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Dense Phase Conveying Systems

Filquip has partnered with Air-Tec Systems to deliver patented dense phase conveying transporters which guarantee reliability and safety when conveying of abrasives, mixtures and foods, as well as fragile, toxic, plastic and lumpy materials.

Dense phase systems convey products at much lower velocities (5-10 m/s) against lean phase (blower type) conveying systems (20 – 25m/s). As the product moves together as a wave through the pipeline at a lower velocity, pipe wear, product degradation and product stratification (loss of mixing) is minimised.

Filquip can provide dense phase conveying systems that can convey from small batches up to flow rates greater than 100 tons/hour at distances in excess of 500m.

How dense phase conveying systems work

Standard transport cycle

Phase 1

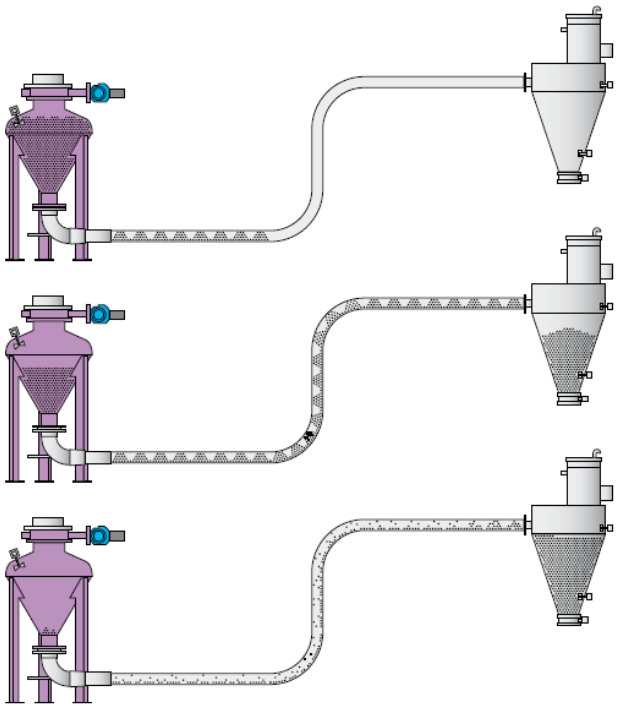
The vessel is loaded, normally by gravity. When the level sensor indicates that the vessel is full, the loading valves and the vent valves close releasing compressed air or other inert gases.

Phase 2

The material is then pushed into the transport line to the hopper.

Phase 3

When the material is loaded, the pressure switch of the vessel goes to zero. The intake of compressed air stops and the loading valve will open to start a new cycle (phase 1).



Full pipeline transport cycle

Phase 1

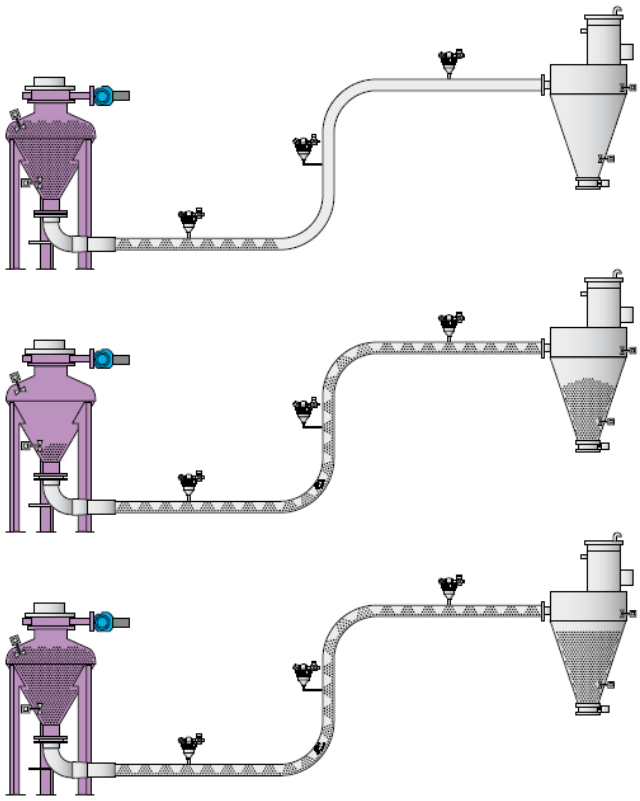
The vessel is loaded, normally by gravity. When the level sensor indicates that the vessel is full, the loading valves and the vent valves close releasing compressed air or other inert gases.

Phase 2

The transport continues until the sensor falls to the minimum level which indicates the vessel is empty. The transport stops and the loading valve opens again.

Phase 3

The transport cycle starts again filling up the vessel. In this way, the line will remain always full



Filquip & Air-Tec dense phase system advantages

All Air-Tec dense phase conveying systems come with advanced control technology through the touch screen control panel allowing the user to manage and control the entire cycle of transport or run on full automatic mode. Individual parameters for the conveying cycle are able to be set to provide a system customised material conveying characteristics.

- High product conveyed to Air used ratio = Energy saving and cost saving
- Less moving parts = Reduced maintenance and costs
- Lower velocity conveying = Lower pipeline wear = Reduced maintenance and costs
- High Internal cleaning = Increased efficiency
- Completely closed system = Increased safety
- Reduced product stratification and impacts = Perfect for fragile and mixed materials

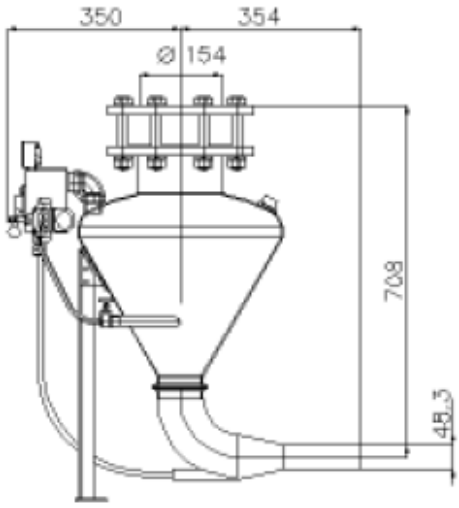
Model: BART Dense Phase Conveyor

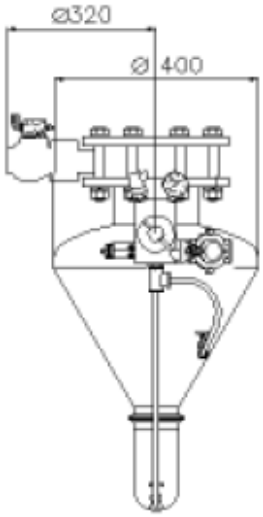
The BART Dense Phase System is able to transport materials that tend to clog or are abrasive and is particularly suitable for humid applications including food, chemical and pharmaceutical industries.

- Distances up to 20m
- Capacity up to 1 ton/h
- Pressure up to 2 bar
- Vessel capacity 24L
- 150mm Diameter Inlet Valve
- Transport pipeline outlet options 1.5”, 2” and 3” diameter
- Available in ATEX Zone 22, ATEX Zone 21, Carbon steel, Stainless steel 304 or 316

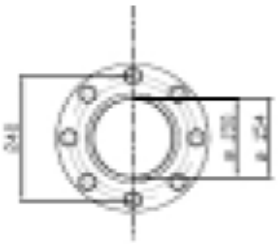
All Air-Tec dense phase systems also can be supplied in a High Temperature (HT) version for the transport of materials up to 250° C such as ashes and slag.

Dimensions





Size: 800x350x900
Weight: 50 kg
Supply Voltage: 230V50/60Hz
Noise level: < 70dBA



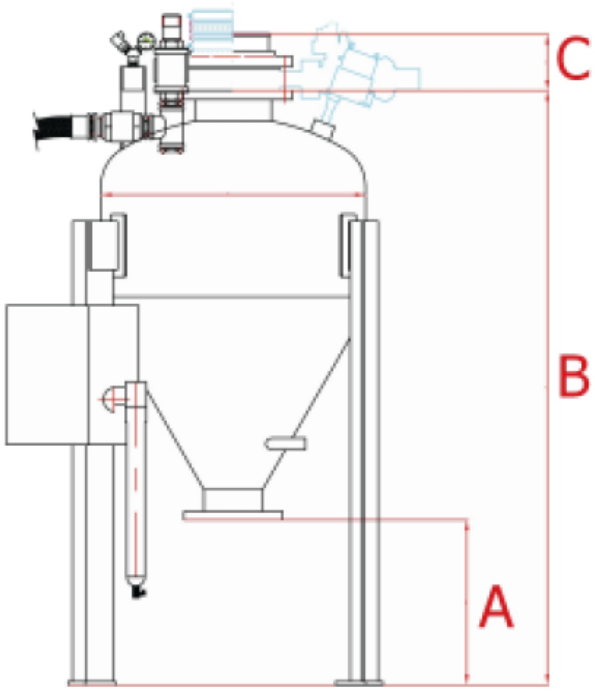
Model: BART-ONE Dense Phase Conveyor

The BART-ONE Dense Phase systems pneumatically convey products at high flow rates at around 25% of the speed of lean phase conveying with a blower, resulting in reduced pipe wear, less product stratification (keeping mixed products together) and reduced energy consumption.

- Distances up to 70m
- Capacities from 3 to 20 ton/h
- Pressure up to 6 bar
- Vessel capacities of 80L, 150L, 300L, 600L & 900L
- 200/250 mm Diameter Inlet Valve
- Transport pipeline outlet options 2”, 3”, 4”, 5” & 6” diameter
- Available in ATEX Zone 22, ATEX Zone 21, Carbon steel, Stainless steel 304 or 316

All Air-Tec dense phase vessels are certified according to the PED – European Pressure Equipment Directive and are certified to Australian Standard for Pressure Vessels as required by the code.

Dimensions



Type	Capacity (litres)	Weight (kg)	Diameter (mm)	Inlet Valve (Ø)	Number of jets	A (mm)	B (mm)	C (mm)
Bart-one 80	85	124	600	200	2	380	1162	160
Bart-one 150	142	145	762	200	2	390	1365	160
Bart-one 300	283	196	762	200	2	475	1710	160
Bart-one 600	566	351	1067	250	2	524	1986	168
Bart-one 900	850	417	1067	250	2	600	2345	168

Model: TPA Dense Phase Conveyor

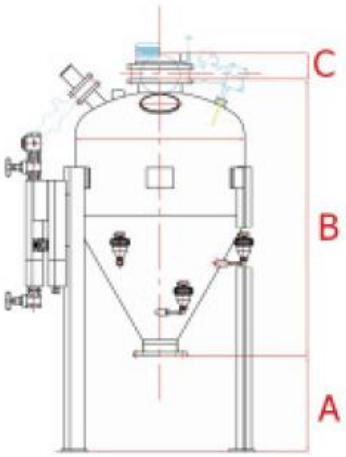
The TPA Dense Phase System is a first class solution for abrasive, fragile and difficult to convey materials and includes an advanced electronic control system to enable a larger flexibility of application and a better control of the transport cycle as well as inbuilt selectable control for conveying to many destinations.

- Distances up to and beyond 500m.
- Capacities up to 100 ton/h.
- Pressure up to 7 bar.
- Vessel capacities from 80L to 4,428L.
- 200/250/300 mm Diameter Inlet Valve.
- Transport pipeline outlet options 2”, 3”, 4”, 5”, 6” & 8” diameter.
- Available in ATEX Zone 22, ATEX Zone 21, Carbon steel, Stainless steel 304 or 316.

With the use of boosters, the TPA system guarantees the integrity of the materials during transport without stratification (keeps mixed products such as PVC or cementitious blends together).

The TPA Dense Phase Systems allow three types of conveying modes Standard, Full Pipeline & Full Pipeline Continuous (Utilising two vessels for continuous conveying without waiting for the vessel to fill to achieve high product flow rates).

Dimensions



Type	Capacity (liters)	Weight (kg)	Diameter (mm)	Inlet valve (ø)	Outlet valve (ø)	number of jets	A (mm)	B (mm)	C (mm)
8 TPA 30 S	85	124	762	200	100	3	390	975	160
8 TPA 50 S	142	145	762	200	100	3	390	1105	160
8 TPA 100	283	196	762	200	150	3	475	1235	160
10 TPA 200	566	351	1067	250	150	4	524	1462	168
10 TPA 300	850	417	1067	250	200	4	600	1745	168
12 TPA 400	1133	515	1220	300	200	5	600	1931	230
12 TPA 500	1416	560	1220	300	250	5	700	2067	230
12 TPA 600	1699	602	1220	300	250	5	700	2317	230
12 TPA 700	1982	646	1220	300	250	5	650	2642	230
12 TPA 800	2265	694	1220	300	250	5	650	2817	230
12 TPA 900	2549	738	1220	300	250	5	774	3160	230
16 TPA 1000	2832	876	1220	400	300	5	774	3350	254
16 TPA 1500	4248	1247	1524	400	300	7	879	3505	254

a selection of the materials handled

Air-Tec system's dense phase pneumatic conveying systems are able to handle a wide variety of materials with particle size from 0.1µ up to 3cm.

alumina

dry blend

fiberglass

tin

dehydrating

- Acrylamide
- Acrylic modifier
- Active carbon
- Adipic acid
- Alumina
- Aluminium fluoride
- Aluminium nitride
- Aluminium silicate
- Ascorbic acid
- Atomized aluminium powder

- Barium and strontium sulfate
- Barium sulfate
- Barley malt
- Base granules detergent
- Bed ash
- Bentonite
- Bicarbonate
- Biscuit mix
- Black sand
- Blended glass batch
- Bone meals
- Borax
- Boric acid
- Bran flakes
- Bread crumbs
- Burnt sand

- Cake mix
- Calcium carbonate
- Calcium fluoride
- Calcium oxide
- Calcium phosphate
- Calcium silicate
- Calcium stearate
- Calcium sulfate
- Calium carbide
- Carbon black
- Carbon Mix
- Carnalite
- Catalyst
- Celite
- Cellulose
- Cement
- Cement blend
- Ceramic
- Ceramic dust
- Cereals
- Chamomile
- Charred wood
- Chewing gum base
- Chicken seasoning
- China clay
- Chromic acid
- Citric acid
- Clay
- Clay calcined
- Clay tile
- Coal
- Coal dust
- Coal slag
- Cobalt oxide
- Cocoa
- Coffee beans
- Coke
- Copper matte
- Copper Powder
- Corn
- Corn Gluten Meal
- Corn Grits
- Couscous
- Crispy rice
- Crushed rock
- Cryolite dust

- Desiccated coconut
- Dextrose
- Diatomaceous earth
- Disodium phosphate
- Dolomite
- Dried Anthracite
- Dried peas
- Dried sludge
- Dry ash
- Dry Soap

- Epoxy resin
- Ethylene vinyl acetate

- Feldspar
- Ferrite
- Fiberglass
- Fly ash
- Foundry dust
- Freeze dried coffee
- Frit

- Fructose
- Fumed silica

- Glass batch
- Glass beads
- Granola
- Graphite
- Green oats
- Groats
- Gypsum

- Hydrated alumina
- Hydroquinone

- Ilmenite
- Iron oxide
- Iron powder

- Lactose
- Lignite
- Lime
- Limestone

- Magnesite
- Magnesium chloride
- Magnesium oxide
- Maltodextrin
- Manganese dioxide
- Marble chips
- Medicinal herbs
- Melamine powder
- Metal powder
- Mica
- Milk powder
- Milled zircon
- Mineral black
- Mixed sand and soda ash
- Molybdenum oxide
- Monoammonium phosphate
- Mortar mix
- Mush

- Nickel carbonate
- Nickel granules
- Nickel oxide
- Nickel sulfate
- Nylon pellets

- Oat flakes
- Olivine sand

- Paper pulp
- Parmesan cheese
- Peanuts
- Perlite
- Pet food
- Pharmaceutical gelatin
- Phenolic resin
- Phosphoric anhydride
- Pink Beans

- Plastic caps
- Plastic Pellet
- Plastic resin pellet
- Polyester
- Polyethylene
- Polyethylene glycol
- Polypropylene
- Polystyrene
- Polyvinyl chloride
- Popcorns
- Potash
- Potassium carbonate
- Potassium sulfate
- Potato flakes
- Potato flour
- Prilled ferrous sulfate
- Pvc compounds
- Pvc powder
- Pvc resin
- Pyrite concentrate

- Reclaimed sand
- Red lead
- Refractory batch
- Resin
- Resin copolymer
- Resin-coated sands
- Rice grains
- Rock dust
- Rye flour

- Saccharin sodium
- Salt crystals
- Sand
- Scrap glass
- Silica
- Silica flour
- Silica sand
- Silicates
- Silicon carbide
- Silicon dioxide
- Silicon powder
- Soda ash
- Sodium carbonate peroxide
- Sodium chlorate
- Sodium citrate
- Sodium fluoride

- Sodium nitrate
- Sodium perborate
- Sodium percarbonate
- Sodium polyacrylate
- Sodium stearate
- Sodium sulfate
- Sodium triphosphate
- Soy protein powder
- Soybean meal
- Spodumene
- Starch
- Sugar
- Superabsorbent polymer

- Talc
- Tea
- Tile dust
- Titanium dioxide
- Titanium slag
- Tobacco
- Trisodium phosphate powder

- Urea

- Vermiculite
- Vinyl resin
- Vinyl tile chips
- Wheat flour
- Wollastonite

- Zeolite
- Zinc oxide
- Zinc powder
- Zinc stearate
- Zirconium
- Zirconium carbonate

phenolic resin

pet food

roasted coffee beans

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AIR-TEC SYSTEM

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