



FREEZE DRYING TECHNOLOGY

Infinite Freshness, Engineered Quality...



Mission

We aim to set new standards in freeze drying, offering sustainable, innovative solutions that ensure quality and efficiency for our clients worldwide.

Global Presence

Our services and technology are available across multiple countries, including India, Spain, Dubai, Nigeria, Ghana, and Côte d'Ivoire.

Optimized Time Cycle

Engineered and calibrated a next-generation industrial vacuum dryer, reducing the drying cycle time by 67% (from 24 hours to 8 hours) and significantly outperforming competing market alternatives.



DRY TRAY INDIA LLP

DRYTRAY INDIA LLP is a leading manufacturer of electric food dehydrators and freeze dryers based in Bengaluru. We specialize in designing high-performance drying solutions for food processing industries, entrepreneurs, and agricultural businesses.

Our machines are widely used for drying fruits, vegetables, spices, herbs, mushrooms, meat, and more — preserving natural nutrients, flavor, and shelf life with efficiency and hygiene.

Beyond dehydrators and freeze dryers, we also supply a range of food processing and packaging equipment, including slicers, grinders, sealing machines, and packaging machines, enabling businesses to establish complete food preservation and processing setups under one roof.

Driven by innovation and quality, DRYTRAY INDIA LLP is committed to delivering high-performance, durable, and energy-efficient food drying technologies that empower food entrepreneurs, processing units, and agricultural businesses across India to enhance product quality, reduce wastage, and create value-added food products.

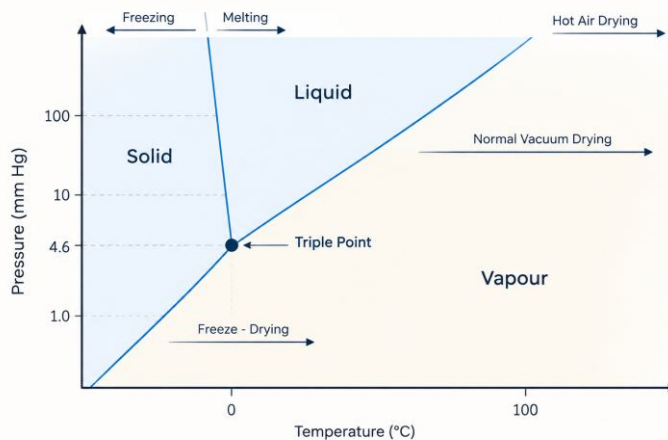
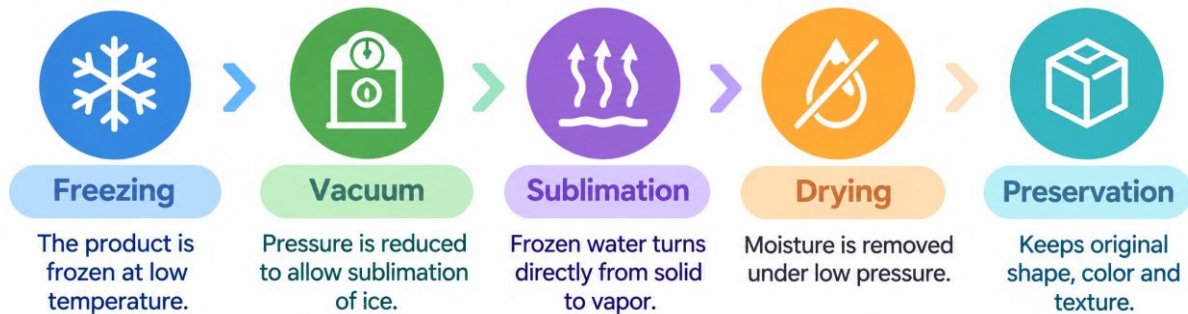
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Freeze Drying:

Process Overview

Freeze-drying, or lyophilization, is a process in which water in a material is frozen and removed by sublimation under low pressure, allowing for the preservation of the product's original shape, color, and texture.



Explanation :

Freeze drying is a sophisticated process that operates below the triple point of water, a critical temperature and pressure where water exists simultaneously as a solid, liquid, and gas. By carefully lowering the temperature and pressure, the water in the product undergoes sublimation, transitioning directly from ice to vapor without passing through the liquid phase.

Advantages:

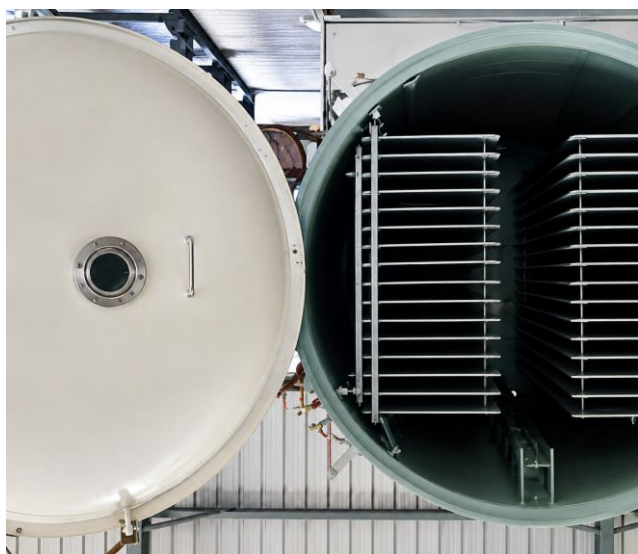




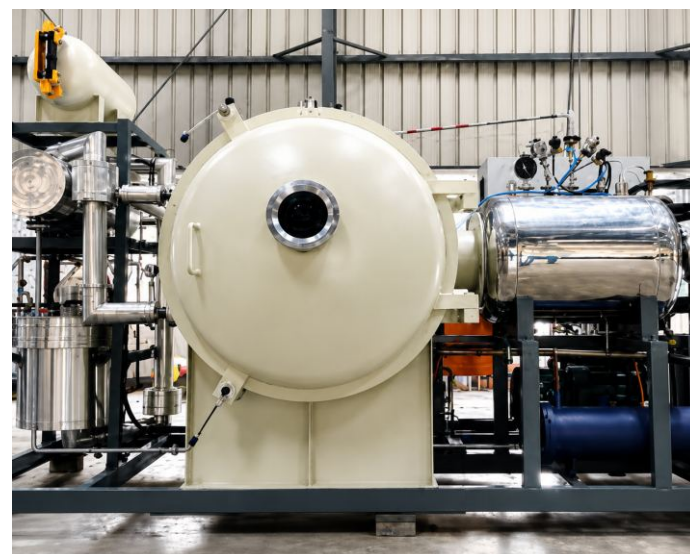
60 Kg Freeze Drying Machine



150 Kg Freeze Drying Machine



1 Ton Freeze Drying Machine



300 Kg Freeze Drying Machine

Performance Metrics	DT IND 60 FFD	DT IND 150 FFD	DT IND 300 FFD	DT IND 500 FFD	DT IND 1 Ton FFD	DT IND 2 Ton FFD
Effective Tray Area	3.6 m ²	9 m ²	18 m ²	27 m ²	54 m ²	81 m ²
Wet Input / 8 hrs	20 Kg	50 Kg	100 Kg	165 Kg	330 Kg	500 Kg
Dry Output / 8 hrs	4 Kg	10 Kg	20 Kg	33 Kg	66 Kg	100 Kg
Temperature Range (Drying)	30 °C - 80 °C	30 °C - 80 °C	30 °C - 80 °C	30 °C - 80 °C	30 °C - 80 °C	30 °C - 80 °C
Water Removal Capacity	18 Kg	45 Kg	90 Kg	149 Kg	297 Kg	450 Kg
Ultimate Condenser Temperature	- 50 °C	- 50 °C	- 50 °C	- 45 °C	- 45 °C	- 45 °C
Defrosting Method	Steam Generator	Steam Generator	Steam Generator	Steam Boiler	Steam Boiler	Steam Boiler
Total Connected Load	19 KW	28 KW	48 KW	75 KW	110 KW	150 KW
Average Consumption per 8 hr cycle	105 KWh	160 KWh	280 KWh	400 KWh	600 KWh	850 KWh
Base Area of Plant	4.5 m x 2.5 m	5 m x 3 m	6 m x 4 m	8 m x 6 m	8 m x 10 m	10 m x 10 m
Height of Plant	2.5 m	3 m	3.5 m	4.5 m	4.5 m	4.5 m

*Considering food product with 20% solid content

*FFD- Food Freeze Dryers

RELATED EQUIPMENT & UTILITIES

BLAST FREEZER (CHILLER PLATES) :



Functions by rapidly lowering the temperature of food or perishable items down to a deeply frozen state—typically reaching a core temperature of **-40°C (-0.4°F) or lower** within a few hours

COOLING TOWER



A specialized heat exchanger designed to reject waste heat into the atmosphere by cooling a circulating water stream. While a blast freezer uses high-velocity air inside a closed cabinet to freeze food rapidly, a industrial cooling tower acts as the ultimate disposal point for heat pulled out of massive HVAC systems, power stations, or chemical refineries. The functioning process relies heavily on the principle of **evaporative cooling**

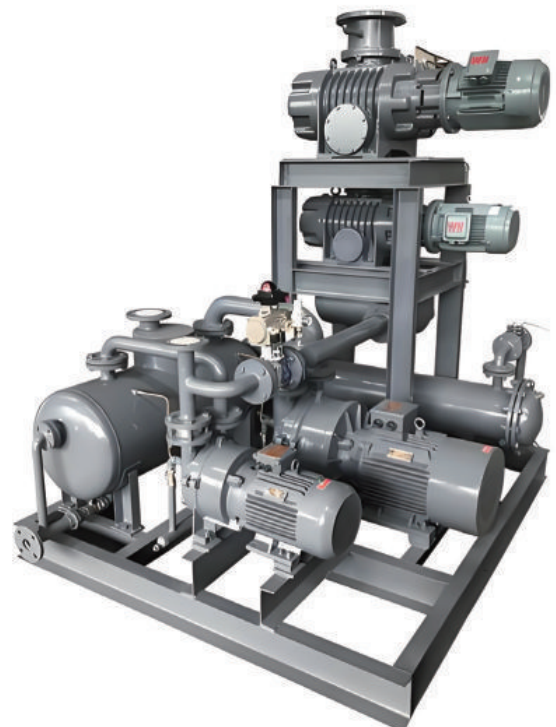
VACUUM UNIT

Composition:

The Roots water ring vacuum unit is composed of a Roots pump as the main pump and a water ring pump as the backing pump in series.

Advantages:

Roots water ring vacuum unit chooses water ring pump as the backing pump, which is more advantageous than other vacuum pumps, it overcomes the limit pressure difference. When a single water ring pump is used (the ultimate pressure of the unit is greatly improved than that of water ring pump)), the disadvantage of low pumping rate under a certain pressure, while retaining the advantage that the roots pump can work quickly and has a larger pumping rate.



RELATED EQUIPMENT

REFRIGERATION UNIT

Composition:

Suitable for all kinds of refrigerants, up to 6 compressors can be connected in parallel, the displacement of the compressors is divided into 11 levels, and the cooling capacity is also the same. The use of parallel systems can bring additional benefits to the customer

Advantages:

The reliability of the system is high, the compressors are used as backup for each other, the cooling capacity is adjusted steplessly, the compressors are always working at full load, and the partial load efficiency of the system is high. The compressor system has a compact structure and is easy to maintain and repair.

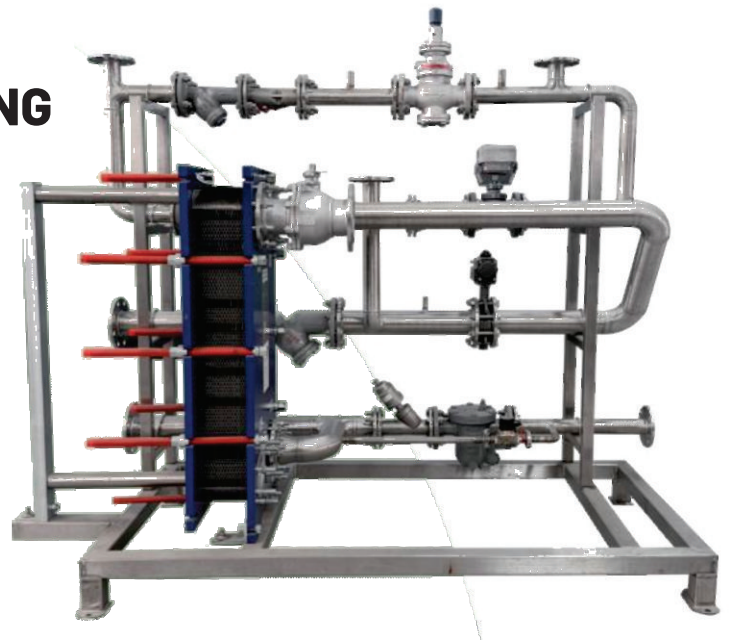


Note : Applicable for the machine based on the volume capacity

HEATING PLATE: STEAM HEATING

Radiant heating, the water is heated by the heat exchanger and introduced into the heating plate in the cabin for heating, and the water is always in a circulating state during the heating process.

The heating plate header is made of stainless steel 0Cr18Ni 9, and the connecting hose is stainless steel hose.



Note : Depends on the machine input capacity, the equipments will be matched.



DRY TRAY INDIA LLP

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