

## Technical Specifications

### Refrigeration System:

|                                    |                    |
|------------------------------------|--------------------|
| Ice Condenser Temperature          | Approx. -20°C      |
| Maximum Vapour Condensing Capacity | 4 liters           |
| Shelf Temperature Range            | 10 to 60°C         |
| Compressor Power                   | 1 hp               |
| Refrigerant                        | R404A              |
| Condensing Rate                    | Approx. 3 L/24 hrs |

### Vacuum Pump:

|                           |            |
|---------------------------|------------|
| Vacuum Pump Power         | 2 hp       |
| Operating Vacuum Pressure | 100-300 Pa |
| Vacuum Pull-down Time     | 15 mins.   |
| Electric Heater Capacity  | (5) 120W   |

### Approximate Dimensions:

|                 |                         |
|-----------------|-------------------------|
| Width           | 0.95m                   |
| Length          | 1.0m                    |
| Height          | 1.6m                    |
| Tray Dimensions | (5pcs)<br>300mm x 500mm |
| Approx. Weight  | 300 kgs                 |

### Electrical/Controls:

|                                       |              |
|---------------------------------------|--------------|
| Pressure Gauge                        | Pirani Gauge |
| Temperature Sensor                    | Type K       |
| Thermocouple                          |              |
| Standard Voltage                      | 220VAC       |
| Defrost Method                        | Natural      |
| Maximum Ambient Operating Temperature | 30°C         |



# FREEZE DRYER

for more information, please write, fax, call, or email:

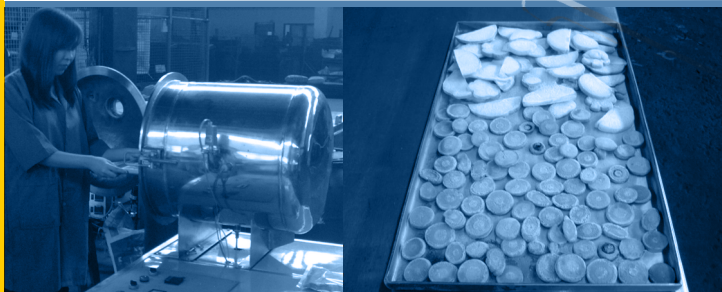


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*The **Freeze Dryer** is one of the food processing equipment designed and fabricated to substitute imported equipment. Its use can help improve the performance and productivity of the country's micro, small, and medium enterprises (MSMEs) engaged in food processing.*

The "Design and Development of Process Equipment for Food Processing Firm" is a project implemented by the Metals Industry Research and Development Center (MIRDC) in cooperation with the Project Management Engineering Design Service Office (PMEDSO) and the Industrial Technology Development Institute (ITDI) in support of the High Impact Technology Solutions (HITS) Program of the Department of Science and Technology (DOST).



### The DOST-developed Freeze Dryer

- Is a bench-top model that can be used for both research and/or micro-scale processing;
- Has a vacuum chamber that can accommodate, at most, five (5) adjustable trays with heater;
- Has a condensing capacity of four (4) liters; and
- Applies natural defrosting.



### What It Can Do:

The Freeze Dryer dehydrates heat-sensitive materials by means of sublimation of water (in the form of ice) from the food sample under vacuum conditions. Reduced water content inhibits action of microorganisms and enzymes, thereby preserving the food samples and making them more convenient for transport.

Freeze-dried products have the following advantages/benefits:

- They may be stored in room temperature - they will not spoil even without refrigeration during transport.
- They retain their shape and color.
- Their flavor, smell, and nutritional content generally remain unchanged.
- They can be rehydrated more easily due to the presence of microscopic pores left behind by the sublimation process.

