

MAB - PULSVEYOR

LOW VELOCITY, DENSE PULSE PHASE PNEUMATIC CONVEYING SYSTEM

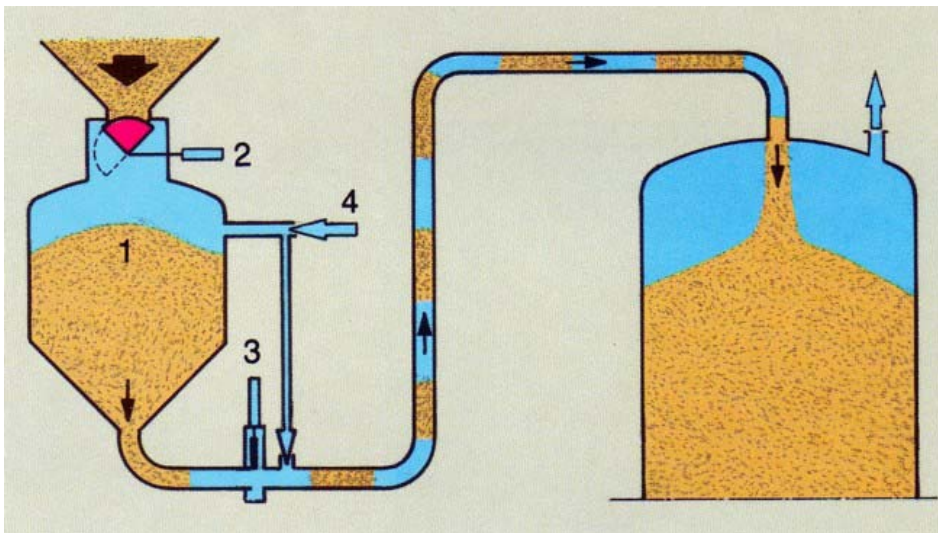
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DESCRIPTION OF MAB PULSVEYOR METHOD

PULSVEYOR is a special method for conveying all kinds of powdered and granular solid products at LOW VELOCITY in a DENSE-PULSE PHASE mode of flow. This method was developed by MAB in 1970 and since then, through the installation of many systems, it has been used to convey a wide range of materials.

Due to the low conveying velocities present in such systems there is no generation of dust or streamers (angel hairs) when conveying plastic chips and pellets, no degradation of granular particles when handling friable materials and no wear of the pipeline and associated fittings by abrasive products.

MAB – PULSVEYOR systems have low energy consumption and preserve product quality.



MAB – PULSVEYOR units basically consists of a pressure tank (1), which is equipped with MAB special gate valves (2 and 3). MAB gate valves are wear resistant and afford good sealing capabilities, even when handling granular solids. The product to be conveyed is introduced by gravity (whenever possible) into the tank (1) through MAB special gate valve (2).

Compressed gas (4) (air or another gas) is supplied in such a way that cushions of gas are produced between the plugs of solids. The resultant conveying is VERY REGULAR and AT LOW VELOCITY. This has many advantages, as will be described in the following pages of this brochure.

Features of MAB – PULSVEYOR systems are:

- SMALL TANKS
- ALMOST CONTINUOUS OPERATION
- RAPID CYCLING
- COMPACT UNITS, READY FOR INSTALLATION.
- SPECIAL SEALING VENTS

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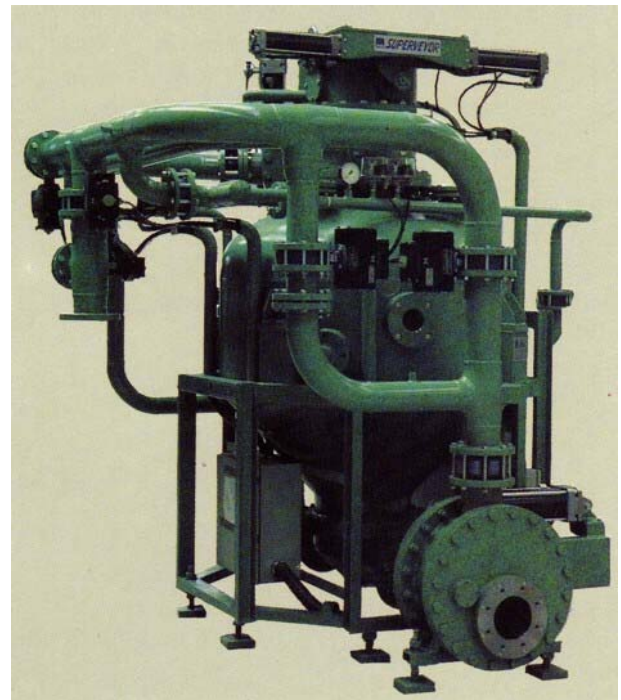


The SPECIAL GATE VALVES to control the solids flow are designed and fabricated by MAB specifically for this purpose. They afford excellent sealing capabilities when handling any material, granular, powdered abrasive or sticky.

The availability of different executions of these valves enables MAB – PULSVEYOR systems to operate safely and with frequent cycling in a wide variety of applications, without any inconvenient.



The SMALLEST PULSVEYOR UNIT produced by MAB. It conveys Nylon-6 chips CONTINUOUSLY and at low velocity from a dryer to the spinning silos without generating dust or streamers. Rate: 30 ton/day.



The LARGEST PULSVEYOR UNIT, produced by MAB, for conveying CEMENT at 100 ton/hr over a distance of 300 m. Because of its high performance, this unit is known by the trade name of "SUPERVEYOR".

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CONVEYING SYSTEM



OPERATING CHARACTERISTICS

- **SOLIDS MASS FLOW RATE:** Very high because of the dense pulse-phase system.
- **PRODUCT VELOCITY:** Low; adjustable in range from 1 to 8 m/sec.
- **GAS FLOW-RATE:** Low, because of mode of operation (dense pulse-phase).
- **PRESSURE OF CONVEYING GAS:** From 1 to 3 bar-g, according to conveying distance.
- **TYPE OF CONVEYING GAS:** Air, Nitrogen or others.
- **ENERGY CONSUMPTION:** Lower than other pneumatic conveying systems. Compared with dilute phase systems the energy saving is about 30%.
- **CONVEYING DISTANCES IN EXCESS OF 1000 meters:** Can be achieved with a single PULSVEYOR feeding unit.
- **NO PRODUCTION OF DUST OR STREAMERS ("ANGEL HAIRS"):** Essential when conveying soft granular plastics as Nylon, Polyester, Polyethylene, ...
- **NO WEAR OF CONVEYING PIPES AND FITTINGS:** Important when conveying abrasive materials such as cement, sand, ashes, ...



▶
MAB – PULSVEYOR Unit type
PVE 50 for conveying
POLYETHYLENE chips
at 8 t/hr.

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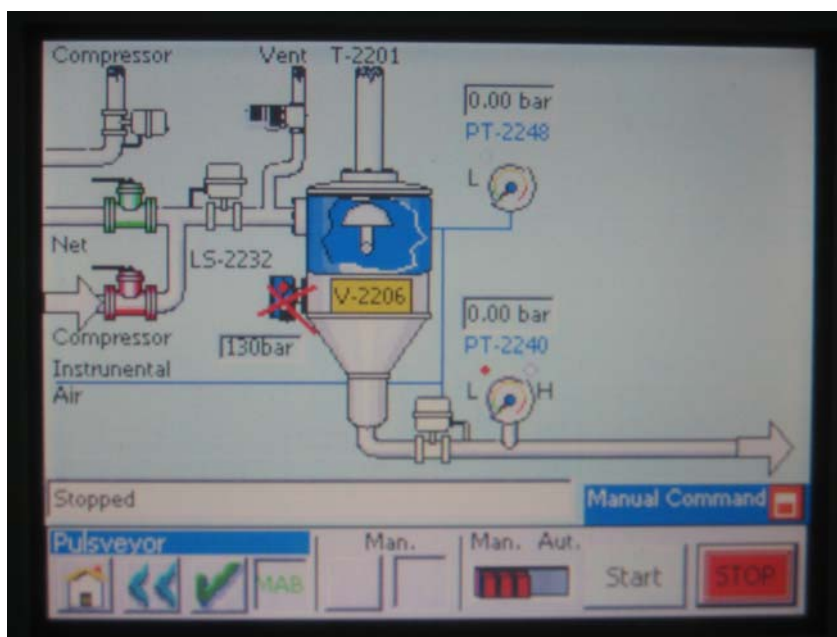
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- NO DEGRADATION OF PARTICLES:** Necessary when conveying friable granulated products.
- LOW GENERATION OF ELECTROSTATIC CHARGES:** Advantageous when conveying plastic products that exhibit a tendency to produce electrostatic charges.
- LOW NOISE LEVEL:** In conveying pipelines and receiving silos.
- AUTOMATIC CLEANING OF PIPES:** At the end of the conveying cycle; particularly useful before a change-over of product.
- HIGH VERTICAL RISERS AND NUMBER OF BENDS:** Have little effect on pressure of conveying gas and product throughput.
- GOOD ENVIRONMENTAL PROTECTION;** The PULSVEYOR units and related systems supplied by MAB are completely sealed and do not produce any pollutants. With the smaller gas flow rates employed in these systems, the filtration units are smaller in size and more efficient than those used in conventional conveying systems.

MAB PULSVEYORS systems are compact units with REDUCED DIMENSIONS, thereby affording LOW INSTALLATION – and MAINTENANCE – COSTS.



Control of Pulsveyor with touch panel

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- ▼ MAB – PULSVEYOR unit type PVD-40 for conveying POLYPROPYLENE chips at 6 ton/hr



- ▼ MAB – PULSVEYOR unit type PVE-50 for conveying NYLON-4 POWDER at 4 t/hr with Nitrogen gas.



- ▼ MAB – PULSVEYOR for NYLON CHIPS conveying. Flow rate 5 t/hr.



- ▼ MAB – PULSVEYOR unit, type PVE-30 for conveying NYLON CHIPS at 2 t/hr.



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DIMENSIONS AND TECHNICAL CHARACTERISTICS

MAB PULSVEYOR units are available in two basic variants:

- PULSVEYOR model PVE for short and medium distances (up to about 200 m) and conveying rates up to 22 ton/hr.
- PULSVEYOR model PVD for long distances (up to 1000 m) and conveying rates up to 30 ton/hr.

TECHNICAL CHARACTERISTICS:

- Material of construction: Stainless Steel grades 304 or 316.
- Self-cleaning valves with good sealing capabilities, specially designed by MAB.
- Compact unit, package ready for installation.
- Electronic control panel for automatic and manual operation.
- Instrument air pressure: 5 bar-g, supplied by customer's air distribution system.
- Electrical power: variable from 200 to 600 W depending on size and duty of unit.
- Different models are available for operation with compressed air, nitrogen blowers and compressors.
- Variant HT, for high temperature operation up to 200°C, available on request.
- Pressure certificates available on request.
- Special applications available on request.

(*) PULSVEYOR® is a registered Trade Mark and exclusive propriety of MAB.

PULSVEYOR UNITS MODEL PVE

TYPE ⁽¹⁾	DIMENSIONS (mm)			RATE (t/hr) ⁽²⁾	POWER (Watts)	AIR ⁽³⁾ 5 bar-g (Nm ³ /hr)	WEIGHT (kg)
	L	B	H				
PVE 20/150	1400	950	1150	1,3	200	0,9	260
PVE 30/150	1400	950	1400	2	200	0,9	295
PVE 40/150	1400	1070	1530	2,5	200	0,9	325
PVE 50/150	1350	1200	1600	4	200	0,9	420
PVE 60/150	1350	1320	1700	7	200	1,8	480
PVE 70/200	1550	1420	2000	9	400	1,8	530
PVE 80/200	1550	1550	2200	11	400	1,8	580
PVE 90/200	1550	1550	2300	13	400	2,2	630
PVE100/275	1900	1750	2400	15	600	2,2	690
PVE 110/275	1900	1750	2500	18	600	2,2	750
PVE 120/275	1900	1750	2600	22	600	2,2	820

PULSVEYOR UNITS MODEL PVD

TYPE ⁽¹⁾	DIMENSIONS (mm)			RATE (t/hr) ⁽²⁾	POWER (Watts)	AIR ⁽³⁾ 5 bar-g (Nm ³ /hr)	WEIGHT (kg)
	L	B	H				
PVD 20/150	1750	950	1150	1,5	200	1,7	290
PVD 30/150	1750	950	1400	2,3	200	1,7	325
PVD 40/150	1750	1070	1530	2,9	200	1,7	355
PVD 50/150	1700	1200	1600	4,5	200	1,9	480
PVD 60/150	1700	1320	1700	8	200	1,9	540
PVD 70/200	1900	1550	2000	10,3	400	3	610
PVD 80/200	1900	1550	2150	12,5	400	3	660
PVD 90/200	1900	1550	2300	14,5	400	3,5	710
PVD100/275	2250	1750	2400	17,3	600	3,5	770
PVD 110/275	2250	1750	2500	20,5	600	3,5	850
PVD 120/275	2250	1750	2600	30	600	3,5	920

⁽¹⁾ Information is provided for guidance only.

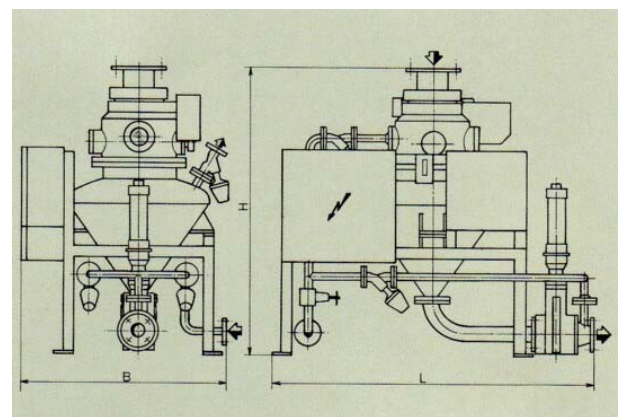
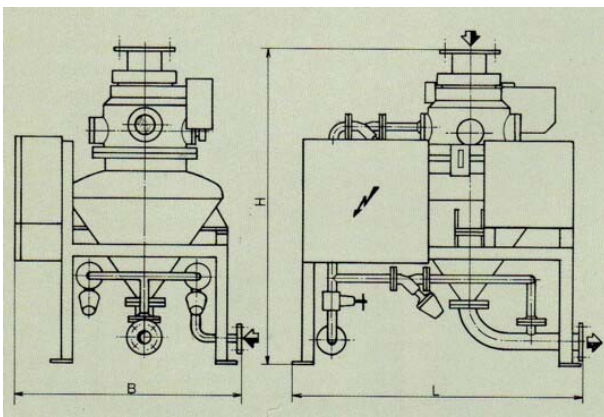
⁽²⁾ Rates refer to conveying a product having a bulk density of 700 kg/m³ over a distance of 100 m.

⁽³⁾ Instrument air for control panel, supplied by customer's air distribution system.

⁽¹⁾ Information is provided for guidance only.

⁽²⁾ Rates refer to conveying a product having a bulk density of 700 kg/m³ over a distance of 250 m.

⁽³⁾ Instrument air for control panel, supplied by customer's air distribution system.



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PULSVEYOR units are selected by MAB engineers from knowledge of the requirements of the plant under consideration and the relevant characteristics of the material to be handled.

With reference to **plant considerations**, it is necessary to specify information such as:

- Horizontal conveying distance
- Vertical conveying distance
- Number of bends
- Orientation and angle of bends
- Pipeline routing
- Type of system (open or closed loop)
- Required solids flow rate
- Whether the conveying gas is available from plant supply or to be supplied by a dedicated blower or compressor station.
- Any other requirement.

With regard to **material characteristics**, it is necessary to specify:

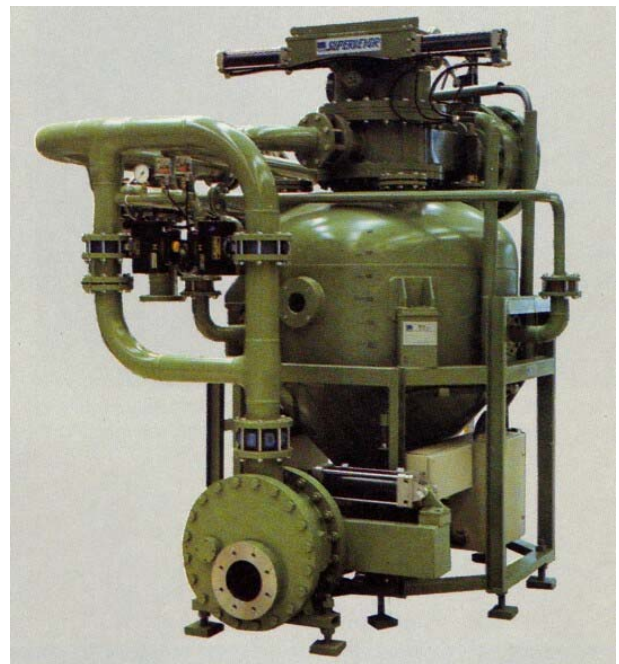
- Particle size distribution
- Bulk density
- Mean particle size
- Particle density
- Particle hardness
- Particle friability
- Flowability
- Free moisture content
- Explosiveness
- Any other relevant characteristics.

From the above, it is clear that the process of selecting and sizing the PULSVEYOR units and the associated components to meet a given duty is complex. However, with the availability of its PILOT PLANT FACILITIES and extensive data base acquired through the INSTALLATION OF MANY SUCCESSFUL PLANTS, MAB is well placed to address the wide variety of applications presented by industry.

▼ SUPERVEYOR unit type MAB SVD-70 for conveying FLY-ASH at 25 ton/hr over a distance of 350 m.



▼ SUPERVEYOR unit type MAB SVD-120 for conveying CEMENT at 100 ton/hr over a distance of 300 m.



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