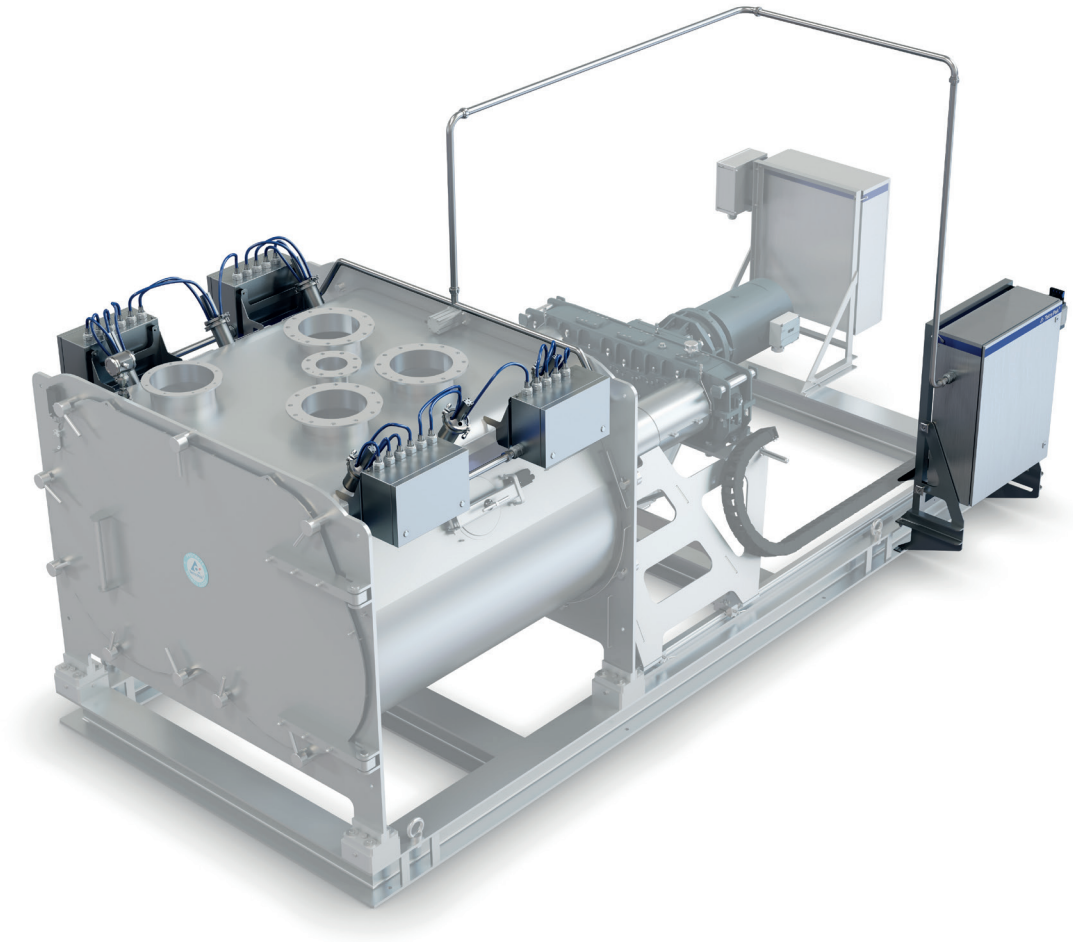
Tetra Pak® Air Jet Cleaning system for Powder

Let air do the cleaning so you can keep on producing.



Application

Tetra Pak® Air Jet Cleaning system for Powder is a cleaning technology which consists of a combination of air jets and vacuum flow to remove powder particles and evacuate them through the equipment outlet. It can be used to clean the Tetra Pak® Powder Mixer B and Surge Hopper VT as well as other brands powder handling equipment in a large range of food powder applications (Infant and children's nutrition, health food, food supplements for the elderly, coffee, dairy, sport nutrition, dietary supplements, etc).

Highlights

- Increase operational efficiency – save time and reduce product losses.
- Quick changeovers – switch easily from one recipe to another.
- Maintain consistent product quality.
- Safeguard food by reducing the risk of contamination.

Working principle

Tetra Pak Air Jet Cleaning system for Powder uses high-speed jets of compressed air to break the interaction between particles and stainless steel surfaces and between the particles themselves. The powder particles are kept suspended in the air so they can be extracted from the equipment thanks to a vacuum system.

The air jet technology has been patented as well as the unique nozzle heads. Each nozzle head is fitted with several specific jets. Each of the jets is designed and sized to clean a specific area of the inner surface of the equipment with the right velocity and flow rate. The nozzles are assembled on a "pop-up" system which allows the nozzles to be retracted when they are not in use.

The system comes with its own compressed air filtration module to ensure the high quality and purity of the air that comes into contact with food powder.

Working principles (cont.)

This system is intended for complete cleaning but it can also be used for a regular flush to avoid powder fouling on the surface, in particular on the ceiling where powder has a tendency to build up. Flushing allows you to maintain powder quality over time and reduce cleaning frequency.

The flushing option can also be used to improve powder discharge resulting in reduced powder losses.

Main components

- Pop-up nozzles
- Pressure sensor
- Small boxes for jet control (solenoid valves)
- Compressed air piping
- Main cabinet with compressed air control and treatment (block valve, flow meter, filter unit, pressure regulator, I/Os)

The patented pop-up nozzles have a unique design for directing the air jets to all surfaces inside the powder equipment.

Options

- Filtration class: 1.4.1 or 3.4.1
- Siemens I/O or Rockwell I/O modules (wiring included)
- The technology has initially been deployed on paddle shaft mixers and hoppers but it can also be applied to other types of powder equipment. Please contact us to evaluate your specific needs.

Automation

Tetra Pak Air Jet Cleaning system for Powder is prepared for easy integration with Tetra Pak® PlantMaster or other supervisory systems.

The whole system is automated with a specific sequence of directional air jets which can be optimized according to powder properties and customer requirements. A special cleaning sequence can be created for each of the different recipes and the automated system will match the correct cleaning sequence with each production recipe.

Utilities

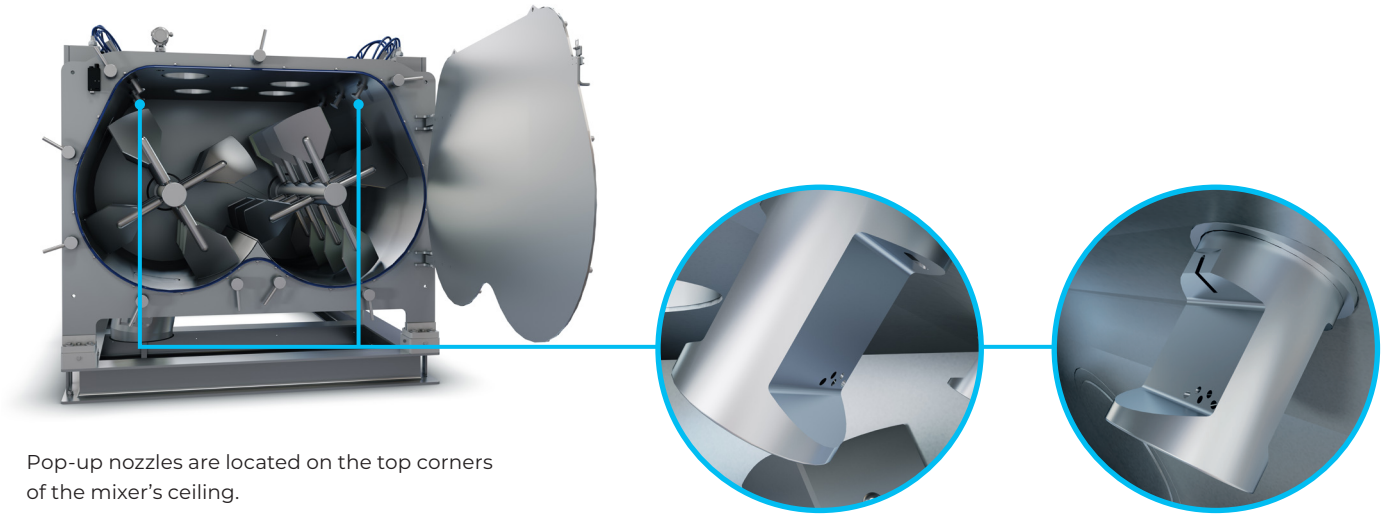
Compressed air

Tetra Pak Powder Mixer B		
Vessel volume (litres)	**Number of pop-up nozzles required**	**Required compressed air flow rate at 6 bars (Nm^3/h)**
6 000	8	480
3 500	6	350
2 000	6	300
1 200	4	200
Surge Hopper VT		
<8000	2	200

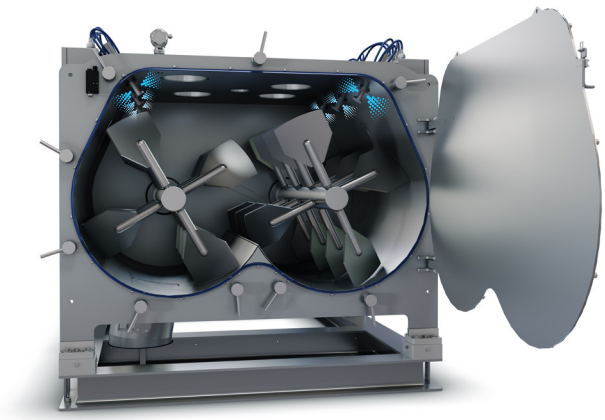
Extraction by vacuum at the discharge outlet

An extraction system with a vacuum flow rate equivalent to the incoming jets of air needs to be integrated at the discharge outlet. Different solutions can be evaluated depending on the line configuration.

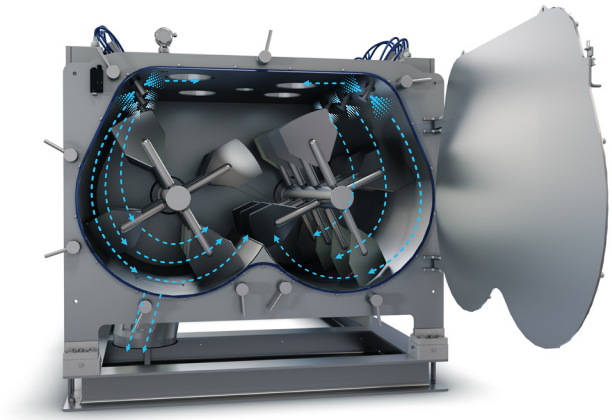
Installation example on Tetra Pak Powder Mixer B



Pop-up nozzles are located on the top corners of the mixer's ceiling.



Each pop-up nozzle contains four customized air jets to clean the different surfaces.



The air jets spread along the surfaces, blowing particles in the air which are then vacuumed through the outlet.

Tetra Pak®
PROTECTS WHAT'S GOOD