

Seltis

Solution For Vacuum Freeze-drying System



Seltis

Solution For Vacuum Freeze-drying System

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 gently 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.

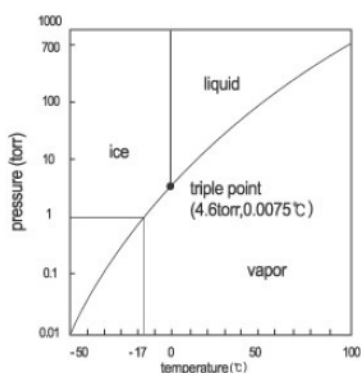
Ice and vapour are in equilibrium at the pressure and the temperature below the triple point. Under these conditions any heat applied to the ice is used as the sublimation latent heat and the frozen materials get gradually sublimated beginning with its surface as its temperature is maintained constantly 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, solidification latent 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.

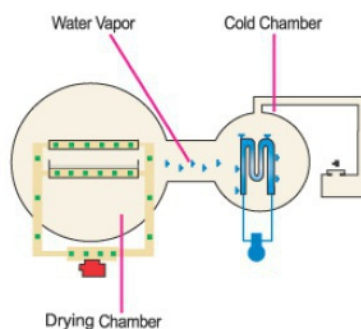
Advantages of Lyophilization

- 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 final moisture content of the dried materials.

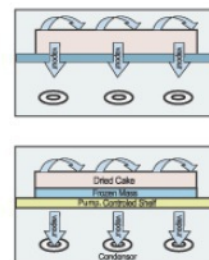
Triple point of water



Freeze drying system



Freeze drying diagram



Seltis

Solution For Vacuum Freeze-drying System

Various Types capacity and combination of Seltis Freeze Dryer
-55°C ~ -110°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 frame.
- 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 0.15 grade).
- Vacuum break valve to prevent back flow 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 valve or inerting air and gas.
- Pirani Gauge 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-11002	ST-5503 / ST-8503 / ST-11003	ST-8506 / ST-11006	ST-8512 / ST-11012
Cold Trap Temperature	-55°C / -85°C / -110°C	-55°C / -85°C / -110°C	-85°C / -110°C	-85°C / -110°C
Total Capacity	4L	6L	12L	24L
Ice Removal Capacity/24hrs.	2kg ~ 3kg	3.5kg ~ 4.5kg	6kg	10kg ~ 12kg
Compressor	1HP x 1/2 / 2	1HP x 1/2 / 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)

Seltis

Solution For Vacuum Freeze-drying System

Various Types capacity and combination of Seltis Freeze Dryer
-50°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 frame.
- 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.
- 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.
- Stopping system.
- Product Sensor.

PILOT SERIES LABORATORY SCALE

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)	
Shelf Space	50mm to 160mm					
Product Sensor	1		2		3	
Shelf Temperature	-40°C to +60°C					
Shelf Cooling System	Silicone Oil					
Controller	Microprocessor PLC LCD Touch Screen with 20 Program, 36 Segment & USB Data Storage					
Defrost	Auto /Hot Gas					
Compressor	1hpx1	3/4x2	1.5hpx1	1hpx2	2hpx1	1.5hpx2
Power	220 Volt 50hz Single Phase					
Rated Power	1500w	2500w	1600w	3200w	1600w	3200w
Drying Chamber	Square Type SS316					
Door	Transparent Acrylic Door for easy view					
Dimensions	W815xD650xH1200mm		W900xD655xH1210mm		W900xD675xH1230mm	
Vials Capacity 16mm dia	800		1200		1600	
Weight	180 kg		210kg		220kg	

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

Seltis

Solution For Vacuum Freeze-drying System 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 &
Stopping System with valve flask attachment



4-48 Port SS Manifold



24 /52/104 Port Ampoule Adapter



Tube holder



4branch glass adaptor



Chemical trap



Oil mist trap (small/large)



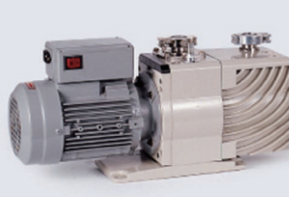
Adaptor & Cap, Round and Wide Mouth Flask
(50ml ~ 3000ml)



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



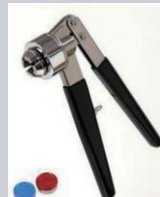
Vacuum Tester Device



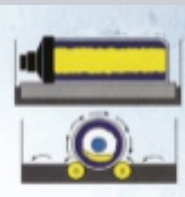
Pump table



Ampoule Bottle Sealing Torch



Capping Device



Prefreezing Bath with flask olling kit

Mfr. by:

SELECT REFRIGERATION

E-283, Patel Garden, Dwarka Mor, New Delhi - 110059 INDIA

Ph : 91-11-65642376, 9717569994, 9717569992 Fax : 91-11-43852133

E-mail : info@selectrefrigeration.in

Website : www.selectrefrigeration.in

Seltis

TWO STAGE ROTARY VANE VACUUM PUMP SL-SERIES



CE ISO9001
CERTIFIED

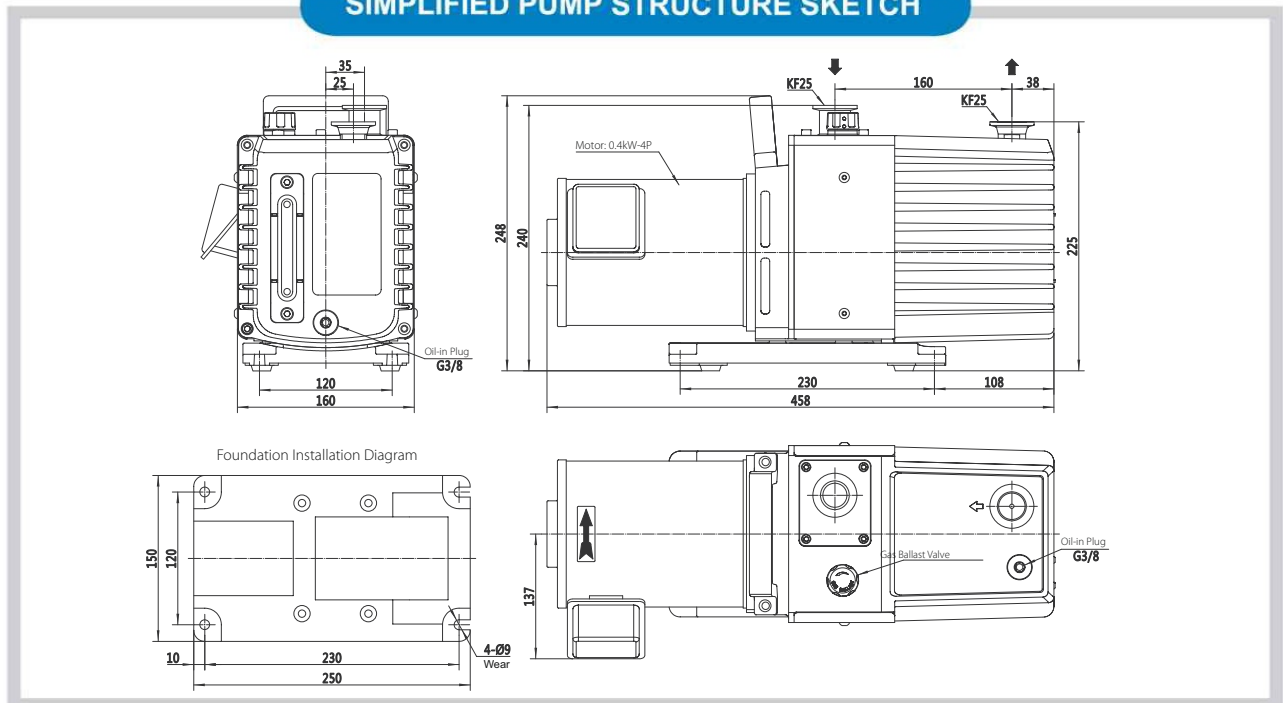
TWO STAGE ROTARY VANE VACUUM PUMP SL-SERIES

SL Series is two-stage oil sealed rotary vane vacuum pump. It is a new concept out of conventional design to satisfy customer's needs.

It consists of pump housing, oil casing, motor housing, pump base and pump module. It occupies oil anti-suckback-valve and gas ballast for protecting pump and vacuum system.

Operating Principle The pump and motor are connected by flexible coupling. As the rotor rotates two vanes, placed in rotor vane groove, turn making contact with the internal surface of the cylinder due to centrifugal force. The inhaled gas is trapped between two vanes as the rotating vane passes through the inlet passage and this trapped gas is compressed as it rotates toward exhaust valve and eventually exhaust through valve. The vacuum oil is supplied to the moving parts for lubrication and tight sealing.

SIMPLIFIED PUMP STRUCTURE SKETCH



TWO STAGE ROTARY VANE VACUUM PUMP SL-SERIES

Specifications

Pump model no.		SL6R	SL8R	SL10R	SL12R
Pumping Speed	ℓ/min	100	200	400	500
	m ³ /h	66	132	264	396
	CFM	3.5	7.1	14.1	21.2
Motor Speed (rpm)	1,700				
Ultimate pressure	5×10 ⁻² Torr (6.7 Pa) with Gas Ballast Open ≤1X10 ⁻³ Torr(1.3X10 ⁻¹ Pa) with Gas Ballast Closed				
Power Input Options	220VAC/380VAC 3Φ 50Hz Customer's Request (Voltage, Frequency and Phase)				
Full Load Power(kW)	0.4(0.5 HP)	0.4(0.5 HP)	0.75(1 HP)	1.5(2 HP)	
Inlet and Outlet Options	NW25		NW40		
	+ Hose Nipple (Φ12, Φ16, Φ26 OD for NW25 / Φ36 OD for NW40)				
	+ PT Nipple (1/4" , 3/8" , 1/2" , 3/4" , 1" for NW25)				
Oil Capacity (cc)	500	600	1,500	2,700	
Overall Dimension (mm)	W	150	150	170	206
	L	392	423	484	609
	H	250	250	287	318
Weight (kg)	19	21	29	51.5	
Ambient Temp.	7~40°C / 45~104°F				

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

Applications

- Chemical resistance
- Laboratory, Science experiment, Analyzer and Laser system
- Semiconductor equipment, Sputtering equipment and vacuum evaporation
- Backing pumps for the electronic microscope
- Vacuum dryer and Freeze dryer

Mfr. by:

SELECT REFRIGERATION

E-283, Patel Garden, Dwarka Mor, New Delhi - 110059 INDIA

Ph : 91-11-65642376, 9717569994, 9717569992 Fax : 91-11-43852133

E-mail : info@selectrefrigeration.in

Website : www.selectrefrigeration.in