Seltis

Solution For
Vacuum Freeze-drying System

CE ISO9001 CERTIFIED

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We provide Simple and economical means of freeze drying for stabilization of living material and preservation of fragile substances. Lyophilization is a manufacturing step often used to gentle stabilize pharmaceutical, biopharmaceutical and food products and intermediates. Lyophilization is based on the principle of removing the moisture from the materials by sublimation under the unique vacuum conditions.

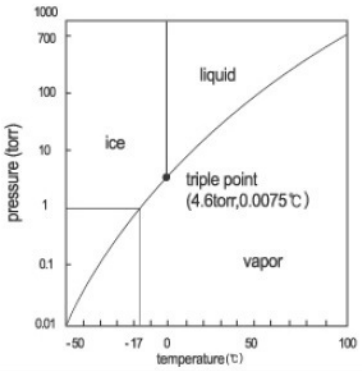
Ice and vapour are in equilibrium at the pressure and the temperature below the triple point. Under these conditions any heat applied to the ice is used as the sublimation latent heat and the frozen materials get gradually sublimated beginning with its surface as its temperature is maintained constantly in response to the applied outside pressure. This phenomenon is similar to the boiling of gas or liquid in equilibrium at above normal temperature. The sublimation heat is basically the sum of the vaporization latent heat at above normal temperature, solidifcationlatent heat and the sensible heat from the temperature changes.

Since the moisture inside the material is removed in a frozen state at such a low temperature in vacuum, the changes of physical and chemical properties of the materials would be minimized and the materials can be restored to its original state by simply adding water.

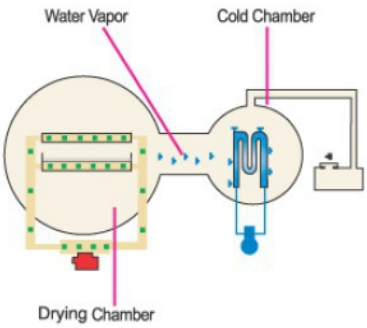
Advantages of Lyophilization

- Preserving the natural cell structure without shrinkage, density change or surface hardening.
- Minimize the change of taste,smell and colour.
- Minimize the loss of nutrients such as protein and vitamins.
- Good restoring ability to the original state of the materials by adding water.
- Possible long time storage at the room temperature due to low fnal moisture content of the dried materials.

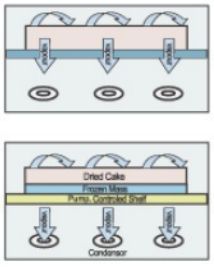
Triple point of water



Freeze drying system



Freeze drying diagram



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Various Types capacity and
combination of Seltis
Freeze Dryer
-55°c ~-85°c /4L-24L Capacity

Construction

- Compact freeze Dryers for the laboratory.
- Use of Anticorrosion 316L Grade Stainless steel for trap chamber, Cold trap condenser and high impact coated finish outer fram .
- High Density Insulation material to minimize cold air loss.
- Equipped with drain Valve.
- Outer Cooling coil system for easy cleaning of chamber.
- Silent operation with Low noise level less than 50dba.
- Vacuum pump protection from moisture.
- Performance guaranteed for hard Condition resistant test +32°c.
- Caster wheels with stopper for easy movement.

Cooling System

- Average evacuation time of 20-40 minutes to reach acceptable vacuum level.
- CFC & HCFC free energy efficient refrigeration system.
- Specially designed air cooled condenser and aero dynamic fan.
- LBP Hermetic Compressor with delay start function to avoid any compressor damage.
- Two stage cascade refrigeration system.

One Touch Operation Microprocessor control

- Microprocessor Touch Screen Control LCD displays condenser temperature, time, sample temperature, vacuum and various other parameters with graphs presentation on the control panel.
- Manual and Automatic Control operations.
- Temperature measuring Sensor Platinum PT-100Ω(Class A O.15 grade).
- Vacuum break valve to prevent back fl w of contaminated oil or gas.
- Temperature Setting functions for auto start of vacuum pump once cold trap reaches -40°c temperature.
- Standby and run mode operation provide complete information relating to refrigeration and vacuum pump operation duration.

Optional Accessories System & others

- Chemical resistant two Stage Rotary Vane Vacuum Pump(100-500LPM) with Ultimate pressure (2x103mbar) or better.
- End point determination option.
- Vacuum control for setting and maintaining desired ultimate vacuum.
- Data transfer through USB to users PC.
- PC Remote Monitoring system
- Real time monitoring.
- Heating & non heating shelves.
- Vacuum pump pressure anti return device.
- Back filling v vle or inerting air and gas.
- Pirani Guage Vacuum Sensor.
- PTFE Coated SS coil.
- Ethernet connection.
- Product Sensor.
- Electromagnetic Vacuum Control Valve.
- Audible and visual alarm system for power failure or any other irregularities relating to the operations.

FREEZE DRYER BENCH TOP AND FLOOR TYPE

Model	ST-5502 / ST-8502	ST-5503 / ST-8503	ST-8506	ST-8512
Cold Trap Temperature	-55°c / -85°c	-55°c / -85°c	-85°c	-85°c
Total Capacity	4L	6L	12L	24L
Ice Removal Capacity/24hrs.	2kg ~ 3kg	3.5kg ~ 4.5kg	6kg	10kg ~ 12kg
Compressor	1HP x1/2	1HP x1/2	1HP x 2	1HP x 2
Controller	Micro Processor LCD Touch Screen			
Electrical	AC220V1ph(50Hz)			
Defrost	Auto (Hot Gas)			
Dimension(mm)	W350xD600xH550/W530xD470xH730	W430xD640xH600/W570xD490xH730	W620xD550xH730	W680xD580xH730
Weight (kg)	70 / 90 kg	80 / 110 kg	130 kg	180 kg

(Design and Dimensions are subject to change without notice for further improvement)

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Solution For
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Various Types capacity and combination of Seltis Freeze Dryer
-105°c /4L-24L Capacity

Construction

- Compact freeze Dryers for the laboratory.
- Use of Anticorrosion 316L Grade Stainless steel for trap chamber, Cold trap condenser and high impact coated finish outer fram .
- High Density Insulation material to minimize cold air loss.
- Equipped with drain Valve.
- Outer Cooling coil system for easy cleaning of chamber.
- Silent operation with Low noise level less than 50dba.
- Vacuum pump protection from moisture.
- Performance guaranteed for hard Condition resistant test +32°c.
- Caster wheels with stopper for easy movement.

Cooling System

- Average evacuation time of 20-40 minutes to reach acceptable vacuum level.
- CFC & HCFC free energy efficient refrigeration system.
- Specially designed air cooled condenser and aero dynamic fan.
- LBP Hermetic Compressor with delay start function to avoid any compressor damage.
- Two stage cascade refrigeration system.

One Touch Operation Microprocessor control

- Microprocessor Touch Screen Control LCD displays condenser temperature, time, sample temperature, vacuum and various other parameters with graphs presentation on the control panel.
- Manual and Automatic Control operations.
- Temperature measuring Sensor Platinum PT-100Ω(Class A O.15 grade).
- Vacuum break valve to prevent back fl w of contaminated oil or gas.
- Temperature Setting functions for auto start of vacuum pump once cold trap reaches -40°c temperature.
- Standby and run mode operation provide complete information relating to refrigeration and vacuum pump operation duration.

Optional Accessories System & others

- Chemical resistant two Stage Rotary Vane Vacuum Pump(100-500LPM) with Ultimate pressure (2x103mbar) or better.
- End point determination option.
- Vacuum control for setting and maintaining desired ultimate vacuum.
- Data transfer through USB to users PC.
- PC Remote Monitoring system
- Real time monitoring.
- Heating & non heating shelves.
- Vacuum pump pressure anti return device.
- Back filling v vle or inerting air and gas.
- Pirani Guage Vacuum Sensor.
- PTFE Coated SS coil.
- Ethernet connection.
- Product Sensor.
- Electromagnetic Vacuum Control Valve.
- Audible and visual alarm system for power failure or any other irregularities relating to the operations.

FREEZE DRYER BENCH TOP

Model	ST-10502	ST-10503	ST-10506	ST-10512
Cold Trap Temperature	-105°c			
Total Capacity	4L	6L	12L	24L
Ice Removal Capacity/24hrs.	2kg ~ 3kg	3.5kg ~ 4.5kg	6kg	10kg ~ 12kg
Compressor	1HP x2			
Controller	Micro Processor LCD Touch Screen			
Electrical	AC220V1ph(50Hz)			
Defrost	Auto (Hot Gas)			
Dimension(mm)	W420xD545xH455	W480xD560xH455	W510xD570xH455	W550xD590xH455
Weight (kg)	60 kg	65 kg	70 kg	90 kg

(Design and Dimensions are subject to change without notice for further improvement)

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Solution For
Vacuum Freeze-drying System

Various Types capacity and combination of Seltis Freeze Dryer
-55°c ~-85°c /4L-8L Capacity

Construction

- Use of Anticorrosion 316L Grade Stainless steel for trap chamber, Cold trap condenser and high impact coated finish outer fram .
- High Density Insulation material to minimize cold air loss.
- Equipped with drain Valve.
- Silent operation with Low noise level less than 50dba.
- Vacuum pump protection from moisture.

Cooling System

- Average evacuation time of 20-40 minutes to reach acceptable vacuum level.
- CFC & HCFC free energy efficient refrigeration system.
- Specially designed air cooled condenser and aero dynamic fan.
- LBP Hermetic Compressor with delay start function to avoid any compressor damage.
- Performance guaranteed for hard Condition resistant test +32°c.
- Temperature Setting functions for auto start of vacuum pump once cold trap reaches -40°c temperature.

One Touch Operation Microprocessor control

- Microprocessor Touch Screen Control LCD System displays digital temperature, vacuum and various other parameters with graphs presentation on the control panel.
- Manual and Automatic Control operations.
- Alarm system for power failure or any other irregularities relating to the operations.
- Temperature measuring Sensor Platinum PT-100Ω(Class A O.15 grade).
- Auto vacuum release to prevent back flow of contaminated oil or gas.

Optional Accessories System & others

- Chemical Resistant two Stage Rotary Vane Vacuum Pump(100-500LPM) with Ultimate pressure (2x103mbar) or better.
- Chemical Resistant oil free Vacuum pump (100-150LPM)
- End point determination option.
- Option for Vacuum control for setting and maintaining desired ultimate vacuum.
- PC Remote Monitoring system
- Real time monitoring.
- Vacuum pump pressure anti return device.
- Pneumatic stoppering system
- Vacuum brake volve bleeds air into the system when power is off.
- Product Sensor.

PILOT SERIES LABORATORY SCALE BENCH TOP AND FLOOR TYPE

Model	ST-5504PL	ST-8504PL	ST-5506PL	ST-8506PL	ST-5508PL	ST-8508PL
Cold Trap Temperature	-55°C	-85°C	-55°C	-85°C	-55°C	-85°C
Total Capacity	4L		6L		8L	
Ice Removal Capacity/24hrs.	2L		4L		5L	
Shelf Size/Nos.	300X400mm(2nos)		300X400mm(3nos)		300X400mm(4nos)	
Pre-freezing Temperature	-75°C					
Product Sensor	1		2		3	
Shelf Temperature	-55°C to +60°C (± 2°C)					
Shelf Cooling System	Silicone Oil					
Controller	Microprocessor PLC LCD Touch Screen with 20 Program, 36 Segment & USB Data					
Defrost	Storage Auto /Hot Gas					
Compressor	1hpx1	3/4x2	1.5hpx1	1hpx2	2hpx1	1.5hpx2
Power	220 Volt 50hz Single Phase					
Shelf Space	50mm to 160mm					
Drying Chamber	Square Type SS316					
Door	Transparent Acrylic Door for easy view					
Dimensions	W815xD650xH1200mm		W900xD655xH1210mm		W900xD675xH1230mm	
Vials Capacity 2ml (16mm)	600		1000		1400	
Vial Capacity 5ml (18mm)	500		800		1000	

(Design and Dimensions are subject to change without notice for further improvement)

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Accessories

8-12 Port SS Drying Chamber

Acrylic Drying Chamber with Tray (200mm Diameter)

8-12 Port Acrylic Drying Chamber with Manifold and complete valve flask attachment

8-12 Port Drying Chamber Manifold & Stoppering System with valve fask attachment

4-48 Port SS Manifold

24 /52/104 Port Ampoule Adapter

Tube holder

4branch glass adaptor

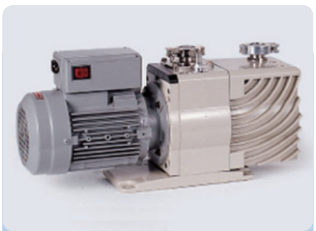
Chemical trap

Oil mist trap / Solvent Trap (small/large)

SS Adaptor & Cap, Round and Wide Mouth Flask (50ml ~ 3000ml)

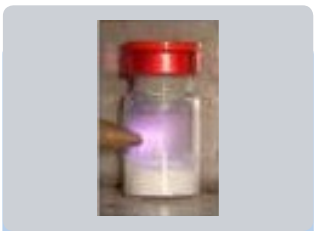
Vacuum valve / Vacuum grease

Vacuum Pump Oil



Chemical Resistant two stage rotary vane vacuum pump (100-500LPM) with ultimate pressure (2X10^3) or better

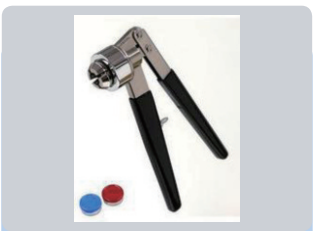
Temperature Monitor



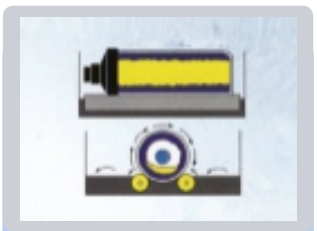
Vacuum Tester Device

Pump table

Ampoule Bottle Sealing Torch



Capping Device



Prefreezing Bath with flask olling kit

Mfr. by:

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