

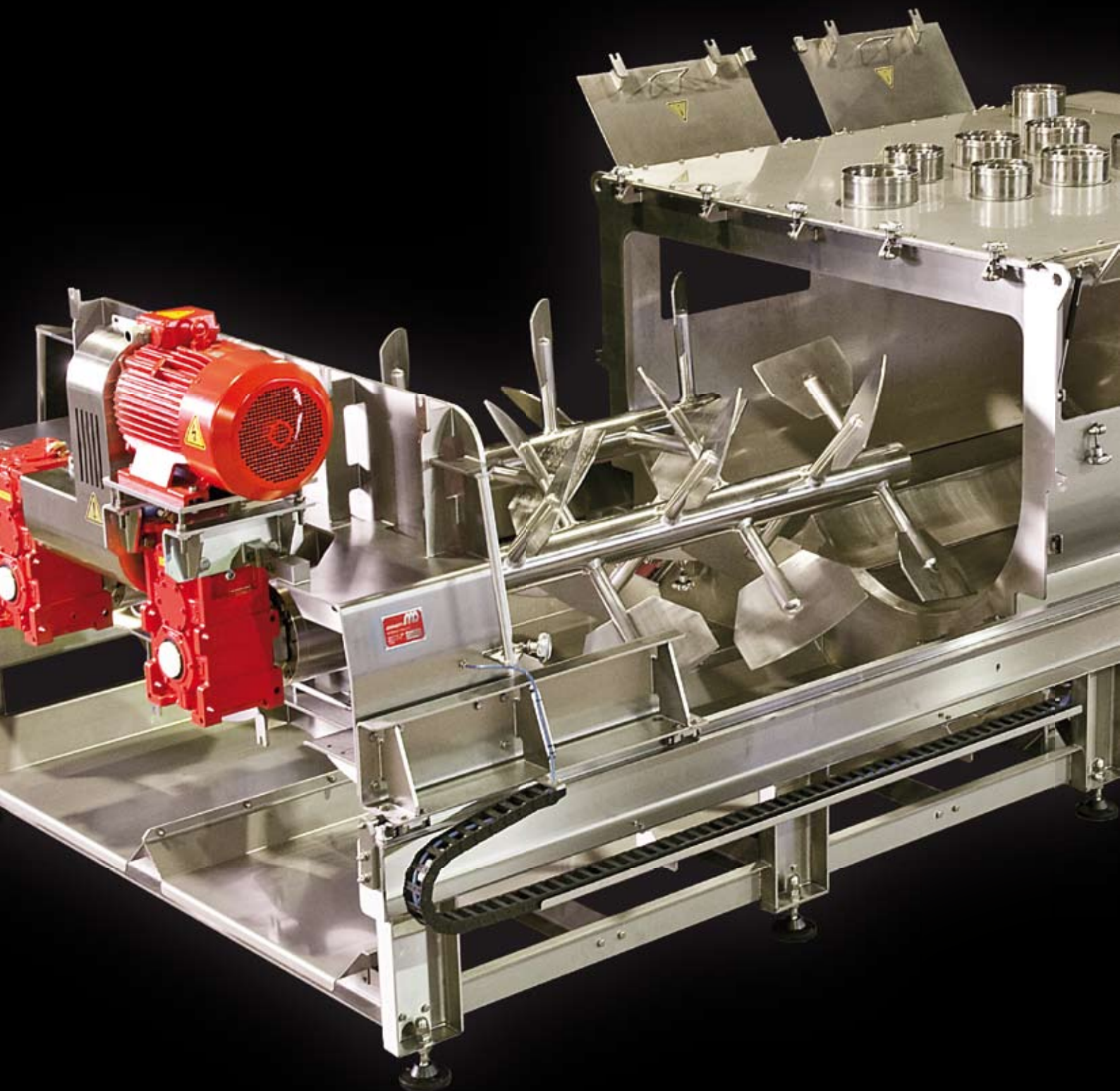
YOUR PROCESS...  
...OUR CARE



MIXING & PROCESSING

**DINNISSEN**   
NATURAL INNOVATORS  
PROCESS TECHNOLOGY

# PEGASUS<sup>®</sup> MIXER





# Pegasus® Mixer

## The perfect solution for challenging mixing processes

The Pegasus® Mixer supplied by Dinnissen Process Technology is an accurate and highly efficient mixer developed to ensure that even the most challenging mixing process can be carried out quickly and effectively. To accomplish this, our Pegasus® Mixers use an ingenious double shaft mixing mechanism that rotates in opposite directions. This creates a unique fluidized zone which lies at the core of the entire mixing process. The mixer also works with a sophisticated feeding system which adds ingredients evenly to the mixer in precisely the right quantity and at exactly the right time, guaranteeing the desired end result. Our company develops and manufactures each Pegasus® Mixer in-house in accordance with the individual wishes of the client. In short, the Pegasus® Mixer enables you to realize the desired capacity and quality in terms of the mixing result regardless of the operating conditions.



*Over 60 years of experience*

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

### Mixing dry ingredients quickly, efficiently and extremely homogeneously

Dinnissen Process Technology has been developing mixing solutions for companies in the feed, food, pharma and chemical industries for over 60 years. As a result of the large number and extraordinary diversity of the mixing solutions developed by us in the past, our Pegasus® Mixers have been designed to achieve a homogeneous end result extremely quickly and efficiently. We can mix essential micro-ingredients (0.01% to 2% of batch weight) as well as extra high percentages (30% to 220% of batch weight) with a coefficient of variation of 3% to 5%.

We also supply precise feeding equipment for adding precisely the right quantities of ingredients, and integrate them into an operational system that is guaranteed to work. We build Pegasus® Mixers for mixing rates varying from 50 kg to 120 tons per hour, which you can use to endlessly vary the composition, capacity and process technologies used. Our special Energy Control Program makes it possible to realize energy savings of up to 60%, and the new techniques we have developed for continuous and batch mixing make it possible to achieve an increase in capacity of 20% to 30%.



#### Pegasus® Mixer

- Precise (coefficient of variation 3-5%)
- Fast (6-8 seconds)
- Efficient (energy savings of up to 60%)
- Double shaft mixing system creates unique fluidized zone
- Very small to very large mixing ratios (0.01-2% to 30-220% of batch weight)
- For feed, food, pharma and chemical industries



*Your products tested beforehand*

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







### **Easily and quickly mixing difficult and sticky ingredients**

We develop specialized mixing technologies in-house for quickly and efficiently mixing the most difficult ingredients. To do so, we adapt the mixing system to deal with components with difficult flow characteristics, ingredients which are difficult to grind or break, and raw materials with a high level of variation in terms of grain size, weight and flow properties. A special configuration of the Pegasus® Mixer mixes dry powders such as flour, wheat, starch and flakes with sticky liquids that have a high sugar content. This is achieved without any danger that the product will end up clumping, sticking or setting. It is even possible to realize a weight mixing ratio of up to 75% of the dry ingredients.



### ***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.*

### Introducing extra friction and additional forces to achieve the desired effect

In some situations, extra friction and force must be applied to the ingredients being mixed in order to achieve the desired result. We do this, for example, to achieve colour transfer between different ingredients or to initiate a chemical reaction between particles. For such situations, we can fit our mixing modules with cutting shafts and heads which very quickly break up agglomerations and particles (froude number = 1-5), providing exactly the right force to achieve the desired end result.



#### Specialties

- Delicate, sticky and/or hard to handle ingredients
- Mobile mixers
- Very hygienic and quick and easy cleaning
- Can be combined with vacuum coating
- Sterilizing, roasting, toasting, drying and cooling during the mixing process

### Gently and carefully mixing fragile ingredients

If your goal is to mix fragile ingredients while minimizing the risk of damage, it makes sense to choose a mixing technology developed especially for that purpose. Dinnissen manufactures gentle Pegasus® Mixers which make it possible to mix fragile powders and granules and even easily damaged leafy vegetables and fruit salads without damaging any of the ingredients. To accomplish this, the ingenious and innovative mixing mechanism propels the ingredients upwards with a vertical acceleration which is equal to the force of gravity (froude number = ca. 1). By gently suspending the ingredients, the mixing process exerts almost no force at all on the ingredients to be mixed. Another advantage of the special double shaft mixing mechanism is that it makes it possible to work with extremely short mixing times (6-8 seconds) and still realize a homogeneous end result.



*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.*





### Ultra-hygienic design prevents contamination

For some of our clients, including those in the baby food industry, we have developed mixers which meet the most rigorous requirements in terms of hygiene, food safety and the prevention of contamination. For example, we supply mixers made of coated steel, ground stainless steel 304, stainless steel 316L or electropolished stainless steel. If desired, we can also fit our Pegasus® Mixers with various automated cleaning systems (based on compressed air or steam) or our mixer drying system. XS<sup>4</sup> Mixing is our in-house mixing design which provides optimal accessibility to the inside of the mixer and allows you to clean everything quickly, effectively and hygienically. In addition, XS<sup>4</sup> Mixing offers fast, gentle and homogeneous mixing at very low rates of energy consumption.



### *Integrated approach to dealing with complex challenges*

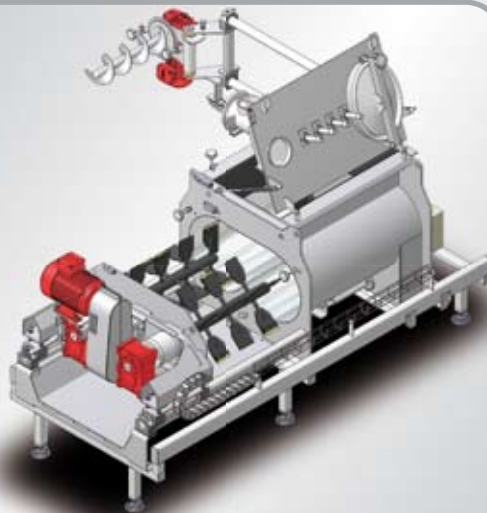
*When dealing with complex challenges, we start by putting together a project team of our most experienced specialists. By working together as a team from day one, we can solve even the most difficult challenges.*





## MIXING TO THE FOURTH POWER

- XS<sup>1</sup>** **Quality**  
extra gentle,  
intensive, compact
- XS<sup>2</sup>** **Speed**  
extra fast and efficient
- XS<sup>3</sup>** **Economic**  
extra friendly pricing and  
low energy consumption
- XS<sup>4</sup>** **Access**  
extra fast and  
easy to clean



### Mobile and flexible mixers

The flexible Pegasus® Mixer enables you to easily mix a wide range of recipes at the cost of making a single investment. Our flexible mixers are extremely compact and are fitted with easily removable mixing shafts and extra-large inspection hatches, making it possible to clean them quickly, easily and effectively. This not only saves you time, it also minimizes the risk of contamination.

The mobile Pegasus® Mixer was especially developed to eliminate the risk of contamination and disassociation in long transport lines. After all the ingredients have been added to the mixer, you simply move the mixer to the destination while the mixer continues operating. Our mobile mixers are the perfect solution for end-of-line-mixing processes in which essential micro-ingredients (such as vitamins, minerals and enzymes) are added immediately before the packaging process. A mobile mixer is also an excellent solution if you need to use a mixer in various locations, as it eliminates the need to purchase several mixers.



*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.*





### **Injecting, dosing and vacuum coating with liquids**

The ability to quickly and effectively add a precise quantity of liquid to granules is a challenge faced by many companies in the feed, food, pharma and chemical industries. Dinissen Process Technology has developed a special Pegasus® Mixer which can quickly and efficiently mix liquids with such ingredients to provide an extremely homogeneous end product over a very broad range of mixing ratios varying from very small ratios (0.01-2% of batch weight) to very large ratios (30-220% of batch weight). To achieve this, we fit our mixers with flow meters and weighing systems which register even the smallest quantities of liquid to be added extremely accurately. In the next step, each granule in the Pegasus® Mixer is sprayed and coated with the correct quantity of liquid and is then very quickly mixed together. The user can operate with a practically endless number of variations in terms of the quantities and combinations of ingredients to be added. When used together with the Pegasus® Vacuum Coater, it is also possible to ensure that the liquid ingredients penetrate deeply into the granule, to apply a strong protective coating around each granule, or to quickly apply one or more layers to granules or extruded products.



### ***In-house service department***

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





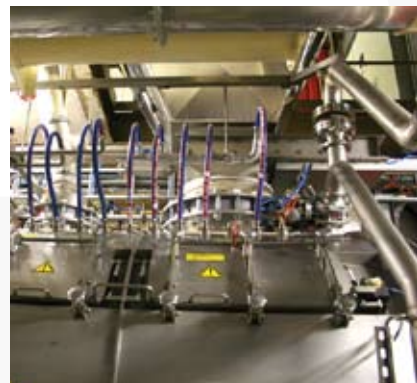
### Thermidor temperature treatment

A heat treatment or even a cold treatment in the Pegasus® Mixer can provide an excellent solution to a great many challenges. For example, we use our Thermidor heat treatment concept to successfully carry out various processing steps such as sterilizing, roasting and 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.



### Eliminating the need for a spray tower by using the Pegasus® Mixer

A special model of our Pegasus® Mixer dries powders, grains and granulates quickly and energy-efficiently. This allows you to reduce the load on your spray tower or eliminate it altogether. The ingenious mixing mechanism gently propels the ingredients into the air and, at the same time, uses hot air to effectively dry the granules and powder particles floating in the air. This can be done slowly or quickly and over a wide range of residence times, temperatures, ambient humidities and air flow speeds. Several process steps, including mixing, spraying and drying, can be carried out in one step, allowing you to save time and/or initiate a chemical reaction. The drying functionality built into the Pegasus® Mixer is very energy-efficient due to the limited quantity of hot air and the low air flow speeds required. This built-in drying technology is very effective for extending the shelf life, lowering the moisture content and improving the quality of a wide range of powders, granules, spices, seeds and chemical products. The drying functionality built into the Pegasus® Mixer can also be combined with other functionalities such as weighing, breaking, grinding, and spraying, so that a great many variations are possible in terms of the ingredients and processes used.



*Your products tested beforehand*

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



### **Significant reduction of start-up losses**

A special feature of the Pegasus® Mixer allows you to significantly reduce start-up losses. To accomplish this, we fit the mixer with accurate feeders which respond extremely quickly to the process controls. Intelligent shut-off valves close the mixer outlet during the start-up phase, thereby ensuring that the start-up phase is carried out as a batch mixing process. In addition, the Pegasus® Mixer is fitted with extremely accurate process controls, which coordinate the entire mixing process and reduce rework to a minimum. The rework module offers you significant savings by minimizing the rework process steps and reducing the cleaning costs during the production process.



### ***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.*

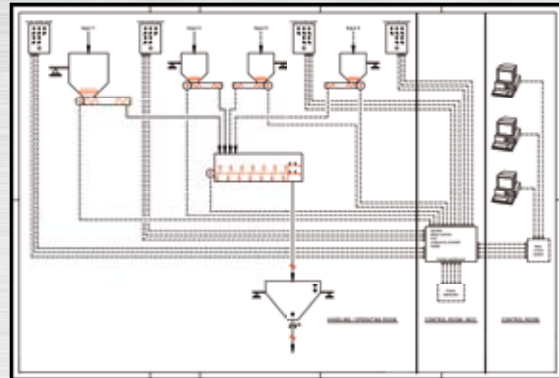


# Pandora

End of line Mixing

*"The compact feeding and mixing concept"*

- Mixing quickly, carefully and extremely homogeneously
- Feeding with the highest possible precision
- Preventing product loss and rework
- Compact design means easy integration
- Switching to new recipes easily and quickly
- We can manage the entire process



## Continuous mixing

Continuous mixing means that ingredients are continuously fed into the Pegasus® Mixer, mixed, and then removed. The primary advantage of having ingredients continually moving through the mixer is that it makes it possible to realize a high mixing capacity with a compact mixer. Continuous mixing can provide a solution if little space is available for installing a mixer. The continuous mixing concept is also particularly well suited for mixing 5-15 different components extremely homogeneously. Depending upon your specific situation and needs, we can advise you as to the best solution for your own process environment. To do so, we have an in-house D-Innocenter® test facility available, in which we can simulate and test your own process environment on a practical and adequate scale. This ensures you make the right choice.

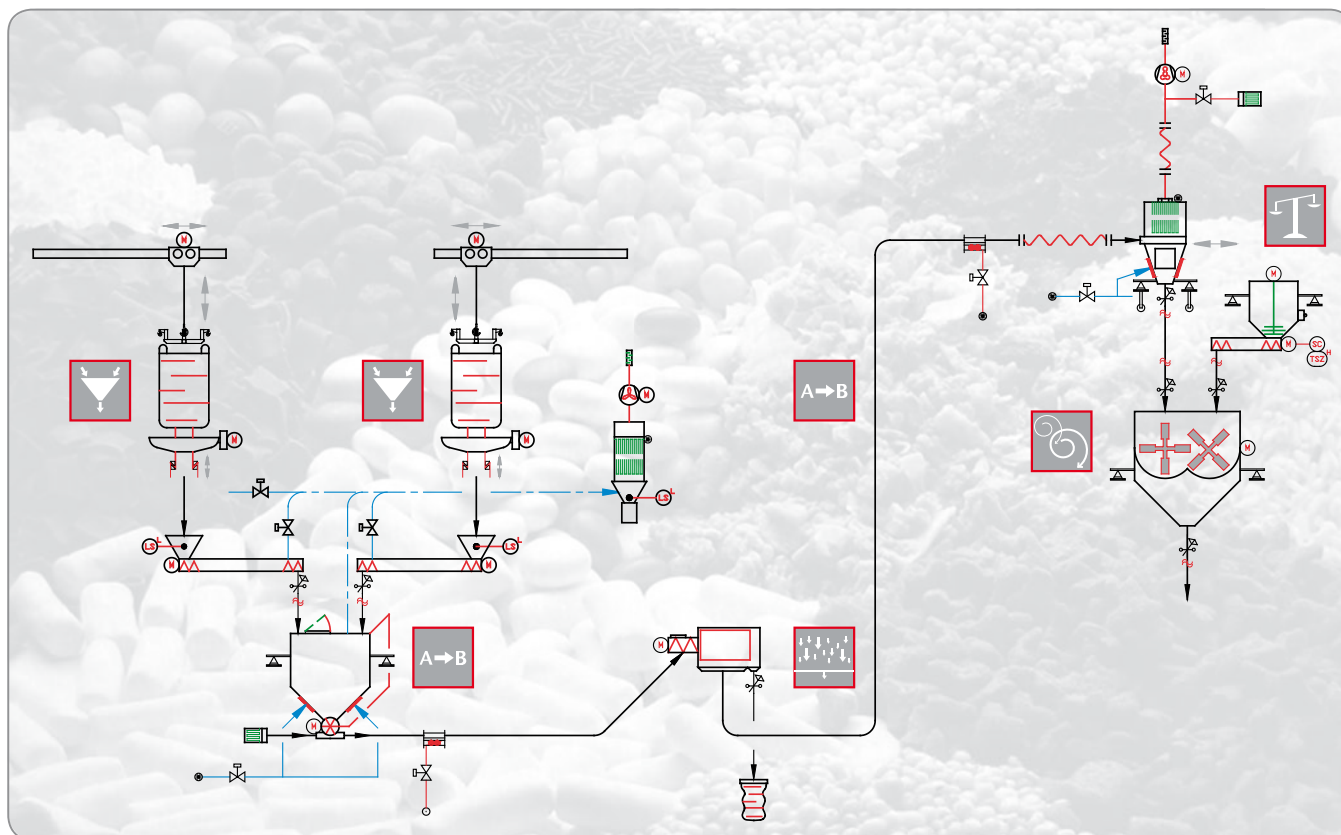


*We take care of your entire process*

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







**Total process with: feeding, pneumatic conveying, inline sifting, *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

YOUR PROCESS...  
...OUR CARE



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

### Dinnissen BV

Horsterweg 66

5975 NB Sevenum, the Netherlands

Tel.: +31 (0)77 467 35 55

Fax: +31 (0)77 467 37 85

E-mail: [powtech@dinnissen.nl](mailto:powtech@dinnissen.nl)

Website: [www.dinnissen.nl](http://www.dinnissen.nl)