The power of powder

Innovate at our Powder Handling Product Development Centre

Tetra Pak®
PROTECTS WHAT'S GOOD

Global expertise in powder handling

Powder is a core component in food and beverage processing – from dry ingredients like sugar, milk powder and flour to finished products like infant formula, dry broth and whey powder.

Innovation in this field helps you maximise your business potential.

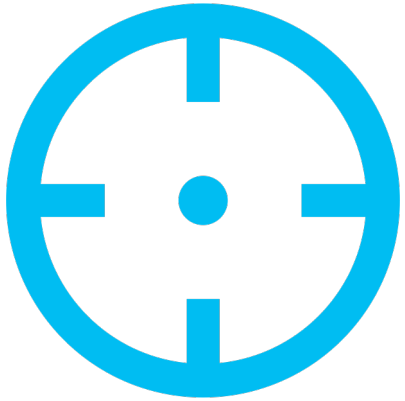
We are a global specialist in powder handling, with over 60 years of experience.

At our Powder Handling Product Development Centre in Le May-sur-Èvre, France, we can help you develop new tastes, adapt product recipes for new markets and find smarter processing solutions.

Let’s find out more!

What we offer you in Powder Handling

- High-performance end-to-end powder handling solutions whatever your location
- Full spectrum of equipment to meet every powder need in food and beverage
- From discharging and conveying, to dosing and dry-mixing, to powder packing and end-of-line operations
- Dedicated Powder Handling PDC where you can develop and evolve innovative products



OUR PDC'S MISSION

enabling product excellence from lab to plate

Our Powder Handling PDC – a force for innovation

Our PDC evaluates powder ingredients and products, validates powder process solutions and tests feasibility of new configurations

Facility at Le May-sur-Èvre near Nantes in France houses a laboratory and pilot plant

Lab scientifically analyses powder properties, based on vast library of tested and verified powders

Highly equipped pilot plant capable of running industrial-scale trials for your products

Excellence from lab to plate

Tetra Pak Powder Handling PDC

We handle a complete range powder ingredients and products – from sugar to flour, dairy to baby food, single to mixed recipes

We cover a full spectrum of applications in food and beverage

Technicians and experts with industry-leading knowledge

What's in it for you?

Access to top expertise in process performance and feasibility

Lower product development costs

Improved product quality

More efficient use of ingredients with less waste

Deeper understanding of ingredient and product characteristics

How we deliver

Analysis, testing, trials

60 years

of powder handling knowledge

Laboratory

- State-of-the-art powder behaviour analysis
- High product development capacity
- More than 6,000 powders tested and documented

Pilot plant

- Fully equipped test and trial facility
- Industrial scale capability
- Comprehensive product and process validation

Powder handling laboratory

Drive your product development with premium analysis services

Advanced analysis in laboratory conditions

- Powders behave differently from other materials, making characterisation and trials crucial for every new product
- Our food technologists and process engineers analyse powder properties to pinpoint the right process and equipment for you
- Powder analysis enables you to:
  - Adapt product recipes for new markets
  - Find smarter processing solutions
  - Satisfy consumer desire for new taste experiences

Powder analysis – the basics

- New dry recipes are examined using key powder values like segregation, density variation and wettability
- Typical analysis procedure:
  - Sample of 1 litre
  - Rheological properties evaluated
  - Characterization of behaviour
  - Benchmarking with other powders using library

Inside the lab

How the powder analysis process works

1. Breakage measurement
2. Moisture measurement
3. Mixing homogeneity measurement
4. Rheological analysis
5. Particle size distribution
6. Porosity
7. Fragility index
8. Risk analysis (Explosions)

Full-scale pilot plant

For a perfect powder process

Reliable trials – vital for market success

- Based on our prowess in dairy, we have a strong track record in conducting effective product trials and pilot production
- Powders behave differently from other ingredients, making real-life trials essential for effective process configuration and product development
- Our team of engineers works closely with you at each step of the way
- Together we define a trial program that meets all your needs

How a trial works

- Inside the pilot plant, process function modules reproduce real-life conditions with machine combinations
- Trials are organised around pneumatic conveying systems from different technologies like vacuum or pressure and lean or dense phase
- Optional functions are added according to customer processes, e.g. mixing, dosing, big bag unloading

Equipment available for testing

- Tipping and discharging
- Pneumatic conveying
- Dosing
- Sifting
- Mixing

Wide range of on-site equipment

Tipping and discharging

- Tetra Pak® Bag Tipping unit VS 401
- Tetra Pak® Bag Tipping unit VS 600
- Tetra Pak® Big Bag Tipping unit VB005
- Tetra Pak® Big Bag Tipping unit VB004 (on request)
- Tetra Pak® Big Bag Tipping unit VB006 (on request)

Pneumatic conveying

- Tetra Pak® Pneumatic Conveyor PDP FO
- Tetra Pak® Pneumatic Conveyor PLP
- Tetra Pak® Pneumatic Conveyor VDP FD
- Tetra Pak® Pneumatic Conveyor VLP

Dosing

- Tetra Pak® Powder Feeder DN061
- Tetra Pak® Vibrating Conveyor EV
- Tetra Pak® Screw Conveyor ET151
- Tetra Pak® Inclined Screw Conveyor ET181

Sifting

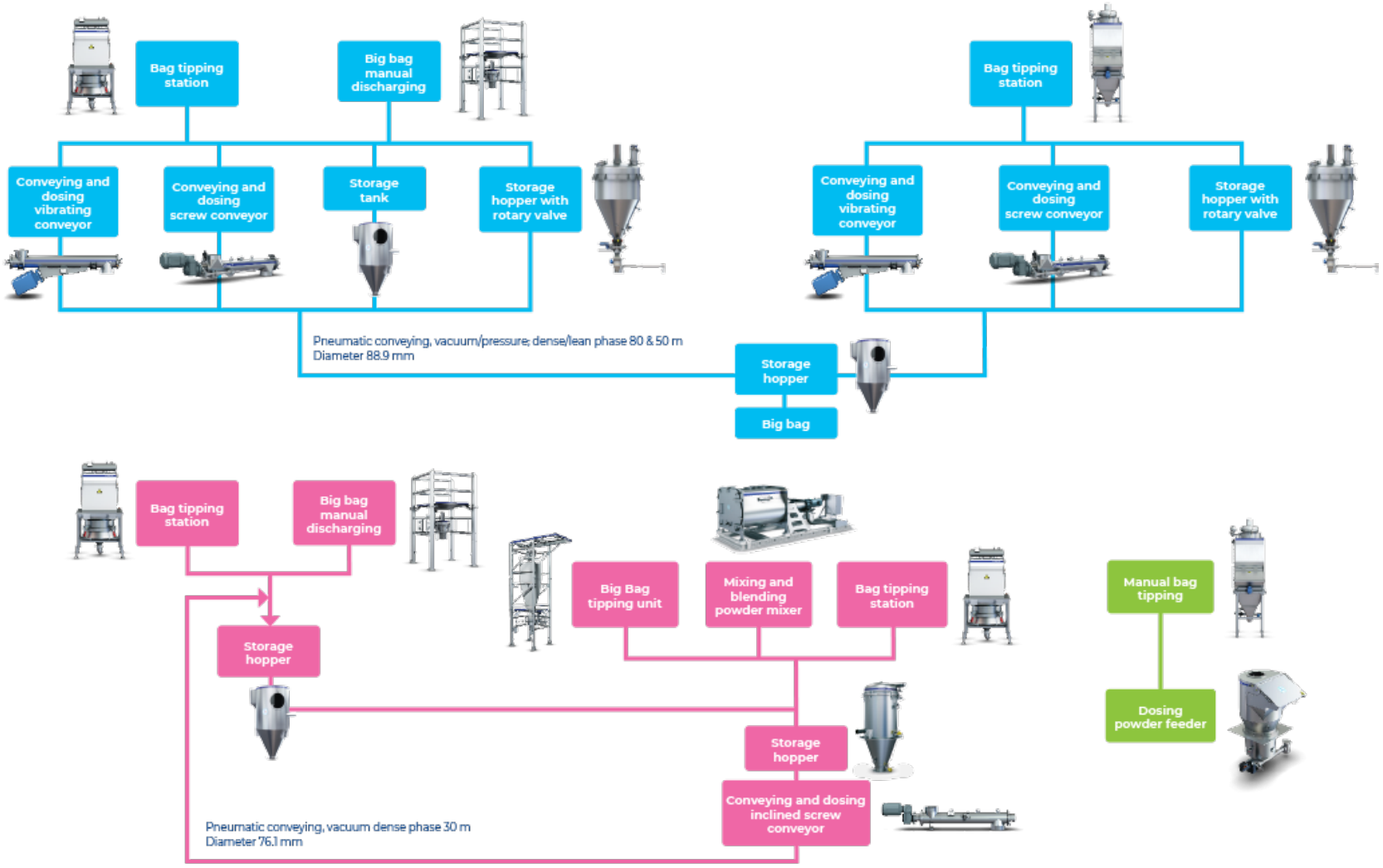
- Tetra Pak® Sifter TR 201

Mixing

- Tetra Pak® Powder Mixer

Multiple configurations available

For testing according to need



Our PDC equipment portfolio

Advanced technology for every need

Tipping and discharging

Tetra Pak® Bag Tipping unit VS 401

Tipping and discharging systems drain powdered or granulated products without generating dust.

Tetra Pak® Bag Tipping unit VS 401 is a manual tipping station for bags containing powders, equipped with dust collection system. Capacity of 3 tonnes/hour. Electrical control. Filter FL005. Vibration motor. Possibility to connect to the output:

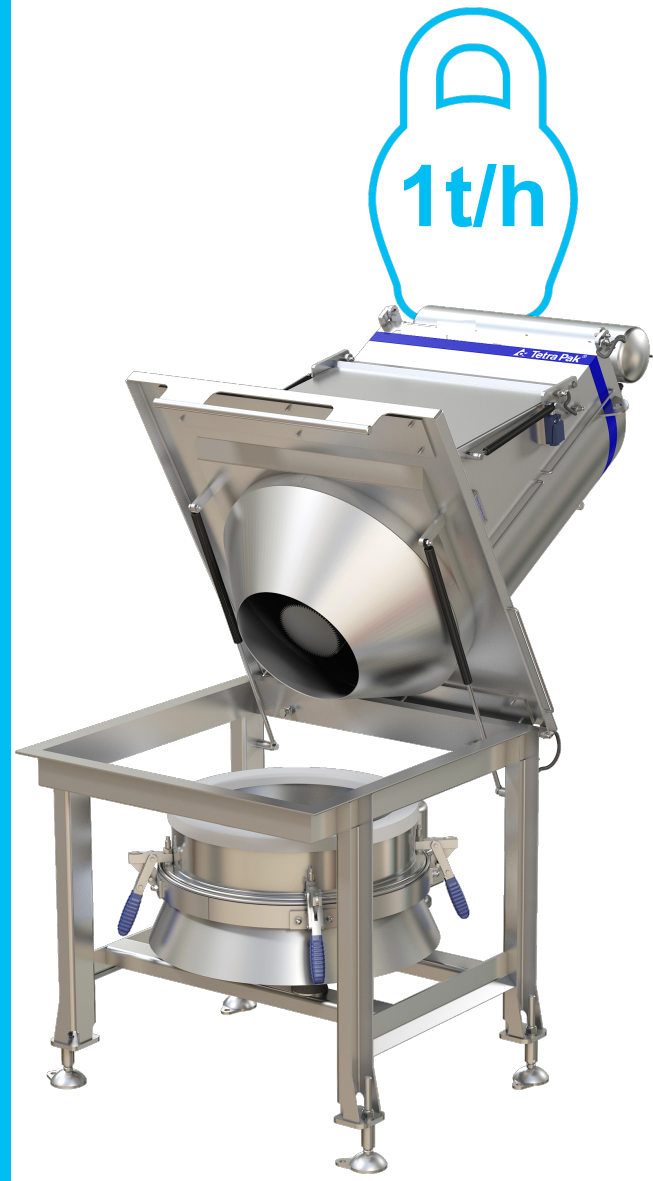
- Tetra Pak® Vibrating Conveyor EV – pneumatic transport
- Tetra Pak® Screw Conveyor ET151 – product recovery in a big bag

Tipping and discharging

Tetra Pak® Bag Tipping unit VS 600

Tetra Pak® Bag Tipping unit VS 600 is a manual bag tipping unit for bags containing powders and is equipped with an optional sifter and dust collecting system. Capacity of 1 ton/hour. Electrical control. Horizontal vibrating sifter. Cartridge filter with fan. Possibility to connect to the output:

- Vibrating conveyor EV
- Screw conveyor ET151
- Hopper

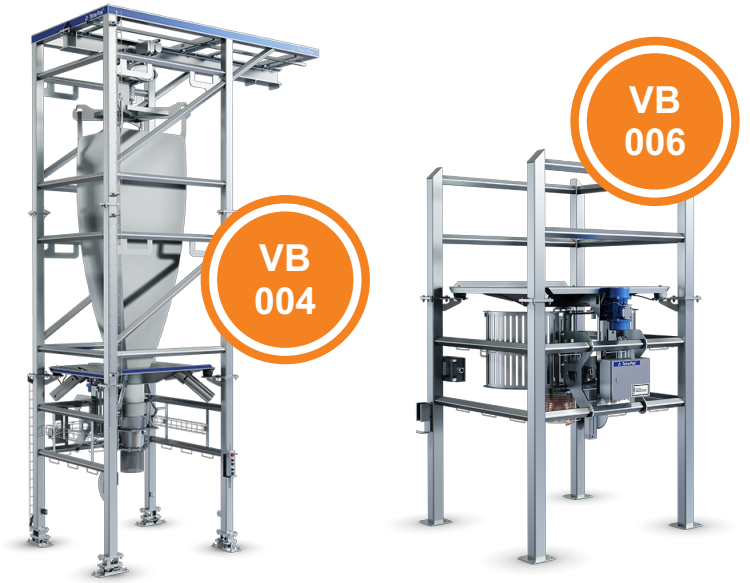


Tipping and discharging

Tetra Pak® Big Bag Tipping unit VB004

Tetra Pak® Big Bag Tipping unit VB004.

- Can be connected to the Tetra Pak Pneumatic Conveyor FD if piping is 30 meters in length and 76.1 mm pipe diameter
- Can be connected to the Tetra Pak Screw Conveyor ET, Tetra Pak Vibrating Conveyor EV, Tetra Pak Sifter (TR201)

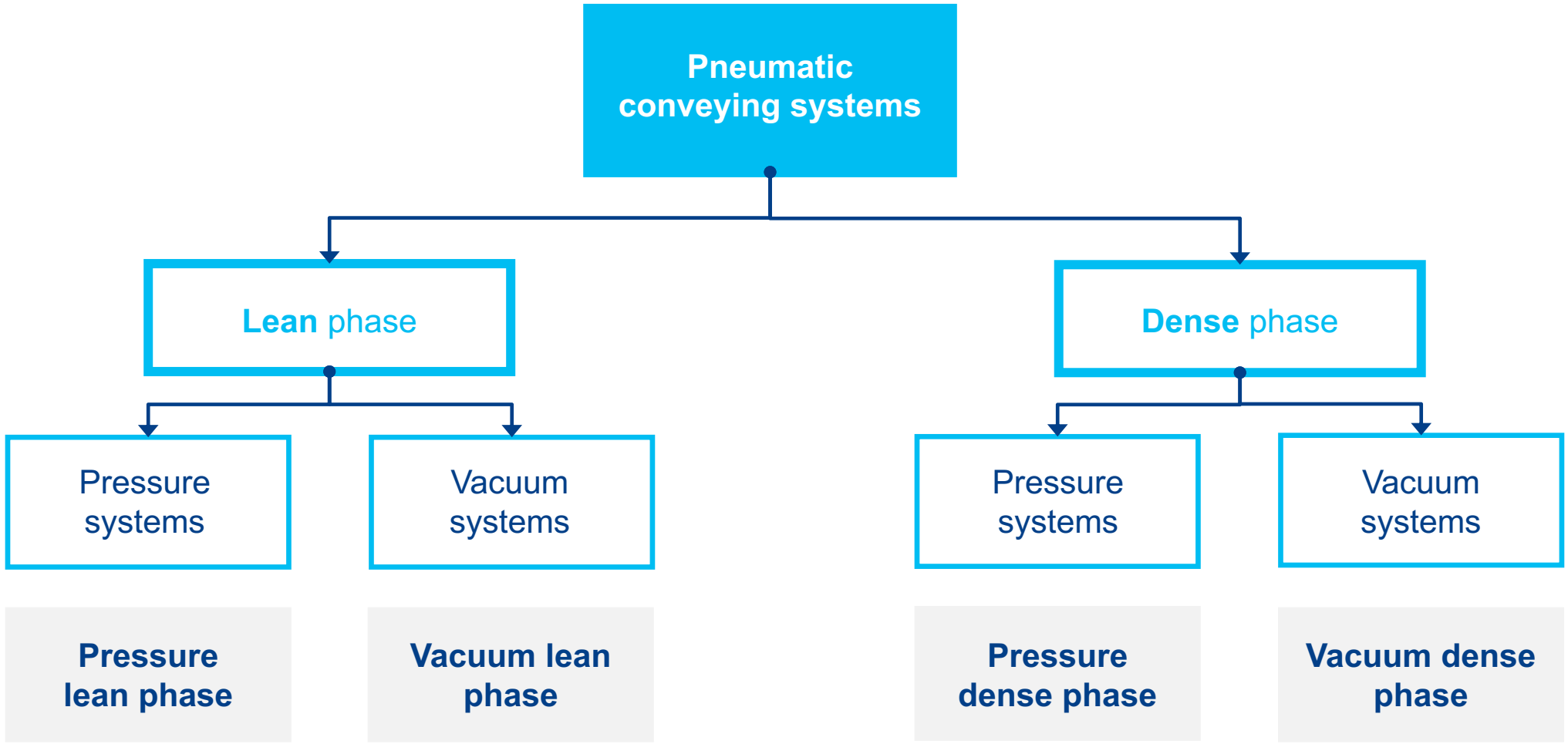


Can conduct trials on request with:

- Tetra Pak® Big Bag Tipping unit **VB004** – manual control
- Tetra Pak® Big Bag Tipping unit **VB006** – electro-pneumatic control with safety cage

Pneumatic conveying

Four combinations offered



Pneumatic conveying

Dense and lean phase trials at our PDC

Vacuum dense phase

- Dense phase transport uses a 300-litre receiving hopper (FD100) with scales and one or two identical vacuum pumps on a 30-metre circuit.

Pressure dense phase

- Pneumatic dense phase transport uses a twin pot (Tetra Pak Pneumatic Conveyor FD with double tank option) connected to a circuit of 50 or 80 metres.

Lean phase

- Lean phase transport uses a 1,000-litre receiving hopper equipped with an FL200 filter and load cells.

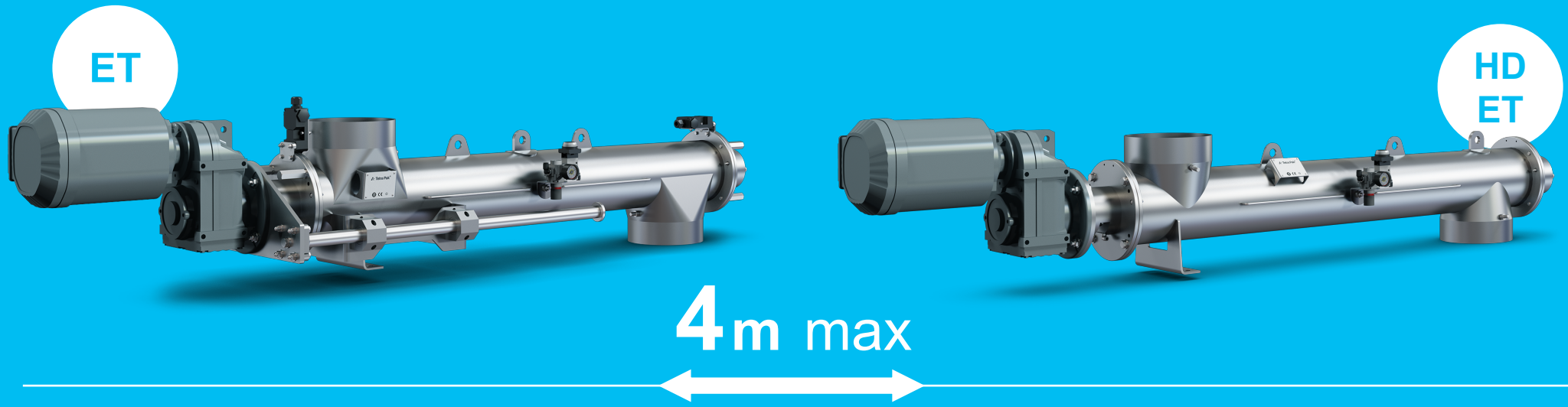
Dosing

Tetra Pak® Vibrating Conveyor EV

Tetra Pak® Vibrating Conveyor EV conveys and/or doses granulated or powder components over short distances. Connected to lean phase pneumatic transport via 88.9 mm diameter pipe of 50 or 80 metres. Electromagnetic motor. Manual operator control. Possible to vary vibrations from 0 to 70 Hz.

Dosing

Tetra Pak® Screw Conveyors



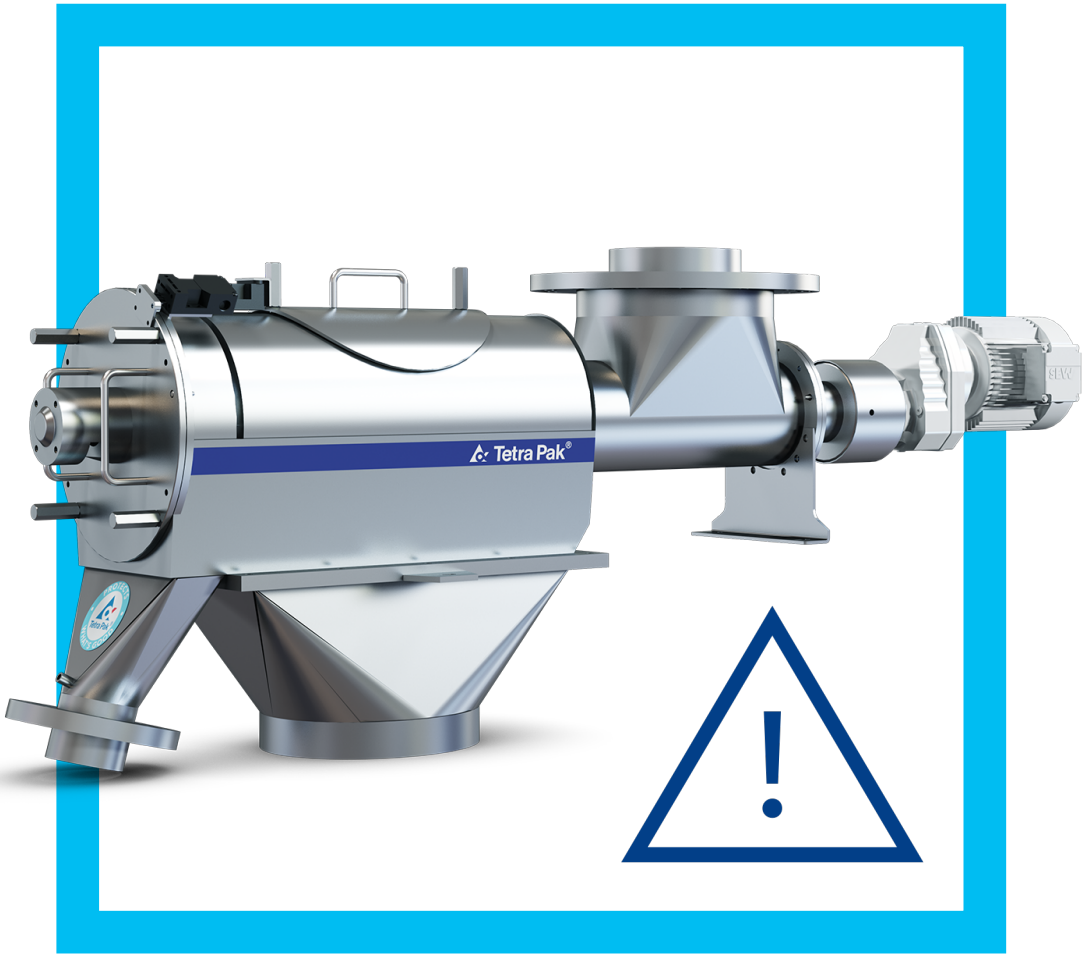
Tetra Pak® Screw Conveyors convey and/or dose granulated or powder components over short distances (max. 4m). Depending on the application, inlets and outlets can be customised. Full stainless-steel design suitable for dry products in the food industry.

Dosing

Tetra Pak® Powder Feeder DN061 ensures effective dosing and extraction of difficult products. A filter can be connected when performing trials. The feeder is used primarily to dose minor or secondary ingredients in bags or big bags in the food industry.

Sifting

Tetra Pak® Sifter TR 201



Tetra Pak® Sifter TR201 is used to sift product safely in potentially explosive conditions.

Use and features

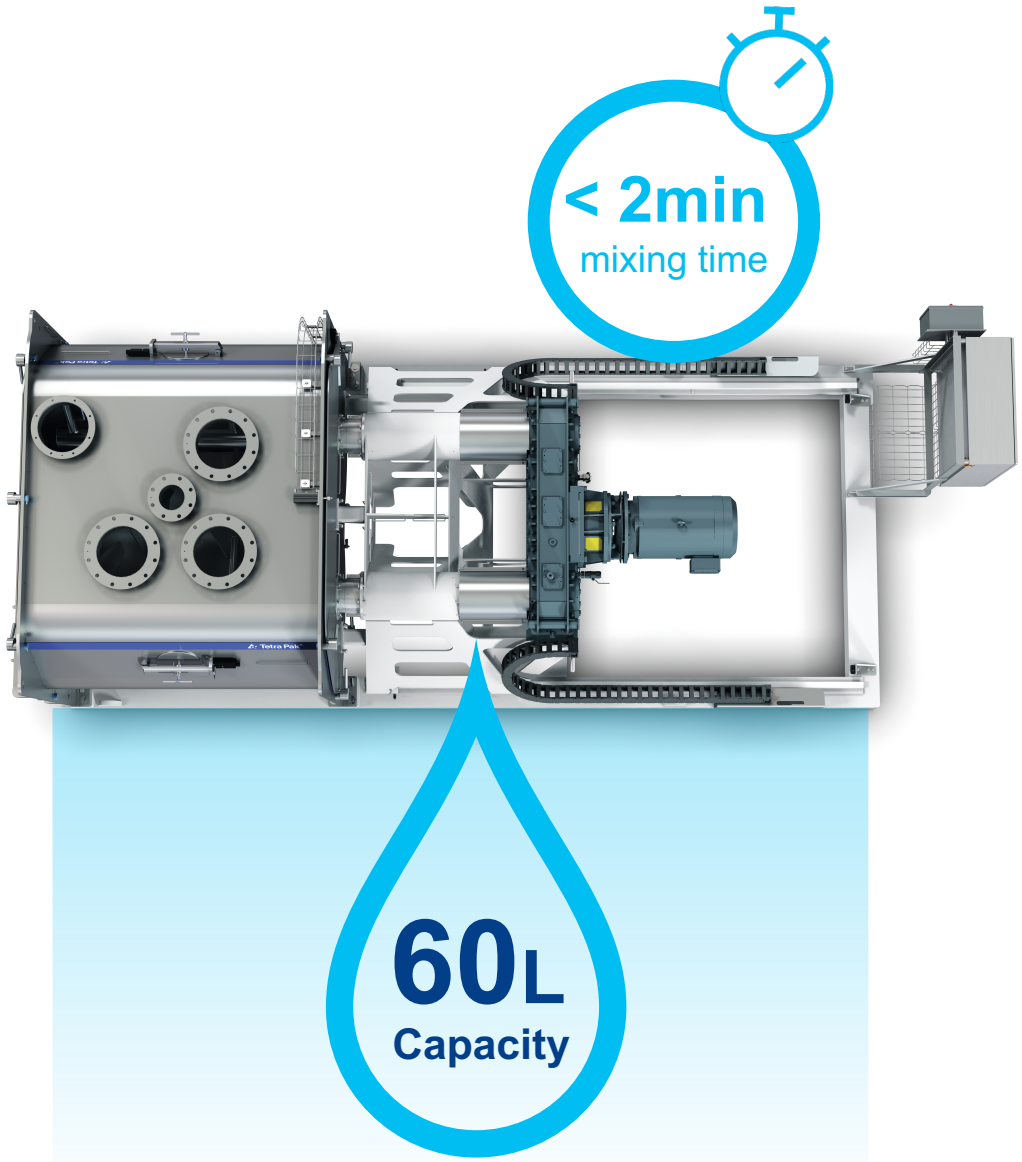
- Safely removes foreign matter from any powder with Minimum Ignition Energy > 3mJ
- Zone 20 or 21 for internal of the sifter and zone 21 or 22 for external of the sifter
- External bearings with pressurisation

Mixing

Tetra Pak® Powder Mixer

Tetra Pak® Powder Mixer is available for testing on a permanent basis at our PDC.

- Capacity 60 litres
- Short mixing time < 2 mins
- Excellent good homogeneity
- Very limited powder breakage
- High versatility in ingredient mix
- Flexible filling ratio (80% < V < 120%)
- Hygienic, robust, easy to clean



Interested in booking a test?

PDC address

12 rue du Bordage,
49122 Le May-sur-Èvre
France
PowderHandling@tetrapak.com
+33 2 41 63 26 26

To arrange a trial at our pilot plant, contact your local Tetra Pak representative or the PDC directly.

On request, we can also arrange remote presentations of our PDC and selected equipment.

Remote presentations and trials

- At our pilot plant we can schedule remote presentations of some products and solutions
- We offer high-resolution live streaming of product trials that can be followed in real time from anywhere in the world
- After the trial, we send you a recording of the entire process along with a written technical report and trial samples

Leading the way in powder handling

Our PDC – a force for your innovation

- State-of-the-art powder behaviour analysis in specialist laboratory
- More than 6,000 powders tested and validated
- Fully equipped test and trial facility with industrial-scale capability
- Expertise in product and process validation for all powder types

Tetra Pak®

PROTECTS WHAT'S GOOD

Tetra Pak is a world leading food processing and packaging solutions company. Working closely with our customers and suppliers, we provide safe, innovative and environmentally sound products that each day meet the needs of hundreds of millions of people in more than 160 countries. With more than 25,000 employees around the world, we believe in responsible industry leadership and a sustainable approach to business.

www.tetrapak.com