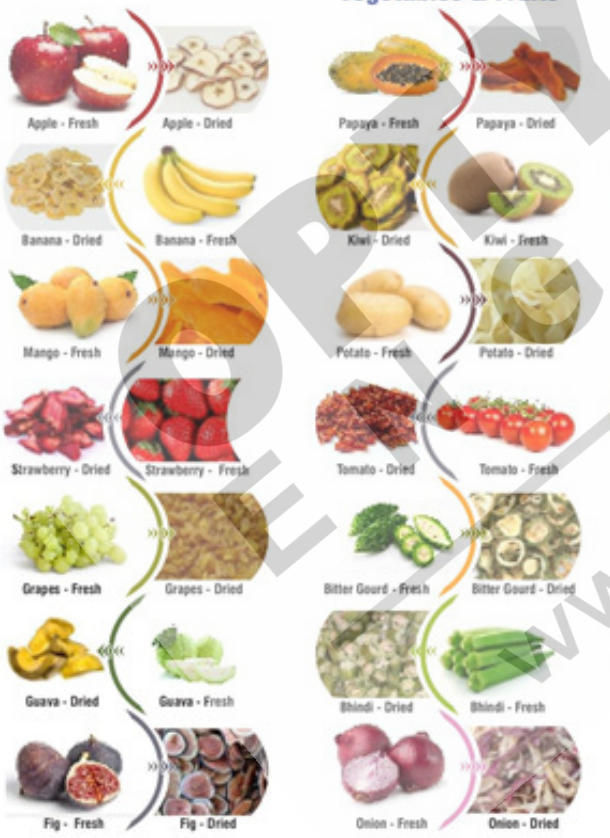
Heat Pump Food Dehydrator

OPTYTECH ENGINEERS

www.optytechdryers.com

Vegetables & Fruits



Herbs & other Products

OPTYTECH ENGINEERS provides total cooling solutions with HCFCs/HFCs and Ammonia Refrigerants for various industry segments, now offers an innovative HEAT PUMP FOOD DEHYDRATOR to improve food preservation technique for quality and reducing wastage of horticulture produces, as well as it can be an eventual preserving technology for sustainable development and rural empowerment for small and marginal food processing entrepreneurs & farmers for products like fruits, vegetables, spices, herbs and other food products.

WhatisHeatPumpFoodDehydrator?

A device that transfer heat from a colder area (ambient temperature) to a hotter area (dryingchamber) byusingmechanicalenergy(refrigerationtechnology).

Various Drying Energy Economy Comparison Table						
Heat energy require to evaporate 100 kg of water is 225000kJ or 2.6kW for 24hour						
Fuel Type	Electric	Coal	Diesel	CNG	LPG	Electric
Heating Mode	Electric heating	Coal Boiler	Oil-fired Boiler	Gas Boiler	Gas Boiler	Heatpump
Heat Value	3600kj/kwh	23027kj/kg	33494kj/L	36006kj/m3	46860kj/kg	3600kj/kwh
Thermal Efficiency	95%	30%	85%	85%	90%	450%
Effective Thermal Value	3420kj/kwh	6908kj/kg	28470kj/kg	30605kj/kg	42174kj/kg	16200J/kwh
Fuel Price	7₹/kwh	5₹/kg	65₹/L	55₹/m3	60₹/kg	7₹/kwh
Fuel Consumption	62.79kwh	32.57kg	7.9L	7.35m3	5.34kg	13.89kwh
Fuel Consumption	439.5₹	163₹	513.5₹	404.25₹	320₹	97.23 ₹
Labor Management, Warehousing Costs	Low	High	High	High	Low	Low
Safety Performance	Unsafe	Unsafe	Unsafe	Unsafe	Safe	Safe
Environmental Pollution	None	Veryserious	Moreserious	Moreserious	Lightpollution	None
Life of Equipment	5-8years	6-9years	6-9years	6-9years	8-12years	10-15years

Application

Drying Fruits: Apples, Apricots, Bananas, Coconuts, Dates, Figs, Grapes, Peaches, Pears, Pineapples,
Plums,Breadfruit,Mango,Papaya,Nectarines,JackFruits,Guava,Pomegranate,Orange,BerryFruits, Prunes,Cherries,AmlaFruit.

Drying Vegetables: Cabbage, Carrot, Cauliflower, Beets, Corn, Radishes, Spinach, Potato, Tomato, Sweet Potato, WaterMelon, Celeriac, Celery, Collards, Lettuce, Beans, Cucumbers, Garlic, Onions, Peppers, SweetCorns, Okra, Coriander/cilantro, Clusterbeans, Asparagus, Pickled Cucumbers, Bulbous Root, Marrow.

DryingAgricultureProducts:
Rose, Chrysanthemum, Mushroom, Edible Fungus, Tobacco Leaf, White Fungus, Red Pepper, Daylily,Capsicum,Herbs,Horseradish,WinterSquash.

DryingHerbs:
Basil,Dill,Fennel,Lavage,Mint,Oregano,Parsley,Rosemary,Sage,Savoury,Scented,Geraniums,Tarragon,Thyme ,Tea.

DryingSeafood:
SeaFish,Squid,Shrimp,Seaear,Trepan,Cuttlefish,Hippocampi

DryingFood:
Sausage,PreservedPork,SmokeFish,Rice,Noodle,BeancurdSticks,CookedFood

OPTYTECH ENGINEERS®

www.optytechdryers.com

Working Principle

Conventionally, materials are dried either in the field (sun drying) or using high temperature dryers (Electric, Gasfired, etc.) Successful outdoor drying depends upon good weather. High temperature drying can damage the nutrient content, Speciality crops such as Flower, herbs, Echinacea, fruits etc., need to be dried at low temperature (30 to 45 °C) for product quality optimization. This is an important consideration as they have a relatively high commercial value. Heating ambient air to use for drying is a simple cost effective procedure is but at higher ambient air relative humidity, it is not possible to dry products at low allowable maximum temperature condition. High temperature drying deteriorates the material structure and can render it unsuitable for further use. Low temperature drying of specially crops reduces the risk of loss in Nutrient content and damage to physical properties. Optytech's Dehydration dryer incorporate with two systems.

1. Heat Pump
2. Dehumidifier

Heat Pump Function is to add the latent and sensible heat with low energy consumption. The running cost comparison of various system shown in Table.

Dehumidifier function is to remove moisture from drying chamber to maintain low relative humidity.

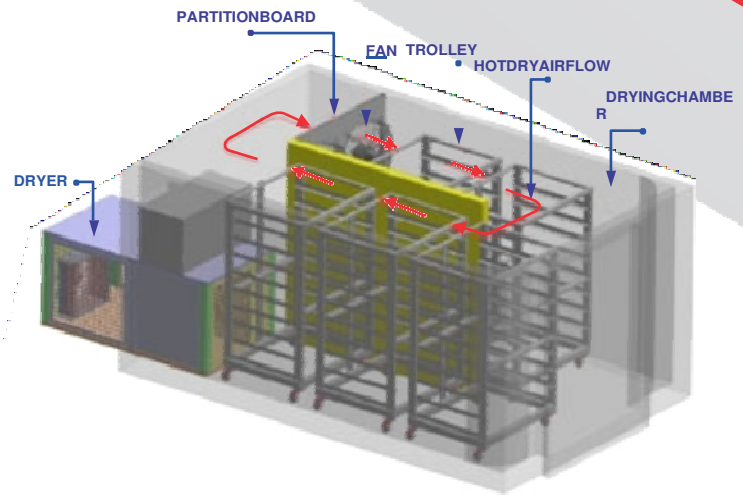
Features

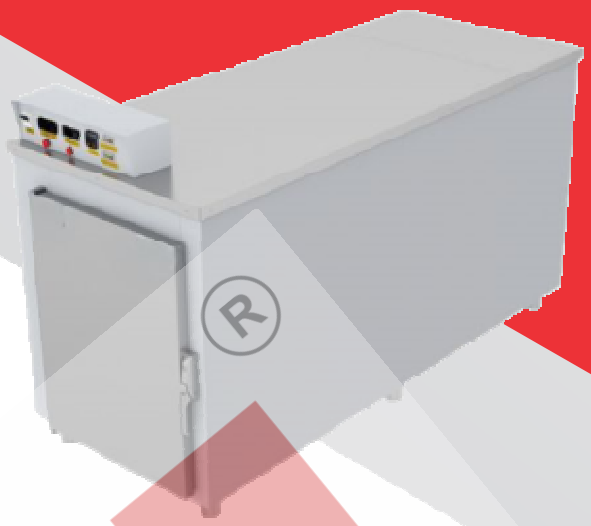
1. **Energy saving & Environmental protection**
   Saving operating cost, No Heat Loss(insulation chamber and recirculation of hot air), low noise
2. **Exact control of temperature and humidity**
   According to different material require different drying temperature, Heat pump can control drying Temperature between 30 to 75 °C and relative humidity below 25 %

Technical Specifications:

Model	Fresh (Wet) Product Capacity (kg)	Power Supply	Connected Power (kW)	Average Running Power	Heating Capacity (kW)	Cooling Capacity (kW)	Dehumidification Capacity (L/H)	No of Trolley	No of Tray	Usable Tray Area (m2)	Dimension of Dryer (mm)
HPD0020	20 to 60	1ph. 230V	1.5 kW	1 kW	3.4	2.4	1.9	2	16	2.8	2100 x 838 x 1460
HPD0050	50 to 100	1 ph. 230 V / 3 ph. 400V	3 kW	2 kW	6	4.5	6	2	20	10	2500 x 1215 x 1285
HPD0100	100 to 250	3 ph. 400V	4.5 kW	3 kW	8.5	6.5	11	4	40	20	4648 x 2260 x 1473
HPD0300	300 to 450	3 ph. 400V	10 kW	6 kW	21.5	17.5	27	6	96	47	4910x 2350x 2150
HPD0500	500 to 750	3 ph. 400V	14 kW	9 kW	29	23.5	37	12	192	96	6520x 3375 x 2150
HPD0700	700 to 900	3 ph. 400V	21 kW	15 kW	45	37.5	60	16	256	128	7100 x 3450 x 2150
HPD1000	1000 to 1400	3 ph. 400V	26 kW	17 kW	58	47	74	20	320	160	10000 x 3450 x 2150
HPD2000	2000 to 2800	3 ph. 400V	47 kW	32 kW	103	85	120	36	612	307	11500 x 4400 x 2200

* Product capacity is the fresh (wet) product loading capacity and it depends on product condition
** Connected power, Heating capacity and cooling capacity is given at 15 °C Evaporating temperature And 60 °C condensing temperature





InsideView

OPTYTECH ENGINEERS

www.optytechdryers.com

OPTYTECH ENGINEERS

Commercial & Industrial Food Process Equipment Manufacturer & Exporter

Factory: Plot No- 4356, Road- E (End), Kansumra road, GIDC- III, Dared
Dist.: Jamnagar - 361004, Gujarat, India.
Ph.: +91-75678 69300/500

E-mail: sales@optytechdryers.com | E-mail:optimy@rediffmail.com | **Web:** www.optytechdryers.com
Sales No. :+91-75678 69495/ 91+ 9227733535 I **Service No. :**91+ 70694 16621