



# MIXING & PROCESSING

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More than 75 years of experience in the world of feed, food, petfood, dairy and chemicals has taught us that mixing is more than just shuffling a few products around. Each mixing process has its own unique challenges which often require an innovative solution. That is why our services are tailored to suit your specific needs when needed. Whether you need technical advice, a single Pegasus® Mixer or a complete turn-key mixing and processing line, our experts are eager to find a solution.

Our mixing and processing projects are designed around our proven Pegasus® Mixer. There is an extraordinary wide range of differently configured Pegasus® Mixer in use worldwide, by world leading manufacturers in the feed, food, pet food, dairy and chemical sectors. It is very likely that you used a product recently that has been processed by a Dinnissen Pegasus® Mixer.



## Pegasus® Mixer

- Double shaft paddle mixer.
- Suitable for any powder, granule or extruded product.
- Proven technology, large install base.
- Standardized designs for a wide range of capacities.
- Custom designed when required.
- Proven hygienic design options.
- Innovative accessibility options.
- Available in steel and stainless steel.

## Optional features

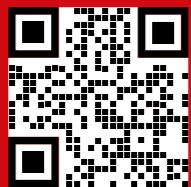
- Hygienic design.
- Compact design.
- ATEX Zone 20 certified design.
- Full length bottom doors.
- Extractable mixing shafts.
- Fronthatch, wingdoors or other innovative (custom) features to improve accessibility.
- Heating, cooling, drying or steaming.
- Vacuum processing.
- High shear liquid dispersion.
- Specific surface treatments (ViwateQ®).
- Cleaning systems (CIP).

## Basic working principle

- Dinnissen feeding & weighing technology allows for accurate feeding of raw materials and dosing of (liquid) additives in to the mixer.
- The double shaft paddle design creates a fluidized mixing zone where products are mixed fast but gently, with no product damage or shearing.
- (Full length) bottom doors open to completely empty the mixer extremely fast, which helps to keep the total mixing cycle time very low.

## Benefits

- Homogeneous mixing result.
- Very fast mixing and emptying.
- No pre-mixing required in many cases.
- Easy and fast cleaning and inspecting.
- Very little downtime.
- Very low risk of contamination.
- No product loss, damage or shearing.
- Easy to integrate.
- Low energy consumption.
- Very reliable.



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our story

# COMPLETE PROCESSING LINE



## SYSTEM INTEGRATION



PRODUCT INTAKE



CONVEYING & HANDLING



FEEDING & WEIGHING



MIXING & PROCESSING



MILLING & GRINDING



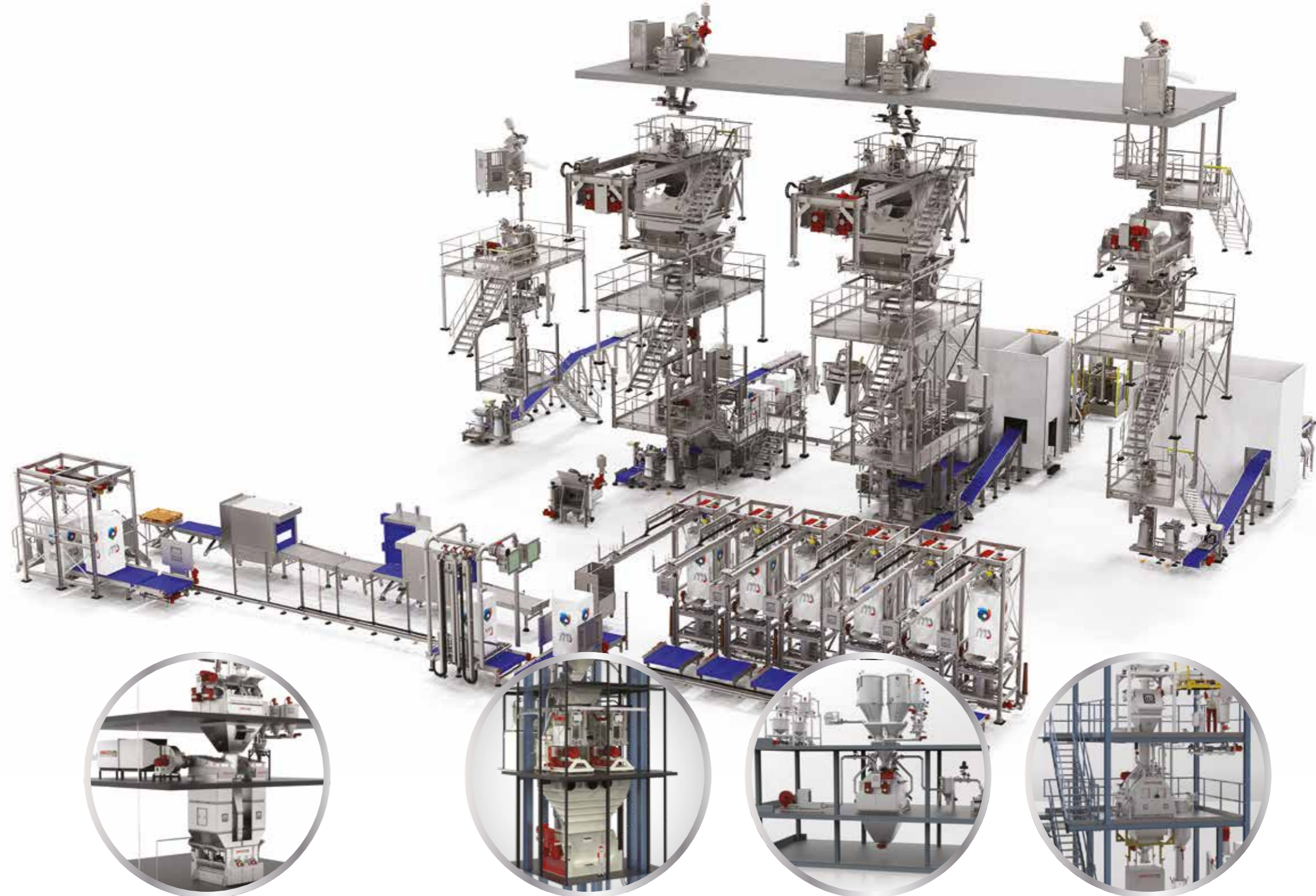
SIFTING



PACKAGING



AUTOMATION



Feeding • weighing • conveying • mixing • processing

Product intake • feeding • weighing • conveying • milling • mixing

Liquid dosing • feeding • weighing • mixing • vacuum coating

Product intake • feeding • weighing • mixing • processing • packaging

WE CAN TAKE CARE OF  
YOUR ENTIRE PROCESS

### System integration

As an experienced system integrator, Dinnissen can automate, optimize and innovate your entire production process with customized solutions. From product intake, conveying, feeding, weighing, mixing, processing, grinding, crushing and sifting to packaging and automation. We work with you to maximize your performance and efficiency. Finding the perfect solution is what we strive for, whether this means that we design a single machine or a complete turn-key production. Talk to us about your process, we can take care of a solution.

### Lean Gravity Mixing

The Lean Gravity Mixing concept, invented by Dinnissen, is a good example of Dinnissen finding an innovative solution by combining different processing systems. Thanks to our experience with high-care Big-Bag handling, Dinnissen was able to design a completely new concept that eliminates the need for mechanical and pneumatic conveying. This resulted in a dairy processing line with lower risk of contamination, no product damage, lower initial costs and lower energy consumption. In other words: added value thanks to Dinnissen system integration.

### Automation

Dinnissen has its own fully-fledged IT department with short lines of communication, ample experience and all the capabilities necessary for developing perfectly functioning machine and process controls. Dinnissen solutions can easily be integrated in existing processes, and vice versa.

# PEGASUS® MIXER



The Dinnissen Pegasus® Mixer is available in many different configurations, for many different applications, in many different sectors. Ranging from small lab mixers with a 10 liter volume to enormous 15.000 liter mixers capable of mixing many tonnes per batch, Dinnissen designs its mixers with the right size and capacity for your specific needs. It can be made movable, if that is what is needed. It can be made with ATEX approval, to ensure safety in hazardous environments. And for tasks that demand more than just mixing, Dinnissen developed Pegasus® Processing Mixers that offer processing capabilities such as cooling, heating, drying or coating. We can even build mixers that can handle multiple processing steps in one single machine. Every process has its own unique challenges, for which our experts can design the right solution.



IN-HOUSE ENGINEERING,  
PRODUCTION, TESTING,  
AND INSTALLATION

## Hygienic design

Each and every Pegasus® Mixer features a optional hygienic design. The shape of the main body, smooth welds, full length bottom doors and optional surface treatments ensure that there is little to no product residue after mixing. Options such as extractable mixing shafts, large wingdoors and/or a front hatch drastically improve the accessibility of the mixer, making it very easy to clean and inspect. Besides the hygienic benefits, this design ensures that downtime is very low. If needed, Pegasus® Mixers can be equipped with cleaning-in-place systems.

## Available types

Type	Function	Applications
Pegasus® Mixer	Batch type mixing or blending	Dairy, food, chemicals, minerals, petfood, feed, aquafeed
Pegasus® Continuous Mixer	Continuous mixing or blending	Dairy, food, chemicals, minerals, petfood, feed, aquafeed
Pegasus® Vacuum Coater	Mixing, vacuum coating, drying, infusing	Food, petfood, feed, aquafeed
Pegasus® Processing Mixer	Mixing, heating, drying, cooling, coating	Food, petfood, feed, aquafeed
Pegasus® <b>DTOPLINE</b>	All mixing types	When only the best of the best is sufficient

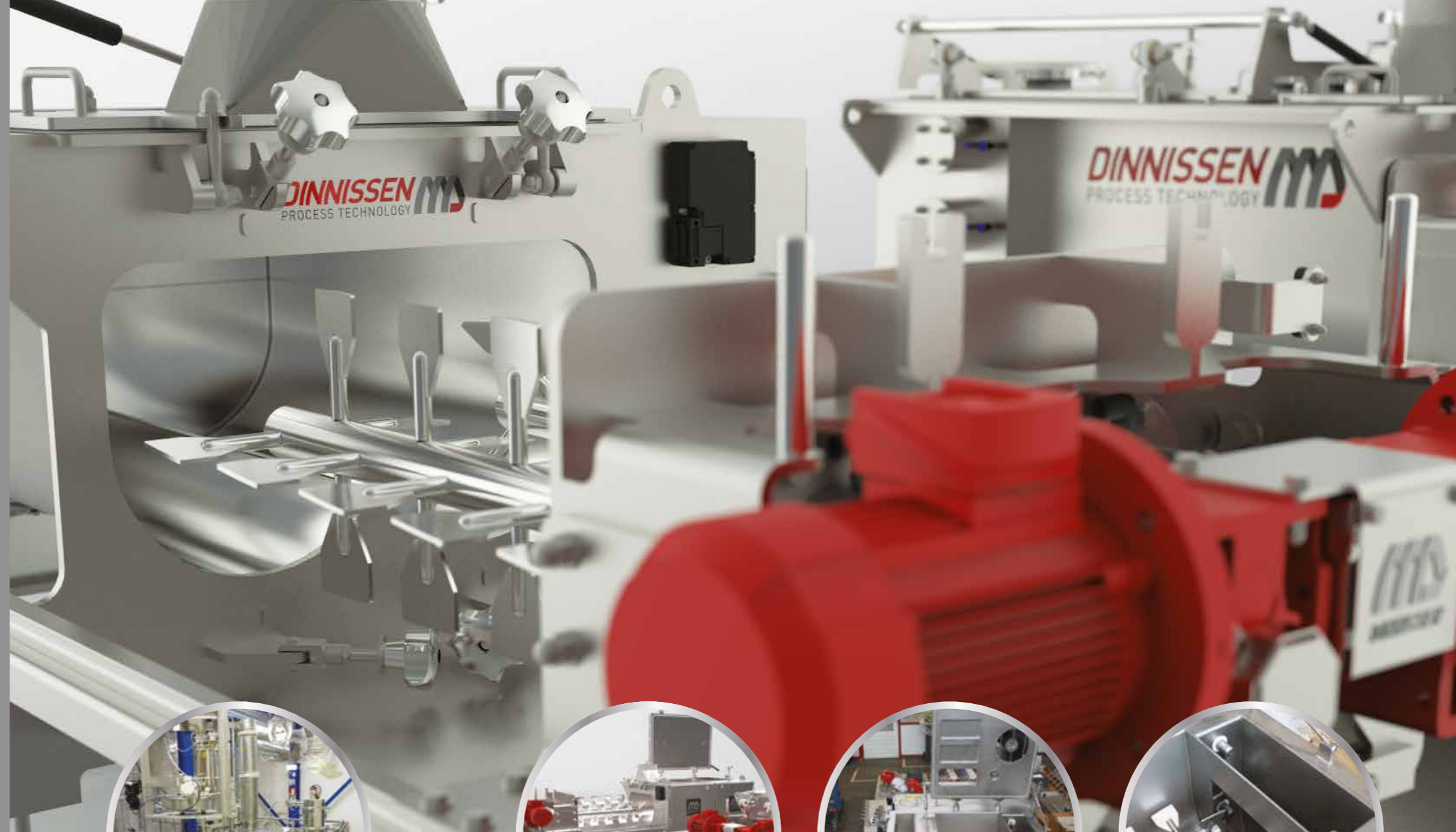
Depending on your specific requirements, Dinnissen machines and solutions are standardized or custom made. Contact our specialists to talk about the right mixer for your application.

# PEGASUS® CONTINUOUS MIXER



Pegasus® Continuous Mixers are based on the same hygienic and compact design, and share most of the features of the batch type Pegasus® Mixer. The difference is that product enters and leaves the mixer continuously. Dinnissen feeding and weighing technology ensures stability of the process, and helps to obtain a very high quality mixture.

- Compact design, easy to integrate
- Very high capacity relative to the mixer size
- Adjustable residence time
- Wide range of applicability
- End of line mixing: add additives just before packaging or truckloading



MORE THAN 70 YEARS  
OF EXPERIENCE IN  
YOUR INDUSTRY

## Homogeneous & high capacity

Thanks to the compact design and the adjustable residence time of Pegasus® Continuous mixers, you can achieve a homogeneous end-result with a high-capacity relative to the mixer size. Perfect for situations where available space is limited.

## Wide-ranging applicability

The continuous mixing process produces a consistent, high-quality mixture of your raw materials, and allows you to add both solids and liquids at the same time to produce a perfect end product. This Pegasus® Continuous mixer is a preferred option for many different process applications due to its wide-ranging applicability. For example, this applies to specific extruder applications, where maintaining a consistent, high-quality final mixture is desired during addition of a pre-mixed or preconditioned product.

## End of line mixing

This also applies in scenarios where you need to add expensive additives or specific ingredients. Of course, you do not want any loss of those materials during the process or conveying, and you do not want them to contaminate your entire production line. With a Pegasus® Continuous mixer mixer you can add the necessary additives just before the final step of your production process, eliminating the chance of product contamination or product loss.

# PEGASUS® VACUUM COATING



The Pegasus® Vacuum Coater was introduced by Dinnissen over 25 years ago, to increase the oil contents in the core of fish feed pellets. At that time, there were no machines capable of doing this. The Pegasus® Vacuum Coater enables you to apply liquid additives to and into pellets and extruded products, which can improve the quality and characteristics of your product drastically.

- Mixing / blending with vacuum processing capabilities
- Hygienic design for fast and easy cleaning
- Highly accurate feeding, weighing and liquid dosing
- No contamination
- Suitable for fragile and extruded products
- High quality end result, used by many premium brands



## Vacuum coating by Dinnissen

After introducing it more than 25 years ago, Dinnissen has improved the Pegasus® Vacuum Coater throughout the years, making it the ideal tool for companies looking to produce pelleted and extruded products in accordance with the latest standards and criteria. Besides applying multiple additives to and into pellets or extruded products, the vacuum environment can also be used to dry your products at lower temperatures. The Pegasus® Vacuum Coater can improve the quality of your end product drastically.

## Basic function

Based on the Pegasus® double-shaft mixer, the Pegasus® Vacuum Coater gently suspends ingredients homogeneously in the air while the vacuum unit creates a vacuum environment. Spraying functionality makes it possible to spray a precisely predetermined quantity of liquid onto the powders, pellets or granules. When air is then allowed to enter the mixing unit, the liquids are evenly distributed into each particle. After this step, an additional top coating or aroma around can be applied to each particle. All this is done very fast, the entire batch process takes just a couple of minutes.

## Quality, safety and hygiene

All Dinnissen Pegasus® Vacuum Coaters are fitted with dust-tight exclusion valves that have a so-called labyrinth type seal developed exclusively by Dinnissen. This design ensures that no product residue can remain behind within the seal. Dinnissen can also provide built-in sensors which ensure that the exclusion valves are 100% dust-tight. These sensors ensure that the production process cannot be started if even the slightest leak is detected. The end result is optimum quality, safety and homogeneity of your product.

INNOVATIVE SOLUTIONS  
FOR COMPLEX  
CHALLENGES

# PEGASUS® PROCESSING MIXERS



For customers that need more than a Pegasus® Mixer, Dinnissen developed a line of processing mixers capable of performing a wide range of processing tasks. This means mixing or blending combined with heating, cooling, coating, drying, sterilisation or acidulation. We can even build mixers that can handle multiple processing steps in one single machine. Dinnissen processing mixers are based on the proven Pegasus® Mixer, which ensures a perfect mixing result. This also means they can be used for dealing with fragile and/or heat-sensitive ingredients.

- Mixing / blending combined with heating, cooling, drying, roasting / toasting, sterilisation or acidulation
- Hygienic design for fast and easy cleaning
- Highly accurate feeding, weighing and liquid dosing
- No contamination
- Suitable for fragile and heat-sensitive ingredients



## Pegasus® Thermidor

The Pegasus® Thermidor heat treatment concept is designed to successfully carry out various processing steps such as sterilizing, roasting, toasting and cooling. To do so, we use steam and air or jacket heating/cooling, which can be used separately or in combination with each other. In situations where contamination with untreated ingredients must be prevented, we use the batch mixing concept. Heat-sensitive ingredients, such as enzymes and vitamins, can be added after the heating step. By varying the process parameters involved, such as temperature, heating time, cool-down time and residence time, we can always achieve the desired result.

## Pegasus® Conditioner

With the Pegasus® Conditioner you can mix different types of bulk goods, such as powders, steam, water and fats. The intensive and continuous mixing process ensures an optimal and homogeneous end product. If desired, you can also heat the product, for example as pre-treatment or for salmonella control. The horizontal paddles are positioned at a specific angle in the mixing chamber of the double-axis conditioner to ensure optimal mixing. You can manually adjust the product processing time and the product quantity to suit your requirements.

## Pegasus® 5-in-1 Mixer

The Pegasus® 5-in-1 Mixer produces aromatised products quickly, efficiently and homogeneously according to strict hygienic standards. It is one single mixer capable of performing 5 different processing steps: mixing, vacuum coating, drying, sterilization and acidulation. This offers significant costs savings, as you need less machinery to achieve your desired results. Drying can be done at lower temperatures thanks to the vacuum environment, which is beneficial when your process involves heat-sensitive products.

WE CO-CREATE WITH  
OUR CUSTOMERS  
TO PROVIDE TAILOR-  
MADE, HIGH-QUALITY  
SOLUTIONS

# PEGASUS® MIXING SYSTEMS



- 1 **Dry blending process**  
Dry blending line for infant food, completely engineered and built by Dinnissen
- 2 **Feed processing line**  
Complete feed processing line, with Dinnissen Hamex® Hammermills followed by a Pegasus® Mixer.
- 3 **Pegasus® Vacuum Coating installation**  
Applies liquid additives to pellets. Designed specifically an feed development center.
- 4 **Pegasus® Megamixer**  
Easy accessible mixer capable of processing 5000 liters per batch.



WORLDWIDE  
INSTALLATION,  
COMMISSIONING  
AND SERVICE

**“BY KEEPING ENGINEERING, PRODUCTION, TESTING, AND  
INSTALLATION IN-HOUSE, WE DON’T HAVE TO RELY ON  
OTHERS, AND THAT’S WHY OTHERS CAN RELY ON US.”**

Wouter Kuijpers - Chief Operating Officer

# MIXING & PROCESSING



*From powders, granular materials, extruded products, micro-ingredients, liquids up to and including fresh vegetables, Dinnissen solutions will allow you to mix them with exactly the desired result. And quickly, to save time, costs and energy, and accurately, to prevent product damage.*

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PROCESS TECHNOLOGY