



INNOVATION | QUALITY ENGINEERING | CUSTOMER SATISFACTION

INTEGRATED AND PRO-ACTIVE APPROACH TO EXCELLENCE



Pneumatic Conveying System



Grain Handling
(Brewery & Distillery)



Air Pollution Control



Bulk Handling
Solutions

VISION & MISSION



VISION

Indpro's vision is to build total brand value through innovation and quality engineering to achieve total customer satisfaction in the field of bulk solids handling.

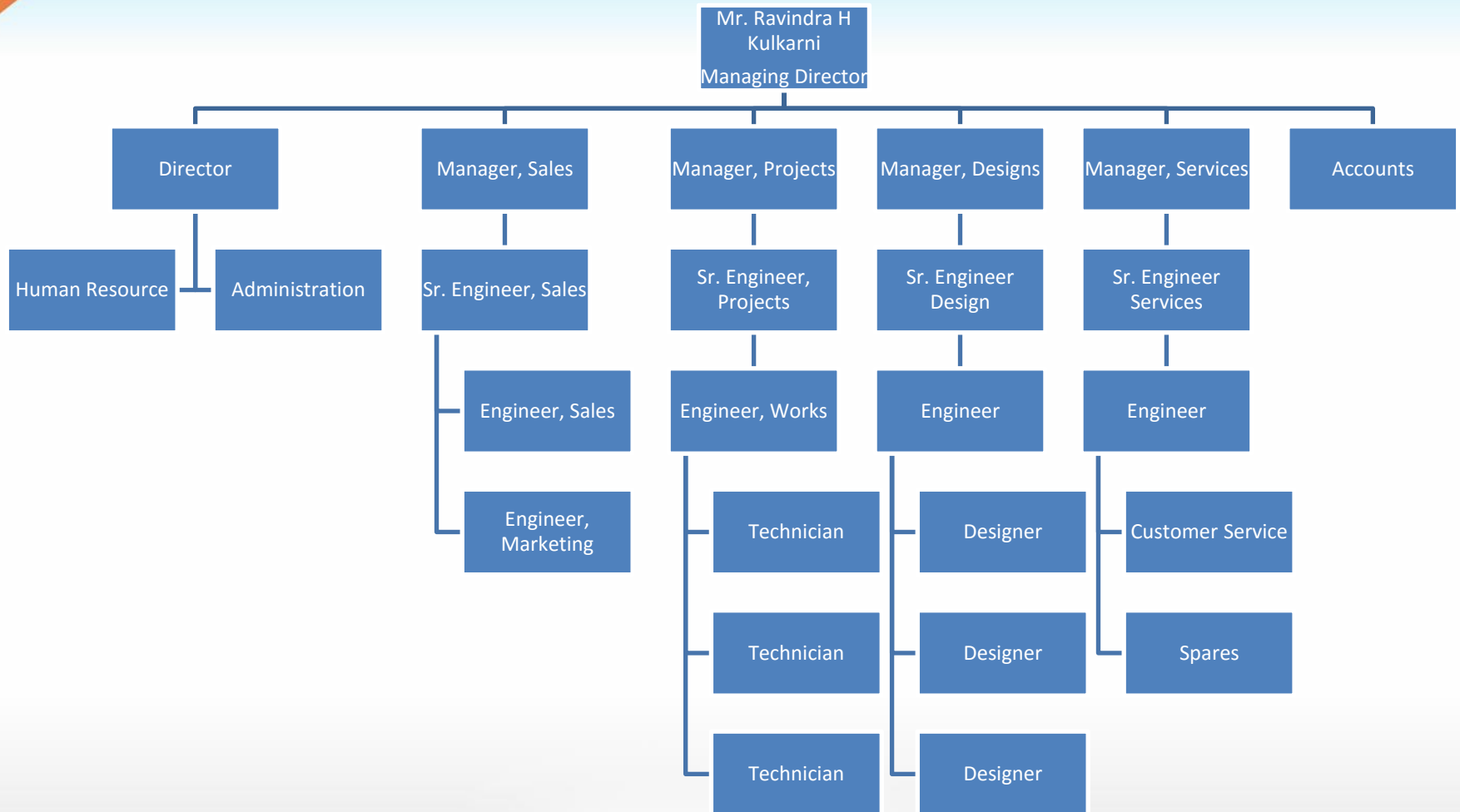


MISSION

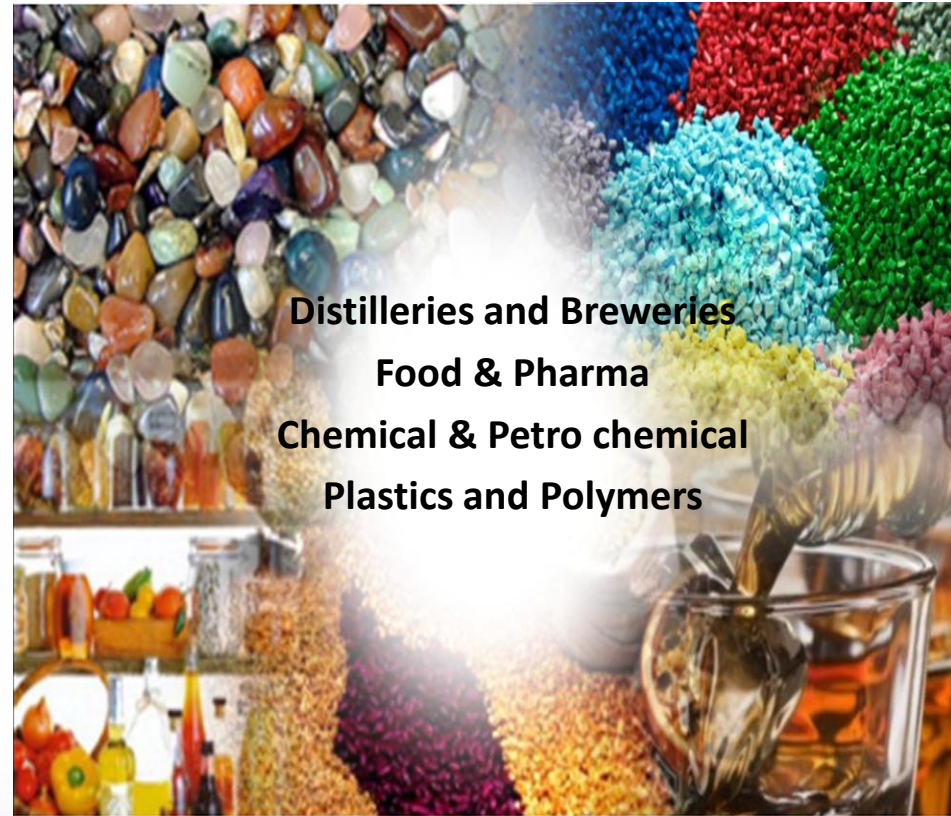
We will strive to attain our vision by continually improving performance in every area and level of the organization. Our performance will be guided by a clear and concise strategic development plan for each business unit and by an on going quest for excellence within all operational and staff functions.



ORGANIZATIONAL CHART



CAPABILITIES & BUSINESS AREA



Distilleries and Breweries
Food & Pharma
Chemical & Petro chemical
Plastics and Polymers

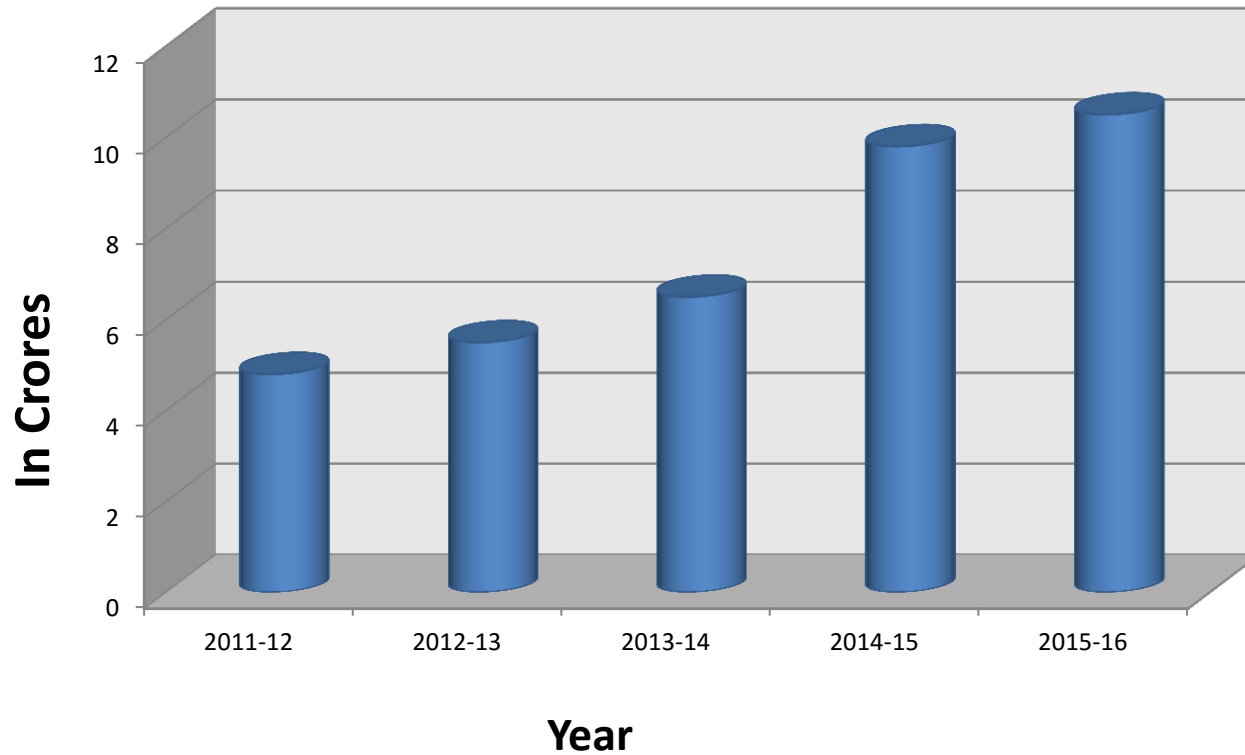
INFRASTRUCTURE – OFFICE & WORKS



COMPANY MILESTONE



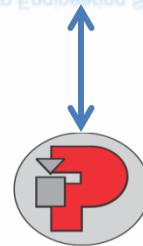
BUSINESS PERFORMANCE



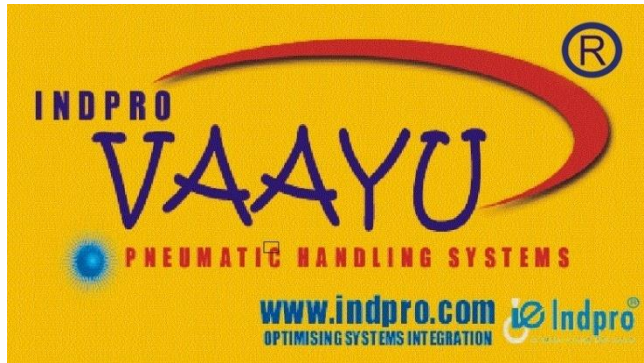
OUR BUSINESS ASSOCIATES



Discover **Bulkmatology**[®]
The Nature of Bulk Material Handling



PNEUMATIC CONVEYING SYSTEM



PNEUMATIC CONVEYING SYSTEM

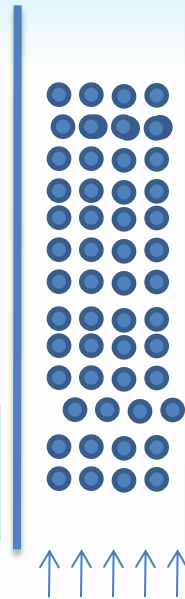


Technologies we offer

Lean/ Dilute Phase Conveying

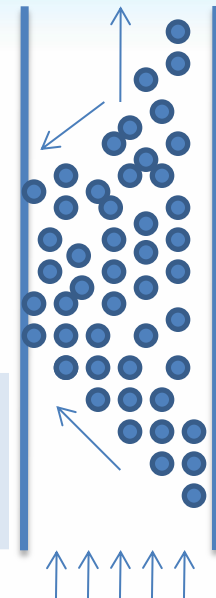
- Pressure type
- Vacuum type

High gas velocities: $v = 25-40$ m/s
Low product to air ratio: range 1-10 to 1
Low to medium pressure drop: $p = 0.1-1.0$ bar



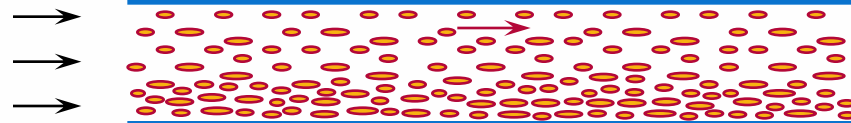
Dense phase conveying

Low gas velocities: $v = 2-10$ m/s
High product to air ratio: range 15-50 to 1
High pressure drop $p = 0.5 - 3.5$ bar
Special pipe support Yes



Strand Phase Conveying

Optimized gas velocity: $v = 15-25$ m/s
Medium product to air ratio: range 5-20 to 1
Medium to high pressure drop $p = 0.5-2.0$ bar
Special pipe support requirements: No



COMPARISON



Conveying Type	Selection	Advantages	Limitations
Lean/Dilute Phase	<ul style="list-style-type: none"> • Conveying rates upto 100 TPH • Distances upto 500 meter • Pressure upto 2 barabs • Pressure, Vacuum or combination of both 	<ul style="list-style-type: none"> • Simple design • Low cost • Operator friendly • Simple pipe supports • No Pressure/Volume control unit required 	<ul style="list-style-type: none"> • Product Degradation in terms of change in form, segregation and loss of aroma • Dust and streamer generation
Strand phase	<ul style="list-style-type: none"> • Conveying rates upto 100 TPH • Distances upto 500 meter • Pressure upto 3 barabs • Pressure, Vacuum or combination of both • to have most economical system with minimal dust geneartion. 	<ul style="list-style-type: none"> • No special air management or controls necessary • No need for special pipe supports • Less maintenance • Moderate levels of coarse, easy to remove dust and streamers • High system flexibility in reference to capacity turn-down ratios •Moderate capital investment costs 	<ul style="list-style-type: none"> • Limitation for conveying distance
Dense Phase	<ul style="list-style-type: none"> • Conveying rates upto 60 TPH • Distances upto 2500 meter • Pressure upto 5 barabs • Pressure system is preferred 	<ul style="list-style-type: none"> • Less energy consumption if one air mover and more systems • Minimum dust and streamer generation •Suitable for abrasive and degrdable products 	<ul style="list-style-type: none"> • The product range is less • The pressure loss is high • fine micro dust generation

COMPARISON



Characteristics

Different Conveying Modes

	Dilute Phase	Strand Phase	Dense Phase
Product range	wide	wide	narrow
Gas velocity	high	medium	low
Product/gas ratio	low	medium	high
Product dispersed	yes	partly	no
Pressure loss / m (=D)	medium	low	high
Pressure range typical	blower	Up to 2bar	3 – 6bar screw
Air management system	no	no	yes
Pipe size	medium	small	large
Energy consumption	high	small	medium
Installed cost	low	medium to low	high

PELLETRON STRANDPHASE

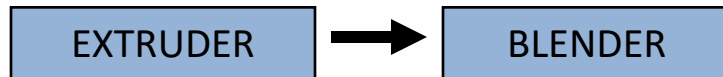


Pneumatic Conveying

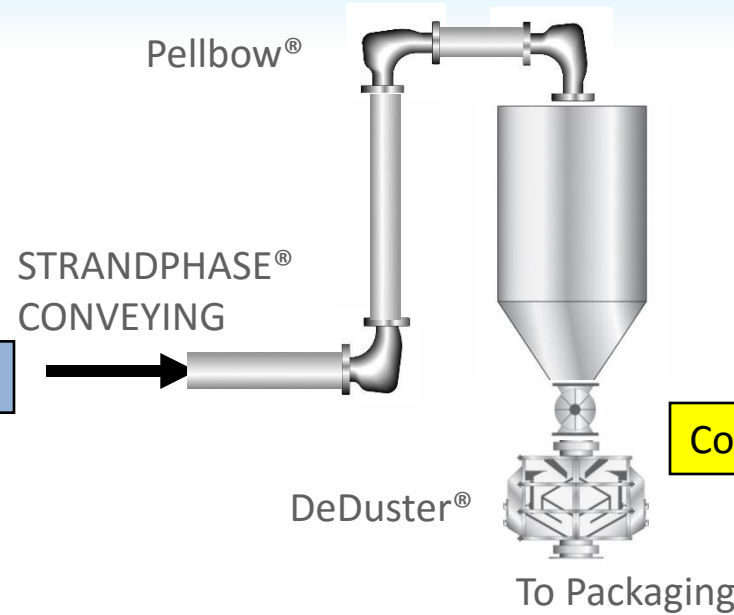
Systems technology

NEW pellcon3™ Process

STRANDPHASE™ conveying



Use of Pellbows in conveying lines
= component two



Component three

BAGGING
TRUCK
LOADING

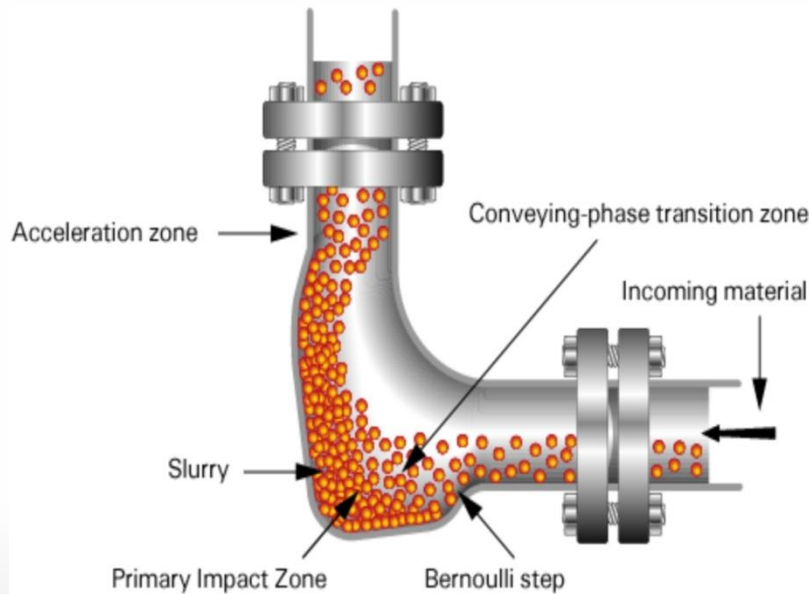
PELLETRON COMPONENTS



The Pellbow®

For fines reduction and streamer elimination

The Pellbow® , a specially designed and patented pipe elbow

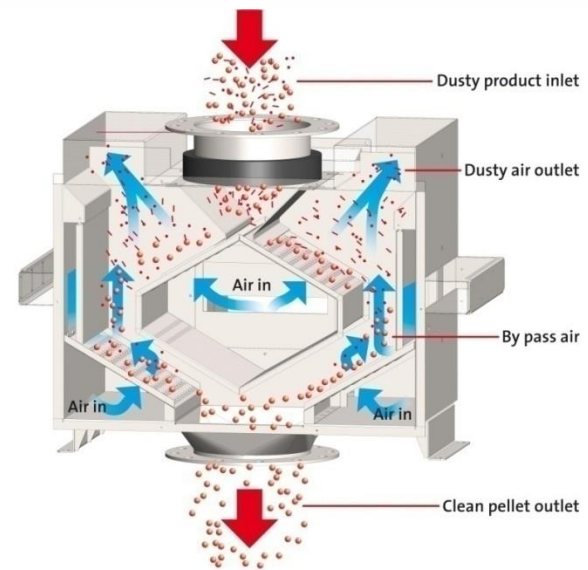


DeDuster®

Dust and streamer removal solutions

The Pelletron DeDuster® working principle consists of three (3) patented features:

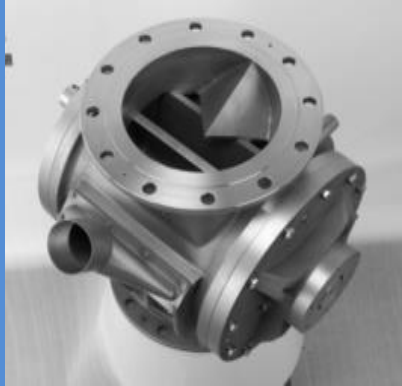
a)Magnetic flux field coil b)Wash Deck c)Ventury Zone



PELLETRON COMPONENTS



Rotary Valves



Rotary Valve:

- Anti shearing device (patented) for gentle product handling
- Integrated leakage air vent for improved filling efficiency
- Heavy duty housing and bearing support for minimized rotor tolerance
- Closed end rotor
- Double lip seal

Quick Clean Rotary Valve :

- Suitable for granular and pellets or powder
- For medium pressure pneumatic conveying systems or gravity applications
- For differential pressure up to 1.5 bar

Mirror finished Rotary Valve:




- Buffing 400
- For powder Applications
- For medium pressure up to 1.5 bar

Blow Through Rotary:

- For medium pressure up to 1,5 bar
- For medium pressure up to 3,5 bar in development
- For high capacities up to 150t/h

PELLETRON COMPONENTS



<p>Diverter Valves</p>			
<p>Size / Material</p>	<p>DN 50 to DN 300 Stainless Steel/ Aluminum Alloy</p>	<p>DN 75 to DN 300 Stainless Steel/ Aluminum Alloy</p>	<p>DN 50 to DN 500 Carbon Steel/ Stainless Steel</p>
<p>Use of Application</p>	<p>Powder & Pellet <i>Conveying / Gravity Feeding</i></p>	<p>Pellet <i>Conveying / Gravity Feeding</i></p>	<p>Powder & Pellet <i>Gravity Feeding</i></p>
<p>Rotating Angle</p>	<p>45°, 90°, 135°</p>	<p>45°</p>	<p>30°, 45°, 60°, 90°</p>
<p>Pressure Range</p>	<p>up to 6 bar</p>	<p>up to 4 bar</p>	<p>up to 0.2 bar</p>

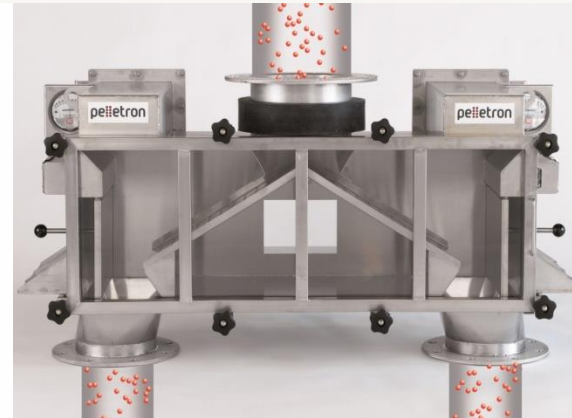
DEDUSTING TECHNOLOGY



Pelletron P-series DeDuster®



Pelletron DO-series DeDuster®



Pelletron XP-series DeDuster®



Pelletron RC-series DeDuster®



Grain Handling System



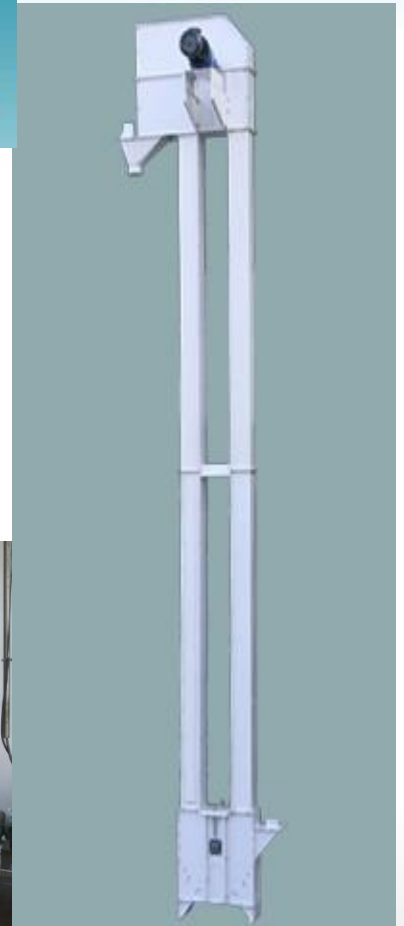
www.indpro.com  Indpro™
OPTIMIZING SYSTEMS INTEGRATION



MECHANICAL HANDLING SYSTEM



Mechanical Handling System





Screw Conveyor (Tubular Trough)

INDPRO designs, manufactures and Supplies feeder of various sizes, lengths and capacities. Screw diameter range from 100 mm to 800 mm. We supply these feeders, to flour mills, breweries distilleries & starch manufacturer's as per their specific requirement.

Selection Chart



Modell	Nominal Speed r.p.m.	Capacity in TPH for wheat B.D.O. 0.75/M2
SC 150	60 - 80	2.8
SC 200	60 - 80	6.7
SC 250	60 - 80	13.2
SC 315	60 - 80	24
SC 350	60 - 80	36
SC 400	60 - 80	54
SC 500	60 - 80	100





Screw Conveyor (U Trough)

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SC 350	60 - 80	36
SC 400	60 - 80	54
SC 500	60 - 80	100





Bucket Elevator

INDPRO's modular design ensures perfect fitment. It keeps the system rigid resulting in absolute alignment and easy operation. Inspection Door which is readily removable provides ease for maintenance.

The efficient grain discharger handles a variety of free flowing material like rice, wheat, corn, sunflower seed, malt. It handle grains gently having very negligible fall back. Higher speed of pulleys discharges material by centrifugal action. UHMWPE lining minimizes any type of wear and increases efficiency. Zero speed switch and Hold – Back device ensures complete safe operation. Minimum maintenance is required due to self cleaning by flanged bearing units at both the ends. High speed operation moves higher volumes in optimum size. Drive through geared motor ensures low power consumption.

Modell www.indpro.com	Belt Speed M / Sec.	Capacity M3 / Hr	TPH for wheat B.D. 0.76 T/M3
BE-100	1.4	3.95	3.0
BE-125	1.5	8.55	6.5
BE-150	2.0	20	15.0
BE-200	2.4	39.5	30.0
BE-250	2.8	75	57.0
BE-300	3.2	131	100.0
BE-375	3.2	197	150.0
BE-450	3.2	360	260.0





Chain Conveyor

It is used for handling variety of free flowing solids. Material is fed past the upper return chain. It then falls on the bottom trough; the chain gently drags the material on special UHMWPE liners provided on the bottom trough towards the outlet. When material is fed to the conveyor it lays on the bottom, which has a abrasion resistant lining, the moving drag chain forces the material towards discharge. In case there is overflow of the material, built-in overflow device throws it out; if it is beyond acceptable limit, the limit switch stops the motor

Model	Capacity M3/Hr	TPH for wheat B.D.O. 76T/M3
ICC150	2 - 15	2 - 12
ICC200	53	40
ICC 250	79	60
ICC 300	131	100
ICC 350	170	130
ICC 400	3.2	160
ICC 500	330	170 - 250





Material Receipt

Flexible Screw Conveyor

The flexible screw conveyors offer efficiency and versatility, conveying bulk materials ranging from large pellets to sub-micron powders—both free-flowing and non-free-flowing—with no separation of blended products.





Material Receipt

Jumbo Bag Discharge system

INDPRO supplies the bulk bag unloader and related equipment . with a intensive focus to provide safe, efficient, and complete bulk bag unloading and handling. It is designed so the operator never stands directly under the bulk bag during all phases of positioning and discharging the big bag's materials.





Material Receipt

Bag Dump Station

INDPRO bag dump stations facilitate the integration of manually dumped dry bulk materials into all types of bulk material processing equipment, including :

- material mixers,
- agitator hoppers and
- bulk storage bins,
- size reduction equipment,
- and dry bulk material conveyors.

Bag dump stations allow for efficient, manual introduction into processing operations of small volumes of dry bulk material from containers such as small bags, buckets, and totes.





Pre Cleaning

As the name suggests the purpose of the equipment is raw cleaning. Seeds/Grains are fed into inlet hopper where they are evenly distributed by a feed roller and drop through a controlled gate on the top sieve. Before falling on Top Screen, grains are subjected to primary aspiration, which drains off chaff, straw, dust and deformed grains. Material is then passed through three-sieve layer for separation according to width and thickness. Sieve perforations are kept cleaned by specially designed rubber balls. Final product and impurities are collected separately through discharge chutes sieve layer for separation according to width and thickness.



- The aspiration chamber is fitted with one waste auger.
- The screen system consists of one Sieveboat with 1 short scalping screen layer (1 screen part) and 2 long grading/sand screen layers(2 screen parts).
- The machine has an integral fan, fixed speed drive, and motors.
- The machine is of steel construction with sieveboat of laminated wood.

Modell	IE-600	IE-800	IE-1000	IE-1250	IE-1500
Motor, Fan (K.W.)	3	3	4	4	5.5
Motor, Sieveboat (K.W)	1.1	1.1	1.5	1.5	1.5
Screen Size (L = 1000 mm X W) mm	600	800	1000	1250	1500
Screen Area (M2)	3.0	4.0	5.0	6.25	7.50
Estimated Capacity (t/h)	15	20	30	40	50

MECHANICAL HANDLING SYSTEM



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- The machine is fitted with inlet feed roll.
- The aspiration chamber is fitted with one waste auger.
- The screen system consists of one sieve boat with 1 short scalping screen layer (1 screen part) and 2 long grading/sand screen layers (2 screen parts).
- The machine has an integral fan, fixed speed drive, and motors.
- The machine is of steel construction with sieve boat of laminated wood.

Modell	IE -50	IE -60	IE - 70
Motor , Fan (K.W.)	5.5	7.5	7.5
Motor , Sieveboat (K.W)	1.50	2.20	2.20
Screen Size (L = 1000 mm X W) mm	1000	1250	1500
Screen Area (M2)	8.0	10.0	12.0



Grain Storage Silo

Flat bottom



Hopper bottom





Components

Classifier

Classifier is an equipment used for cleaning and classifying grain and other granular materials; for removing adhering dirt and impurities such as dust, sand, earth clots, insect fragments. Removal of coarse and fine impurities by screening and separation of low-density matter by the aspiration channel or the air-recycling aspirator.

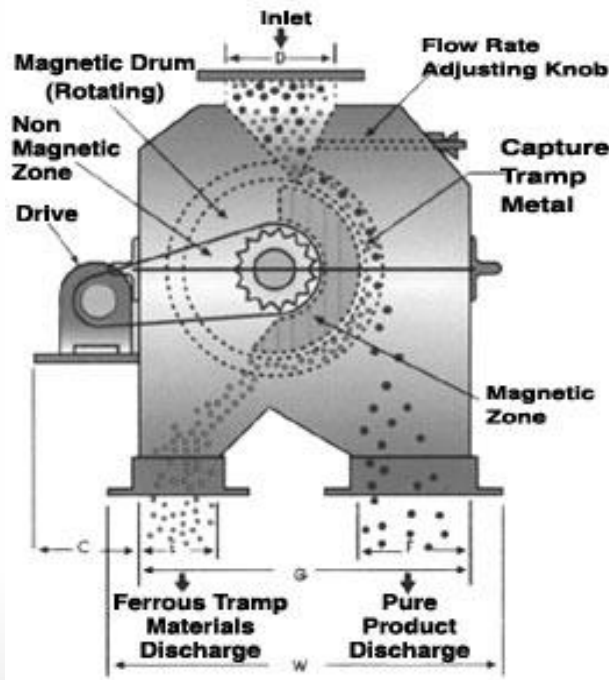




Cleaning Equipments

Magnet Separator

A powerful permanent magnetic field uniformly covers the entire drum width to ensure maximum tramp iron removal. The smooth stainless steel shell with single wiper strip assures positive tramp iron discharge and a minimum of product carryover on powdery or cohesive materials. They are available in 12-36" (305-915 mm) diameters. Replaceable auxiliary shells are available are recommended where highly abrasive materials are being handled.



Drawer Magnet





Cleaning Equipments

Destoner

The product fed through an air shut-off gate after preliminary cleaning by gravity. The product passes on to an inclined oscillating deck. The deck is designed as screen; through which an upward current of air is passed with the help of a blower. This results in fluidizing the product. Due to their different specific gravities, the heavy particles such as stones sink to the bottom of this layer of fluidized material, while the lighter particles supported by the cushion of air, float on top. The oscillating action of the screen causes the heavy particles to work their way to the upper end of the deck. There is an adjustable counter of air, this causes the final separation of heavy particles from light material, and the stone discharged. The air volume can be adjusted to achieve the optimal degree of separation.





Weighing Equipments

Inline weigh scale

The product fed through an air shut-off gate after preliminary cleaning by gravity. The product passes on to an inclined oscillating deck. The deck is designed as screen; through which an upward current of air is passed with the help of a blower. This results in fluidizing the product. Due to their different specific gravities, the heavy particles such as stones sink to the bottom of this layer of fluidized material, while the lighter particles supported by the cushion of air, float on top. The oscillating action of the screen causes the heavy particles to work their way to the upper end of the deck. There is an adjustable counter of air, this causes the final separation of heavy particles from light material, and the stone discharged. The air volume can be adjusted to achieve the optimal degree of separation.



Milling

Roller Mill

The integrated measurement and control of the particle size distribution keeps the grinding effect at the optimum. It remains at its optimum irrespective of fluctuations in raw



material and operator skills / availability.

An optimum grinding range at lowest possible energy input .The continuous measurement and control ensures an increased flour yield.and consistently high product quality .

Safety has a very high priority for both: end product quality as well as for the entire grinding process. .



Milling

Hammer Mill

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Sieving

Turbo Sifter

Designed to meet high-capacity sifting for bulk handling with maximum efficiency. A combination of high centrifugal force and blade spreading action reduces binding problems of tricky materials. These are ideal for sizing, sifting, scalping, classifying, and product conditioning applications.





Components

Flour Silo





Components

Bin activator

Designed to overcome all flow related problems like Bridging, Rat holing of Bulk Solids in the storage vessels like bins, hoppers, silos, depending upon the characteristics of material.

Salient Features

- Available in wide range to take care of any material stored in any sized and shaped vessel.
- Specially developed fixtures & tooling ensures concentricity within various parts.
- Careful design of Suspension Hangers to give complete resilience to the vibrating dish head. Sturdy design to take care of machine load and material head load.
- High performance and low energy consuming
- Vessel assembly with bolting or welding option.
- Well-equipped laboratory for optimizing equipment configurations.
- Available in Mild Steel, SS304 & SS316 as





Weighing Station In line weighing

Hopper Weighing System

The general idea of hopper scale is to place load cells under each foot of the tank/hopper/vessel, then connects the load cells to a weighing controller through a junction box which is used to compensate the signal difference of the load cells. The weighing controller is able to display the weight value after the system is calibrated, the indicator is equipped with relays output, 0-5V/0-10V/4-20mA analog output and communication port for automation control purpose.





Weighing Station In line weighing

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Control Panel

Hi-tech Micro controller based technology with fast response..

Overloaded Protection.

Impact Load Protection.

Auto zero tracking.

Stainless steel weighing pan.

In-built battery back up with SMF rechargeable battery.

Low power Indication.

M. S. Checkred Platform (optional).



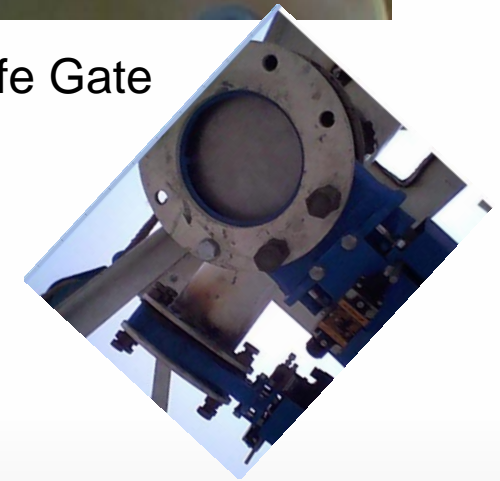


Components

Divertor Valve



Knife Gate



Slide Gate



Components



Rotary Air Lock Valve (Fall Through)

The Equipment is a volumetric feeding device designed to feed solids in pneumatic conveying system. The basic use of the rotary airlock feeder is as an airlock transition point, sealing pressurized systems against loss of air or gas while maintaining a flow of material between components with different pressure. The Rotary Airlock Valves are also widely used as volumetric feeders for metering materials at precise flow rates in industries where dry free-flowing powders, granules, crystals, or pellets are used. The

application range of rotary airlocks is from gravity discharge flow from Storage silos, Cyclone separator and precision feeding devices for dilute phase and continuous dense phase pneumatic convey systems.



Components

Rotary Air Lock Valve (Blow Through)

Blow through valve has have been designed to meet the rugged demand of pneumatic conveying system. It is used to regulate the flow of dry powders, dusts and granular products ,while maintaining airlock condition. However this offers distinct advantages, in that it introduces high pressure conveying air through the valve body and rotor pocket, ensuring high ensuring high efficiency throughput with a low effective pressure drop



AIR POLLUTION CONTROL



Bag / Dust Collector Unit



Sintered Plate Element Filter Unit

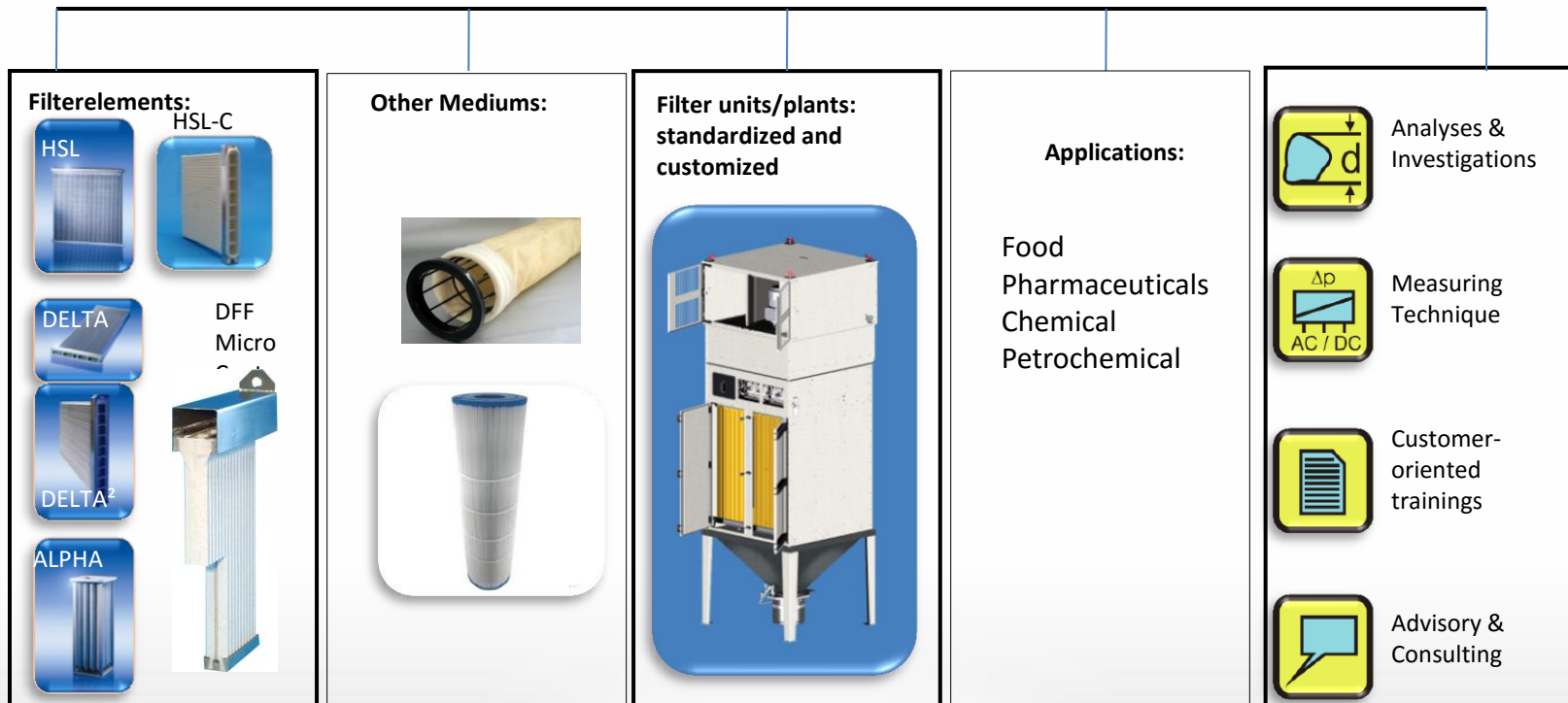


AIR POLLUTION CONTROL



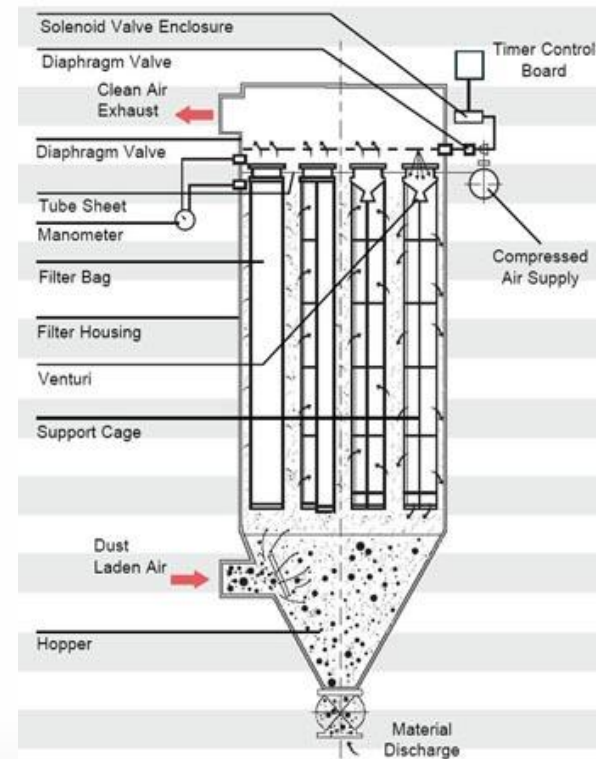
Complete Solution

Complete systems solutions in filtration: all from one single source!





Principle Of Operation





Filter Medium



Filter Bags

- ⓘ Diameter 160 mm, length 1m to 4m
- ⓘ Application Specific Cloth material
- ⓘ Cleaning Pressure 6 Bar
- ⓘ Good Flexible strength
- ⓘ Outlet Emissions less than 10 mg

Filter Cartridge

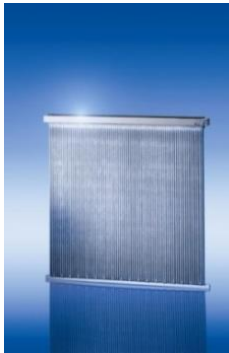
- ⓘ Diameter 150 /225/327 mm
- ⓘ Application Specific filter material
- ⓘ Cleaning Pressure 4 Bar
- ⓘ Good Flexible strength
- ⓘ Outlet Emissions less than 10 mg

Sintered Element Filter

- ⓘ Length 750 to 1500 mm
- ⓘ Polyethylene PTFE coated
- ⓘ Cleaning Pressure 4 Bar
- ⓘ Rigid Body Element
- ⓘ Non Fibrous
- ⓘ Suitable for product recovery
- ⓘ Outlet emissions up to 0.2 mg



Sinter Plate Filter Element



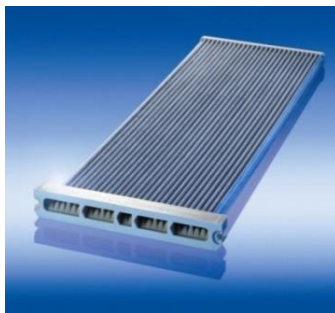
HSL up to 70° C



HSL-C up to 100° C



DFE MicroCoat



Herding® DELTA



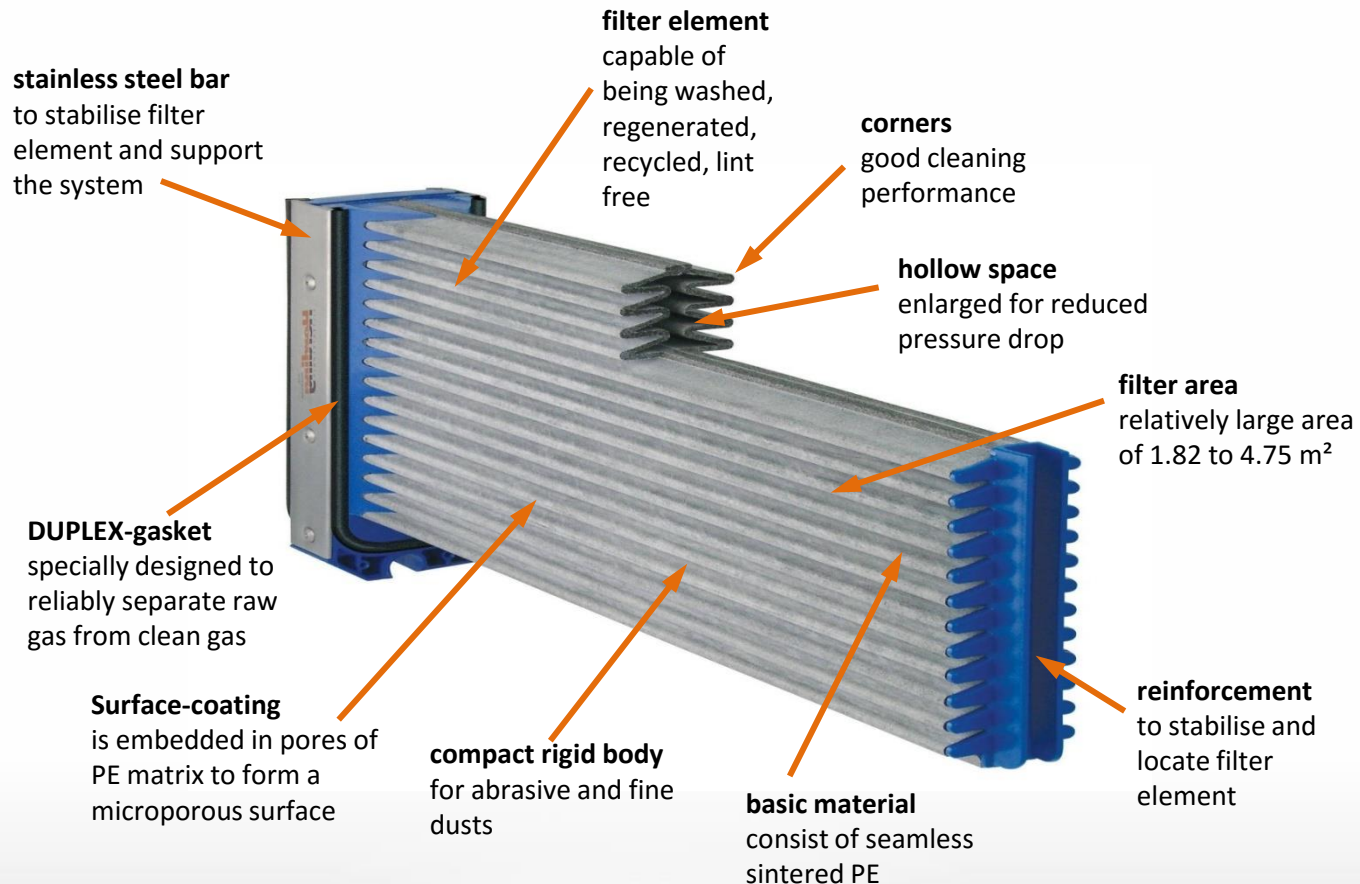
Herding® DELTA²



Herding® ALPHA filter up to 450° C



Herding® DELTA/DELTA² filter element



AIR POLLUTION CONTROL



SAMAIIR® Filter Units

- Panel design for large units
- Bag/Cartridge as filters
- 2 Years life of filter medium*
- Outlet emissions low as 10 mg
- Contains fibres
- Perfect for Dust Collection
- Moderate input cost
- High maintenance cost
- Resistance to Temperature upto 250°C



Herding® Filter Units

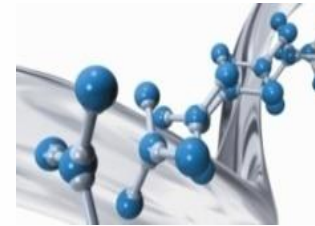
- Panel design for large units
- Rigid body Elements
- 10 Years life of filter elements
- Outlet emissions low as 0.2 mg
- Contains no fibres
- Perfect for product recovery
- Low maintenance cost
- Resistance to Temperature upto 85°C





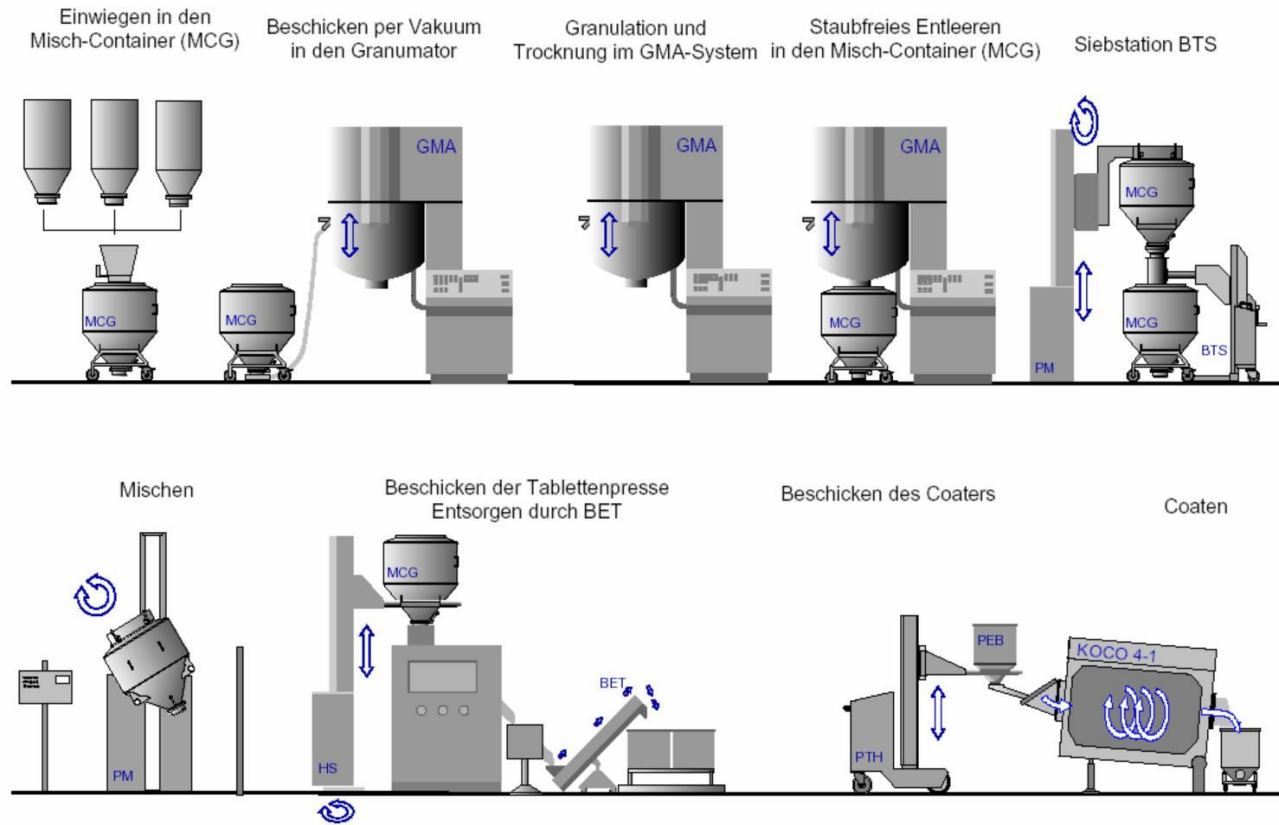
Applications-SAMAIIR®

- CHEMICAL** – Dyes, SAP, Specialty Chemicals
- FOOD** – Sugar, Flour, Malt, Adjunct, Protein Powder
- DAIRY** – Skim Milk Powder, Whole Milk Powder
- PETROCHEMICAL** – Resins, Additives, HDPE, LLDPE, PP, PE
- PLASTICS AND POLYMERS** – CaCO_3 , TiO_2 , Dolomite, Al_2O_3 , Talc
- AUTOMOBILE** – Battery Production





Applications-Herding® Pharmaceuticals





Constructive Explosion Protection

Pressure relief of dust explosions“ according VDI 3673



Suppression of dust explosions“ according VDI 2263 Part 4



Explosion-proof design pressure shock resistant or pressure resistant





Retrofit of bag filters to Herding® sinterplate filters



Benefits for the user:

- Smaller space requirements (space reduction: approx. 40%!)
Constant operating conditions



BAGGING & PALLETIZING



PAYPER BAGGING TECHNOLOGY

Solutions & machineries:

Weighers of:

-  **Gross weight:** Weighing and filling at the same time
-  **Net weight:** Weighing previously to filling



CSA



PB: Gross Weigher



CC-800: outputs up to 2.000bags/hour



PN: Net Weigher



KID-BAG



Solutions & machineries: Big-Bags



Big-Bags:

GROSS or NET filling station designed for manual or automatic operations:

- ⓘ Outputs: up to 50 T/hr
- ⓘ Weight range: from 500 to 2000Kg
- ⓘ Product type: powders, non-free flowing, granulates, flakes,...

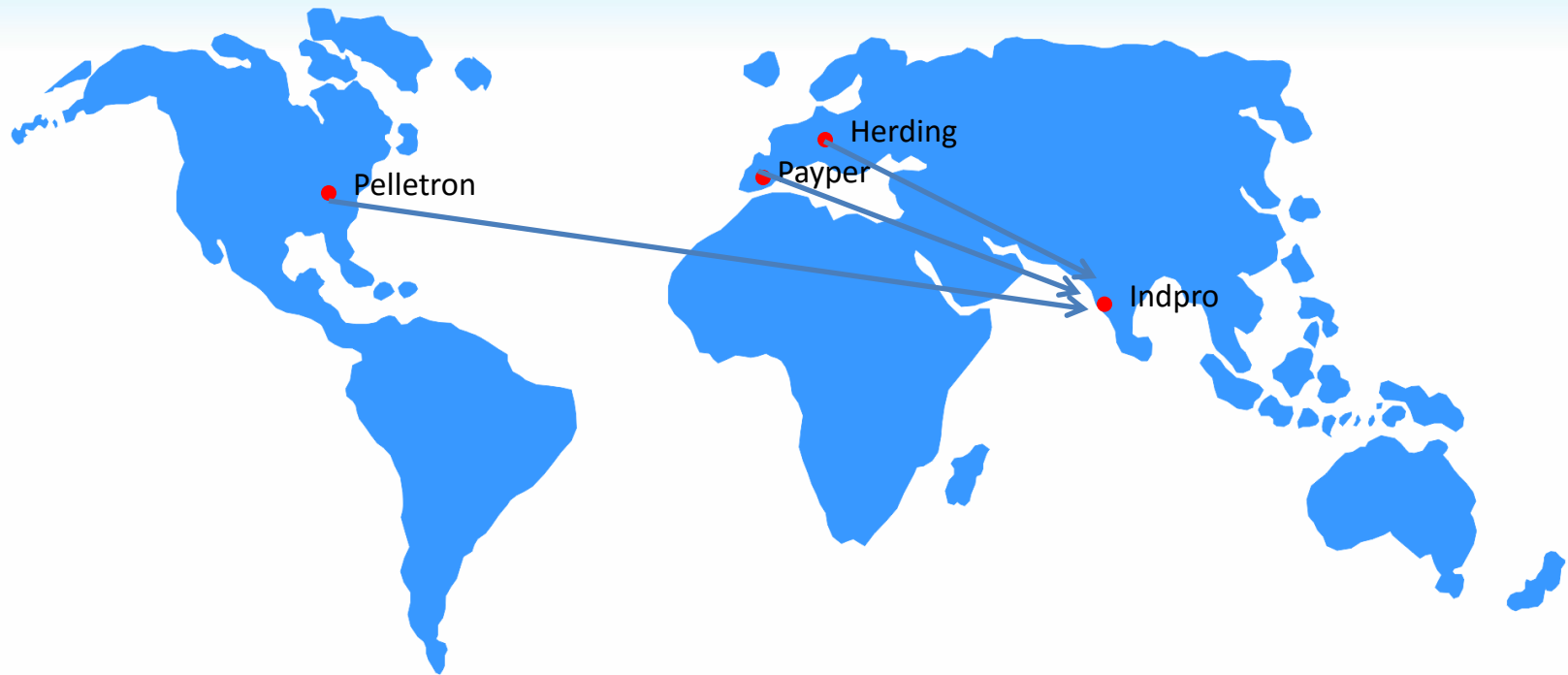
CLIENTS



CLIENTS



LOCATION



Head Office & Works :

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Thank you!