

Dilute Phase Pressure Pneumatic Conveying Blower



Convey rate: from 100 kg to 60 t.

OVERPRESSURE PNEUMATIC CONVEYING

This pressure dilute phase pneumatic conveying allows to **transport bulk products, powders and granules with high flow rates** over long distances.

TECHNICAL SPECIFICATIONS

Dilute phase pressure conveying systems use positive displacement (roots type) blowers providing air to convey materials through a pipeline to the destination where the air and product are separated by a filter or other system. The product must enter the convey line, which is at higher pressure, via a special feeding device, usually a rotary valve airlock or a venturi. The product is frequently suspended in the air flow, moving at relatively high velocities depending on the particles sizes and densities. Systems generally operate on a continuous basis; product is constantly supplied at the starting point and arrives at the destination without interruption. This allows this type of system to be easily adapted for dosing and continuous weighing applications.

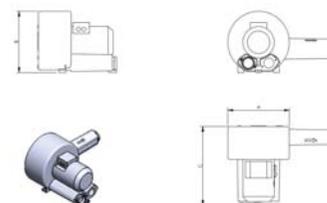


2 BLOWING TECHNOLOGIES

1 SIDE CHANNEL BLOWERS

Side channel blowers, through their internal compression on several levels, generate low pulsation blown air. Lateral canal blowers generate through their internal compression on several levels air-blown low pulsation.

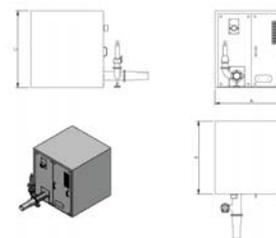
The basic construction of the paddle wheels and the arched shape of its pallets guarantee a better performance. Economical, robust and compact, the blowers with side channel are adapted to continuous operation of pressure pneumatic conveying.



Models	Flow rate in m ³ /h	Pressure in mbar	Dimensions in mm			Power in Kw	Weight in kg
			A	B	C		
BLO-14	140	400	285	337	650	2,2	20
BLO-21	215	475	327	380	755	4	34
BLO-41	416	475	424	487	965	7,5	71
BLO-65	657	575	492	601	995	15	90
BLO-80	804	600	516	613	1 105	18,5	106
BLO-100	1007	475	548	628	1 183	22	112

2 «ROOTS» TYPE BOOSTER

This rotary piston blower is particularly suitable for compression and air suction. Used in pressure dilute phase pneumatic transfer, its large flow range, important capabilities of overpressure and ease of maintenance make it a reliable and comprehensive industrial equipment. The booster is integrated in a totally enclosed unit that is equipped with a cooling fan, a soundproofing device, a transmission via pulleys/belt, a silencer and a non-return valve, a pressure switch and a thermostat for a rapid installation of the assembly.



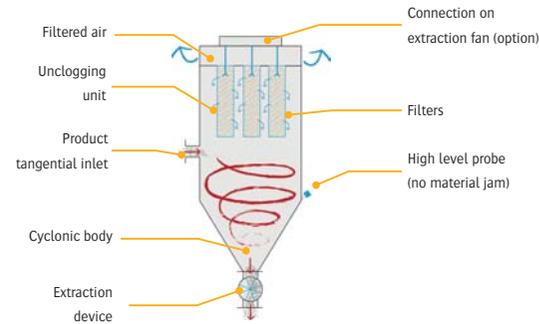
Models	Flow rate in m ³ /h	Pressure in mbar	Dimensions in mm			Power in Kw	Weight in kg
			A	B	C		
LOB-10	220	950	770	720	850	7,5	220
LOB-30	450	1 050	1 200	1 000	1 210	11	440
LOB-65	600	620	1 200	1 000	1 210	15	480
LOB-125	1 480	1 050	1 240	1 400	1 390	45	1 035
LOB-230	2 500	1 000	1 560	1 660	1 410	90	1 640
LOB-600	6 000	1 100	2 660	1 810	2 640	132	2 700

PROCESS



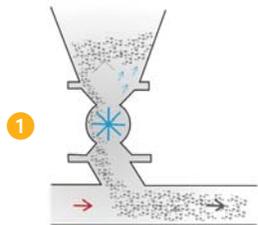
3 TECHNOLOGIES TO RECEIVE THE POWDERS

1 CYCLOFILTER



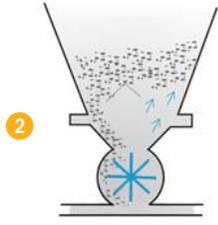
- It ensures the separation of the conveying air and the material.
- The extraction of the material is provided by the rotary valve.
- Filters are unclogged by automatic sequencers.

3 TECHNOLOGIES TO INSERT THE POWDERS



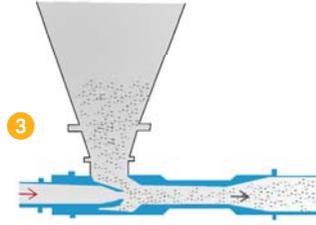
Rotary valve with speed-up box for material conveying

- Advantages**
- limits pressure rising
 - reduces abrasion
 - loading capacity: from 2,5 to 58 litres/rev.



The material is directly blown into the **blow-through rotary valve**

- Advantages**
- economical solution
 - space saving
 - loading capacity: from 2,5 to 58 litres/rev.



Venturi / Eductor
Direct handling of the product create depression below the hopper

- Advantages**
- no rotating equipment
 - ideal for light products on short to medium conveying lines
 - DN 50 to 150 mm

2 EXPANSION CHAMBER



- Set on the hopper, it ensures the stopping of the product thanks to a shield.
- The hoppers are thus protected from abrasion.
- The filling is done with a «shower» of product.
- Removable and replaceable hitting plate.



3 SILO



- The silo ensures the decompression of the conveying air.
- The integrated filters allow the air / product separation.
- The arrival of the product may be tangential or plunging.



Cyclofilters

TECHNICAL SPECIFICATIONS

Particule size: 1 µm to 3 cm
Overpressure average level: 200 to 600 mbar
Manufacturing: steel, 304L stainless steel, 316L stainless steel
Finishes: RA08, mirror polished, PTFE, antistatic, oleoplastic
ATEX Certification: zone II 1,2,3 GD (EMI below 3 mJ)



Multi-products conveying



Pipeline cleaner



Feeding of several receipt points

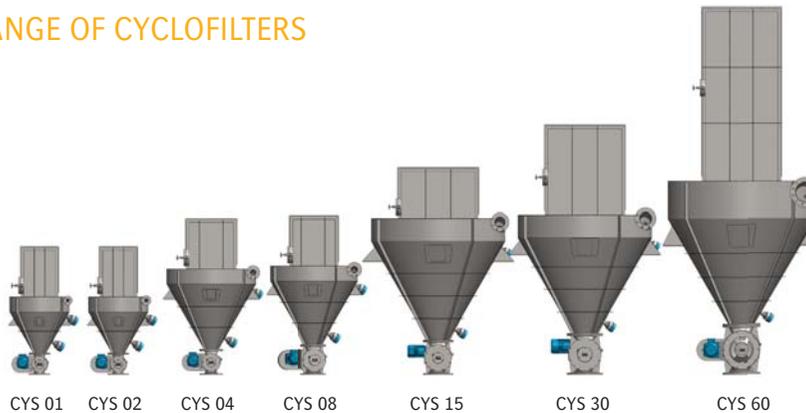


Ease in modifying the circuits

Advantages



RANGE OF CYCLOFILTERS



CYS 01 CYS 02 CYS 04 CYS 08 CYS 15 CYS 30 CYS 60

The range of cyclofilters PALAMATIC PROCESS ensures the implementation of all your pneumatic transfer projects.

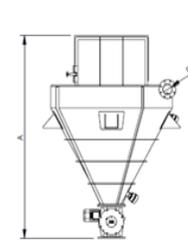
The quality of filtration allows to transfer all types of materials even the finest or explosive products.

Manufacturing: stainless steel 304, 316L

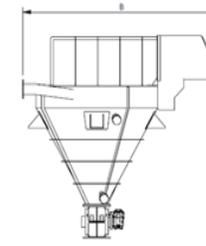
Filters: polyester, PTFE, hydrophobic, oleophobic, antistatic...

The design office PALAMATIC PROCESS insures the choice and design of the most suitable cyclofilter according to your applications.

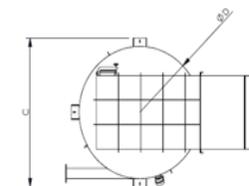
DIMENSIONS



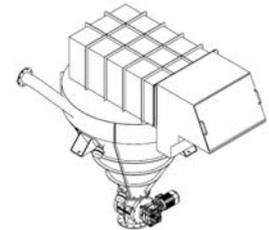
SCALE 1 : 60



SCALE 1 : 60



SCALE 1 : 60



Models	Rate in m ³ /h.	Filtering area in m ²	Dimensions in mm					Weight in kg
			ØD	DN	A	B	C	
CYS 01	1	3	800	32	1 730	1 840	840	300
CYS 02	2	3	800	40	1 730	1 840	840	300
CYS 04	4	6	1 200	65	2 100	2 300	1 300	445
CYS 08	8	6	1 200	80	2 140	2 340	1 300	515
CYS 15	15	15	1 800	125	2 780	2 950	2 040	905
CYS 30	30	25	1 800	150	3 350	2 950	2 040	1 320
CYS 60	60	60	2 000	250	4 940	3 400	2 140	2 275

Design Office

Depending on your materials, we size the filtration device and speed transfer to avoid:

- particles segregation
- product breaking
- abrasion

Pneumatic transfer system dimensioning software

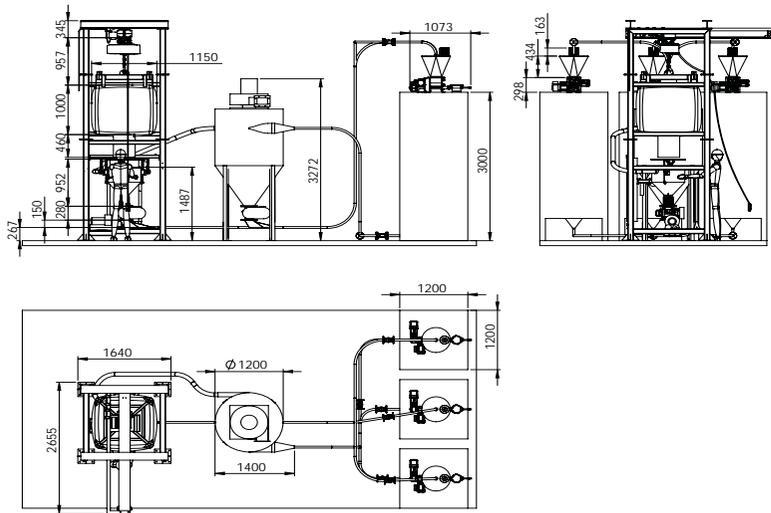
Bulk Material Selection	
<input type="checkbox"/> wheat, winter <input type="checkbox"/> wheat, spring <input checked="" type="checkbox"/> wheat, durum	particle size: 0.09 mm particle density: 1470 kg/m ³ bulk material: 0.67 kg/m ³ pressure loss: 0.08 required air flow velocity v ₃ related to an air density of 1.2 kg/m ³ : 11.23 m/s air flow velocity v ₃ chosen: 12.5 m/s
Conveying System	
<input type="checkbox"/> vacuum conveying <input checked="" type="checkbox"/> pressure conveying	number of bends: 4 pipe diameter: 60 mm additional: 50 mbar
solid mass flow: 4000 kg/h total conveying length: 100 m included elevation: 10 m	Results solid mass load: 5.18 pressure drop: 431 mbar
Compressor: Suction Capacity: 0.43 m ³ /h Overpressure: 431 mbar	<input type="button" value="Calculate"/>

TWO WEIGHING SOLUTIONS

Pressure dilute phase conveying allows the integration of two weighing solutions:

- Loss in weight
- Weight gain

EXAMPLE OF IMPLEMENTATIONS

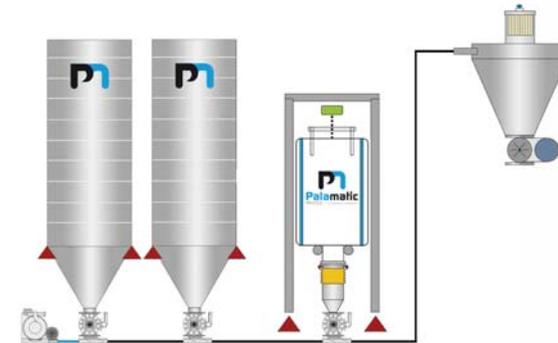


1- Loss-in-weight

Loss-in-weight solution consists in weighing the «starting point» of the powder process (sack dumping unit, FIBC unloading unit, drum emptying station...).

The controller controls the vacuum via the rotary valve (frequency inverter) to regulate and stop the transfer.

In accordance with the length of the conveying line, the PLC controls the end of product. Possible dosing accuracy <1 kg



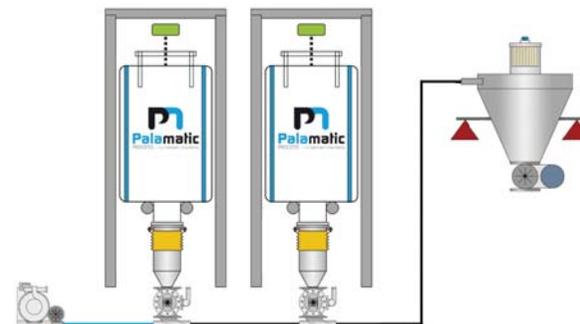
EXAMPLES OF INSTALLATIONS



2- Weight gain

The solution for weight gain involves implanting the cyclone on load cells.

Once the aspirated quantity corresponds to the setpoint, the controller stops the transfer, the dose is ready to be inserted.



Examples of installations

▶ COMPOUND

Customer: manufacturing of plastic granules

Products: talcum, magnesium, mica

Objectives: detached feeding of the extruder from big bags with containment of dust particules (dedusting ring)

Characteristics: rate 5 t./h.

Blowing device: side channel blower



▶ PETROLEUM INDUSTRY

Customer: treatment of drilling muds

Product: cement

Objectives: feeding a silo from an automatic bag emptying system

Characteristics: rate 9 t./h.

Blowing device: blower

Rotary valve with speed-up box

Arrival on silo with expansion chamber



▶ ANIMAL FEED

Customer: phytosanitary products producer

Products: zinc oxide, magnesia, clay

Objectives: multiple arrivals pneumatic transfer from a big bag and sack emptying unit.

Consideration of the abrasive nature of the products

Characteristics: rate 10 t./h.

Blowing device: rotary piston blower



▶ ADDITIFS ALIMENTAIRES

Customer: food mixture Manufacturer

Products: salt, sugar, dextrose

Objectives: supply the mixing line with raw material stored in silos

Characteristics: Rate 2,5 t./h.

Blowing device: piston blower

Cyclofilter weighed on arrival



▶ CATALYST MANUFACTURING

Customer: catalyst manufacturing for the petrochemical industry

Product: alumina gel

Objectives: loading of 2 silos of a capacity of 340 m³ with a prior sieving step

Characteristics: rate 15 t./h.

Blowing device: piston blower



▶ FOOD INDUSTRY

Customer: cookies manufacturer

Product: sugar

Objectives: continuous feeding of a PALAMATIC PROCESS mixer for the manufacturing of ice sugar

Characteristics: rate 2,5 t./h.

Fed with a sack dump unit with integrated sifter

Rotary valve with cyclofilter

Atex configuration

