INGETECSA

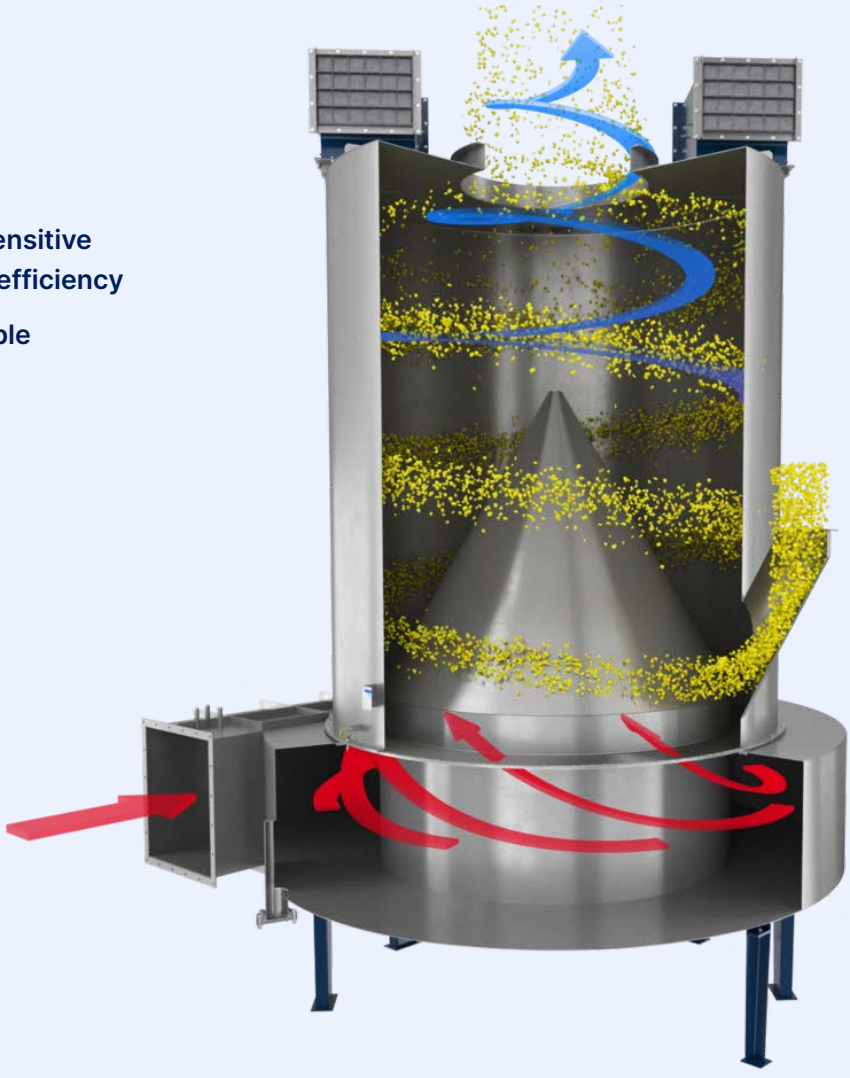
# Spiral Flash Dryer

- Superior product quality
- Very high availability, low risk of breakdown
- Lowest total cost of ownership

# The Spiral Flash Dryer is a static technology that INGETECSA employs for drying or cooling. The efficiency is so high, that operating costs are lower, and product quality higher and safer than for any other flash dryer.

**The simplicity of this superb design makes the Spiral Flash Dryer unique.** The entirely static drying room maximises the uptime. The extremely turbulent air even handles sticky products, while the final product temperatures are lower than in other flash dryers. Installation is normally entirely indoors and quick as the dryer is most compact and self-supporting.

- **For processes that need superior product quality**
- **Products that are cost sensitive and require high energy efficiency**
- **Indoor installation possible**



# Advantages

## High product quality

- Total absence of moving parts and dead zones in the drying area
- Bacteria build-up or product hold-up and over-drying/burning are avoided
- The lower product temperature improves product quality

## Energy saving

- More efficient water evaporation, reducing the heat requirement
- When heated by steam, even more energy can be saved up to a guaranteed 25% reduction by reclaiming energy from condensates

## Entirely static drying process

No unexpected downtime, highest safety, excellent hygiene due to lack of dead zones. Static flash dryers offer unparalleled availabilities in their class

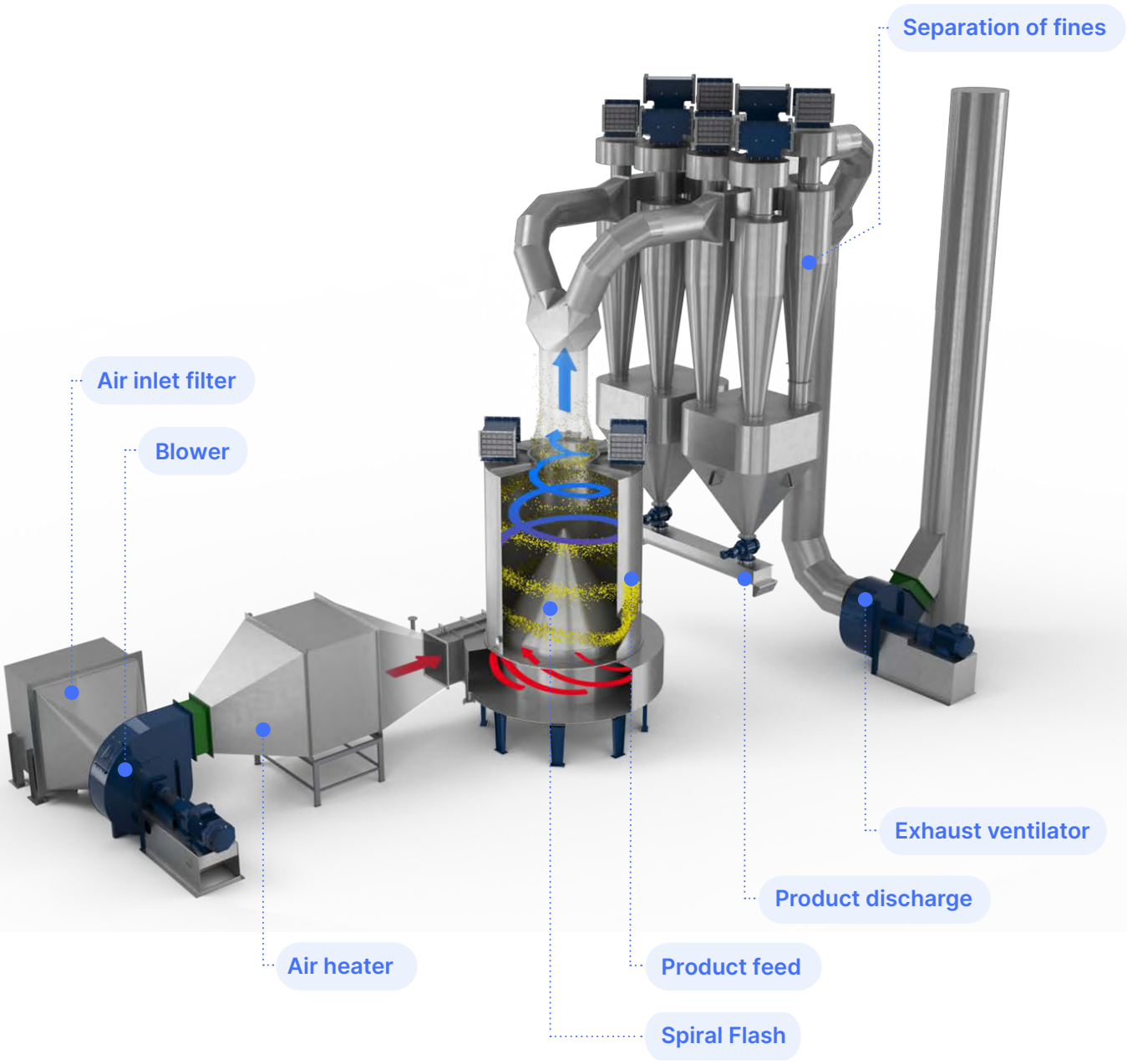
## Floor space

The entire dryer can be installed indoors and is lower than a cyclone or bag filter house

## Maintenance requirements

The design is such that maintenance is reduced to a minimum and can be dealt with during scheduled shut-down periods. Full access inside is effortless

> “Static flash dryers offer unparalleled availabilities in their class.”


Separation of fines
Air inlet filter
Blower
Exhaust ventilator
Product discharge
Air heater
Product feed
Spiral Flash

# Working principle

Hot, filtered air is pushed by a blower to the plenum of the Spiral Flash Dryer. From here, it flows upwards through a static blade ring.

The blades have a fixed orientation. They are positioned in such a way that the highly turbulent air follows a spiral-shaped pattern towards the top of the drying chamber. In the centre of the blade ring is a cone with an opening that can be used to discharge heavy or off-spec particles.

Product is introduced just above the blade ring. As the product drops, it is instantly mixed in the hot turbulent air flow. In a matter of seconds, particles are dried to specification while they are making their way up to the dust collector for separation from the drying air.

Wet particles carried upwards fall back towards the centre due to their density until they are dry. This gives the Spiral Flash Dryer an internal back-mixing. The spiral flow pattern makes the dryer so compact that indoor installation has finally become possible. Because the **Spiral Flash Dryer is static, it provides maximum availability, ensures highest safety, and needs little care.**

## Unique Concept↘

Unlike in any other flash dryer, the drying air in the Spiral Flash Dryer travels partly cross-current and partly co-current. It makes the evaporation rate constantly high across the entire dryer. This lowers the end temperature of the product, and **is why the heat requirement for drying is lower.**

In the drying chamber there are no moving parts or dead zones where product or bacteria can hold up, over-dry or burn. Breaking up of lumps or coarser particles occurs entirely pneumatically by the highly turbulent air. Coarser particles automatically recirculate more often by tumbling back in the gas stream on their way up. **For these reasons, the Spiral Flash Dryer is superior in product quality and hygiene.**

“There are no moving parts or dead zones where product or bacteria can hold up, over-dry or burn.”

# Typical applications

## Chemical industry

## Food & Feed products

## Minerals & Metals

**EXAMPLES**

- Maize, wheat, rice and cereal products
- Potatoes, vegetables and fruit
- Pulps and fibres
- Intermediate and basic chemicals
- Polymers
- Pigments
- Fertilisers
- Biotechnology
- Cosmetic and pharmaceutical
- Detergents
- Minerals

- **Products with a wider range of particle sizes**
- **Temperature-sensitive products**
- **Processes that require maximum availability and reliability**

## Let's test together ↘

INGETECSA's pilot plant and R&D centre, located in Barcelona, is available to our customers to simulate and optimise production processes, test our technology and define the ideal configuration of the customers' required industrial equipment.

Apart from the continuous tests with the pilot units, INGETECSA also has a laboratory where it is possible to analyse the results obtained and carry out small-scale simulations.

**Test rigs are also available for test work at the client's premises** in the event that longer duration tests are required, or if the product can't be transported to our test centre. Our engineers assemble the equipment, conduct the tests or instruct the client's personnel on the correct operation of the machine.

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