Indpro

VAAYU

Experience Excellence

in pneumatic conveying

Efficient. Reliable. Dust-Free.

COMPANY PROFILE

19+ YEARS	**700+** PROJECTS	**12+** COUNTRIES
70% REPEAT ORDERS	**110+** TEAM	**2** TIE-UPS

Established in 2004, Indpro Engineering Systems Pvt. Ltd. provides end to end solutions in the field of bulk solids handling right from raw material handling to finished product bagging. Our product verticals include Pneumatic Conveying Systems, Grain Handling Systems and Specialized Industrial Air Filtration Systems and Bulk Solids Handling Products.

PNEUMATIC CONVEYING

State-of-the-art technology to meet every conveying requirement

Indpro aims to be the world leader in providing automation systems for bulk material handling, pneumatic conveying, storage, sifting, weighing, batching, as well as finished product bagging.

Our expertise in pneumatic conveying equipment for bulk material processing industry has helped build relations with partners who are the best in their fields. We've handled hundreds of materials from various sectors, which has built confidence and proven to the world that we provide dependable and efficient bulk material handling solutions.

Best experience
Of Bulk Material Handling

Clients have the confidence they need to make educated decisions regarding their pneumatic conveying system design thanks to our in-house pilot plant facility.

WE ASSIST YOU IN ACHIEVING YOUR GOALS.

Experience

Indpro Engineering Systems, a leading designer & manufacturer for high-quality bulk material handling solutions, has evolved substantially over the last 19 years.

Knowledge

We provide customized solutions to our clients' needs which are deployed using our proprietary methods and technologies. We love new challenges; through several years of knowledge we've gained by working in various fields for bulk material handling has helped us develop critical thinking which helps to providing great solutions; after all, your success is our goal.

WE ARE RISING WITH RISING CUSTOMER SATISFACTION

WHAT IS A PNEUMATIC CONVEYING SYSTEM

Pneumatic conveying is the method of moving materials through a pipeline using air or other gases as the conveying medium. It is commonly used in industries such as food processing, pharmaceuticals, minerals, chemicals, and plastics & polymer, where materials need to be transported quickly, efficiently, and without contamination.

The process involves creating a flow of air or gas through a pipeline or duct, which carries the materials suspended in the airstream. The materials are either introduced into the airstream at the beginning of the pipeline or picked up along the way using vacuum or pressure.

Advantages of pneumatic conveying include its ability to move materials over long distances, its low maintenance requirements, and its ability to handle a wide range of materials, including powders, granules, pellets, and flakes.

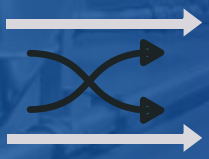
However, it can be energy-intensive and may require careful management of the airflow and material properties to avoid problems such as segregation, abrasion, and blockages.

Advantages of Pneumatic Conveying

- **Efficient material transfer**
- **Reduced material waste**
- **Improved hygiene**
- **Easy to clean**
- **Space-saving**
- **Versatility**
- **No spillage and dust leakage**
- **Easy to use and maintain**

TYPES OF PNEUMATIC CONVEYING SYSTEMS

Dilute Phase Pneumatic Conveying
Dense Phase Pneumatic Conveying



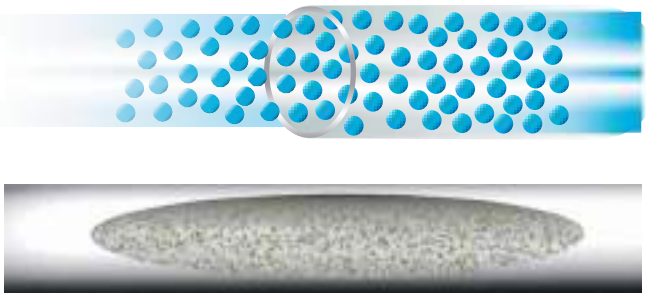
Pressure
Vacuum

Dilute Phase Conveying

A COST-EFFECTIVE WAY TO CONVEY NON-FRIABLE, NON-ABRASIVE MATERIALS.

Dilute phase conveying is a method of transferring bulk materials, such as powders or granules, from one point to another using high velocity air or gas as the conveying medium. In this process, the material is suspended in a high-velocity stream, creating a dilute phase mixture where solids loading ratio is quite low.

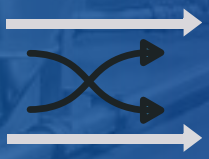
The material is typically fed into the system at a controlled rate and is then conveyed over long distances, often across multiple levels, before being discharged at the destination point. This method of conveying is characterized by low pressure, high velocity, and low material-to-air ratios, making it suitable for transporting a large variety of dry bulk materials.



However, it requires careful design and operation to ensure the material is conveyed efficiently and without causing any damage to the equipment or the material itself. Factors such as the material properties, pipeline design, and operating conditions are considered to achieve optimal performance.

TYPES OF PNEUMATIC CONVEYING SYSTEMS

Dilute Phase Pneumatic Conveying
Dense Phase Pneumatic Conveying



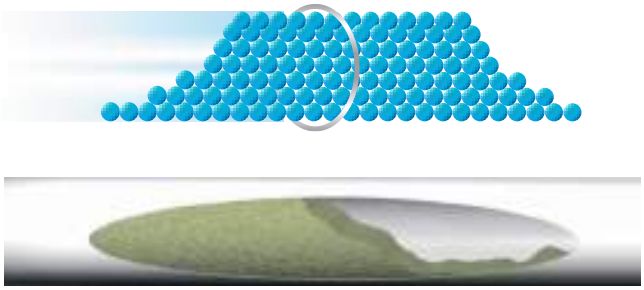
Pressure
Vacuum

Dense Phase Conveying

REDUCE SYSTEM WEAR AND PRODUCT DEGRADATION WHILE IMPROVING MATERIAL TRANSFER EFFICIENCY.

Dense phase conveying is a type of pneumatic conveying system in which the material is conveyed through a pipeline in a dense or compacted state, typically at much lower velocities as compared to dilute phase conveying. In this type of conveying, the material is transferred in a plug-like flow or in a continuous moving bed or dune-like flow with a low velocity.

Dense phase conveying systems are capable of transporting a limited types of materials, including powders, granular materials, and even fragile or abrasive materials. The conveying process in dense phase conveying systems is controlled by the pressure difference between the feed point and the destination point, which allows for precise control of the material flow.

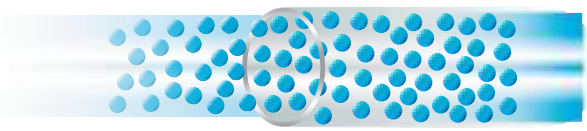


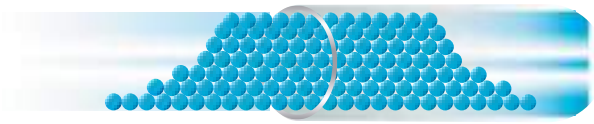
Dense phase conveying is often preferred over dilute phase conveying in applications where there is a need for gentle handling of the material, minimal material degradation, and reduced dust generation.

In certain cases, dense phase is a more energy efficient way of pneumatic conveying, provided it is designed correctly.

COMPONENTS OF PNEUMATIC CONVEYING SYSTEM :

- Raw material unloading stations – Big Bag Unloading, Bag Dump Station, Automatic Bag Slitting Machine, Bulker Unloading, Drum Unloading System
- Air mover – Blower, Fan, Vacuum Pump or Compressor
- Rotary Airlock Valve, Dense Phase Transporter
- Transfer line including piping, elbow, and diverter valve
- Filter receiver, Cyclone separator
- Silos, day bins, and other storage vessel
- Gain-in-weight and loss-in-weight batching system
- Dust collector and bin vent filter
- Screening station
- Control system and electrical equipment





Dilute Phase	Dense Phase
Higher air velocities: (approximately 15 m/s to 25 m/s).	Lower air velocities: (approximately 3 m/s to 12 m/s).
The air pressure or vacuum required is lower, typically ranging from 100 mbar(g) to 1000 mbar(g) for pressure systems and (-)100 mbar(g) to (-)500 mbar(g) for vacuum systems.	The air pressure or vacuum required is higher, typically ranging from 1000 mbar(g) to 5000 mbar(g) for pressure systems and (-)500 mbar(g) to (-)950 mbar(g) for vacuum systems.
Due to higher conveying velocities, the attrition or breakage of material in the pipeline is higher due to more intensive impact on the metal surfaces.	Due to lower conveying velocities, the attrition or breakage of material in the pipeline is lower due to less intensive impact on the metal surfaces.
The solids loading ratio is lower, typically in the range of 1 to 10.	The solids loading ratio is higher, typically in the range of 5 to 100.
The distance that can be covered is limited, typically upto a maximum of 100-200 meter, depending on the material conveyed.	The distance that can be covered is much higher, typically upto a maximum of 200-400 meter, depending on the material conveyed.
The amount of automation required and dependency on various valves is lower due to the simplicity of the system.	The amount of automation required and dependency on various valves is high due to the complexity of the system.
The initial cost or CAPEX is lower in case of dilute phase systems due to the simpler components involved.	The initial cost or CAPEX is higher in case of dense phase systems due to the complex components involved.

CHOOSE THE RIGHT PNEUMATIC CONVEYING SYSTEM

Indpro's comprehensive guide on selecting the right pneumatic conveying system for your needs. Whether you are dealing with powders, granules, or bulk solids, finding the perfect system is crucial for efficient material handling.

PARTICLE SHAPE

When choosing a pneumatic conveying system, it is essential to consider the characteristics of the particles you are working with.

MOISTURE CONTENT

Moisture content is another critical factor that can impact the flowability of your material and the components of the conveying system.

MATERIAL ADHESIVENESS

The friability and adhesiveness of the material being conveyed can significantly affect system performance and maintenance.

CAPACITY OF CONVEYING

By accurately determining the necessary conveying capacity, you can select the appropriate pipe diameter, blower size, and speed to maintain efficient material flow.

DUST-FREE TRANSPORTATION

Controlling dust in pneumatic conveying is crucial to meet environmental standards, protect worker health, and maintain material quality.

MODE OF CONVEYING

The choice between dense-phase and dilute-phase conveying depends on factors such as material properties, transfer distance and energy efficiency.

Indpro

We Customize your system

Indpro prioritises the customer in everything we do. We put forth a lot of effort to make sure your equipment and systems are dependable and efficient.

Customization options include

- Material handled
- Capacity
- Conveying distance
- Conveying mode
- Explosion prevention and protection
- Area classification
- Material feed mechanism
- Material receiver
- Material contact parts
- System layout
- Integration with other equipment
- Automation & Industry 4.0

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Our Material Handling Portfolio


PVC POWDER


ADDITIVES POWDER


PO FLAKES


TALC


SODIUM SULPHATE, ALUMIUM SULPHATE


ALPHA BLUE, BETA BLUE, CPC BLUE


MILK POWDER


LDPE HDPE LLDPE PET BOPET CPP BOPP


POLYCARBONATE


SULPHUR


PVD SALT


CHINA CLAY, CALCITE, CALCIUM CARBONATE


MALEIC ANHYDRIDE, PHTHALIC ANYDRIDE


SUGAR MALTODEXTRIN


COLOUR MASTERBATCH


GPPS HIPS


MANCOZEB


SLS NEEDLES


SODA ASH


HYDRATED LIME, CALCINED LIME


CHILLI POWDER


SAN GRANULES


ABS GRANULES


SILICA POWDER


SPECKLES


DYES


FUNGICIDES HERBICIDES


IRON OXIDE ZINC OXIDE


COFFEE BEANS


COCO POWDER


DE OILED RICE BRAN


MALT


WHEAT FLOUR CORN FLOUR


SOYABEAN


RICE


TEA POWDER


TURMERIC


WHEAT


PROTEIN POWDER


SOOJI, RAWA


CORN, MAIZE


ANIMAL FEED

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INDPRO
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“IDEAL WAY TO SIMULATE THE WORLD OF TOMORROW FOR OUR CUSTOMERS “

- Team Indpro

WE INVITE YOU TO VISIT US & EXPERIENCE CONVEYING

GLOBAL BUSINESS ASSOCIATES

CONTACT US

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