

INGETECSA

Fluidised Bed Technology

- ➔ Static technology:
highest availabilities
- ➔ Most careful product treatment
- ➔ Substantial energy cost
savings possible

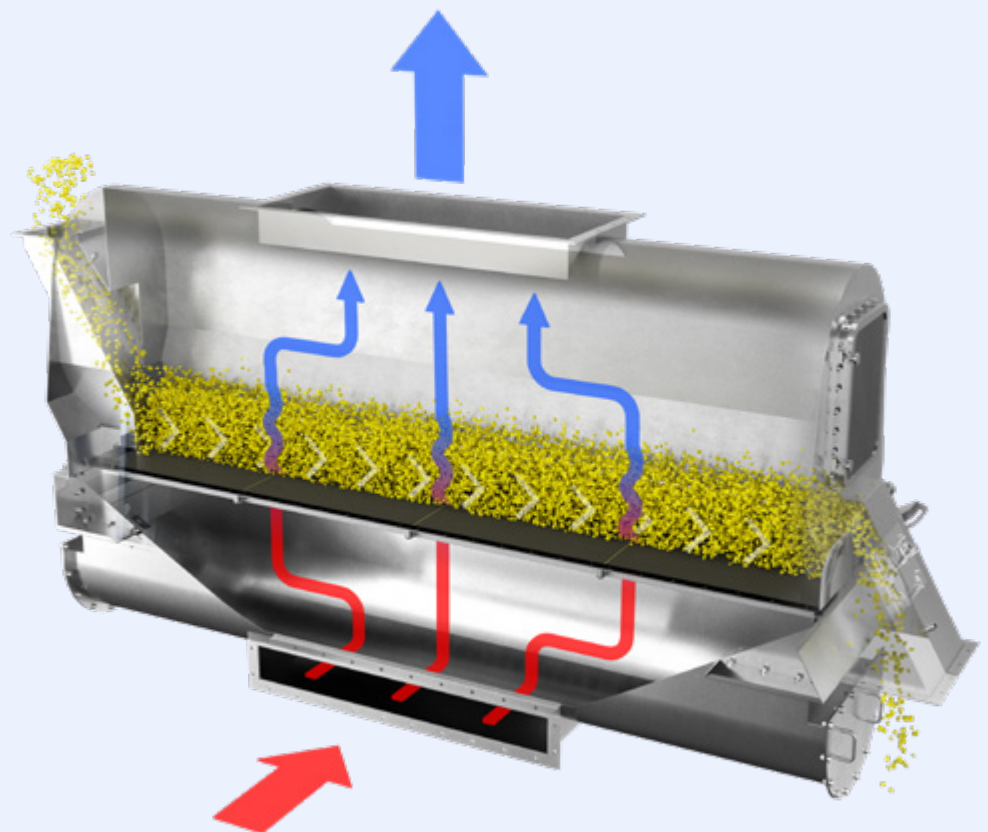


INGETEC CSA's fluidised bed design is built on the principle of static technology. The absence of moving parts results in unrivalled uptimes.

Advanced air distribution ensures a very intensive yet careful fluidisation of the product to minimize possible particle damage, but **maximises drying efficiency**.

Accurate process control guarantees a **constant product quality**, even when a wide range of particle sizes are dried. **Substantial energy savings** are achieved by reclaiming energy from steam or waste heat to further reduce operational costs.

- ➞ Products that require longer residence times
- ➞ Processes that require careful product treatment
- ➞ Drying processes at lower temperatures



Advantages



Entirely static drying process

No moving parts. Therefore, no equipment failure due to cracking of nozzle plates or their frames. Ingetecsa static fluidised beds offer unparalleled availabilities against its peers



Process control and floor space

Static fluidised beds use higher air speeds for the fluidisation. It makes the process easier and more accurate to control and therefore use less floor space



Maintenance requirement

The absence of moving parts in the fluidised bed results in an absolute minimum of maintenance. A comforting thought



Gentle product treatment

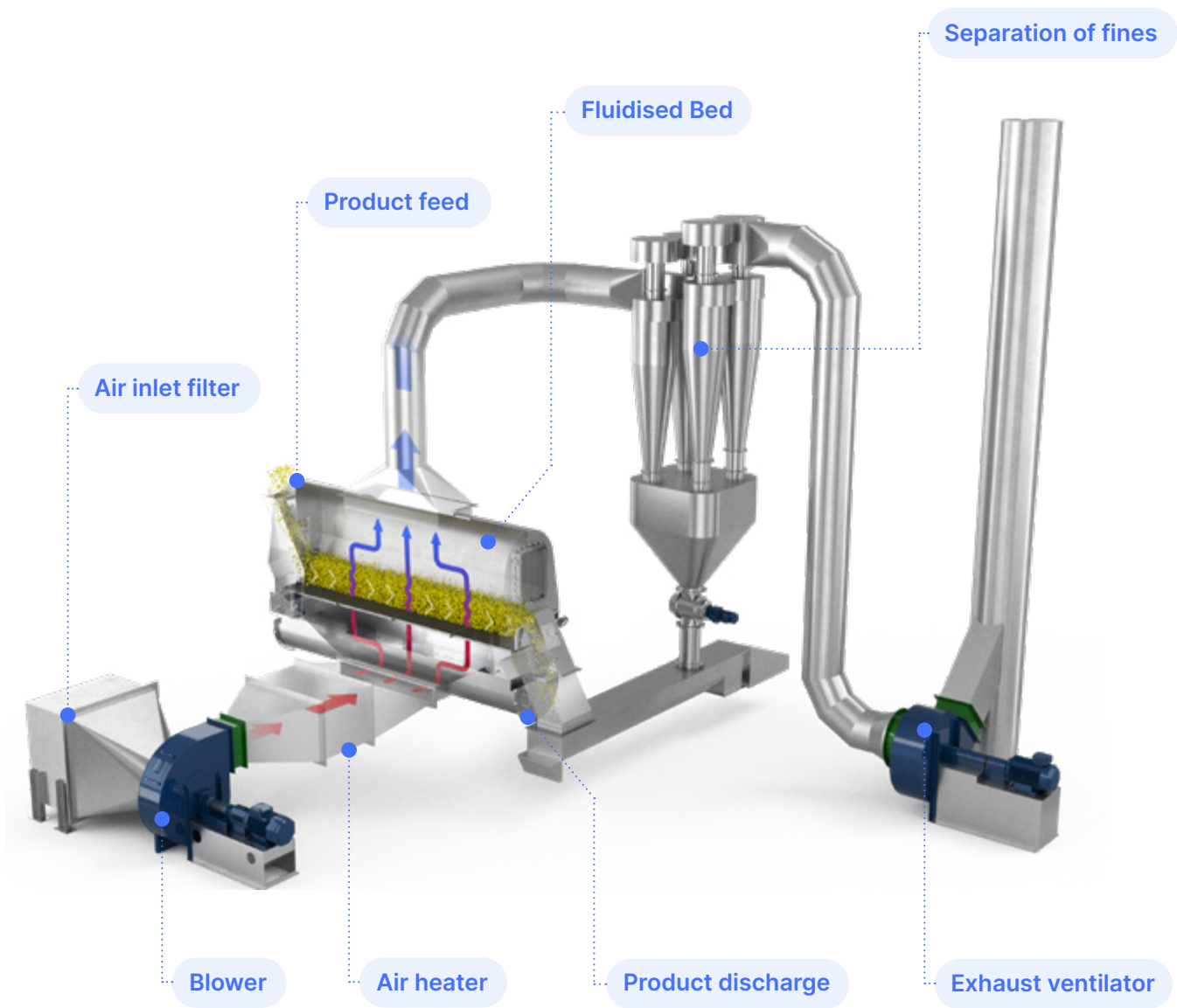
Product is always surrounded by air cushions so the process is as gentle as possible. This minimises product erosion, so dust formation is slim compared to other technologies



Energy saving

When heated by steam, energy can be saved up to a guaranteed 25% by reclaiming energy from condensates. This has a substantial impact on the operational expenditures

“Fluidisation is entirely based on air pressure, not on vibration.”



Working principle

Filtered air is pushed by a blower through a heater to the wind box. The wind box is a largely dimensioned space where air distributes itself uniformly before it flows upwards through the fluidisation plate. Speed and pressure are automatically equalised in the nozzles of the fluidisation plate. The nozzles are oriented towards the weir. Air speeds are sufficiently high thus avoiding blockages occurring in the nozzles.

Product is introduced at one side of the unit on the fluidisation plate. At the opposite end is the weir where the product overflows. Despite the high turbulence around the particles, the mechanical treatment is very gentle both from a mechanical and from a thermal viewpoint as particles are lifted by the air and float on the resulting air cushions.

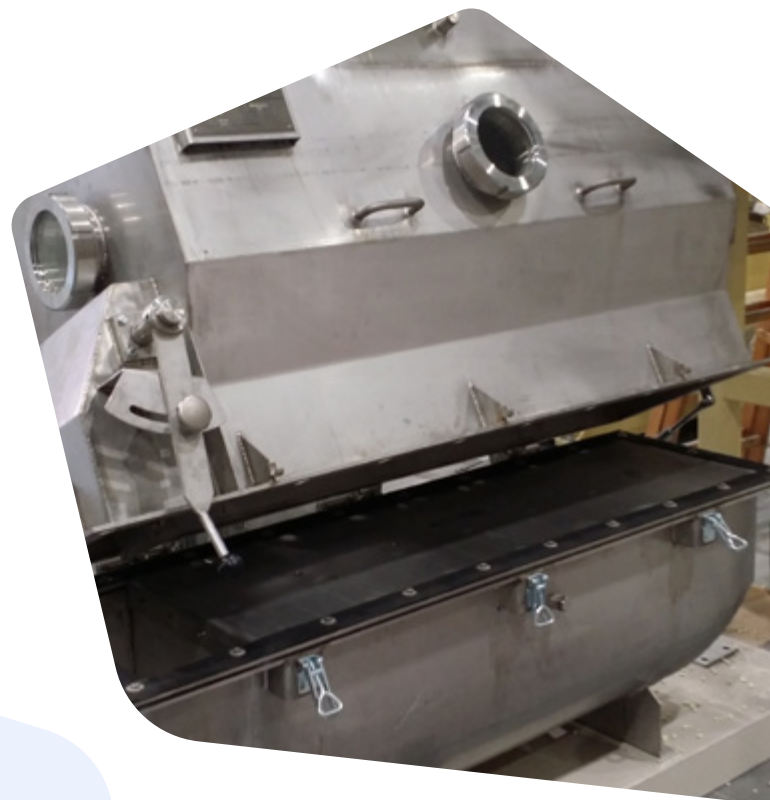
Product travels from one end to the opposite end in a plug flow motion. **Fluidisation is entirely based on the product lift by the air flow through the product layer. Since there is no vibration used for the fluidisation, there is virtually no dust formation.** So, any dust that may have come with the product is evacuated to a dust collector such as a cyclone or bag filter house.

Flexibility ↘

The feed rate, density of the product bed and the weir height determine the residence time of the product in the dryer. Emptying of the unit is by lowering or opening of the weir. **As the product fluidises like a boiling liquid, it empties in a matter of only seconds.**

Multiple temperature zones in the unit are possible by segregating the wind box. For that, each section is fed with air at different temperatures. This way, **drying and cooling of particles is possible in the same unit.** The exhausted air flows can be combinedly or separately evacuated.

Other combinations such as explosion tight, internal heat exchangers, self-emptying, expanded bed, solvent recovery, multi-stages, can be integrated into the design.



“Product is surrounded by air cushions so there is virtually no dust formation.”

Typical applications



Chemical industry



Food industry



Minerals

EXAMPLES

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

- ➔ Products that need accurate processing
- ➔ Brittle 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.



INGETECSA



INGETECSA S.A. (Head Office)
Barcelona, Spain
T. + 34 932 466 544

INGETECSA ASIA PACIFIC LTD
Tauranga, New Zealand
T. +64 272 801 389

www.ingetecsa.com