



# Turning your Liquid into Valuable Powder

SGA Horizontal Spray Dryer for Ingredient  
and Protein Powder Processing

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# Turning Your Liquid Product into Valuable Powder

Think of producers of ingredients like flavor, colors, proteins, new plant-based products, and many others in different categories.

As a start-up, a scale-up or an established producer with an international footprint you pursue business opportunities in the growing global and fast moving food and feed ingredients market.

With spray drying process technology your liquid raw product can be turned into valuable powder in an economic sound way that contributes to increased top and bottom line revenues to your business case.



"The demand for high quality proteins, feed and food ingredients are increasing with the growing world population. We are committed to deliver the right processing equipment to meet this undertaking"

# Challenge us with Your Product

There are countless applications and products that are suitable for spray drying. Processing your liquid raw material in the right way will open new markets and increase its value. For instance, animal by-products can often be spray dried into highly value broth or gelatin powder to use as ingredient for improving texture and mouth feel in food supplements, ready meals, deserts and candy..

## ■ Animal and Marine By-Products

Broth, gelatine, fish proteins, hydrolyzed meat products, animal blood, plasma and hemoglobin.

## ■ Dairy and Egg Powder Products

Milk, cheese, lactose, whey and whey protein concentrate (WPC), whole egg, yolk and egg white.

## ■ Food and Ingredients

Yeast, mushrooms, algae, flavors, food colors, hydrocolloids and maltodextrine.

## ■ Plant-based Proteins, Fruits and Vegetables

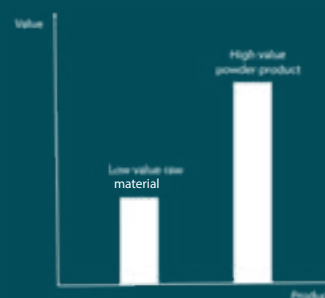
Pulses (like peas, beans and faba beans), sun flower proteins, cucumber and pineapple.

.... and many more.



### From idea to revenue

Time to market is critical factor in achieving a competitive advantage by addressing the end customer demands in the fast-moving food and feed ingredients market.



### Powder processing to increase product value

Producing a long-lasting shelf stable powder ingredient will bring more value and application opportunities when compared to unprocessed raw materials.

## High-quality Powder Processing

# Ensure Preservation of your Product Properties

The gentle air drying condition takes place at a low drying temperature. This ensures a final powder with the optimum nutritional and functional properties when it comes to protein content, solubility and color.

High pressure nozzle atomization gives a free-flowing powder with a narrow particle distribution.

Depending on the product, pressure and nozzle type can be adjusted to achieve different powder particle size, capacities, spray angles and bulk density.

Differential residence time in the drying chamber for different powder particle sizes gives an uniform drying of the product.





# Why Invest in a SANOVO Horizontal Spray Dryer?

SANOVO Gentle Air Horizontal Spray Dryers are a better alternative to traditional spray drying towers for production of powder from a wide range of ingredients, food and feed products. The Spray Dryer is offering a number of unique benefits for you and your production process.

## Reduce Total Cost of Ownership



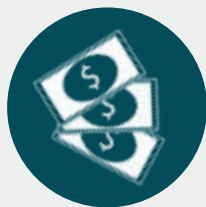
### **Reduced building height**

Horizontal box spray dryers are generally smaller than towers and the design reduces the required building space and height significantly and thereby the overall investment in building and platforms. In many cases, the horizontal box dryer can be installed in your existing building.



### **Less cleaning and more uptime**

The need for cleaning is less as the powder is kept under sanitary conditions in the box with minimum risk for bacterial growth as there are no powder conveying ducts and drying chamber is fully insulated by PU sandwich panels. Due to the horizontal design, the drying chamber is easily accessible for manual cleaning when required or for change of product. CIP cleaning is optional.



### **No loss of products - higher yield**

The entire drying process of the powder takes place in the drying chamber, where the bag filters are an integrated part. There is no external powder conveying ducts, cyclones or external baghouse. Higher yield is achieved as the loss of product during cleaning or product change is minimized.



### **Reduced energy consumption**

The SANOVO Gentle Air Horizontal Spray Dryer is provided with a high efficient air-heating system, heat recovery unit and a drying chamber constructed of pre-insulated PU-sandwich panels for minimal heat loss. The box dryer minimizes the heat demand for drying process (steam, natural gas, oil, electricity), often being more than 60-70% of the operation costs. The reduction in energy consumption makes the SANOVO Gentle Air Spray Dryer a more environmentally friendly solution.

## SANOVO Gentle Air Horizontal Spray Dryer

# How Does it Work?

The SGA horizontal spray dryer works by atomizing the liquid product into small droplets. The water is evaporated from the droplets by hot air that is transported to the drying chamber through ducts and distributed via several tubes. The number of atomizer nozzles and tubes depends on the capacity of the dryer.

Part of the powder falls directly to the drying chamber floor. The remaining part is separated from the drying air in the bag collectors where the air is discharged. All the powder is then conveyed to the end of the chamber and removed by a transfer auger. After that, the powder packing process starts.



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# Not Sure about the Impact on Your Product?

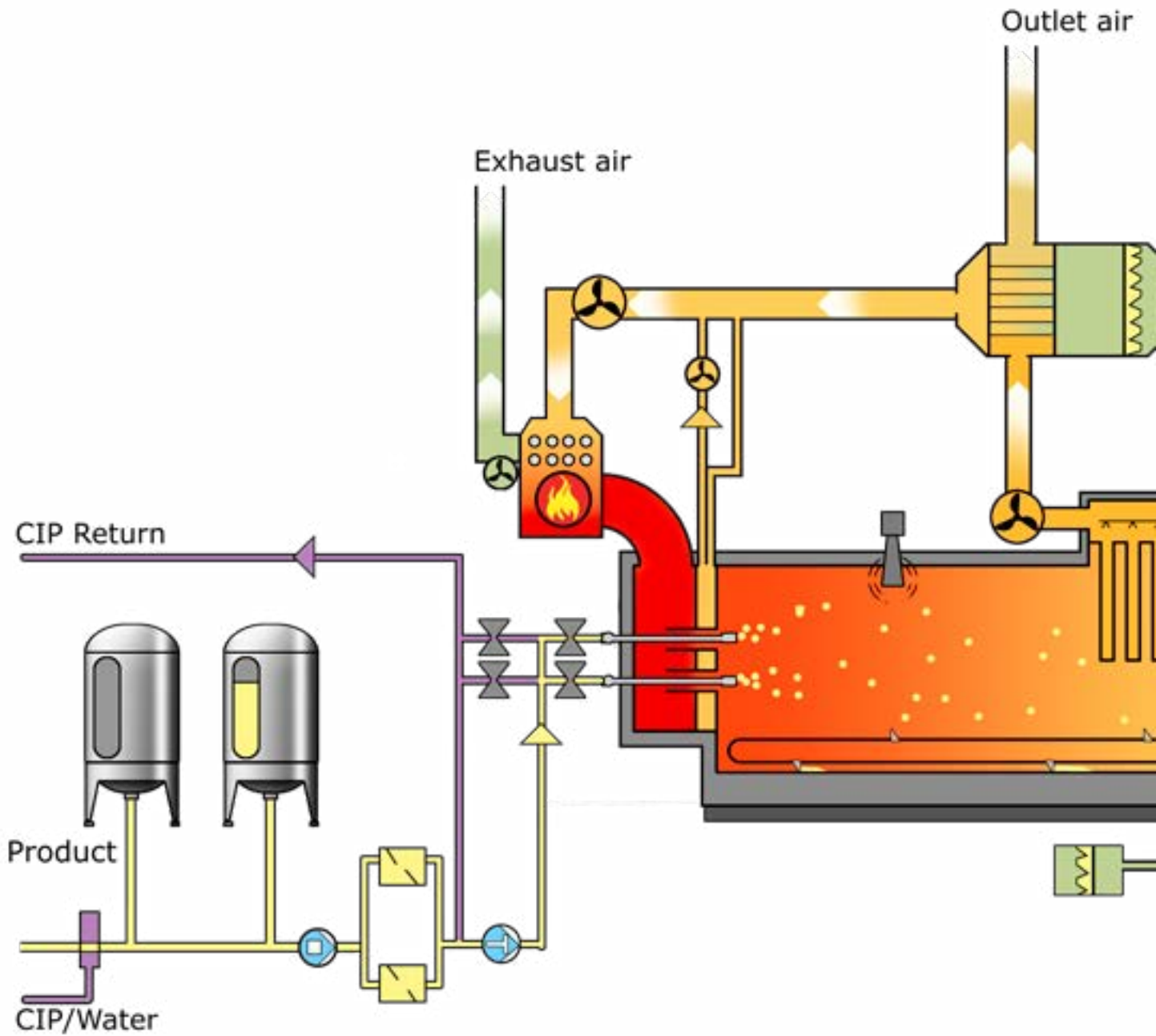
## **No problem. Our pilot plant is ready for testing**

Our pilot plant is available for you during R&D and product development. You can test your product before investing in new machinery. Besides testing your product, you will have experts at your side all the way.

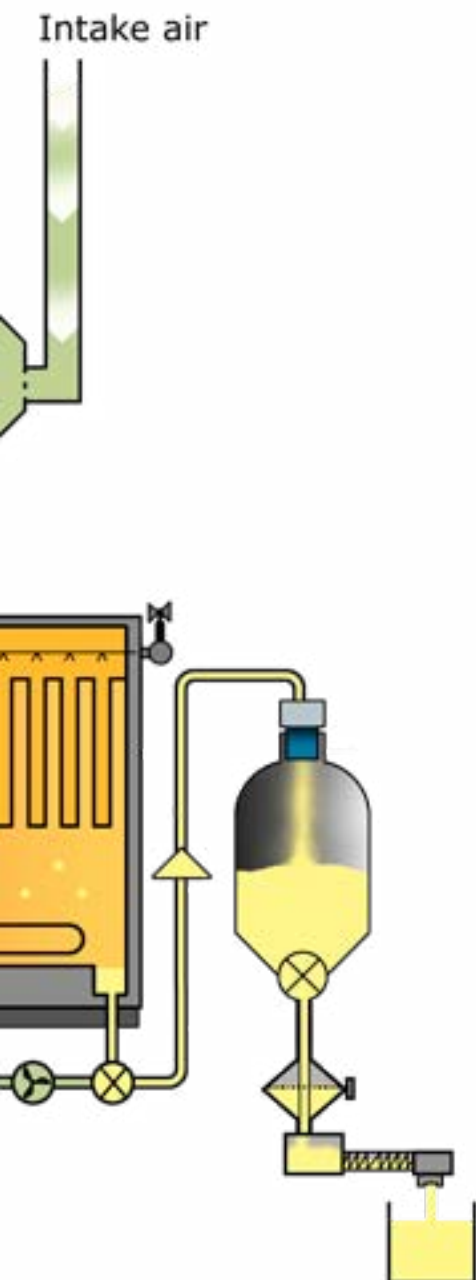
We have more than 30 years of experience in building spray dryers, and we take pride in sharing the know-how with you. We are committed to make your test successful and will guide you to get to the best possible powder.

## Flow Diagram

# SANOVO Gentle Air Spray Dryer Technology







## Easy start-up and shut down with automatic nozzle control

Automatic nozzle control for start-up / shut down and supervision during operation.

Nozzles stems are easily accessible and CIP cleaned in a close loop and can individually be changed/cleaned without interrupting the operation of the dryer.

## SANOx indirect heating

The heating is completely separated from process flue gas in a specially designed combustion chamber. This system has 98% heat efficiency compared to direct heating based on natural gas, oil or bio fuel firing.

## Heat Recovery

Significant saving in the energy consumption is obtained by pre-heating of the in-take air by the hot exhaust air from the drying chamber in a high efficient heat exchanger.

## Minimum powder loss integrated bag filter

No external powder conveying ducts as the bag filters are integrated in the drying chamber. This minimizes the loss of product and complies with global environmental standards for emissions.

## Superior drying condition by unique designed plenum

Process air is distributed through a unique designed plenum for constant air flow over the individual spray nozzles.

Wall (orifice plate) between plenum and drying chamber is cooled with temperate air to minimize scorched (discolored) particles and solubility or sediment problems.

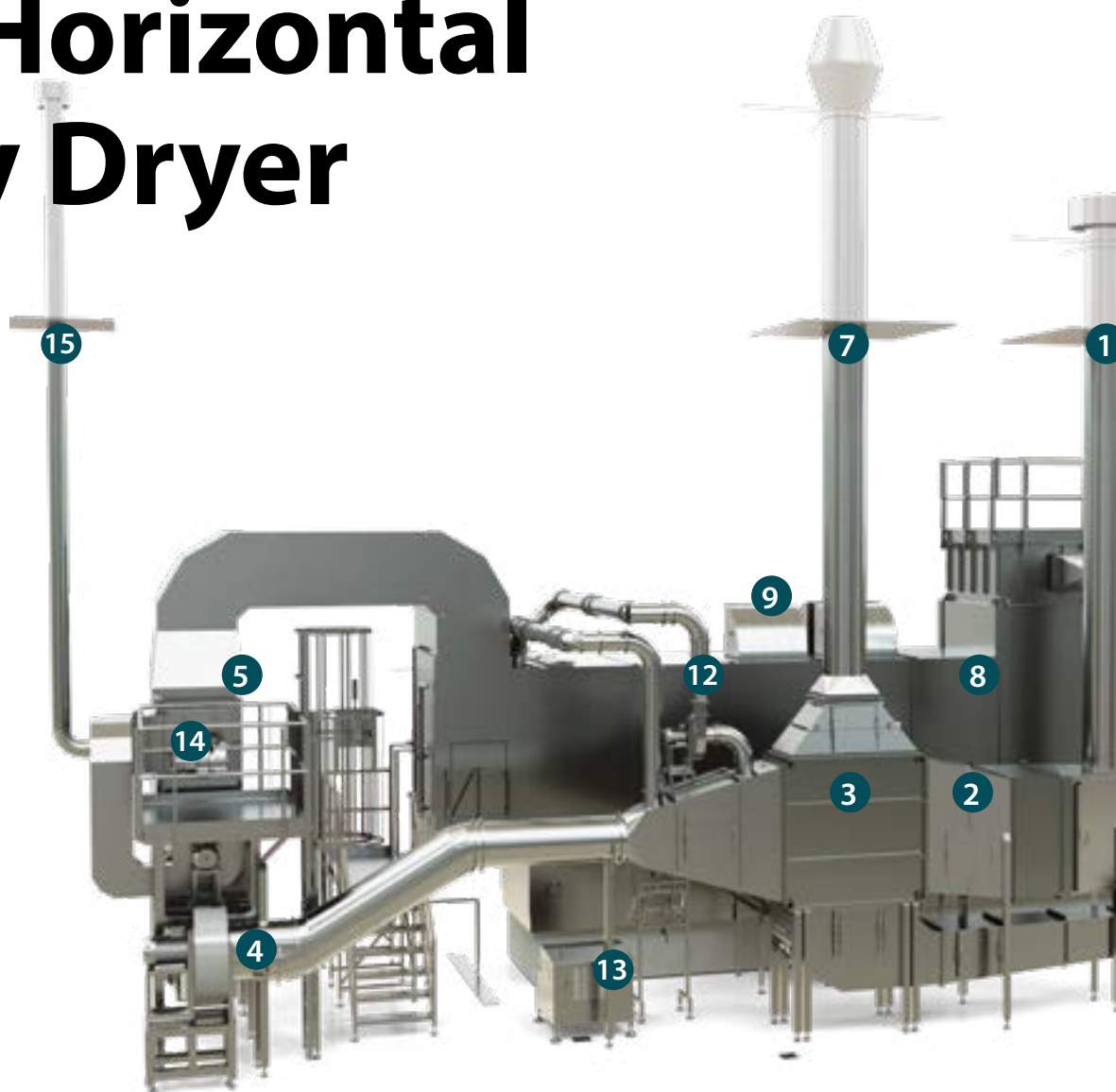
## ATEX Certification



II 1/3 D Ex h IIIB T150°C ... 250°C Da/Dc

Powder can explode. SANOVO has taken the utmost precaution to prevent ignition sources in the dryer. In the unlikely case of an explosion, the dryer's flameless explosion vents will assure that the heat and pressure don't harm people or other equipment.

# SGA Horizontal Spray Dryer



The SANOVO Gentle Air Horizontal Spray Dryer is available for spray drying plant sizes with water evaporation capacity from 50 to 2500 liter/hour (13.2 to 660.4 gal).

This ensures suitability for new and innovative start-up companies, as well as well-established larger powder producers.

The SGA Horizontal Spray Dryer is easy to operate. Normally, all operating spots (control panel, atomizer nozzles and powder packing) are on the same level and within close proximity.

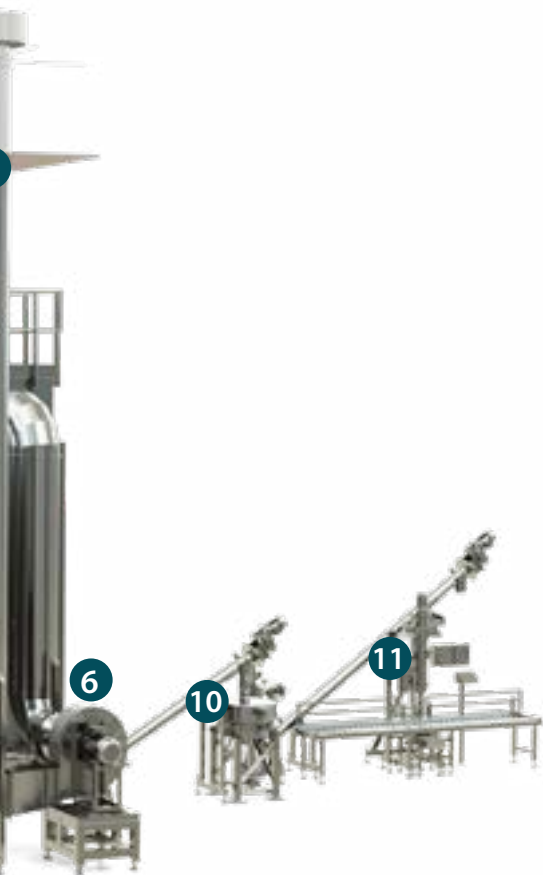
- 1 Air inlet
- 2 Inlet air filter
- 3 Heat recovery unit
- 4 Inlet fan
- 5 Air heater
- 6 Exhaust fan
- 7 Air exhaust
- 8 Drying chamber



Play video



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## SGA 10

### Designed for start-ups and scale-ups

The SGA 10 Spray Dryer is our smallest model with a capacity of 50 liter/hour (13.2 gal) water evaporation.

The horizontal box format of the SGA 10 ensures a small footprint and is designed for “plug & play”: quick installation and commissioning.

It also features an energy efficient heat recovery unit and can run 100 % on electrical energy.

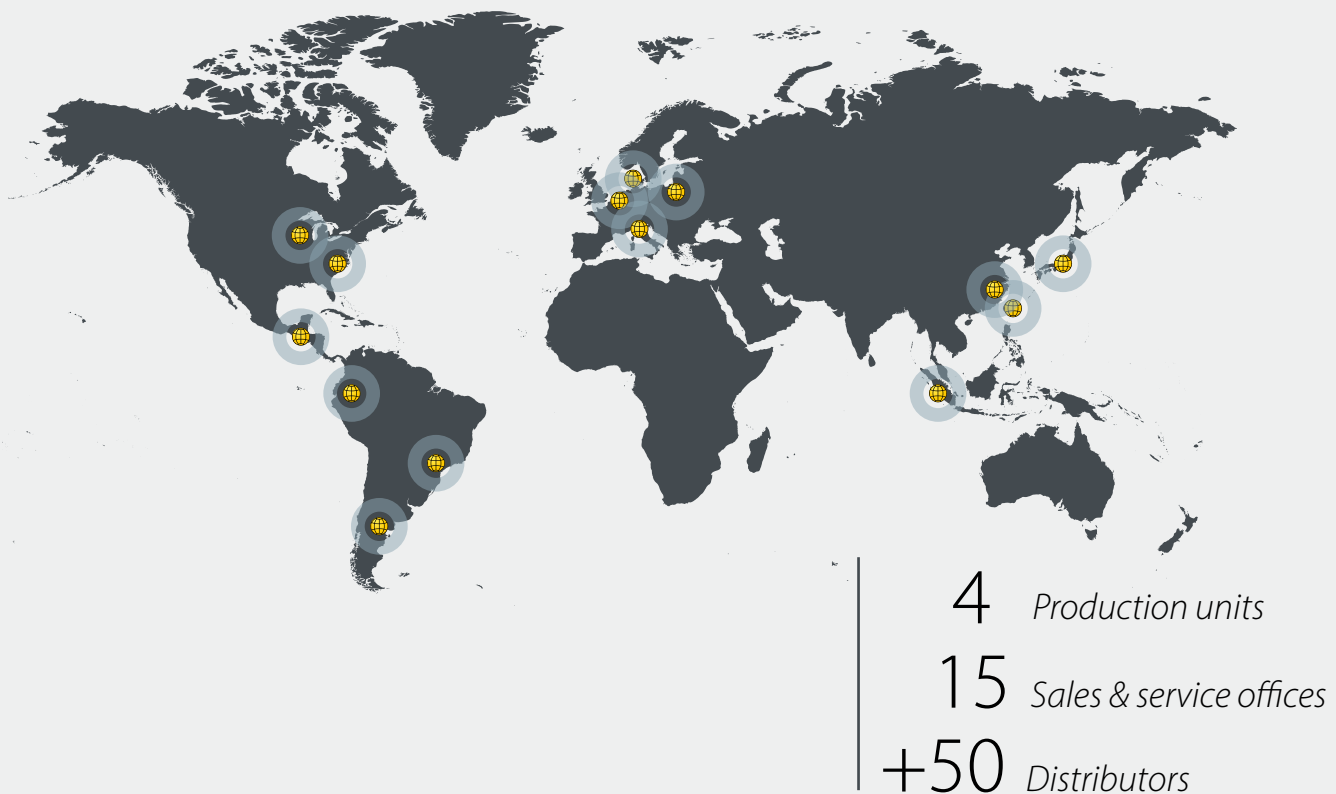
- 9 Explosion protection
- 10 Powder sifter
- 11 Powder packing station
- 12 Cooling fan, orifice plate
- 13 High pressure pump
- 14 Burner
- 15 Flue gas exhaust

# Project Management, Worldwide Service and Support Close To You

## Lifelong partnership around your project



Your project is key to the entire organization of SANOVO TECHNOLOGY PROCESS. When our agreement has been signed, our experienced team of R&D engineers, project managers, supervisors and service technicians will make sure that your project will be timely fulfilled the best possible way - phase by phase - to your satisfaction.





## CUSTOMER CARE

Unforeseen emergencies do happen in every type of industry occasionally. Failure of critical parts lead to expensive downtimes. That is why we are ready to support you right away – remotely or onsite - with technical knowledge, personal support and replacement parts if needed..

## APPLICATION SUPPORT

Do you have a clear overview of the application possibilities and product properties of your unprocessed raw material?

We are involved in many industries and have insights into the business of powder processing. Our experts will help you to test and validate that your products attributes are ideal to match market demands.

## TRAINING PROGRAMS

Well trained staff is essential to business success. Besides having a test center, we also facilitate training for our customers.

Our highly skilled instructors have many years of experience in the training of both customers and our own staff from all over the world.



Learn more about customer care

## ATEX CERTIFICATION

ATEX is the abbreviation for Explosive Atmosphere. Explosion protective systems are a requirement for spray dryers. We work according to the EU directive 2014/34. Having the ATEX type certification makes sure that our equipment also complies with legislations outside of the EU. Our ATEX marking:



II 1/3 D Ex h IIIB T150°C ...250°C Da/DC



## Calculate Your Payback Time

# Save Money and Achieve a Better Final Product

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We know that investing in a spray dryer for your powder processing production is a complex decision.

By filling in our application questionnaire with parameters about your drying installation, liquid product and powder quality you will receive a mass flow calculation inclusive energy consumption and powder outlet rate per production hour.

This will give you a proper input for your business case and investment decision.



[Click here](#)

Contact us for a ROI calculation and learn about the yearly savings you can achieve in your powder processing setup.





## Call us for more information

We appreciate your requests and will always allocate our experienced and dedicated staff to give you a comprehensive reply.



## Reserve time for a test trial

We have installed a Horizontal Spray Dryer to carry out trials for our existing and new customers. We invite you to send us a sample of your liquid product, in order to test the quality and properties of your spray dried product produced on our SGA Horizontal Spray Dryer.

This is an ideal opportunity for you, when developing new products to the market.



## Experience the SGA Spray Dryer in action

We will plan a reference visit for you at one of our existing customers' plants. Then you can see the SGA horizontal spray dryer in action and learn from the experience of others.

**SANOVO**   
TECHNOLOGY PROCESS

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