the world in your vicinity
- In-house service department helps prevent problems and resolves them quickly and efficiently

VALUE INNOVATORS BY NATURE



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PET FOOD	FOOD	RECYCLING
AQUA FEED	LIFE SCIENCE	MINERALS
FEED	PHARMACEUTICAL	DETERGENTS
CHEMICAL	PLASTICS	