Tetra Pak® Big Bag Filler

High-capacity bulk bag filler

Application

Tetra Pak® Big Bag Filler is a high-capacity and highly automated solution for powder bulk filling. The unit has been designed for dairy and nutritional applications where a high care and controlled environment is required. Modified atmosphere packing is also a possibility with Tetra Pak Big Bag Filler with either pre-gassing or a unique post-gassing unit that replaces the oxygen by an inert gas to give the powder product an extended shelf life.

Highlights

- High-capacity machine
- Highly hygienic design
- No pallet is required in the high-care area
- Handles a wide range of big bags
- Pre-gassing or post-gassing with heat-sealing modules
- Limited operator intervention
- Complete solution with a full range of options

Working principle

Tetra Pak Big Bag Filler is a complete filling solution consisting of the following main components: a filling head equipped with automatic hooks and highly accurate load cells for weighing, a densification table and a system of shuttles and/or carriages that transfer the big bag between positions and from the high care to the lower care area. In addition, several options can be integrated into the unit such as a metal detector and ejector, a sampler, a heat sealer or a post-gassing unit.

The filling cycle starts with the operator manually installing the big bag into the filling head, hanging the big bag loops on the automatic hooks and inserting the big bag spout into the inflatable seal on the filling head.
When the operator confirms on the HMI the size of the big bag that will be filled, all the hooks are raised, which lifts the bag into the filling position. The bag is then inflated to create a pressure inside and shape it in preparation for the powder filling.

The filling sequence starts with high-speed filling. During high-speed filling, at predetermined bag weight stages, the big bag is lowered onto the compacting table for a set time where the big bag is vibrated. This provides better bag stability, flattens the bottom and slightly densifying the powder to increase the capacity of the big bag.

Throughout the filling sequence, the bag filling pressure is maintained using a control valve connected to a dust extraction line.

At a certain weight threshold, the low-speed filling will start in order to ensure accurate filling.

Throughout the filling sequence, the real-time bag weight is transmitted to the PLC to control the dosing device upstream. The weight is shown in the HMI. Once the target weight is reached, with the full bag still suspended under the filling station, the shuttle moves below the big bag. The big bag is then lowered onto it and the loops automatically released. At this step, the big bag is ready to be closed (manually or with the heat sealer) depending on the configuration chosen. If it is not closed at this stage, it is transferred open to the next position.

With the big bag on the shuttle and out of the way of the filling head, the big bag can be post-gassed or heat-sealed depending on the configuration of the unit. During this time, a new big bag can be installed in the filling head and a new filling cycle can be initiated.

The big bag is transferred through a roller door separating the high care from the lower care area. The transfer is done either by an overhead carriage on which the operator hangs the big bag or by the shuttle with a built-in belt conveyor on top, depending on the configuration chosen.

Main components

- Filling head with automatic hooks
- Load cells for weighing
- Compacting table
- Shuttle
- Shuttle with built-in belt conveyor on top (depending on configuration)
- Overhead carriage (depending on configuration)

Options

- Metal detector and ejector
- Elevator
- Sampler
- Heat sealer
- Post-gasser

Control panel

Tetra Pak Big Bag Filler is controlled by an Allen Bradley ControlLogix or Siemens PLC. It is equipped with a 15” HMI where the machine and recipe parameters can be controlled. This setup allows the operator to follow in real time the steps of the ongoing filling sequence. The filler is prepared for easy integration with Tetra Pak® PlantMaster or other supervisory systems.

Capacity

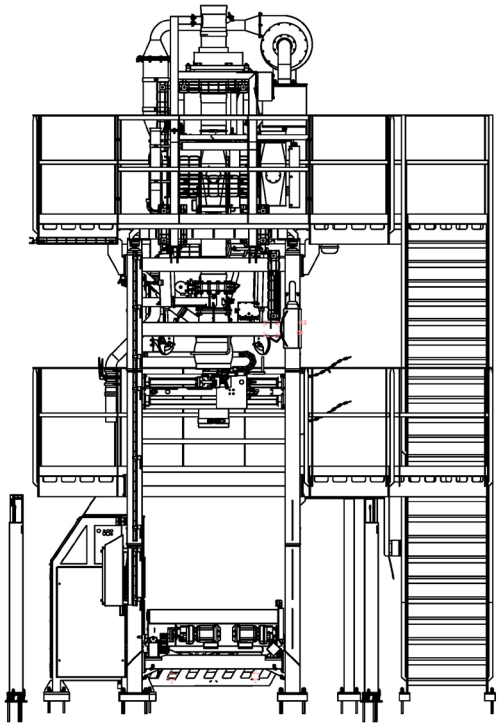
8 to 10 big bags/hour depending on the configuration chosen and the size of the big bag.

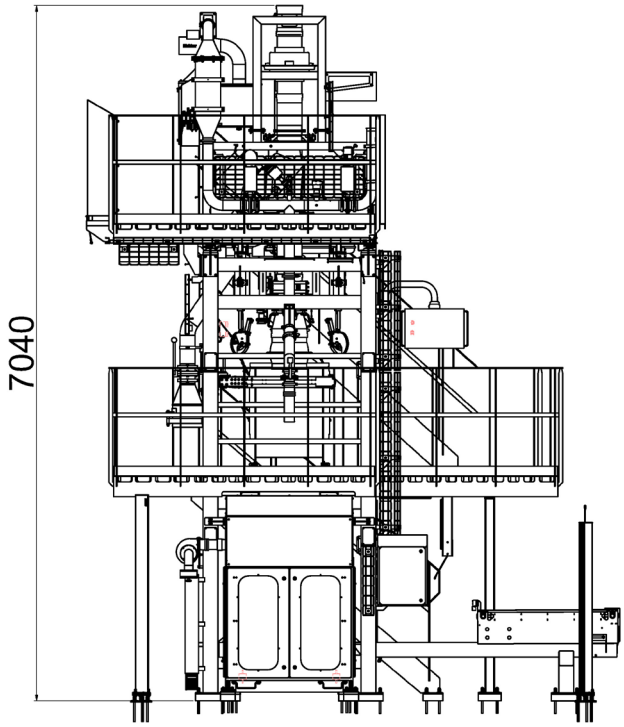
Consumption data

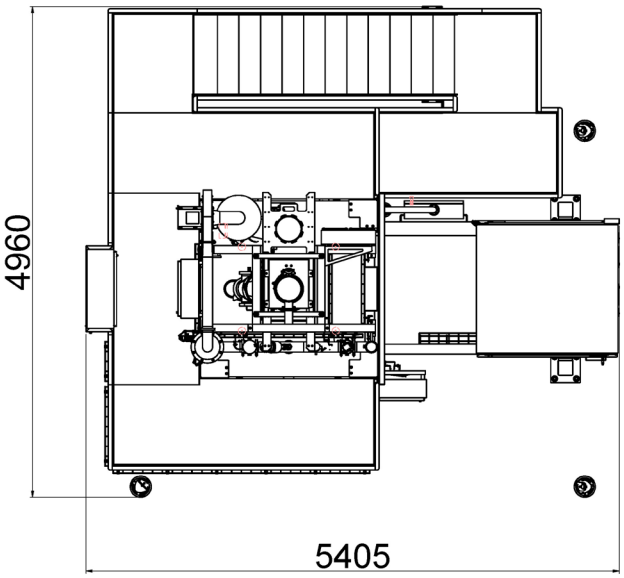
Electrical power	
17-21 kW depending on selection	400 V, 50 Hz

Compressed air
10-13,6 Nm^3 / h depending on selection at 600 KPa (6 bar)

Layout







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