The PALAMATIC PROCESS laboratory for powders was built for the attention of all our industrial customers who wish to set up production machines to meet their expectations.

Our test center is made up of the latest machinery in the powder handling sector. Specialist engineers are there to advise you on the industrial processes best suited to your requirements and to guide you at every stage of the decision to design the most efficient installation.

3 STEPS TO VALIDATE YOUR PROCESS

Step 1 - Before Test
- Select the likely optimal machine configuration based on your technical requirements (powders, flow rate, dosing)
- Draft test proposal by our sales-engineers representatives

Step 2 - During Test
- Process validation for product testing
- Perform testing and sample collection
- Discussion on results after the test with machines (phase diagram, degradation tests, fines content)

Step 3 - After Test
- Analysis of machine test data and samples
- Write a summary report
- Collaborate on the optimal solution for your requirements
- Submit a quotation

THE BENEFITS OF MECHANICAL TESTING

- Individual consultation and on-going support of our R&D engineers
- Confirmation of the appropriate machines to conduct a test with your product
- Tests at various operating conditions to define the most efficient process according to your industrial requirements
- Evaluation of the profitability of equipment configuration
- Possibility to test additional options using PALAMATIC PROCESS’ range of products
- Maximize the return of your investment
- Maximize the optimum selection of the proper machine
- Capitalize on the wide experience of our experts

300 + than 300 configurations

- 300 process configurations
- 2,400 sq. feet of surface dedicated to the test
- 35 industrial machines
- 35 feet of ceiling
- Test with all types of products
- 2 support engineers
- ATEX configurations

Come with your materials
Participate in selecting the test machines
Maximize your productivity
Convey rate: 2 to 100 tons/h.

**VERY ABRASIVE MATERIALS CONVEYING**

This dense phase pressure conveyor system is suitable for very abrasive materials, at all throughput rates and all temperatures.

In this type of pneumatic conveyor, the valve cuts the product flow above the transfer tank. This tank is fitted with a double case and a special output elbow that allows sending the product slowly to the pneumatic conveyor piping.

This completely patented dense phase conveying system allows to ensure the elbows for up to two years against abrasion, and to provide a guarantee of 1,000,000 operating valve cycles before general revision. Furthermore, the dispatching valve can be cooled by water circulation, which allows to send materials at very high temperature in the process.

**PNEUMATIC CONVEYING RANGE**

**MINIMAXFLO®**
from 15 to 85 liters

**MAXFLO®**
from 114 to 3,500 liters

**Advantages**

- Limited abrasion and segregation
- Long conveying distances
- Very high convey rates
- Optimized design to meet specific needs

**Conveying compressed air supply**

**Control box**

**Valve for break in the product stream**

**Vent line**

No baffle, nozzles or fluidization jets

**Volume of the sas**

Low and controlled velocity

**Available**

**Custom**

**Made**

www.palamaticprocess.com/powder-machine/conveying-system
/pneumatic-conveying/dense-phase-pressure

Download videos & layouts from our website
Pneumatic Conveying

Pressure - Dense phase

**PNEUMATIC CONVEYING RANGE - DENSE PHASE PRESSURE**

**OPERATING MODE**

1. Airlock filling by the dome opening and the vent line (pinch valve)
2. End of filling controlled by temporization. Valve closure in the material column. The airlock is 100% filled
3. The airlock is sealed by the vent line closure and the pressurization of the dome seat
4. Pressure rising of the airlock and starting time for the material evacuation
5. Degassing of the airlock by vent line and cycle reset

**SOFTWARE**

- Loading tank cars
- Long convey distances
- Dedicated high-rate line

**TECHNICAL SPECIFICATIONS**

- **Particle size:** from very fine (ash) to big peanuts
- **Overpressure average level:** 4 bars
- **Manufacturing:** cast iron, 304L, and 316L stainless steel
- **Compressed air consumption:** 2 to 114 Nm³/min.
- **Maximum conveying distance:** 700 m.
- **ATEX Certification:** Zone II 1D, G (EMI less than 3 m/s)
- **Maximum temperature:** 280°C
- **Maximum operating temperature:** > 300°C
- **Inlet Ø:** 50 to 600 mm.

**ADVANTAGES**

- Slow and smooth conveying, with less compressed air and energy consumption
- A simple system and not contaminating
- Less wear due to low conveying rate
- Stainless steel construction for sanitation or corrosion resistance

**CASE STUDY**

Realization of an assembly of pneumatic conveying to feed sack filling machines:
- 2 feeding silos
- 4 packaging lines

**EXAMPLES OF INSTALLATIONS**

- Loading tank cars
- Long convey distances
- Dedicated high-rate line

**www.palamaticprocess.com/powder-machinery/conveying-systems/pneumatic-conveying/dense-phase-pressure**

Download videos & layouts from our website
Examples of Installations

Why our pneumatic systems are the most air efficient in the market?

The Inflatex® valve is unique in its ability to close and to ensure sealing in a single action, through a column of static or mobile material. This feature ensures complete filling of the tank. Air consumption is strongly minimized.

Sealing is provided by the inflation of elastomeric sealing gasket which prevents wear from erosion of the seat and of the seal of the valve.

The Inflatex® valve has a nominal capacity of one million cycles between each inspection, which almost eliminates the maintenance operation and costly production downtime.

**ADVANTAGES**

The Inflatex® valve was specially developed for pneumatic transfer tanks.

- No abrasion
- Tight and sealed closing thanks to a inflatable seal
- Tight and sealed closing thanks to a static or moving product column
- Pressure: 43 bar
- Temperature: 280°C
- Size: 50 - 600 mm

**TECHNICAL FEATURES**

- Abrasive materials: abrasive slurries, powders, bulk granules and gases loaded with dust cause erosion of the seat and the inefficient closure of classic valves. The inflatable seal and its function of automatic compensation overcomes the problems related to wear because of abrasive materials.
- Differential pressure: this pressure usually causes the rapid wear of the seat due to non-caught particles and transportation at high speed. The inflatable seal allows to effectively catch particles to prevent their movement and thus the premature wear of the machines.
- Closing and sealing: the movement of the dome enables complete closure in the bulk material column and the action of the inflatable seal allows a perfect sealing.

Additional information

The inflatable seal is available in different polymer versions according to the material ranges from abrasive dusts to food products.

If the material flows into the vacuum or remains static within a column, the valve is designed to stop the transfer and provide a complete sealing.

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**U.S. DEPARTMENT OF ENERGY**

Objectives:
- Minimum particle size degradation
- Low operation cost

Retrofit of a poorly designed pneumatic conveying system for run-off-mine coal fuel size 56 mm. Low velocity, dense phase coal handling for rotary grate coal fired boilers and dust-free yard storage. The coal transfer system has been developed to maintain a low velocity of the coal fuel. In addition to minimizing material degradation, the low velocity ensures very little or no pipe wear.

**ALLEN SUGAR**

Objectives:
- Minimum particle size degradation
- Low operating cost

Allen Sugar required the most modern handling system for fragile granular sugar and dextrose without any change to the product grain size or shape. Exacting degradation limits were established for pre-contact engineering.

The system satisfied all objectives with negligible degradation of the sugar granule or the dextrose material.
Dilute Phase Pressure Pneumatic Conveying Blower

Examples of Installations

BRUNNER MOND

Objectives:
- Minimum particle size degradation
- Operating reliability

Customer manufactures sodium bicarbonate which is used for a wide range of individual and consumer products. The quality of the product depends upon the consistency of the particle size distribution with a severe limit on fines content. To satisfy these requirements, low material velocity is required, which was achieved by the pneumatic conveying system.

Basic data:
- Sodium bicarbonate
- 1 low velocity conveying system
- 1 reception point
- Ambient temperature
- 22 t./h.

ACE HARDWARE

Objectives:
- Operating reliability
- Accurate weighing
- Low operating cost

A loss-in-weight batch weighment control is provided at each transfer unit. Any of six different materials is introduced to the system for pre-weight and transfer to any of six receiving bins. TiO2 is an unusual material which exhibits cohesive characteristics from its grain shape even when dry and apparently free flowing.

Basic data:
- Titanium dioxide (TiO2) and other materials
- 2 X low velocity conveying systems
  (150 mm)
- 6 reception points
- Ambient temperature
- 25 t./h.