

# More profitable spray drying

Munters solutions increase uptime, save energy and boost production volume.



# Excellence in the entire spray drying process

Many food and pharmaceutical production processes rely upon spray drying to ensure product quality. Processes need to be reliable, consistent and efficient, regardless of climate conditions. Uncontrolled humidity and temperature can cause problems during the drying process.

Humid air causes particles that hit the internal dryer surface to stick inside the chamber. Moist powder can block conveying lines and cause production challenges. Munters can help with a total solution for all your spray drying needs.

## We master the climate

Rainy days. Humid summer nights. All year round. Munters creates the perfect climate for your spray drying process, supplying the right climate no matter the season. With total, energy efficient solutions, we can help you reduce energy costs, improve sustainability and help you achieve perfect product quality every single time.

Dehumidification of the dryer inlet air provides constant low humidity throughout the drying process. Air dehumidification increases dryer capacity, no matter the ambient weather. The more difficult the product is to dry, the more capacity gained, and in some cases capacity can double!

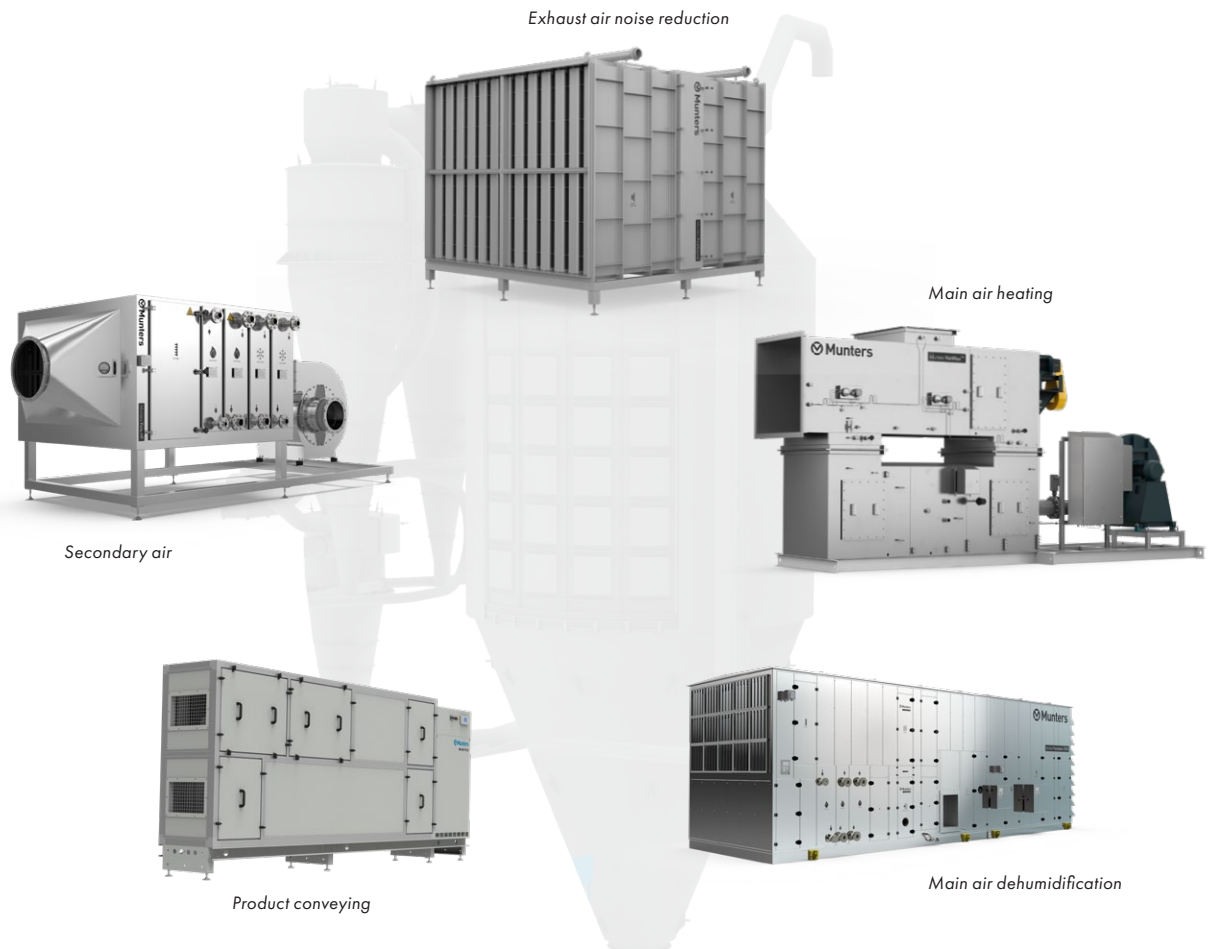
# Solutions to replace or upgrade your process

Munters has decades of experience in developing proven standard and custom spray drying solutions that can replace existing equipment to increase efficiency and reduce your carbon footprint.

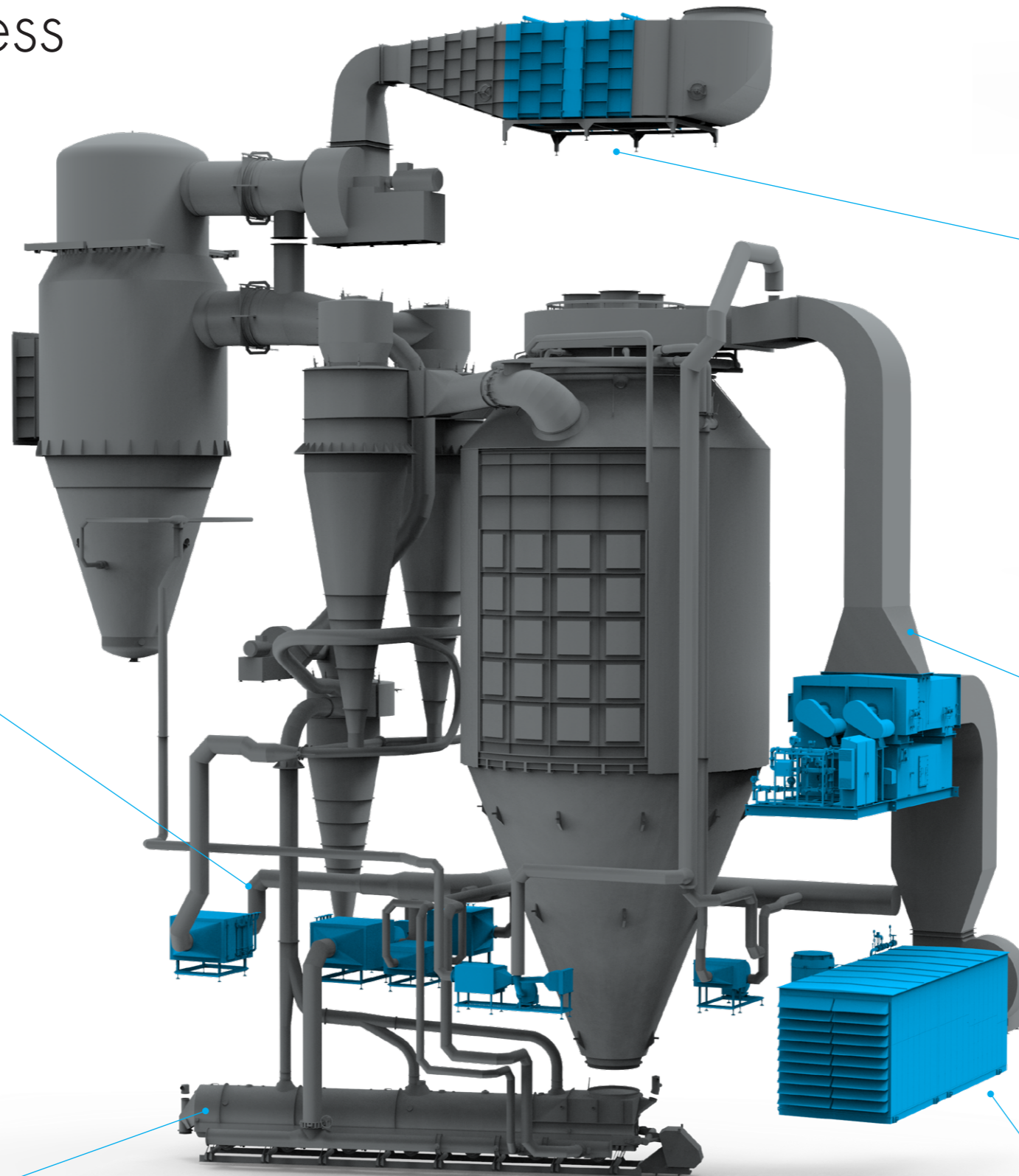
Munters solutions upgrade systems with new process steps, for example, capacity can be doubled in an existing spray dryer by drying the air before it enters the spray dryer.

These solutions form an entire system that work together to enhance your spray drying process. These engineered drying solutions can help you achieve perfect product quality.

- **Munters PureSystem** handles dehumidification.
- Air heating is taken care of with the **Munters VariMax**.
- Air is treated with the **Munters PureHP**.
- Noise reduction is provided by **Munters PureSound**.
- Product conveying is covered by **Munters Plus Systems**.



# Excellence across the entire spray drying process



Munters PureHP

## Secondary air

Munters PureHP is the premium hygienic air treatment system which can effectively recycle air flow in an energy efficient way. The technology is perfect for installation in high care areas thanks to outstanding hygiene and its ability to handle pressure up to 6000 Pa.



Munters PureSound

## Exhaust air noise reduction

Munters PureSound dramatically reduces the amount of airborne noise emitted, and the baffles can be cleaned in place (CIP) which secures long lasting performance together with improved hygiene. Heat recovery can also be included on request.



Munters VariMax

## Main air heating

Air heating is an essential step in the spray drying process, and Munters VariMax with indirect gas is the ideal technology. The smaller footprint and lower weight ensures convenience and simple installation, and it offers efficiency levels of up to 98% which optimizes energy efficiency.



Munters Plus systems

## Product conveying

To avoid powder to stick during the product transport you need our medium range modular dehumidifiers, Munters offers the Munters Plus systems which are ideal for the part of the process where the product is conveyed towards packing. These flexible systems can be designed to suit your specific needs.



Munters PureSystem

## Main air dehumidification

Munters PureSystem is the premium dehumidifier which is perfect for spray drying applications. This dehumidifier improves production capacity, product quality and overall energy efficiency, while the stainless steel welded construction guarantees optimal hygiene.



# Munters desiccant rotor improves Sensus Zwolle spray drying process

Based in Zwolle, the Netherlands, Sensus uses the Chicory root to produce Inulin, which is also labeled as oligofructose. Part of the Royal Cosun group, Sensus offers inspiration for tomorrow's health.

## The natural choice

Used as a sweetener in the food industry, Inulin is a traditional component of the human diet with a sweetening power 10% more potent than sucrose. It is naturally present in Chicory roots, which are the main commercial source for inulin. Inulin can be applied to develop tasty, healthy food products. In addition to being a sugar replacement, it can be used to replace fat and increasing fiber content, while improving taste and mouthfeel.

## Spray drying production

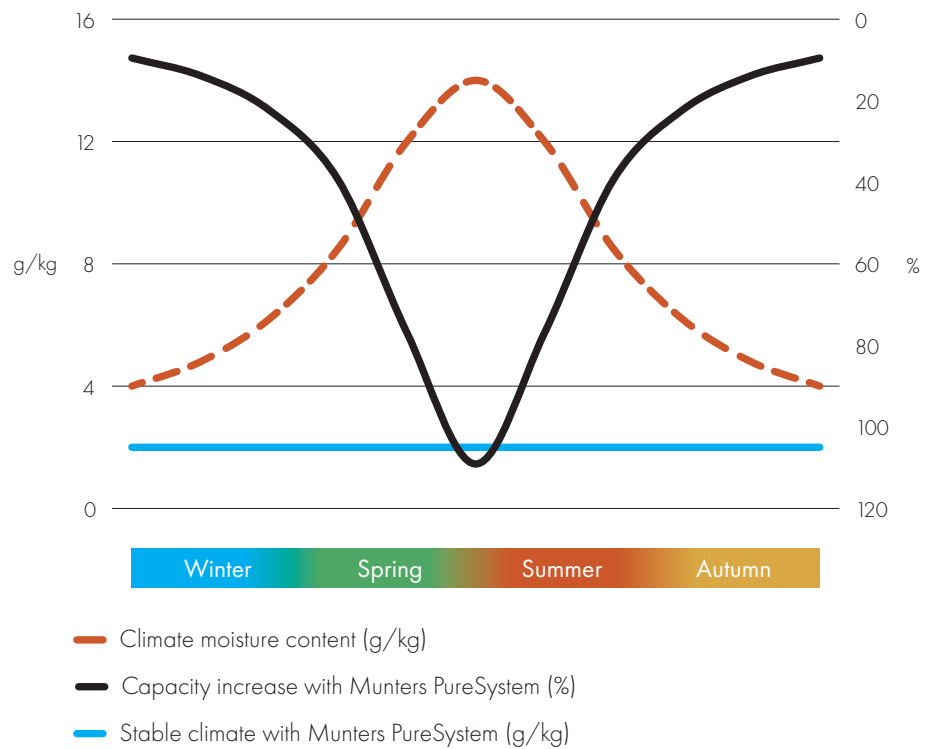
The Chicory root is harvested in August and September and during that time most of the Inulin is produced in the Zwolle factory.

Sensus uses a spray drying process to convert the concentrated Inulin solution to powder. The product is quite glutinous and can easily foul the system if not carefully monitored. Temperature and moisture content determine how glutinous the product is.

## Climate is key

One of the most important parameters in the spray drying process is climate fluctuations, from day to night and when extreme weather appears, makes it difficult for Sensus operators to keep the process under control. Limited capacity and fouling of the system can result.

### Stable climate and increased capacity with Munters PureSystem



## The Munters solution

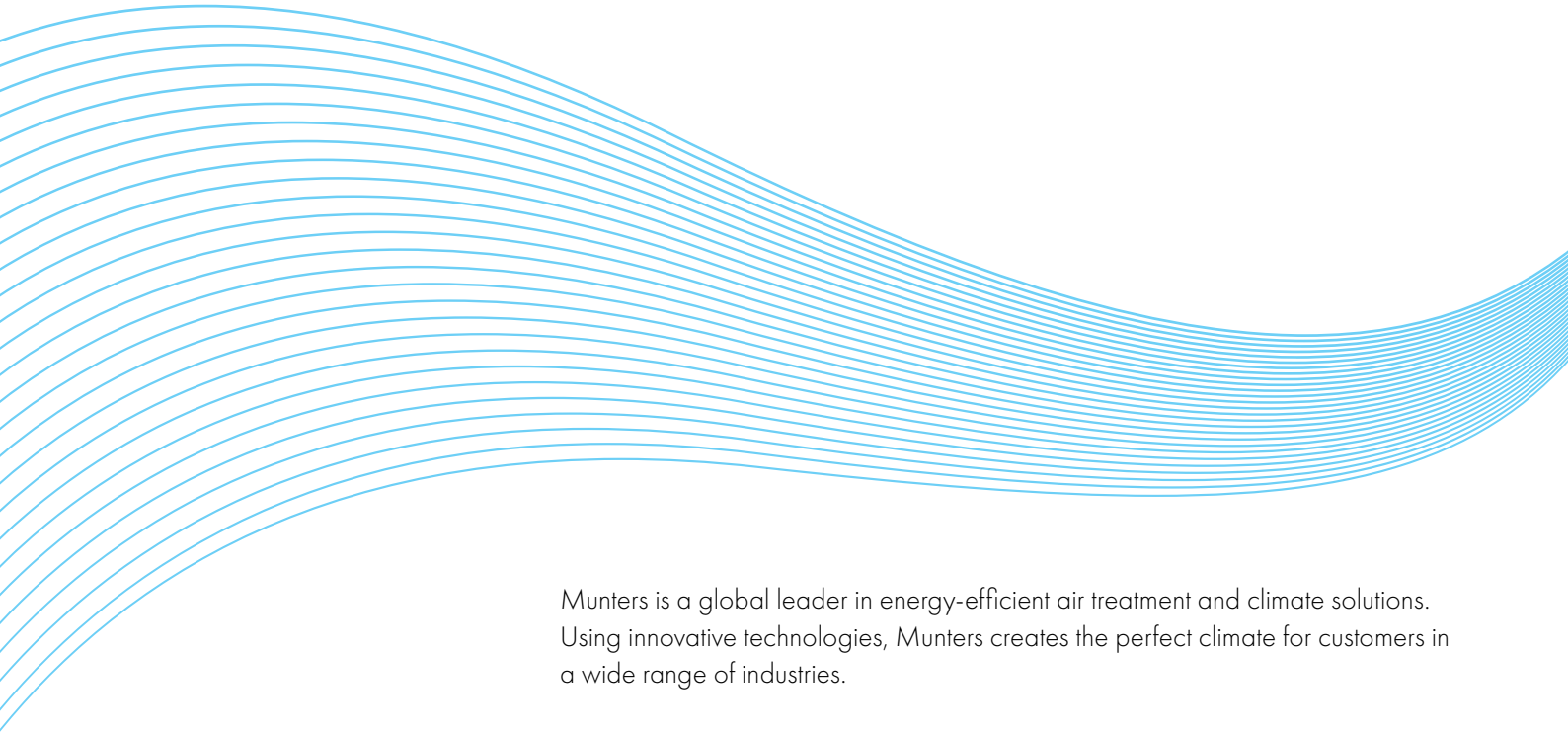
The patented HPQ Quantum desiccant rotor was chosen to enhance Sensus spray drying production. With Munters proven technology, climate is no longer a variable but a constant factor. Production capacity has increased by 40% and since the process is under control, Sensus can now optimize settings for the spray dryer to get a process with perfect Inulin moisture content, and the process is free from production stops due to fouling.

A Munters PureSystem premium plus 3500 has been specially designed to fit in the plant layout. 97,000 kg/h airflow is dehumidified from 12 down to 2 g/kg to take out 970 liters of water per hour.

Find out more about Munters solutions for spray drying at [www.munters.com/spraydrying](http://www.munters.com/spraydrying)



Munters PureSystem



Munters is a global leader in energy-efficient air treatment and climate solutions. Using innovative technologies, Munters creates the perfect climate for customers in a wide range of industries.

Munters has been defining the future of air treatment since 1955. Today, around 3,350 employees carry out manufacturing and sales in more than 30 countries.

For more information, please visit [www.munters.com](http://www.munters.com)