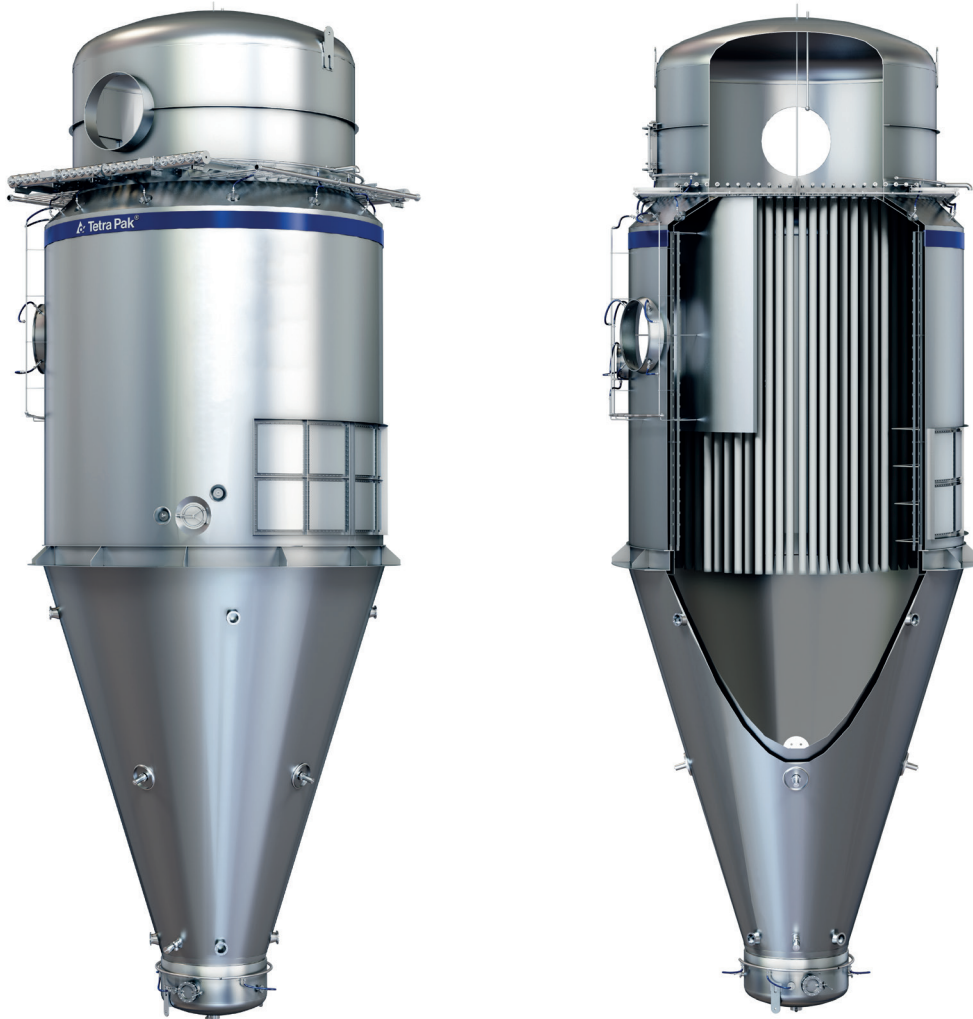




# Tetra Pak® Bag Filter

Combines maximized yield and hygiene with lower TCO and reduced emissions.



## Application

Tetra Pak® Bag Filter is tailored for specifically food applications including dairy and whey-based ingredients, nutritional products and various plant-based derivatives.

With our expertise and flexible solutions, we can provide an installation that is optimized for your operations.

## Highlights

- Engineered for the highest powder collection, yield and energy efficiency
- Best-in-class automation
- Optimized geometry, layout and flow velocities including process adaptive pulsing control
- Widest range on the market: air flow capacities from 26,000 to 287,000 m<sup>3</sup>/h
- Extended bag life
- Superior CIP design
- Long production runs
- Quicker CIP turnaround times
- Integrated cage locking system (patent pending) supporting food safety and quicker bag exchange
- Smart operator access
- Low emission values – we can meet the emission standards of the future
- Lower energy consumption
- Limited catastrophic weight
- Protection against structural damage
- High safety standards

### Working principle

The powder fines present in the exhaust air of a spray drying installation will be separated in the Tetra Pak® Bag Filter.

The particles are collected on the surface of tubular filter elements (textile filter bags). These elements are periodically cleaned by means of compressed air jets to dislodge the collected powder from the filter bags.

This will cause the powder to drop down onto the fluidized bottom, utilized for powder extraction out of the bag filter.

The separated powder fines can be returned to the spray dryer or can be transported to packaging units via a conveyor line downstream from a rotary valve directly underneath the Tetra Pak Bag Filter.

The filtered air leaves the bag filter at the top via the clean air side and is discharged via the exhaust fan into the atmosphere.

The fines containing air from the drying chamber enter the bag filter radially at "bag level". A baffle plate in the filter provides a low and even velocity profile. This arrangement prolongs the lifetime of filter bags substantially compared to a tangential air inlet, where high flow velocities often cause premature bag failure.

The filter fabric is a food-grade, internationally approved material which is suitable for Cleaning in Place since the material can withstand CIP liquids, both caustic and acid, to a specified strength.

In each bag a support cage is placed. Each support cage is installed with a venturi nozzle which is aligned with an air pulse nozzle on the top to ensure maximum pulse.

The cone wall and the inside of the bag filter is conditioned with warm air to avoid any condensation forming due to cold spots. During shutdown of the plant, the electric air handling unit can be used as weekend heating (weekend heating is an optional feature). The cylindrical wall is insulated and clad.

The cone, product side, and clean air side are equipped with access doors. The bags can easily be replaced via the large access door in the clean air side.

The powder outlet is protected by a counter flow cone to prevent blockage caused by dropping lumps of powder collected on the filter bags.

### Standard Features

Tetra Pak Bag Filter is designed to operate with low emission values resulting in a high product yield. The following standard features are incorporated:

- Smart pulsing control
  - Reduction on compressed air consumption
- Hygienic cage locking design and integrated venturi (patent pending) – featuring no nuts and bolts and supporting food safety and quicker bag exchange
- Designed as a standard range aligned with dryer capacity range
- CFD optimized air and powder flow
- Sanitary design in accordance with the highest standards
- Easy-to-remove blow tube assembly
- Multiple row pulsing - enhancing more uniform powder discharge

- Large inspection doors for easy access and bag removal
- Robust design, no rotating parts
- Fully inline CIP-able
- Fully inspectable and hygienically designed fluidizing bottom
- Long bag life due to optimized number of pulses

### Control Panel and Automation

Tetra Pak Bag Filter is typically integrated via Scada and Tetra Pak PlantMaster into the overall plant automation platform. However, when sold as a standalone package, the bag filter can be supplied with standard hardware.

### Options

- Process adaptive pulsing control
  - Lowest emission guarantee
  - Increase of yield
  - Lowest compressed air consumption
- USDA Execution for non-CIP-able baghouse
- Explosion duct from baghouse to outside building
- Multiple inlets (layout saving)
- Multiple air outlets
- Weekend heating air system
- Broken bag detection
- Safety keylock system
- Suppression system

### Capacity Range

Bag Filter	No. of bags	Bag Length	Air Flows (m <sup>3</sup> /h) approx.	Diameter (m) approx.	Height (m) approx.
60 x 6	60	6	26,000	3	12.2
96 x 6	96	6	46,000	3.75	13
112 x 7	112	7	62,000	3.95	14.3
164 x 7	164	7	90,000	4.65	15.5
192 x 8	192	8	123,000	5	16.4
268 x 8	268	8	170,000	5.9	17.9
360 x 8	360	8	222,000	6.6	19.7
460 x 8	460	8	287,000	7.35	21.2

Note: bag filters can be configured with shorter bags for lower air flow requirements.

