

# ONE-STOP SOLUTION FOR POWDER HANDLING

UNLOADING  
SYSTEMS

CONVEYING  
SYSTEMS

WET HANDLING  
SYSTEMS

BLENDING  
SYSTEMS

CONTAINMENT  
SYSTEMS

MILLING  
SYSTEMS

FILLING  
SYSTEMS





# PROCHEM

YOUR POWDER HANDLING PARTNER

- **Getting ahead with ProChem®**

ProChem® is a one-point solution for powder handling by supplying unloading, conveying, mixing and packaging projects/products for the processing of bulk materials since 2007. The optimal combination of innovation, operational safety, and service means added value and success for our customers!

Customization, Conceptualisation, and Commissioning being the pillar of ProChem®, led to the successful completion of more than 700+ projects in India and Abroad.

ProChem® develops and manufactures all the core components in its own state of art production unit having 95,000 sq ft. area and thereby guarantees reliability and quality. ProChem®'s head office is in Pune with two manufacturing units of 15000 sq ft. area and 80000 sq ft. area. However, we have our affiliated group company and representatives in Saudi Arabia as well.

Our 120+ committed employees work round the clock to inspire Our Customers.

Our reliable and reputable consulting service and personal project monitoring during the configuration and realization of systems for the processing Of bulk materials are One reason for high customer satisfaction.

- **Believing in innovation for the future**

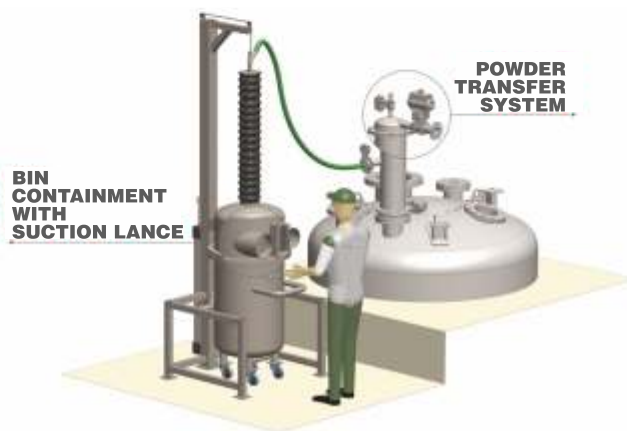
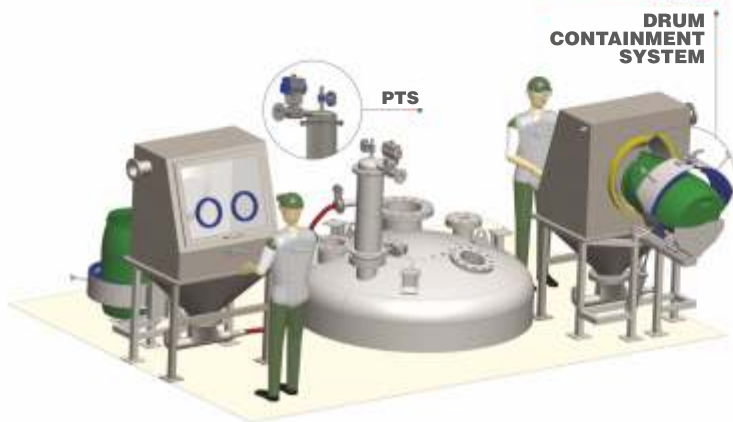
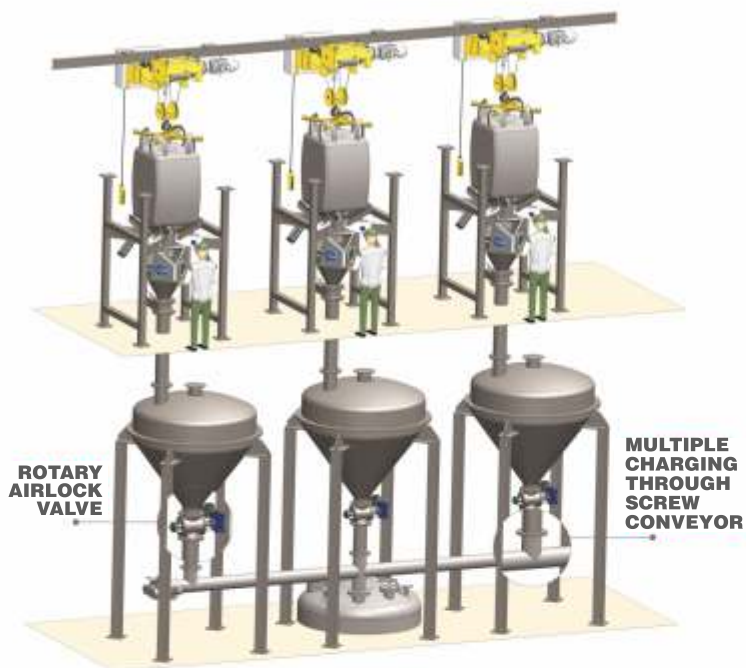
Customization, Conceptualization and Commissioning the three piers of ProChem® to have Innovation as the belief system with trendsetting solutions to meet customers' expectations. Since 2007 the excellent services offered also indicate that a ProChem® system is an investment in a successful future. The ProChem® systems service is constantly available to customers, providing technical studies as well as services in connection with the maintenance, repair, and upkeep.

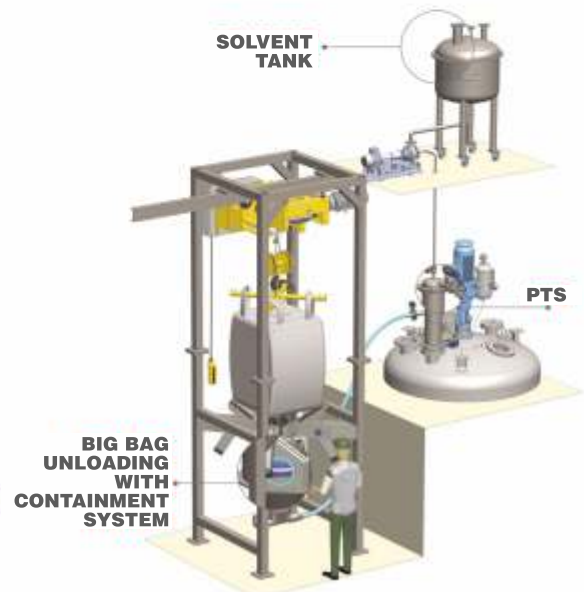
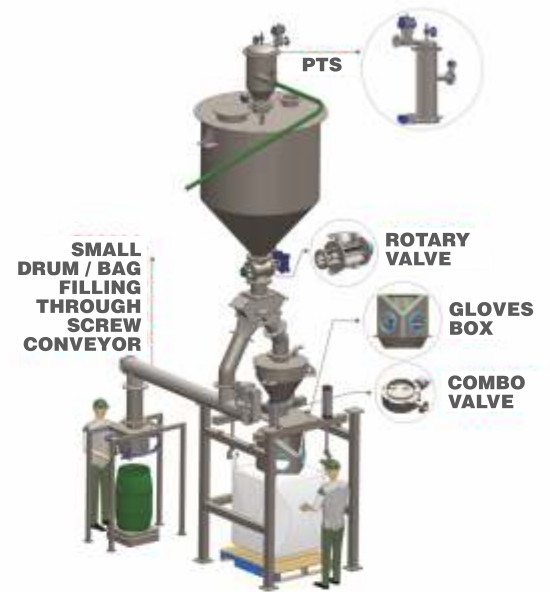
- **How you benefit**

Made by ProChem® means fast ROI, low maintenance costs, and high availability of the systems.



# APPLICATION





# UNLOADING SYSTEM

## BAG DUMPING STATION



## BIG BAG UNLOADING SYSTEM



## BAG DUMPING STATION

ProChem® Bag Dumping Station with reverse-pulse jet filter automatically captures dust and returns it to your process. Our manual dumping stations allow for effective emptying of small volume bags of bulk solids or powder while mitigating loss of product through dusting. Centrifugal blower with a reverse-pulse jet filter automatically captures dust and returns it to your process.

Some of the Features are:

- Hinged Access Door
- Integral or Remote dust extraction
- Removable Safety Grille
- Automatic Bag Slitter
- Integral Product Sifting
- Integral Vibratory Screener
- Vacuum Bag Lifters
- Single or Twin Inlet Designs
- Door Opening to suit Bag Size
- Integral Lump breaker

## BIG BAG UNLOADING SYSTEM

ProChem® Big Bag Discharger provides dust-free loading, untying, retying and removal of Big bags FIBC dischargers are offered in numerous frame configurations. The two most popular of which are

- Dischargers with bag lifting frame for forklift loading and unloading of Big bags (FIBCs)
- Dischargers with cantilevered I-beam, electric hoist, and trolley for loading and unloading of Big bags without the use of a forklift.

Some of the Features are:

- A broad range of innovative accessories, delivering an unprecedented level of efficiency, cleanliness, and economy.
- It also allows easy retying of partially empty bags and can collapse empty bags—free of spillage and dust.
- Pneumatic bag agitation
- Pinch valve for retying bags
- High hygiene models

# CONVEYING MECHANICAL SYSTEM

**DRAG TUBE  
CONVEYOR**



**SCREW  
CONVEYOR**





## DRAG TUBE CONVEYOR

ProChem® Drag Tube Conveyor is so flexible that they can be employed in a nearly infinite number of variations. Our systems are individually customized in a modular design. Layout, materials, and speed will be perfectly adapted to your bulk material. Our tube chain conveyor is available along with many practical components like brush or knocking units for cleaning the chains and for discharging, and special flap or slider systems for intermediate discharge with as little dead space as possible.

Some of the Features are:

- Dust-free Operations: Convey product in a completely sealed system.
- Low-horsepower, electric motor drives material for hundreds of feet using minimal energy.
- Modular design allows for optimum conveying, including length, conveyor path, a number of inlets or discharge outlets.
- Get longer life from chain than steel cable
- Eliminate multiple conveyors with multiple inlets/outlets.
- GMP compliant design, high-quality surface finishes. no dead spaces.

## SCREW CONVEYOR

ProChem® Screw Conveyors are available in a wide range of styles for general conveying applications as well as for silo discharge duties. Single units with variable pitch augers or multiple auger units for difficult products may be used to assist the discharge of materials with poor flow properties from silos. A wide range of features are available:

Some of the Features are:

- Polished internal/external surface
- Outboard bearings and packed gland/air purged shaft seals
- Tubular / trough designs with access and inspection covers
- Variable pitch augers to encourage the mass flow
- Half pitch augers to prevent flushing of free-flowing fluidized products
- Double flight designs to provide even continuous discharge rates
- Reverse flights at the discharge end to assist discharge and prevent compaction

# CONVEYING PNEUMATIC SYSTEM

## LEAN PHASE CONVEYING SYSTEM



## POWDER TRANSFER SYSTEM



## LEAN PHASE CONVEYING SYSTEM

ProChem® Lean or dilute phase vacuum conveying systems generally use positive displacement exhausters to provide a vacuum (up to 50%) to convey materials through a pipeline to the receiving vessel where the air and product are filtered and separated. Lower capacity fan-based systems are also available.

Some of the Features are:

- Convey Rates: low to medium (<10 tonnes/h).
- Convey Velocities: 15-30 m/s
- Convey Distances: <100 m
- Air mover: Positive displacement (Roots Type) exhauster or fan.
- Operating Pressure: <50% vacuum.
- Material Air Ratios: low to medium (3-15 kg/kg).

## POWDER TRANSFER SYSTEM

ProChem® Powder Transfer System offers a customized design that is efficient, sanitary and tailored to customers' unique requirements for the type of powder being processed. The pneumatic conveying system uses an air stream to move dry bulk powders through horizontal or vertical pipelines in a powder processing system.

Some of the Features are:

- Gentle conveying
- Stainless steel construction
- The Control system utilizes sensors to control dense phase convey rate
- The air-to-product ratio is maintained for reliable conveying, no plugging
- Vacuum is used as conveying medium
- Batch sequence operation
- Conveying rate of 100 kg/hr to 3000 kg/hr to a distance of 5 meters to 30 meters
- Convenient in conveying wet cake LOD upto 20%

# BLENDING SYSTEM

**CONICAL  
BLENDER**



**RIBBON  
BLENDER**



## CONICAL BLENDER

ProChem® Conical Blender has a conical vessel along with a double start helix ribbon mount on the middle shaft. These blenders are extensively used for granulation, mixing and homogenizing applications. This type of blender controls all kinds of powder applications such as bulk dry materials to wet cakes and slurries.

Some of the Features are:

- Cantilevered shaft without material contact at bearings
- Close clearances between agitator and vessel wall prevent material build-up
- Standardized agitator drives ensure reliable operation
- Appropriate shaft seal system for every application ( not product-wetted)
- GMP compliant design, high-quality surface finishes
- CIP concepts and validated cleaning procedures
- Chopper option to prevent the formation of lumps
- Optional external jacket for heating/cooling
- Virtually complete emptying by means of conical bottom

## RIBBON BLENDER

The RIBBON BLENDER is an efficient and versatile blending machine for mixing of dry granules & powders homogeneously. Approximately two-third of the volume of the container of Ribbon Blender is filled to ensure proper mixing. The Ribbon Blender gives the best result for mixing of dry powder & granules due to the design and shape of the mixing ribbon and product container.

Some of the Features are:

- The shape of the container and mixing stirrer gives sufficient continuous movement to the powder /granules result in good quality.
- All contact parts are made out of SS304/SS316 or SS316 L quality material.
- Inching facility for stirrer for discharge of material.
- Discharge height can be adjusted if confirmed with order.
- The operating panel provided for safe operation of the blender.
- Centrally located material discharge valve. ( Butterfly / Sliding Valve )
- Dust proof top cover with a window provided.
- Safety Guards and Covers made out of SS304 in GMP Model & made out of mild steel in Standard Model.

# MILLING SYSTEM

## CONE MILL



## DELUMPER



## | CONE MILL

ProChem® Cone Mill utilizes the current industry standard over-driven conical mill design, featuring a belt-driven impeller, rotating inside a screen (60 inclusive screen angle). This principle achieves comminution by compression and shearing of the particles between the impeller and surface of the screen.

Some of the Features are:

- Stainless Steel construction throughout
- Accurate PSD
- Milling efficiencies ensure the highest percentage of product on-spec (10%- 30% improvement over other conical milling technologies)
- Predictable and repeatable scalability from R&D to production

## | DELUMPER

ProChem® De-Lump breakers are designed to provide a simple efficient means of reducing agglomerated materials, and are both durable and economical. The equipment includes counter-rotating dual shafts, outboard bearings, and a direct coupled drive. It is designed to reduce lumps to allow material to be effectively handled by downstream conveyors.

Some of the Features are:

- Stand-alone pre-crushing in continuous or batch mode
- Process integrated pre-crushing
- Process quality assurance
- Process safety assurance

# FILLING SYSTEM

## SMALL BAG FILLING MACHINE



## JUMBO BAG FILLING MACHINE





## SMALL BAG FILLING MACHINE

ProChem® Small Bag Filling Stations are suitable for bagging of chemical powders, sugar, salt, grain, fertilizer, plastics, and animal feed. Sturdy solid equipment combined with state-of-the-art PLC-based weighing technology to give you reliable around-the-clock bagging.

ProChem® has vast experience in the design standards of the Food and Dairy Industry and is able to design supply and install systems for 25kg bags, Bulk Bags and Bins of all types.

Some of the Features are:

- Filling capacity of 80-100 bags/hr with an accuracy of  $\pm 30$  gm
- Complete automated packing lines to the highest specifications
- Sanitary standards and USDA accepted designs
- Gassing systems for the extended shelf life of perishable products
- Gentle handling systems for fragile materials
- High-accuracy systems for average weight & minimum weight filling
- Full range of filling line options and controls
- Filling under Nitrogen blanketing
- Sealing with Auto stitching

## JUMBO BAG FILLING MACHINE

ProChem® Jumbo Bag Fling Machine has been designed to fill even the most \*Malt to handle materials, using a time-proven technique which involves high precision weighing coupled with a truncated pyramid table with vibrators, the filled material is weighed, deaerated, and densified before leaving the fling station. The ultimate goal is to produce bags that are stable, stackable, safe & easy to handle.

Some of the Features are:

- Machines, which can fill single loop and 4 loop big bags
- Accurate filling of 250-1000kg bags, boxes, bins, and containers
- Reliable and easy to operate
- Mounted on integral 4 load cell weigh platform
- Auto Tare: deducts the weight of bag and pellets giving the only net weight of product in the bag
- PLC based weighing controller
- IFC mode for better accuracy
- Filling capacity upto 4-10 bags/hr with an accuracy of  $\pm 100$ gm

# CONTAINMENT SYSTEM

## ISOLATORS



## DRUM CONTAINMENT SYSTEM



## ISOLATORS

ProChem® Rigid Containment Isolators have been designed for handling potent compounds that can offer guaranteed levels of operator protection as low as  $\text{tong/m}^3$  (task duration). Our isolator discharge powder in a contained system from ANFD, bottom discharging centrifuging, ANF. Bag filling machine, Jumbo bag dischargers. Drum unloading machine.

The isolator is designed to not only provide a physical barrier between the operator and the product but to also provide a controlled environment, negatively pressurized with an atmospheric condition or a reduced oxygen content using an inert gas.

Some of the Features are:

- Ergonomic Design
- Inflatable Seals
- 17mm / 5/8" radiused comers
- Safe Change " Push- Push" Alters
- PLC Control system
- Stainless steel construction

## DRUM CONTAINMENT SYSTEM

ProChem® Drum Containment Discharger with tipper device is used for low-contamination discharging of drums. By means of the tipper, drum can be easily mounted to the station. The products supplied in drums are additionally packed in foils, also referred to as liners, to ensure operator-and product protection. The product has to be packed in at least one liner unit.

Some of the Features are:

- Safe Discharging of drums up to OEB 5,  $\text{OEL} < 1 \mu/\text{m}^3$
- Product handling by means of gloves for easy handling
- Simple and contamination-free exchange of the gloves
- Contamination-free connection due to double O-Ring technology
- Nitrogen purging
- Optional empty sack disposal

# OTHERS

## LOSS AND WEIGHT FEEDER



## BIN WITH BIN LIFTER



## LOSS AND WEIGHT FEEDER

ProChem® Loss and Weight Feeders feature a platform-type weighing system specifically designed for continuous or batch weighing of powder on a weight-loss basis. The weighing systems of these particular model feeders incorporate technologically advanced, lever mechanisms (scales) utilizing ProChem® designed and manufactured stainless steel flexures for all pivotal connections.

Some of the Features are:

- Metering accuracy is typical +/- 0.25 to 1% or better (error)
- The weighing Mechanism is extremely stable, ruggedly constructed, and permanently calibrated; longevity is unsurpassed
- Dust-Tight construction provides total product confinement from inlet to outlet

## BIN WITH BIN LIFTER

ProChem® Bins or Intermediate Bulk Containers (IBCs) are made to specification in standard capacities ranging from 100 liters to 2000-liters in round, rectangular and square geometries. It also offers fully customized solutions for more demanding applications such as high containment systems. The corners of our square IBCs are always made with a 2" radius to allow for easy cleaning, insuring that cross-contamination is not caused by the IBC.

ProChem® Bin lifter modular construction provides for functional extensions by combining special installed components and process machines. One can develop an optimal, ergonomic system solution when using bin lifters in combination with containers.

Some of the Features are:

- Stainless steel and GMP compliant designs
- High flexibility, such as for containers of any dimension and design
- High load range
- Electro-hydraulic or electro-mechanical solutions

# OTHERS

## SILO



## ROTARY AIRLOCK VALVE



## SILO

ProChem® Silo is a specialist in the supply of Bulk Storage silos and hoppers for food products - dairy powders, sugar, flour, starch, salt, and a wide variety of ingredients, mixtures, and cereals.

Some of the Features are:

- Indoor or Outdoor Silos
- Epoxy Coated Steel, Stainless Steel, Aluminum Construction
- Flexible Fabric Silos (ex High Strength Woven Trevira Polyester) with Steel Support Frames
- Round or Rectangular Silos with Conical bottom.
- Vacuum, Pressure and Explosion Relief Systems
- Access Equipment via ladders, platforms manholes, windows, and illumination

## ROTARY AIRLOCK VALVE

ProChem® Rotary Airlock Valve is designed to enable quick disassembly without tools and is ideal for sanitary and hygienic applications. The prime function of a rotary valve or airlock is to regulate the flow from one chamber to another while maintaining a good airlock condition. The product is mainly in dry powder or granular form.

Some of the Features are:

- All our standard valves and airlocks are precision machined for close tolerances and minimal eccentricities.
- Pressure differentials to 20psi and temperatures to 400°C (752°F) are considered the norm and extreme pressures and temperatures can be accommodated with special designs.



**PROCHEM**  
YOUR POWDER HANDLING PARTNER

**Unit - I**

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