



GEM ALLIED INDUSTRIES PVT.LTD



**EFFECTIVE
AND
AFFORDABLE
DRYING
SOLUTIONS**



WHY

GEM ALLIED INDUSTRIES PRIVATE LIMITED?

- World-class products at affordable prices
- End-to-end solutions for food processing industries – cutting, blending, drying, sorting
- Government of India recognized Export House
- Global presence with installations worldwide - Australia, Japan, China, Indonesia, Philippines, Thailand Sri Lanka, Russia, etc.
- ISO 9001:2008 certified company

GEM ALLIED **APRON-DRYER**

The Apron Dryer is the latest technology in the drying of wet solid particles.

PRINCIPLE AND **CONSTRUCTION**

The Apron Dryer is made from a tubular structure with insulated panels on all sides to prevent heat loss. It is a continuous tray/apron type dryer wherein wet particles are fed in from one side and the desired dry particles are collected from the other end. Gradual and uniform drying is achieved by multiple fans and steam coils that provide the required temperature in each zone for the particles to dry. A transfer section towards the middle of the machine allows for the particles to overturn and mix evenly facilitating uniform drying. The transfer section which separates the conveyor drives allows different travel times for the tray conveyor belt between the feed side and the discharge side. Humid exhaust air is sucked out from the ductings on the top and the sides and is prevented from circulating in the drying area. A cooler section towards the end ensures that the discharged product is cool enough to be packed without any requirement for a separate cooler.

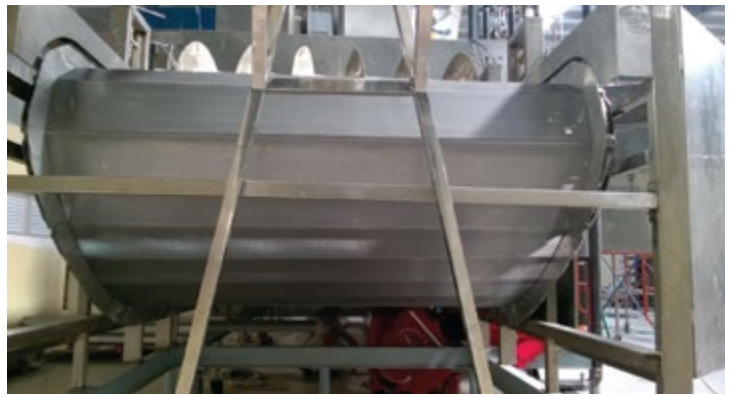
THE FEED SIDE

The wet materials are fed on the feed side of the equipment and is evenly spread and leveled with the help of a spreader and a leveler respectively across the entire width of the conveyor.



THE CONVEYOR DRIVE

The conveyor consists of stainless steel trays/aprons connected with each other forming a micro hinge with a wire passing through it. The trays/aprons are fitted with stiffeners to prevent buckling and is fitted to stainless steel chains on both sides of the machine. The chains are driven through stainless steel sprockets and is equipped with an inverter to control the speed of the conveyor thereby setting different residence times for different types of products.



DIFFERENT ZONES STEAM COILS AND AIR RECIRCULATION DIFFERENT HEATING TEMPERATURES

The machine is divided into different zones along the length of the dryer. Each zone comprises of a different set of steam coils with its individual circulating fans. This allows the user to set different temperatures in each zone along the length of the dryer by gradually increasing or decreasing the set temperatures as the product travels. PID (optional) controller can set the desired temperature within a +/- 1 degree celsius thereby eliminating variations in temperature.

The circulating fans collect hot air from the steam coils and throw it towards the particle side of the drying chamber. The hot air passes through the product, thereby drying it and is partially re-circulated back towards the steam coils for reheating by the steam coils and to be thrown back again into the drying chamber with the help of the above-mentioned circulating fans once again. The remaining humid air is exhausted with the help of ducts and exhaust fans and is removed from the dryer building.

THE TRANSFER

The transfer section allows for the particles to 'transfer' from one tray circuit to another. This helps in overturning of the product and allows for more uniform drying. Also, with the help of more than one circuits, different travel times of each circuit of the conveyor can be set.

CONTROL PANEL, AUTOMATION AND INSTRUMENTATION

The Control Panel comprises of Temperature Indicators, Energy Meter, HMI, Inverters for the conveyor drives, Humidity Indicators (optional) and Chart Recorders (optional) as well as the controls for each part of the dryer. Preset Recipes can be set and selected and the desired temperature of operation and timing of the conveyors can be altered based on specific products.

COOLER AND DELIVERY END

The dried particles are discharged from the Delivery End of the dryer for further packaging or processing. Suitable scrapers and cleaning brushes are fitted to ensure that the trays are clean before it is returned.

CUSTOMER SERVICE AND SPARE PARTS

Our engineers Install and provide successful running trials of the equipment and train local engineers on how to clean and troubleshoot the equipment on a regular basis. Spare parts are kept in ready stock at all times to reduce downtime.

Applications

- ✓ Snacks
- ✓ Coconut
- ✓ Carrageenan / Sea Weed
- ✓ Pigments And Chemicals
- ✓ Animal Feed
- ✓ Fruits And Vegetables
- ✓ Rice
- ✓ Nuts And Seeds
- ✓ Fibres
- ✓ And Many Others

SALIENT FEATURES AND ADVANTAGES

Different Heating Zones

Separate Heating Coils in each zone allows the user to set different temperatures in each zone as per the requirement of the product. This allows for better control of the drying process and allows optimization of the output and the drying time. The Heating Coils in the dryer can be heated by means of Steam, Gas, Electricity or Thermic Fluid.

Optimum Capacity

The output capacity of the dryer depends upon the chosen product and the input and output moisture and the residence time. With immense flexibility provided within the dryer, the equipment is designed to provided the optimum output for any given product.

Variable Drying Time

Each Stage has a Variable Frequency Drive which allows the user to set different surface speeds for each stage and adjust the drying time of the product accordingly providing high flexibility and the desired amount of product moisture at the time of discharge.

These dryers can be made in Single Stage, Double Stage or Triple Stage.


Controls and Instrumentation

A Control Panel to run the machine and to monitor the temperature in each zone is provided. Complete PLC and SCADA systems can also be incorporated minimizing human error.



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