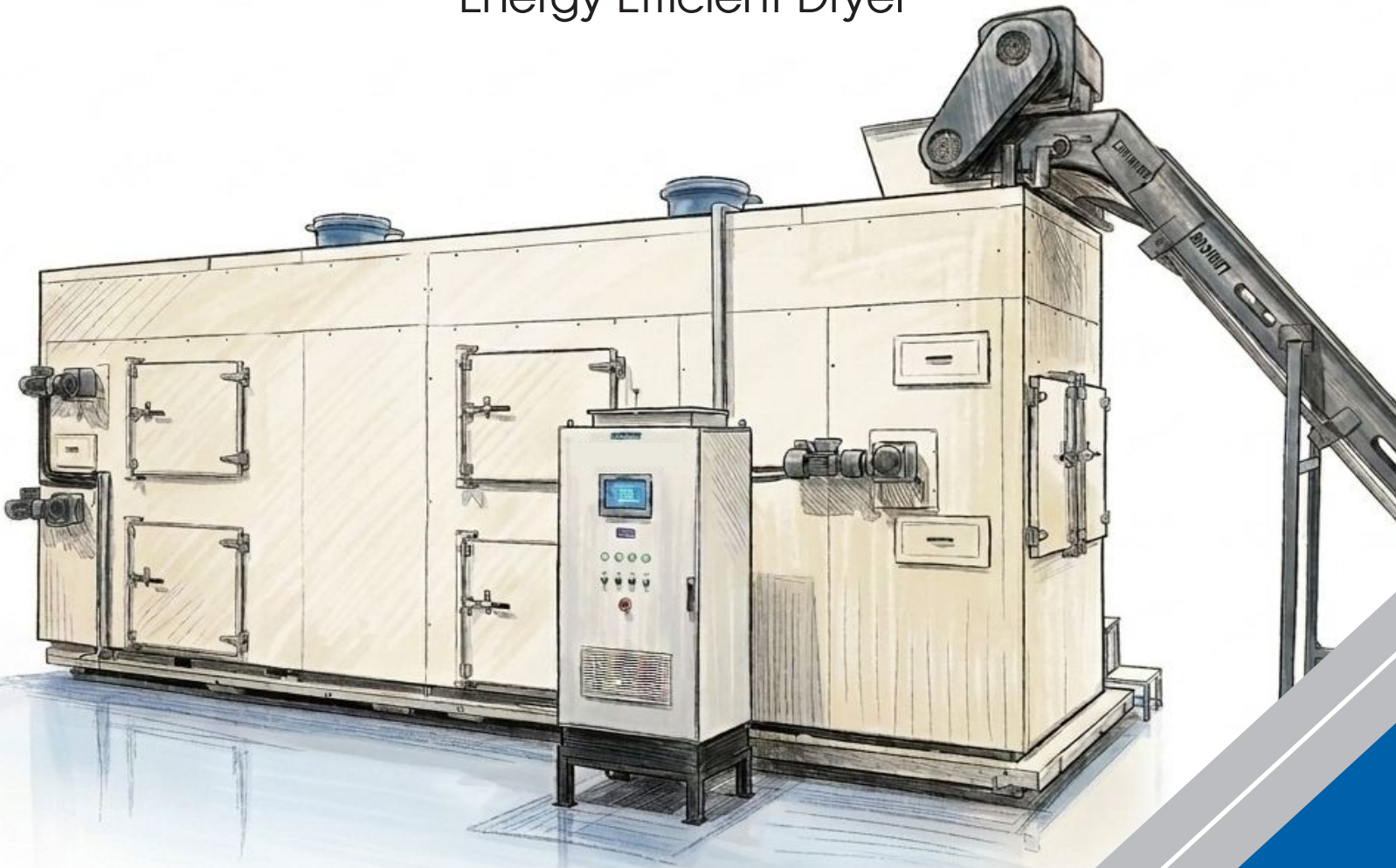




HEAT PUMP DEHYDRATOR

Energy Efficient Dryer



Save energy, Protect environment, Better future

Energy-Efficient Drying Systems:

Redefining Green Production with DRYTRAY Close-loop Heat pump Technology

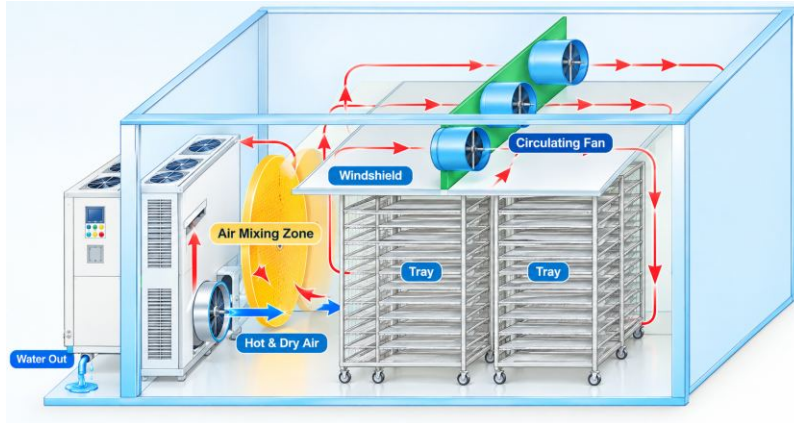
DRYTRAY redefines the food drying standard with its Condensation Dehydration Technology heat pump drying system. This technology intelligently recycles the moist heat energy generated during the drying process, ensuring precise temperature and humidity control while maximizing energy recovery.

It is suitable for high-quality drying of heat-sensitive materials such as fruits, vegetables, meat products, herbs, and seafood. Its unique low-temperature, uniform drying process preserves the natural color, nutrients, and flavor of the food.

With over 30 years of expertise in heaters and drying technology, DRYTRAY provides customized drying solutions that enhance product value while reducing energy consumption and carbon emissions, truly achieving the dual benefits of "efficient drying" and "green production."



How DRYTRAY Closed-Loop Drying System Works?



In a closed drying system, the compressor generates dry hot air, which penetrates the material and carries away moisture. The water vapor then enters the evaporator, where it condenses into water and is discharged from the system while recovering heat energy. The recovered heat is reheated by the compressor and recirculated as dry hot air, forming an efficient closed-loop cycle. Through this process, the DRYTRAY closed-loop heat pump dryer ensures stable dehydration while maximizing energy utilization.

Features



Preserve Nutrients, Enhance Quality: Low-temperature condensation dehydration—removes only moisture while locking in nutrients, color, and texture.



Energy-efficient and Low-running cost: DRYTRAY heat pump dryers maximize energy efficiency through advanced heat recovery, significantly reducing electricity consumption and lowering operating costs.



Smart Control, Simplified Operation: One-touch automation, pre-set programs, and real-time monitoring for precise moisture and temperature control.



Cloud System with Remote Monitoring: The cloud-based system allows real-time monitoring, error alerts, and remote control of the dryer for added convenience and efficiency.



Dehydration

- Products are dried at specific low temperature there by optimizing product quality.
- Dehydration is effective method of drying; which has large impact on final taste and appearance of products.
- Helps to preserve foods by removing inherent water content which is responsible for growth of bacteria, germs, algae and resultant spoilage and waste.

Principle

Drytray renewable dryer uses ambient air as heat source & dries material at specific low temperature. Low temperature drying reduces the risk of loss of nutrient content & appearance of the product being dried. Drying cycle incorporates dehydration which conserves energy. Hot air is allowed to pass through drying chamber where the moisture is evaporated from the product. The hot and humid air then passes through evaporator where the moisture is condensed as air goes below dew points and is drained out.



Dryer capacity : 50 kg to 5000 kg/batch.

We provide customized solution for each application.

Comparison of different drying methods costs

Many conventional drying methods usually use Coal, Fossil oil, Natural Gas, LPG or electricity as an energy source for drying. Below is comprehensive comparison among several drying methods considering 1 kg of water dehydrated from product to be dried as a standard reference.

Method	Electricity	Coal	Oil	Gas	Gas	Drytray Renewable Energy Dryer
Energy type	Electricity	Coal	Diesel	LPG	Natural Gas	Electricity
Heating value	860 kcal/kWh	5000 kcal/kg	10200 kcal/kg	10800 kcal/kg	860 kcal/kWh	860 kcal/kWh
Heating efficiency (%)	95	30	70	80	80	500
Energy required (kcal)	1200	1200	1200	1200	1200	1200
Energy consumed	1.47	0.80	0.17	0.14	0.17	0.28
Energy price (Rs.)	10	7	92	100	85	10
Operating cost (Rs.)	14.70	5.60	15.50	13.90	14.80	2.80



Above calculations is based on assuming 1200 kcal required to dehydrate 1kg of water & above energy price. Energy prices are indicative & subject to change as per local tax structure.



DRYTRAY RENEWABLE ENERGY DRYER



COAL



NATURAL GAS



DIESEL



ELECTRICITY



Comparison of Drytray Renewable Energy Dryer with Others

Sr	Description	Unit	Drytray	Drytray SST	Others - I	Others - II
1	Model	-	DR 300	DR 300 SST	300 KG	300 KG
2	Connected load	kW	5.5	7.2	15	12
3	Electric heater	kW	Nil - Optional 3kW	Nil - Optional 3kW	6 to 7.5 kW	5
4	Heating capacity	kW	10.5	17.5	18	10.5
5	Dehydration rate	LPH	12	20	22	12
6	Loading capacity	kg	225 - 300	225 - 300	-	100 to 300
7	Chamber Volume	m3	14.39	14.39	23.74	17.75
8	Tray surface area	m2	46.08	46.08	47	46.08
9	Compressor	Qty	One	One	unknown	unknown
10	Compressor make, type	-	Copeland, Scroll	Copeland, Scroll	Danfoss, Scroll	Copeland, Scroll
11	Refrigerant	-	R134a	R134a	R134a	R134a
12	Cooling Capacity	kW	7.8	7.8	Not available	7.8
13	Drying Cost for 200 kg Tomato batch	Rs.10/Unit	1080	1015	1950	1440
14	Drying Time	Hour	24	14.5	13	24
15	Drying Cost for 300 kg Moringa batch	Rs.10/Unit	810	788	1534	1080
16	Drying Time	Hr	18	11.25	10.22	18
17	Average Power consumption	kWh	4.5	7	15	6

Product Quality Comparison



TRADITIONAL DRYING METHOD

- ✓ Poor looking
- ✓ Loss of nutrition
- ✓ Likely to deteriorate



DEHYDRATION ENERGY DRYER

- ✓ Good looking
- ✓ Fragrant-smelling
- ✓ Preserve nutrition
- ✓ Easy storage





Continuous Conveyor Dryer

Conveyorized dryer for large capacity continuous drying process, processing/delivering Tons per hour. Multiple Systems can be integrated to increase the output. Equipped and designed for efficient dehumidification, intelligent operations, energy savings and environmental protection, the loading capacity range starts from **500 kg/Hr to 5000 kg/Hr**. Higher capacities can be designed on request.

High drying efficiency

The entire drying line comprises of closed type heat pump dehumidification/drying technology with conveyorized transmission mode. To ensure ideal requirements of the drying process, this dryer ensures proper circulation and speed of hot air. The dryer adopts a multi-layer design, automatically rolling material, uniform heating and a short drying cycle to ensure high efficiency, high yield and top drying quality.

Intelligent technology

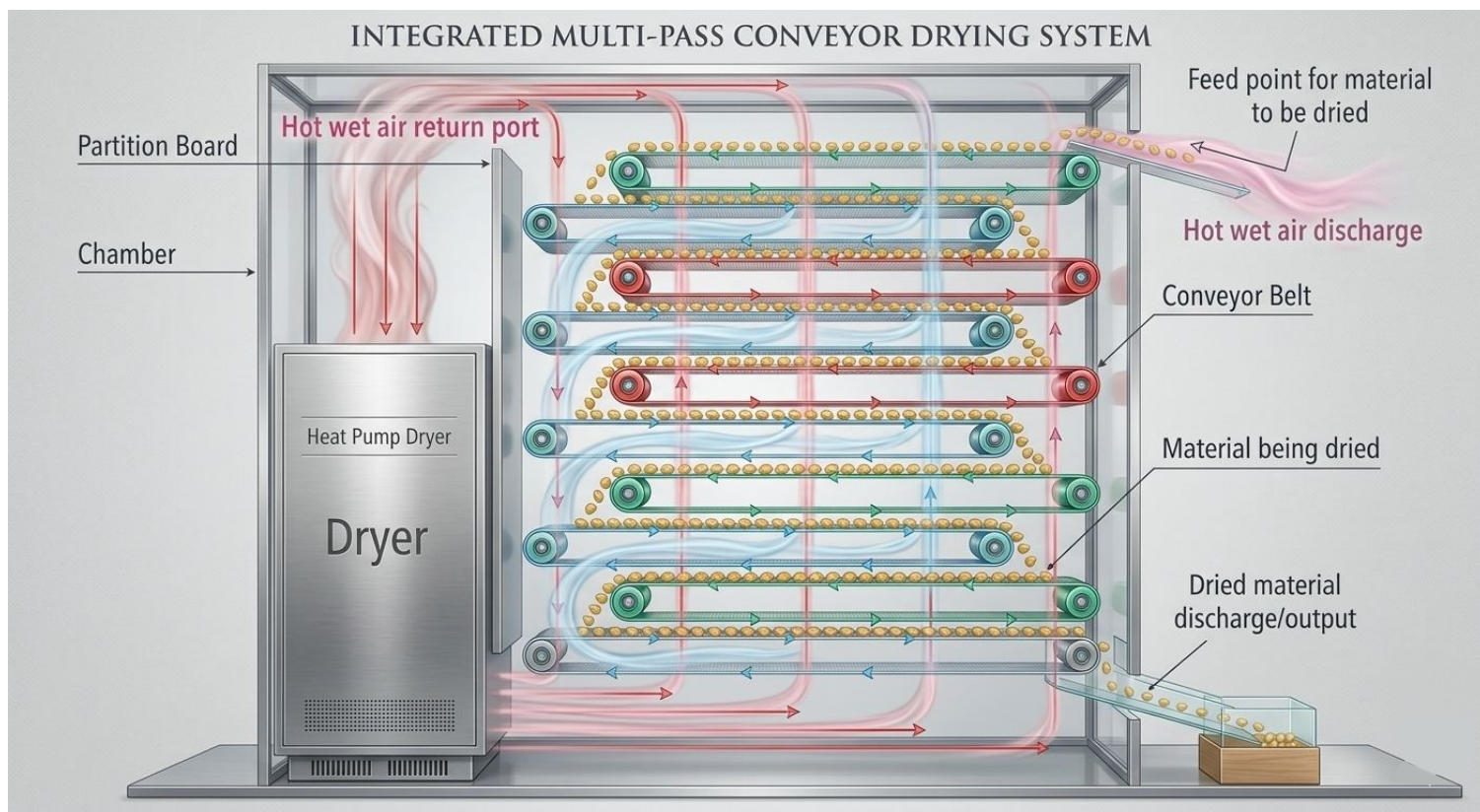
The Dryer uses PLC and touch screen automatic intelligent control mode. Intelligent control for the temperature and humidity of the drying material with stable performance. Drying process data and intelligent management can be easily accessed by remote control of a human interaction interface.

Automatic operation

The Dryer is designed to handle automatic loading & delivery of material. In respect of loading & collecting of material, a continuous conveyorized dryer is both time & labor saving as compared to other dryers.

Safe & environment friendly

Air temperature during the drying process always remains under 80°C which ensures elimination of potential safety hazards to environment due to high temperature. Closed loop process guarantees no product contamination by dust. The entire process is in line with environmental protection & health requirements.



Energy Efficient Dryer

Save energy | Protect environment | Better future

Very low energy cost & environment protection

Hot air circulates inside, so there is no energy loss. Water is released from the chamber, making it a cost-effective and eco-friendly solution.



Freedom of installation

Can be installed and used in any climate condition without change in performance or efficiency.



High drying quality

Only moisture is removed by the drying process. Low temperature preserves aroma, colour and quality, and increases productivity.



Clean & hygienic

Complete closed chamber, prevents dust particles from entering. Ensures contamination free and high quality product.



No need to flip

Reduces labor cost. Air passes uniformly over the product, so there is no need to flip and maintain product quality.



Exact control

Accurate control of temperature and humidity as per set point



Quick installation & easy maintenance

Ready to use plug & play installation. No elaborate preparation or time required. Maintenance is simple.



User-friendly

Simple touch screen control panel. PLC based control system for precise drying.



Multiple operation modes

Drying, Dehumidification & Cooling modes available. Wide temperature range from 8°C to 75°C



Minimum installation space

Compact design with high volumetric capacity.



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