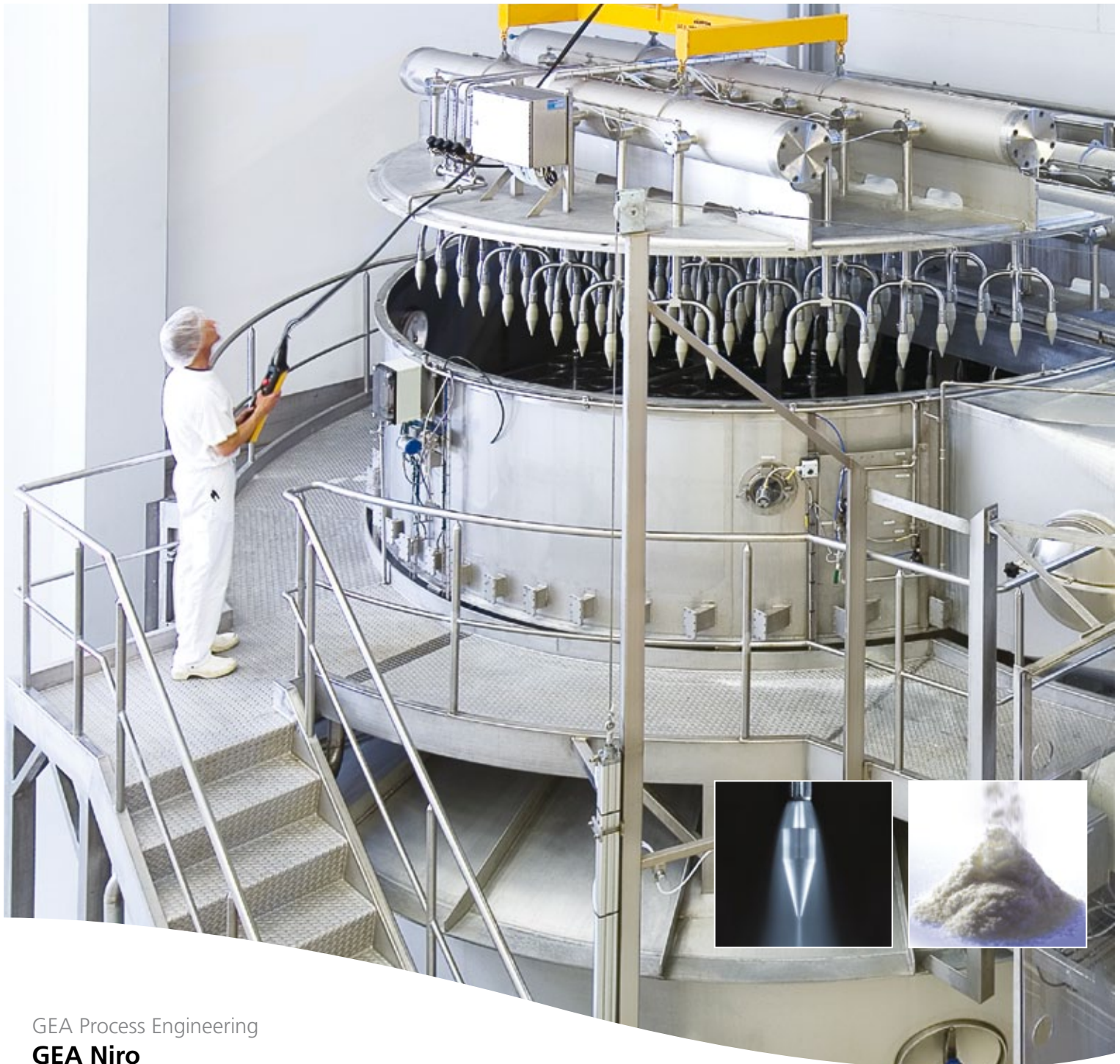


# Sanitary Bag Filter

SANICIP™ - Maximise your Product Recovery and keep the Environment Clean





# A Clean Break

*with tradition*

**The GEA Niro SANICIP™ bag filter is the perfect example how industry may benefit from meeting modern environmental protection requirements.**

## **A Dust Free Environment**

We all know how fine particles from spray dryers escape the main powder stream and may end up in the air exhaust. Cyclones have been used for cleaning the air, but in most cases these are insufficient.

Police bag filters or even wet scrubbers have been installed to safeguard the exhaust, but this just adds to investment and operational costs, as product recovered here inevitably ends up as waste.

In the food and dairy industries SANICIP™ has proved to be the perfect solution. The GEA Niro engineers have combined high efficiency with the possibility of wet cleaning in a unique sanitary design. The industry acknowledges the features of our design and during the first five years on the market, more than 60 SANICIP™ bag filters have been installed in food and dairy plants all over the world.

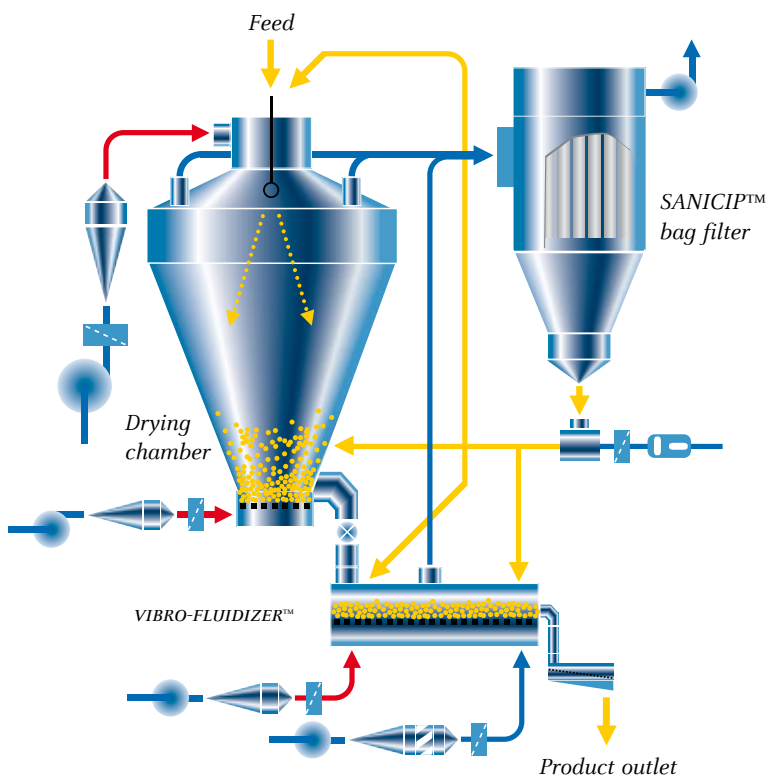


### Unique Design

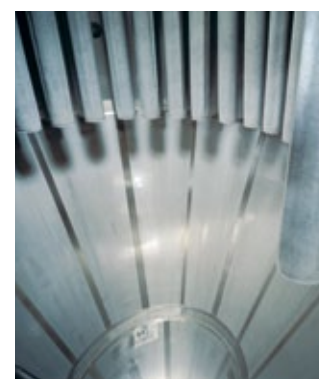
The SANICIP™ bag filter is designed in accordance with the strictest standards, meeting the requirements given in the leading international codices issued by e.g. the EU and USDA. A range of features are unique to SANICIP™, such as the cleaning principle and the jet nozzle, for which GEA Niro has been granted patents.

### Development Continues

The latest development in spray drying is the GEA Niro IFD™ having the filter bags built into the spray drying chamber itself. All the features of the SANICIP™ filter are in this way integrated in one unit. This gives a range of benefits, which we highlight in our IFD™ leaflet.



Multi Stage Dryer with SANICIP™ on the exhaust



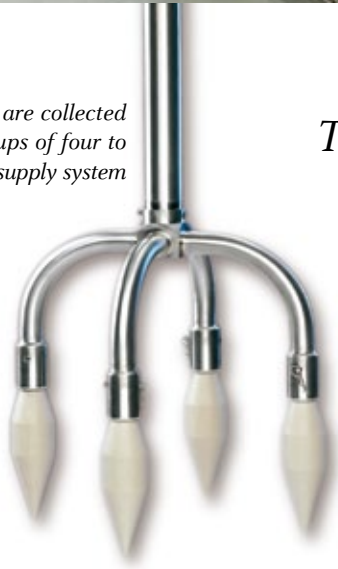
The IFD™ dryer with the filter bags integrated in the drying chamber



**Reduced Noise Emission**

*Cyclones are linked to a high pressure drop. With SANICIP™ pressure drop is lowered, and the noise level reduced accordingly. Further reduction of the noise level of the spray dryer exhaust is achieved by combining SANICIP™ with a silencer. The GEA Niro SOUNDICIP™ silencer offers the option of wet cleaning of the entire exhaust system*

*Jet nozzles are collected in groups of four to simplify the supply system*

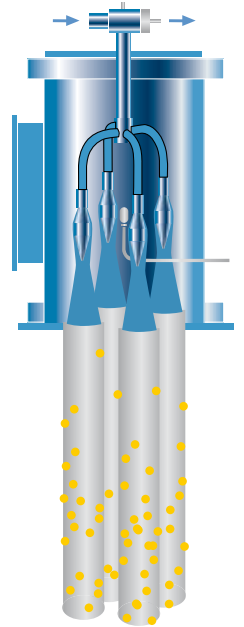


*The SANICIP™ bag filter developed for*

# Performance

**Pressure Drop is Kept Low**

Before the air is discharged from the top of the bag filter it passes the filter bags, and the dust resides on the bag surface. In order to keep a low pressure drop a jet stream of compressed air is blown through each bag at an adjustable frequency. The jet nozzles are fixed in the top of the bag filter meaning no mechanical movement during operation.



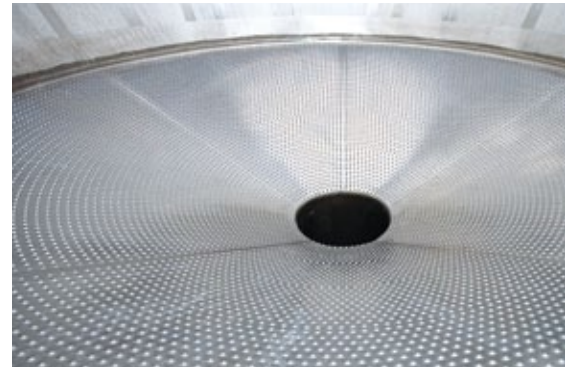
**The GEA Niro SANICIP™ bag filter comes with a range of features. We have selected a few which will become evident during operation.**



*The exhaust from the spray dryers enters the SANICIP™ tangentially, thus the housing of the bag filter acts as a cyclone adding to the efficiency, and prolongs lifetime of the bags*



*The bottom of SANICIP™ is constantly kept hot. This prevents vapour condensation and eliminates the risk of microbial growth*



*View of the SANICIP™ bottom from inside. During operation the perforated, conical bottom is constantly supplied with hot air from below. In this way the powder layer is kept fluidized and constantly directed to the bag filter outlet avoiding build ups*

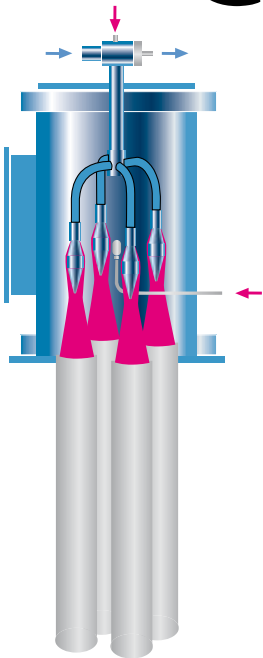


**Proper Cleaning of Every Corner**

*The SANICIP™ bag filter is equipped with CIP nozzles where ever needed for a thorough cleaning. Here is a view of the CIP nozzles placed in the bottom of the hole plate, where the filter bags are suspended*

*SANICIP™ strengthens the term*

# Cleaning-in-Place



**Unique Principle (patented)**

During wet cleaning all jet nozzles are supplied with CIP liquid. By means of compressed air the fluid is atomized and forced through the bags from inside out, in the opposite direction of the process air stream. This unique filter unit, the jet nozzle and the cleaning method are patented.

**The Cleaning is Complete**

Even the top part of the bag filter, where the cleaned air exits, will in time be exposed to a small amount of powder. During CIP the clean air area is naturally also cleaned.



*During CIP liquids are sprayed from the jet nozzles*



*CIP nozzles are placed in the wall of the bag filter housing*



*Filter bags after wet cleaning*



*The top of SANICIP™ bag filter is designed for easy access to the bags. The larger bag filter sizes are supplied with a two-section top. This design reduces the required building height and the load on the hoist beam*



*The jet nozzles, all valves and connections are placed in the top cover, meaning free access for maintenance*

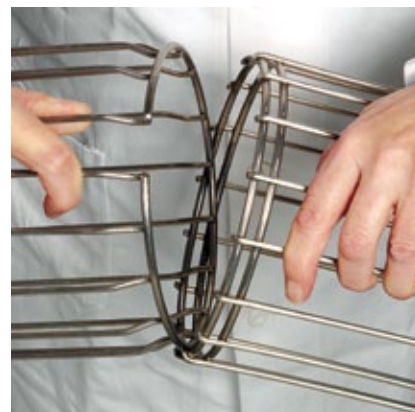
*The cages are easily removed, bags are easily changed, and cages are quickly put back in place*



# Easy Access

*and quick exchange of bags  
reduce plant down-time*

*The cage is made of sections, which interlock easily to form a solid support for the bag. This design contributes to the reduced space requirement above the bag filter*





*Multiple cyclones can be replaced by just one SANICIP™ bag filter*

*SANICIP™ for*

# Plant Upgrade

**The SANICIP™ bag filter is state-of-the-art air cleaning. Its unique principles are widely used in new plants, but also exploited in plant retrofit.**

Several spray drying plant owners already enjoy the benefits of bag filters, which have replaced cyclones, and in GEA Niro we are convinced that this trend will grow in the years to come.

Not only the stricter requirements for environmental protection, but also the extra plant yield, the reduced power consumption, and reduction in man hours for cleaning and maintenance are important drivers.

The fact that pay-back time of such replacement may be as low as two to three years has made such retrofit very interesting indeed.

## *Facts*

SANICIP™ REPLACING CYCLONES: ANNUAL YIELD GOES UP BY AT LEAST 50,000 KG, AND POWER CONSUMPTION IS REDUCED BY 300,000 KWH FOR A SPRAY DRYER PRODUCING 4,000 KG POWDER PER HOUR



# Experience

GEA Niro has contracted and installed more than 10,000 plants worldwide

GEA Niro is a world leader in industrial drying, with spray drying, spray cooling/congealing, flash drying, freeze drying, granulation and fluid bed processing as core technologies. Having installed more than 10,000 plants around the globe, GEA Niro is known for delivering solutions that meet customers' exact requirements. The GEA Niro companies are part of GEA Process Engineering.



GEA Process Engineering

**GEA Niro**

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