Dense Phase Vacuum Pneumatic Conveying

Characteristics of the solutions

<table>
<thead>
<tr>
<th></th>
<th>Convey velocity</th>
<th>Convey rates</th>
<th>Piping abrasion</th>
<th>Risk of damage of the mixing quality</th>
<th>Amortization: Investment</th>
<th>Energetic cost</th>
<th>Operating cost</th>
<th>Hygienic application</th>
<th>Multiple arrival points</th>
<th>Multiple start points</th>
<th>ATEX application</th>
<th>Integration of weighing device at the start</th>
<th>Integration of weighing device on arrival</th>
<th>C.I.P. (Clean In Place)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vacuum dense phase</strong></td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td><strong>Pressure dense phase</strong></td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td><strong>Pressure dilute phase</strong></td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

Maximum Rates:

- 6 to 8 t./h.
- 100 t./h.
- 40 t./h.

Flow rates are indicative and may vary depending on material type.
**OPERATING PRINCIPLE**

Dense phase vacuum conveying systems use high capacity vacuum pumps to convey materials from a feeding hopper or a silo to a receiving vessel (vacuum hopper) where the air and product are separated by a filter. When this vessel is full, the vacuum is isolated and the conveyed product is discharged.

Particularly adapted to difficult products, this cyclone can be easily set up in your environment with unlimited extension possibilities. Suction is performed from several feeding points and/or loading several points in your process. Coupled with weighing systems, it allows controlled introduction by weight of raw materials (bulk powders, granules...).

**SYSTEM OVERVIEW**

**ADVANTAGES**

- Flexibility of the system through time
- Purge of the line
- Clean In Place
- Hygiene
- Loading of pressurized reactor
- Easy operation
- All products (bulk, powder, granules...)
- All rates
- No degradation of the conveyed material

**IDEAL SOLUTION FOR FEEDING**

- Powder moisteners
- Mixers
- Tanks
- Reactors
- Pressureized reactors
- Disperses loaded with solvents
- Filling machines...

**CYCLOONES RANGE**

<table>
<thead>
<tr>
<th>Models</th>
<th>Overall height in mm</th>
<th>Convey rate in m³/h</th>
<th>Ø Piping</th>
<th>Material outlet Ø</th>
<th>Compressed air consumption in m³/h</th>
<th>Tare weight kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>VF01</td>
<td>880</td>
<td>0 to 1</td>
<td>SMS 38/51</td>
<td>DN 200</td>
<td>0.21 to 0.85</td>
<td>95</td>
</tr>
<tr>
<td>VF02</td>
<td>1.133</td>
<td>1 to 2.5</td>
<td>SMS 51/63</td>
<td>DN 200</td>
<td>0.46 to 1.06</td>
<td>115</td>
</tr>
<tr>
<td>VF04</td>
<td>1.311</td>
<td>2.5 to 4</td>
<td>SMS 63/76</td>
<td>DN 250</td>
<td>0.88 to 1.23</td>
<td>145</td>
</tr>
<tr>
<td>VF03</td>
<td>1.477</td>
<td>4 to 6</td>
<td>SMS 76/98.9</td>
<td>DN 300</td>
<td>0.63 to 0.92</td>
<td>170</td>
</tr>
<tr>
<td>VF05</td>
<td>1.644</td>
<td>5 to 8</td>
<td>ISO 88/104</td>
<td>DN 300</td>
<td>0.57 to 0.92</td>
<td>185</td>
</tr>
</tbody>
</table>

Convey rates depend on the density of the conveyed material.

**RATES / DISTANCES RATIOS**

Granules, metallic powders or sticky materials, the VFlow® range ensures the conveying of more than 95% of existing powdered materials!
**VFlow® 01**

Dense phase vacuum conveying: powder pump

- **Model:** VFlow® 01
- **Rate:** 0 to 3 m³/h
- **Overall height:** 479 mm
- **Volume of the cyclone:** 15 liters
- **Manufacturing quality:** 3× (PVC coated, stainless steel deployed inside)
- **Cyclone body manufacturing:** 304(L) stainless steel, 316(L) stainless steel
- **Size of the particles transferred:** from mm. to μm
- **Vacuum pump technology:** Without lubrication, with dry paddles or nozzles
- **Max. weight:** 9.95 kg
- **Maximum vacuum transfer:** 800 Nm³/h
- **Air consumption**: 0.21 to 0.85 m³/h
- **Flow rate:** at atmospheric pressure, maximum and minimum rates
- **Operating pressure:** 6 bars
- **Filter manufacturing:** Polyester, PTFE coated, stainless steel deployed inside
- **Filtering area:** 2.6 m²
- **Unclipping tank volume:** 6.5 liters
- **Level probe characteristics:** Capacitive (on request according to product)
- **Unloading valve technology:** Butterfly Ø D200
- **Valve body:** Cast iron or 316(L) stainless steel
- **Valve disc:** 304(L) stainless steel, 316(L) stainless steel
- **Product valve technology:** pinch
- **Vacuum valve technology:** Butterfly with pneumatic actuator
- **Air suction pipe Ø (mm):** DN40
- **Product suction pipe Ø (mm):** 38 - 51
- **Piping type:** Rigid and flexible (reinforced piping with electrical spiral for metallic continuity)
- **Connections:** SMS, clamp, flange
- **Power required:** 2.2 to 3.3 kW
- **Inlet:** 2
- **Outlet:** 5
- **ATEX compatibility:** 20, 21, 22 and 1, 2
- **Pump flow rate m³/h:** 1.40

**VFlow® 02**

Dense phase vacuum conveying: powder pump

- **Model:** VFlow® 02
- **Rate:** 1 to 25 m³/h
- **Overall height:** 1.45 m
- **Volume of the cyclone:** 25 liters
- **Manufacturing quality:** 3× (PVC coated, stainless steel deployed inside)
- **Cyclone body manufacturing:** 304(L) stainless steel, 316(L) stainless steel
- **Size of the particles transferred:** from mm. to μm
- **Vacuum pump technology:** Without lubrication, with dry paddles or nozzles
- **Max. weight:** 13.25 kg
- **Maximum vacuum transfer:** 800 Nm³/h
- **Air consumption**: 0.45 to 1.06 m³/h
- **Flow rate:** at atmospheric pressure, maximum and minimum rates
- **Operating pressure:** 6 bars
- **Filter manufacturing:** Polyester, PTFE coated, stainless steel deployed inside
- **Filtering area:** 4.4 m²
- **Unclipping tank volume:** 6.5 liters
- **Level probe characteristics:** Capacitive (on request according to product)
- **Unloading valve technology:** Butterfly Ø D200
- **Valve body:** Cast iron or 316(L) stainless steel
- **Valve disc:** 304(L) stainless steel, 316(L) stainless steel
- **Product valve technology:** pinch
- **Vacuum valve technology:** Butterfly with pneumatic actuator
- **Air suction pipe Ø (mm):** DN50
- **Product suction pipe Ø (mm):** 51 - 63
- **Piping type:** Rigid and flexible (reinforced piping with electrical spiral for metallic continuity)
- **Connections:** SMS, clamp, flange
- **Power required:** 4 kW
- **Inlet:** 2
- **Outlet:** 5
- **ATEX compatibility:** 20, 21, 22 and 1, 2
- **Pump flow rate m³/h:** 200 - 250

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VFlow® 03
Dense phase vacuum conveying: powder pump

Model: VFlow® 03
Rate: 2.5 to 4 m³/h
Overall height: 1.987 mm
Volume of the cyclone: 40 liters
Manufacturing quality: Rv = 1.2 to 0.8
Cyclone body manufacturing: 304L stainless steel, 316L stainless steel
Size of the particles transferred: from mm to μm
Operating temperature: -10°C / +140°C
Vacuum pump technology: without lubrication, with dry paddles or nozzles
Tare weight: 145 kg
Maximum vacuum transfer: 800 Nm³/h
Air consumption*: 0.8 to 1.23 m³/h
Flow rate at atmospheric pressure, maximum and minimum rates
Operating pressure: 6 bars
Filter manufacturing: polyester, PTFE coated, stainless steel deployed inside
Filtering area: 2.8 m²
Unclogging tank volume: 6.5 liters
Level probe characteristics: decorative (on request according to product)
Unloading valve technology: butterfly Ø DN250
Valve body: cast iron or 316L stainless steel
Valve disc: 304L stainless steel, 316L stainless steel
Product valve technology: pinch
Vacuum valve technology: butterfly with pneumatic actuator
Air suction pipe Ø (mm): DN65
Product suction pipe Ø (mm): 63 - 76
Piping type: rigid and flexible reinforced piping with electrical spiral for metallic continuity
Connections: SMS, clamp, flange
Power required: 5.5 to 11 kW
Inlet: 2
Outlet: 5
ATEX compatibility: 20, 21, 22 and 1, 2
Pump flow rate m³/h: 150

VFlow® 04
Dense phase vacuum conveying: powder pump

Model: VFlow® 04
Rate: 4 to 6 m³/h
Overall height: 1.420 mm
Volume of the cyclone: 55 liters
Manufacturing quality: Rv = 1.2 to 0.8
Cyclone body manufacturing: 304L stainless steel, 316L stainless steel
Size of the particles transferred: from mm to μm
Operating temperature: -10°C / +140°C
Vacuum pump technology: without lubrication, with dry paddles or nozzles
Tare weight: 170 kg
Maximum vacuum transfer: 800 Nm³/h
Air consumption*: 0.63 to 0.92 m³/h
Flow rate at atmospheric pressure, maximum and minimum rates
Operating pressure: 6 bars
Filter manufacturing: polyester, PTFE coated, stainless steel deployed inside
Filtering area: 2.8 m²
Unclogging tank volume: 6.5 liters
Level probe characteristics: decorative (on request according to product)
Unloading valve technology: butterfly Ø DN250
Valve body: cast iron or 316L stainless steel
Valve disc: 304L stainless steel, 316L stainless steel
Product valve technology: pinch
Vacuum valve technology: butterfly with pneumatic actuator
Air suction pipe Ø (mm): DN80
Product suction pipe Ø (mm): 76 - 86.9
Piping type: rigid and flexible reinforced piping with electrical spiral for metallic continuity
Connections: SMS, clamp, flange
Power required: 11 to 15 kW
Inlet: 2
Outlet: 5
ATEX compatibility: 20, 21, 22 and 1, 2
Pump flow rate m³/h: 400

[Plans downloadable on www.palamaticprocess.com]
VFlow® 05

Dense phase vacuum conveying: powder pump

Model: VFlow® 05
Rate: 5 to 10 m³/h
Overall height: 1,883 mm
Volume of the cyclone: 70 liters
Manufacturing quality: R ≤ 0.2 to 0.8
Cyclone body manufacturing: 304L stainless steel, 316L stainless steel
Size of the particles transferred: from mm to 3 μm
Operating temperature: -10° → 40°
Vacuum pump technology: without lubrication, with dry paddles or nozzles
Tare weight: 115 kg
Maximum vacuum transfer: 800 Nm³/h
Air consumption*: 0.57 ± 0.02 m³/h
Flow rate at atmospheric pressure: maximum and minimum rates
Operating pressures: 5 bars
Filter manufacturing: polyester, PTFE coated, stainless steel deployed inside
Filtering area: 9.5 m²
Unclogging tank volume: 6.5 liters
Level probe characteristics: capacitive ion request according to product
Unloading valve technology: butterfly Ø DN300
Valve body: cast iron or 316L stainless steel
Valve disc: 304L stainless steel, 316L stainless steel
Product valve technology: pinch
Vacuum valve technology: butterfly with pneumatic actuator
Air suction pipe Ø (mm): DN100 - DN200
Product suction pipe Ø (mm): 85.9 - 154
Piping type: rigid and flexible reinforced piping with electrical spiral for metallic continuity
Connections: G3½ clamp, flange
Power required: 25 to 30 kW
Inlet: 2
Outlet: 5
ATEX compatibility: 20, 21, 22 and 1, 2
Pump flow rate m³/h.: 500

POSSIBLE FEATURES

- Specific and reduced dimensions
- Applications for toxic materials
- Specific industry as nuclear, petrochemistry
- Manufacturing materials adapted to the conveyed material and the working environment: steel, stainless steel, Hastelloy, Uranus B6, Viton, Perbutan, Nitrile...
- Surface treatments adapted to powders: electropolished, mirror polished, vulcanizing, teflon
- Process functionalities integration: dosing, screening, grinding, granulation, anti-bridging device, mechanical transfer
- ATEX 0-20

See all our options on pages 22-23

Dense phase vacuum conveying

The VFlow® allows a pneumatic vacuum dense conveying and prevents the deterioration of the material in a continuously and contained manner in your manufacturing processes.

Particularly adapted to difficult products (poor flow, fragility, abrasiveness or explosiveness of the material), this cyclone can be easily set up in your environment with unlimited extension possibilities.

Suction is performed from multiple feeding points and/or loading several points in your process.

It also allows the feeding of the pressurised reactor and feeding of the material without any addition of air.

Available models:

- VFlow® 05
- VFlow® 10
- VFlow® 20
- VFlow® 30
- VFlow® 50
- VFlow® 100

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/ pneumatics-conveying/dense-phase-suction-customized
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Available

Available

Available
Examples of Installations

14

C.I.P. FEATURES FOR PNEUMATIC CONVEYING

- Set of washing nozzles
- Accelerator pump depending on configuration
- Condensate separator
- Cyclone and tubing cleaned by pickling
- Pipe cleaned by scraping

WASHING NOZZLES MODELS

<table>
<thead>
<tr>
<th>STATIC</th>
<th>FREE ROTATION</th>
<th>CONTROLLED ROTATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure: 1.5 to 3 bar</td>
<td>Pressure: 2 to 3 bar</td>
<td>Pressure: 3 to 5 bar</td>
</tr>
<tr>
<td>Consumption: 14 to 460 liters/min.</td>
<td>Consumption: 8 to 639 liters/min.</td>
<td>Consumption: 25 to 193 liters/min.</td>
</tr>
</tbody>
</table>

WASHING CYCLES

Type A cleaning process:
1. Rinse solution 80°C with water
2. Water with soda 80°C, soda at 2/3%
3. Rinsing operation with water
4. 1% of nitric acid at 60°C
5. Rinsing operation with water
6. Second and final water rinsing
7. Warm air blowing at 130°C

Cycle example

Washing head implementation

Type B cleaning process:
The same as the type A but with an air blowing between each step and the use of a WFI water

Cleaning fluid transfer is about 0 to 300 seconds

Type B cleaning process:
The same as the type A but with an air blowing between each step and the use of a WFI water

Cleaning fluid transfer is about 0 to 300 seconds

DETERGENT TYPE

Control of the detergent titrant concentration and recovering of washing waters. Detergent examples:
- Alkaline
- Disinfectant
- Dewatering: solution enabling the acceleration of the installation drying

WASHING WATER RECOVERING

- Water drainage ou shift back to the central through recirculation pump
- Recycling of rinse waters for the pre-washing of the following cycle

DRYING SOLUTIONS

- Natural drying
- Natural evaporation
- Use of product dewatering
- Warm air sending
- Warm air station
- Repression of vacuum pump

WASHING HEAD IMPLEMENTATION

C.I.P. specific design machine

Fillet

C.I.P. specific design machine

Washing plant

C.I.P. specific design machine

C.I.P. specific design machine

C.I.P. specific design machine

C.I.P. specific design machine

Customer: Dairy, yogurt manufacturing
Treated product: Sugar
Objectives: Feeding of a powder disperser from 2 weighed FIBC unloading units. Flow rate: 5Lt./h. Integrated purge of the line to ensure dosing accuracy and no cross-contamination

ONLINE SIFTING

Customer: Spices manufacturer
Treated product: Food mixture
Objectives: Online mixture sifting and feeding of a FIBC packing unit. Flow rate: 4Lt./h.
Advantages: accessibility to equipment for inspection and cleaning

TRANSFER OF COATING GELATIN FOR CAPSULES

Customer: Pharmacist
Treated product: Virgin gelatine
Objectives: Ensure the feeding of the melter with virgin gelatine (separation of fine and grain) and maximum hygiene
Advantages: the pneumatic conveying system provides multiple functions which help to minimize a number of implanted devices

DEMOUNTABILITY OF EQUIPMENT

Customer: Industrial chocolate factory
Treated product: Cocoa, hazelnut powder, vanilla powder
Objectives: Compact design for easy disassembly and cleaning; ATEX Security: Special design for greasy material with poor flowing
VFlow® Detached Filter

OPERATING MODE

A separating cyclone (offset filter) is coupled with a pneumatic conveying cyclone. The separating cyclone is fitted with a reintroduction nozzle for collecting aspirated fines continuously and for using them again in the process. From a flow rate point of view, the introduction of a separating filter allows to eliminate filter cleaning cycles (10% of a cycle time on average).

MAIN FUNCTIONS

1. **Cyclonic**: air/product separation
2. **Storage**: product recovery, conservation of expansion volume
3. **Finishes**: separation and protection of the vacuum element
4. **Reintroduction** into the process line or fines recovery in the dedicated hopper

**SEPARATING CYCLONE**

- Unclogging set: tank + sequencer
- Storage level with capacitive level sensing probe
- Extraction rotary valve by a continuous and regulated feeding (butterfly valve version available)

**Cyclofilter**

- Hopper version to reintroduce fines
- Cyclofilter to separate the fines

**RANGE OF CYCLOFILTERS**

<table>
<thead>
<tr>
<th>Models</th>
<th>Rate in m³/h</th>
<th>Piping Ø in mm</th>
<th>Filtering surface in m²</th>
<th>Cyclone outlet Ø in mm</th>
<th>Cyclone height in mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>VFlow 60</td>
<td>2</td>
<td>60</td>
<td>5</td>
<td>100</td>
<td>600</td>
</tr>
<tr>
<td>VFlow 100</td>
<td>4</td>
<td>65</td>
<td>8</td>
<td>150</td>
<td>780</td>
</tr>
<tr>
<td>VFlow 120</td>
<td>6</td>
<td>80</td>
<td>12</td>
<td>150</td>
<td>1,400</td>
</tr>
<tr>
<td>VFlow 160</td>
<td>8</td>
<td>100</td>
<td>16</td>
<td>200</td>
<td>1,850</td>
</tr>
<tr>
<td>VFlow 200</td>
<td>10</td>
<td>125</td>
<td>16</td>
<td>250</td>
<td>2,300</td>
</tr>
</tbody>
</table>

**Available options**

- **C.I.P.**: Clean In Place
- **A SAS for reactor feeding**
- **Unloading valve with inflating cuff in harsh environments**: emanation of vapors
- **Feeding with Nitrogen**

**TECHNICAL SPECIFICATIONS**

- **Particle sizes**: 5 – 3.3 mm
- **Average level of vacuum**: 500 mbar absolute
- **Cyclonic efficiency**: > 99.5%
- **Manufacturing materials**: 304L stainless steel, 316L stainless steel
- **Available finishes**: outside microblasting, inside electropolishing, inside mirror polishing
- **Filtering media**: PTFE, antistatic PTFE, FDA certified
- **ATEX certification**: zone II 1.2.3 GD (less than 3 mL/EMI).
EXAMPLES OF INSTALLATIONS

MULTIPLE DISCHARGE POINTS
Customer: Catalyst manufacturing for the petrochemical industry
Products: resins, polymers, talc, silica
Objectives:
- Move the operator away from the hazardous area
- Avoid cross contamination
- Ensure weighing

REACTOR FEEDING
Customer: Shampoo manufacturer
Product: wax
Objectives: feeding of 4 high temperature reactors loaded with wax.
The dosing is ensured with the loss-in-weight of the FIBC unloading units.
Dosing accuracy: 500 gr.
Flow rate: 4t./h.

DOsing with multi-point discharge: continuous conveying without product loss
Customer: manufacturer of seals for automobiles
Product: carbon black
Objectives: the detached filter allows a floor layout of the filtering cyclone-filter. Maintenance operations are facilitated and centralized on a single device. Other cyclones are located in height and require no maintenance.

THE ATEX REGULATIONS: AUDIT AND COMPLIANCE
In their production processes, our customers are very frequently faced with the explosive nature of several materials used (powder, gas, liquid). Huge accidents prove the consequences that an explosion may have. When the atmosphere is explosive, a small spark (e.g. that of an electric switch or from the mechanical heating of a part of the machine) is enough to cause an accident or a disaster. For many years, authorities and industries have worked on developing safety rules governing work conditions in dangerous environments: explosive atmospheres.
PALAMATIC PROCESS offers you its expertise to classify areas in hazardous locations depending on the nature or duration of the presence of the ATEX atmosphere. Today, PALAMATIC PROCESS delivers to its customers ATEX facilities certified by the notified bodies (ühr, LCIE...).
PALAMATIC PROCESS has developed standard equipment meeting the ATEX 0-20 / 1-21 / 2-22 regulations.
Also, our specialists engineers conduct zoning and the drafting of risk analyses on new equipment and new facilities.
PALAMATIC PROCESS ensures the safety of operation and full compliance with the standards.
This option provides transfer and dosing combination. The integrated weigh system allows to control the dosing in masked time and to prepare the batch.

The vacuum dense phase conveying technology allows the integration of weighing solutions.

**TWO POSSIBLE SOLUTIONS:**

1. **Loss-in-weight**
   - Loss-in-weight solution consists in weighing the «starting point» of the powder process (sack dumping unit, fibc unloading unit, drum emptying station...).
   - The automation controls the vacuum through the purge system in order to stop the transfer.
   - To achieve higher accuracy, a metering element (valve, screw conveyor, rotary valve) can be implemented.

2. **Weight gain**
   - The solution for weight gain involves implanting the cyclone on load cells.
   - Once the aspirated quantity coincide with the setpoint, the controller stops the transfer, the dose is ready to be inserted.

**TECHNICAL SPECIFICATIONS**
- Rate from 1 to 10 m³/h.
- Conveying distance: from 1 to 100 m.
- Conveying speed: < 5 m/s.
- Products: powders, grains, granules...

**POSSIBLE TRIALS**
- Our test station offers you the opportunity to observe, in real conditions, the behavior of your products during the transfer process. This equipment experiment allows technical validation beforehand to secure your investment.

More information on our website:
www.palamaticprocess.com/powder-machine/conveying-system
/pneumatic-conveying/dense-phase-suction

Download videos & layouts from our website

**Advantages**

- Precision < 1 kg and < 50/100 gr. with a metered feeding.
- Line venting
- Dedicated line: no cross contamination
- Display

The conveying system ensures the «pumping» of the product to reach the target weight. During unloading, return to «zero» ensures total introduction of material into downstream equipment.
EXAMPLES OF INSTALLATIONS

**Cyclone transfer system with dosing device**

**Multi-line for the feeding of the weighed cyclone: allows the production of the premix during the transfer phase**

**Vacuum pneumatic conveying with integrated «weight gain» scale.** This pattern is specially designed for the suction of multi-components.

Customer: plant for preparation of ready-to-cook dishes

Products: wheat flour, rice flour

Objectives: suck a specific batch of flour with respect of the doses of the premix in masked time.

Characteristics: the buffer capacity of the cyclone permits the storage of 800 kg for a «snapshot» feeding of the mixer located downstream.

Customer: food cooking breaded meat

Products: starch, carbonates

Objectives: premix production in masked time with respect of the recipes.

The weighed cyclone operates in technical roof spaces to create production space in clean area.

Flow rates: 4t./h.

Customer: yogurt manufacturing plant

Products: sugar and proteins

Objectives: buffer storage of raw materials in hoppers. The VFlow® 04 pneumatic conveying directly sucks the raw materials. The loss-in-weight device controls suction to ensure the conveying of the desired doses.

**SUCTION PIPE**

Effortless suction of the product

Hand operated device to allow the suction of the product. The suction pipe is the ideal solution for drums, sacks, octabins or buckets unloading.

**ATEX 20, 21 ET 22**

The ATEX zoning conditions the design of the pneumatic transfer system.

Depending on your ATEX zoning, the pneumatic transfer system is composed of ATEX equipment, nitrogen unclipping, CODAP manufacturing...

**DETACHED FILTER**

It provides air/material separation at 99.5% in the separating cyclone located directly on the tanks and reactors (compatibility with the environment not favorable).

The cyclfilter is then deported to the ground with the possibility of re-introduction of fines in the process for products with high added value.

**SWITCH**

It ensures the flexibility of pneumatic conveying, with multiple arrivals and departure points.

It can be manual or automatic.

**ANTI-RISING DAMP SAS**

The introduction of the powders comes with a flow of air, compressed air or nitrogen in order to ensure the downward flow of the material and to block the rising of vapors or solvents.
LINE PURGING SYSTEM
It ensures finishing of the transfer cycle with a clean line thanks to a vacuum blast.

CLEAN IN PLACE (CIP)
Suction of the cleaning fluid by means of the transfer system. A liquid separator can be added ahead the vacuum group.

WEIGHT CELLS ON CYCLONE
Weighing of the cyclone provides control of the transfer to monitor the amount of powder sucked or the amount of powder to be drained.

RE-INTRODUCTION OF FINES
When operating remote cyclofilter, the fines from the filtering cyclone are automatically re-introduced into the process by the same transfer system.

AIR GUN
The air jet operated by the air gun has the effect of instantly release a large amount of compressed air which facilitates the flow of product.

VERTICAL CONCEPTION
A specific conception for materials that tend to stick to the walls.

VIBRATING BIN AERATORS
They facilitate the flow and emptying of stored materials. These vibrators allow the introduction of air or nitrogen to facilitate the product flow.

BUFFER HOPPER
Intermediate storage after transfer phase and before material introduction.

PNEUMATIC VIBRATORS
They facilitate the flow and emptying of stored materials. These vibrators generate multidirectional vibrations. They are used for emptying silos or chutes leading.

LEVEL PROBE
An extra level sensor may be added to the cyclone to have an additional level.
Our automation design office designs and manufactures all of the control cabinet to offer maximum functionality and ergonomics.

The Programmable Logic comes from partnerships with leading market players such as Schneider Electric, Siemens, Omron, Allen Bradley.

The connectivity of our facilities guarantees:
- Service and evolution continuity
- Perfect integration into your existing process
- Flexibility and continuous operation thanks to our remote maintenance service

The remote maintenance service allows PALAMATIC PROCESS teams to easily and instantly work on the system without the need to move geographically.

Breakdown assistance provides:
- Securing the process
- Reducing stopping time
- Significant reduction in the cost of interventions
- Reduced intervention time

This maintenance service of your automation equipment is adaptable over time depending on customer needs.

The implementation of this technical assistance is very simple. All you need is an internet connection, either wired or wireless.
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

Come with your materials
Participate in selecting the test machines
Maximize your productivity

300 + than 300 configurations

- + than 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

www.palamaticprocess.com/powder-machine/conveying-system
/pneumatic-conveying/dense-phase-pressure
Download videos & layouts from our website