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# SCIENTZ FREEZE DRYER

Expert in freeze-drying technology solutions



**NINGBO SCIENTZ BIOTECHNOLOGY CO., LTD.**

A National High-Tech Enterprise  
Top Ten Well-Known Brands of Life Science Instrument

# N Series Freeze Dryer

N series freeze-drying machine is compact, with large-scale freeze dryer flexibility, less space, can handle more flexible samples, cost-effective. Suitable for small laboratory, and can choose a variety of configurations:

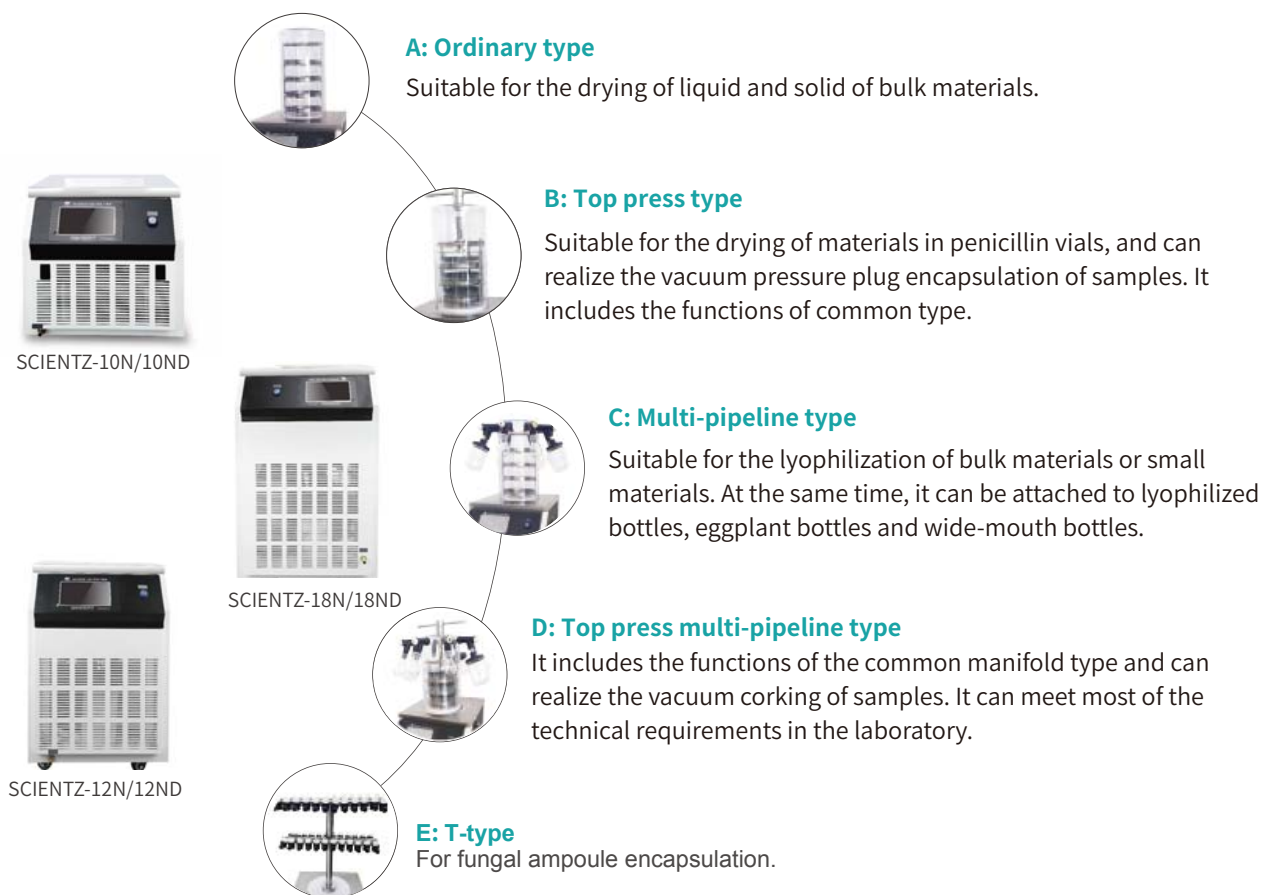
Ordinary type: suitable for bulk materials, liquid and solid dry

Top press: suitable for Schering bottled material drying, can achieve sample vacuum pressure package. Contains general type of use function.

Ordinary multi-pipeline type: suitable for a variety of different materials, small freeze-dried, and can be linked to freeze-dried bottles, eggplant bottles, jars.

Top press multi-pipeline type: Contains the function of ordinary multi-manifold type, can achieve the sample vacuum pressure package, to meet the vast majority of the laboratory technical requirements.

T-frame: for fungal ampoule tube package.



## Optional Function

- Eutectic point test function, master the material better sublimation temperature;
- Vacuum control function to maximize heat transfer;
- Double-stack refrigeration system, mature technology, low temperature, for -80 °C freeze dryer;
- Wide mouth manifold freeze-dried bottle configuration, easy to install the material, with the import standard freeze-dried bottle valve supporting the connection. Standard 6 tubes;
- Optional power defrost function, speed up the defrost speed, shorten the drying cycle;
- Optional multi-brand imported vacuum pump.

## Features

- The machine uses international brands EMBRACO or SECOP compressor refrigeration, refrigeration quickly, cold trap temperature is low.
- 7-inch true color touch LCD screen control system, easy to operate, and powerful.
- Industrial embedded operating system, ARM9 core control circuit design, 32M memory 128M FLASH, the operation response speed, large amount of stored data.
- The control system automatically saves the freeze-dried data, and can be real-time curve and historical curve in the form of view, the entire freeze-drying process clear.
- Drying room with a colorless transparent injection molding polycarbonate drying trap, corrosion-resistant, non-friable, non-adhesive, high transparency, strong sealing, the sample is clear and intuitive, can observe the freeze-drying of the whole product.
- Vacuum pump and host connection using international standard KF quick connector, simple and reliable.
- The machine can store multiple freeze-drying curve, and use U disk to extract data to the computer, with the host computer software in the computer to browse print and a variety of options.
- Equipped with inflatable valve, can be filled with dry inert gas.

## Main Technical Parameters

Model	SCIENTZ-10N				SCIENTZ-12N				SCIENTZ-18N				
Type	Ordinary	Top press	Ordinary multi-pipeline	Top-press multi-pipeline	Ordinary	Top press	Ordinary multi-pipeline	Top-press multi-pipeline	Ordinary	Top press	Ordinary multi-pipeline	Top-press multi-pipeline	
Dryer area(m <sup>2</sup> )	0.12	0.08	0.12	0.08	0.12	0.08	0.12	0.08	0.18	0.09	0.18	0.09	
Ability to capture water(Kg/batch)	3	3	3	3	4	4	4	4	6	6	6	6	
Vials quantity	Φ12mm	920	560	920	560	920	560	920	560	1320	990	1320	990
	Φ16mm	480	285	480	285	480	285	480	285	698	349	698	349
	Φ22mm	260	165	260	165	260	165	260	165	360	184	360	184
Eggplant shaped flask	0	0	8	8	0	0	8	8	0	0	8	8	
Plate load capacity (L)	1.5	1	1.5	1	1.5	1	1.5	1	2	1	2	1	
Plate size(mm)	Φ200	Φ180	Φ200	Φ180	Φ200	Φ180	Φ200	Φ180	Φ240	Φ200	Φ240	Φ200	
Plate distance (mm)	70												
Tray quantity (pc)	4	3	4	3	4	3	4	3	4	3	4	3	
Cold chamber size(mm)	Φ250×150				Φ250×250				Φ300×405				
Cold trap the lowest temperature(°C)	≤-56 (No load)												
Ultimate vacuum(Pa)	≤5 (No load)												
Power Kw(220V50Hz)	0.95				1				1.3				
Amibient temperature(°C)	≤25												
Overall dimension (mm)	590(L)×460(W)×450(H)+440				600(L)×450(W)×720(H)+440				670(L)×525(W)×910(H)+480				
Special note	The device size and weight not included in the external vacuum pump Top press model height not included in manual gland handle (The handle height 701mm)												

Optional function: double refrigeration system , cold trap up to -80°C defrost function import vacuum pump automatic nitrogen filling interface

T-type ampoule bottle rack

# ND Series Freeze Dryer (electric heating type)

The ND freeze-dryer adds heating to the N-series, accelerating the drying process, saving energy, and providing heating curve settings with a variety of drying solutions for laboratory use.

This series of freeze dryer is divided into four configurations: ordinary type, top press type, Ordinary multi-pipeline type, Top press multi-pipeline, with pre-freeze function.



SCIENTZ-10ND



SCIENTZ-12ND



SCIENTZ-18ND



**A: Ordinary type**

Suitable for the drying of liquid and solid of bulk materials.



**B: Top press type**

Suitable for the drying of materials in penicillin vials, and can realize the vacuum pressure plug encapsulation of samples. It includes the functions of common type.



**C: Ordinary multi-pipeline**

Suitable for the lyophilization of bulk materials or small materials. At the same time, it can be attached to lyophilized bottles, eggplant bottles and wide-mouth bottles.



**D: Top press multi-pipeline**

It includes the functions of the common manifold type and can realize the vacuum corking of samples. It can meet most of the technical requirements in the laboratory.

## Optional Function

- Eutectic point test function, master the material better sublimation temperature.
- Vacuum control function to maximize heat transfer.
- Double-stack refrigeration system, mature technology, low temperature, for -80 °C freeze dryer. In the case of
- Wide mouth multi-manifold freeze-dried bottle configuration, easy to install materials, with the import standard freeze-dried bottle valve supporting the connection.
- Optional electric defrost function, speed up the defrost speed, shorten the drying cycle.
- Optional multi-brand imported vacuum pump.

## Features

- The machine uses the international brand EMBRACO or SECOP compressor refrigeration, refrigeration quickly, cold trap temperature is low.
- 7-inch true color touch LCD screen control system, easy to operate, and powerful.
- Industrial embedded operating system, ARM9 core control circuit design, 32M memory 128M FLASH, the operation response speed, large amount of stored data.
- The control system automatically save the freeze-dried data, and can be real-time curve and historical curve in the form of view, the entire freeze-drying process clear.
- The drying room with colorless transparent polycarbonate drying room, the sample is clear and intuitive, can observe the whole process of freeze-drying.
- Vacuum pump and host connection using the international standard KF quick connector, simple and reliable.
- The machine can store multiple freeze-drying curve, and use U disk to extract data to the computer, with the host computer software in the computer to browse print and a variety of options.
- The control system has 36 freeze-drying curve program options, each program contains 40 temperature control settings, can achieve a variety of materials freeze-drying process parameters recorded, a material freeze-dried time directly transferred to the corresponding program The
- The company's unique point heating curve calculation method, the temperature is more stable, no overshoot, temperature control more accurate.
- Equipped with inflatable valve, can be filled with dry inert gas;
- Partition temperature adjustable, controllable, can be explored, pilot and production process
- With manual and automatic two modes of operation, you can manually explore the new material freeze-dried curve

## Main Technical Parameters

Model	SCIENTZ-10ND				SCIENTZ-12ND				SCIENTZ-18ND				
Type	Ordinary	Top press	Ordinary multi-pipeline	Top press multi-pipeline	Ordinary	Top press	Ordinary multi-pipeline	Top press multi-pipeline	Ordinary	Top press	Ordinary multi-pipeline	Top press multi-pipeline	
Dryer area(m <sup>2</sup> )	0.12	0.08	0.12	0.08	0.12	0.08	0.12	0.08	0.18	0.09	0.18	0.09	
Ability to capture water(Kg/batch)	3	3	3	3	4	4	4	4	6	6	6	6	
Vials quantity	Φ12mm	920	560	920	560	920	560	920	560	1320	990	1320	990
	Φ16mm	480	285	480	285	480	285	480	285	698	349	698	349
	Φ22mm	260	165	260	165	260	165	260	165	360	184	360	184
Eggplant shaped flask	0	0	8	8	0	0	8	8	0	0	8	8	
Plate load capacity (L)	1.5	1	1.5	1	1.5	1	1.5	1	2	1	2	1	
Plate size(mm)	Φ200	Φ180	Φ200	Φ180	Φ200	Φ180	Φ200	Φ180	Φ240	Φ200	Φ240	Φ200	
Plate distance (mm)	70												
Tray quantity(pc)	4	3	4	3	4	3	4	3	4	3	4	3	
Cold trap size(mm)	Φ250×150				Φ250×250				Φ300×405				
Cold trap the lowest temperature(°C)	≤-56 (No load)												
Ultimate vacuum(Pa)	≤5 (No load)												
Heating temperature (°C)	≤60												
Power Kw(220V50Hz)	1.11	1.07	1.11	1.07	1.16	1.12	1.16	1.12	1.46	1.42	1.46	1.42	
Amibient temperature(°C)	≤25												
Temperature range	-55°C-+60°C												
Overall dimension (mm)	590(L)×460(W)×400(H)+440				600(L)×450(W)×720(H)+440				670(L)×525(W)×910(H)+480				
Host weight(kg)	59	65	61	67	67	74	69	76	83	89	86	91	
Special note	The device size and weight not included in the external vacuum pump Top press model height not included in manual gland handle (The handle height 70mm)												

Optional function: double refrigeration system , cold trap up to -80°C defrost function import vacuum pump automatic nitrogen filling interface

T-type ampoule bottle rack Eutectic point test

# YG Series Freeze Dryer

SCIENTZ-YG series silicone oil in-situ freeze-drying machine can be used to explore freeze-drying curves and process temperature-sensitive samples (especially medicines, microbiological products, precious medicinal materials, etc.). It can be used for small-scale and small-scale enterprise trials. Large-scale production is especially suitable for exploring the freeze-drying process.



## Features

- Pre-freeze drying is carried out in situ, which reduces the complicated operation of the drying process and realizes automation;
  - The shelf temperature error is  $\leq 1^{\circ}\text{C}$ , and the drying effect is uniform;
  - The temperature of the partition is adjustable, controllable, groping, pilot-scale and production technology;
  - Embedded 7-inch touch screen operation, PID adjustment, display drying curve and historical curve, with USB download
  - Interface, host computer software, curve printing.
  - The square tray is not easy to deform, easy to operate, and easy to clean;
  - Equipped with an inflation valve, which can be filled with dry inert gas;
  - The drying chamber adopts a high light-transmitting colorless transparent plexiglass door, which can clearly observe the changing process of the material during the operation.
  - Each partition has a separate sample probe to observe the sample temperature in real time.
  - Imported compressor, dual-machine cascade technology, large refrigeration capacity and low temperature.
- It can be operated in manual and fully automatic modes.

## Main Technical Parameters

Model	SCIENTZ-10YG		SCIENTZ-30YG		SCIENTZ-50YG		SCIENTZ-100YG		SCIENTZ-200YG		
	Ordinary	Top press	Ordinary	Top press	Ordinary	Top press	Ordinary	Top press	Ordinary	Top press	
Dryer area (m <sup>2</sup> )	0.2	0.1	0.3		0.5		1.02		2.35		
Ability to capture water (Kg/batch)	3	1.5	6		10		15		30		
Vials quantity	Φ12mm	1300	650	1950		3690		7020		14040	
	Φ16mm	814	388	1160		1940		4190		8380	
	Φ22mm	643	205	615		1020		2210		4420	
Plate load capacity (L)	2	1	3		6		15		40		
Plate size	L/mm	430				430		400		500	
	W/mm	240				320		505		900	
Plate distance (mm)	70										
Plate quantity(pc)	2	1	3		4		5+1		5+1		
Plate temperature range (°C)	-40~+70(no load)										
Cold trap the Lowest temperature(°C)	$\leq -56$ (no load)										
Ultimate vacuum(Pa)	$\leq 5$ (no load)										
Power KW	2.3(220V)		2.8(220V)		3.5(380V)		5.4(380V)		15(380V)		
Amibient temperature(°C)	$\leq 25$										
Overall dimension (mm)	750(L)*640(W)*1200(H)		1100(L)* 760(W)*1460(H)		1000(L)*760(W)*1460(H)		1300(L)*1100(W)*1480(H)		2630(L)*1100(W)*1770(H)		
Weight(Kg)	164		224 240		256 270		570		1800		
Note	The size and weight of the whole machine do not include the external vacuum pump, and the height of the gland type freeze dryer does not include the manual gland handle (increase the height by about 90mm)										

# SCIENTZ-F Series Freeze Dryer

SCIENTZ  
FREEZE-DRIED

## Features

- Pre-freeze drying is carried out in situ, with an observation window inside, and the drying process is intuitive and controllable;
- Dry room temperature difference  $\leq \pm 1^\circ \text{C}$ , uniform drying effect;
- The temperature of the partition is adjustable and controllable. It can explore the pilot test and the production process. Because the drying chamber and the cold trap are separated structures, the water catching ability is strong and the drying time is short; the inflatable valve can be configured to flush the dry atmosphere gas;
- The drying chamber adopts the aviation acrylic high transparent transparent colorless door, and the change process of the material can be clearly observed during the lyophilization process;
- Pre-freeze drying is carried out in situ, which reduces the cumbersome operation of the drying process and realizes automation;
- Embedded touch screen, PLC controller, PID temperature adjustment, display freeze-drying curve and historical curve;
- U disk dump data;
- Equipped with PC software, it can print, browse curves and data.



## Main Technical Parameters

Model	SCIENTZ-20F		SCIENTZ-30F		SCIENTZ-50F		SCIENTZ-100F		SCIENTZ-200F							
	Ordinary	Top press	Ordinary	Top press	Ordinary	Top press	Ordinary	Top press	Ordinary	Top press						
Dryer area (m <sup>2</sup> )	0.21		0.32		0.54		1.08		2.16							
Ability to capture water(Kg/batch)	4		6		10		15		>35							
Vials quantity	Φ12mm	1300		1950		3690		7020		14040						
	Φ16mm	814		1160		1940		4190		7800						
	Φ22mm	430		615		1020		2210		4100						
Plate load capacity (L)	3	1.5	4.5		6		15		30							
Plate size	L/mm	400		450		600		600		900						
	W/mm	270		300		450		450		900						
Plate distance (mm)	70		70		70		70		90							
Plate quantity(pc)	2+1		3+1		4+1		4+1		4+1							
Plate temperature range (°C)	-50~+70(no load)															
Cold trap the Lowest temperature(°C)	≤-80 (no load)								≤-70 (no load)							
Ultimate vacuum(Pa)	≤5(no load)															
Power KW (220V50Hz)	3.0		3.8 4.0		5.0 5.6		6.8 7.4		15 (380V)							
Amibient temperature(°C)	≤25															
Overall dimension (mm)	750(L)* 640(W)* 1200(H)		1100(L)* 680(W)* 1240(H)		1100(L)* 760(W)* 1300(H)		1150(L)* 850(W)* 1480(H)		1320(L)* 850(W)* 1550(H)		1300(L)* 1000(W)* 1480(H)		1500(L)* 1100(W)* 1640(H)		2630(L)* 1100(W)* 1770(H)	
Weight(Kg)	236 286		335 360		424 480		610 780		1380 1500							
Special note	The device size and weight not included in the external vacuum pump Top press model height not included in manual gland handle (The handle height 200-350mm) top press model have defrost function															

# SCIENTZ-S Series (Production) Freeze Dryer

The SCIENTZ-S production type freeze dryer uses true color touch screen + PLC + PID as the control core. The instrument has the advantages of stable, reliable and convenient control system.

In addition, dozens of freeze-drying curve scheme options are built in, and each scheme includes 40-stage temperature control and setting refrigeration compressors, vacuum pump startup protection and other measures to extend the service life of the equipment. Ideal for large-scale freeze-drying of bulk (liquid, pasty, solid) substances.

## Features

- **Automatic Operation:** Pre-freeze drying is performed in situ, reducing the tedious operation of the drying process and achieving automation
- **Accurate Temperature Control:** Silicone oil is a circulating medium, the temperature error of the separator is  $\leq \pm 1$  °C, and the drying effect is uniform
- **Smart Storage:** Transfer data from U disk, compensate the host computer software, print and view the freeze-dried curve
- **Fast And Efficient:** Drying chamber and cold trap are separated, with strong water catching ability and short drying time
- **Intelligent Control:** Touch screen operation, PLC control, PID adjustment
- **Mode Selectable:** Manual lyophilization mode, manual CIP mode, automatic lyophilization mode, automatic CIP mode
- The square tray is not easy to deform, easy to operate and easy to clean
- The drying room adopts a highly transparent colorless transparent plexiglass door, which can clearly observe the change of materials during operation
- **Multifunctional option:**
  1. Optional real-time monitoring of equipment operation, fault alarm
  2. APP remote control function is optional
  3. Gas filling valve can be filled with dry inert gas. Eutectic point test is optional





## Main Technical Parameters

Model	SCIENTZ Production-scale freeze dryer												
Dryer area (m <sup>2</sup> )	1	2	3	5	8	10	15	20	25	30	40	50	
Effective plate area	1.08	2.16	3.24	5.4	7.56	9.72	14.4	19.8	25.2	31.5	40.5	51.3	
Ability to capture water (kg/batch)	20	40	60	90	130	180	300	400	500	600	800	1000	
Bottling capacity Φ16mm (pieces)	4100	8200	12300	20000	30700	38900	55800	76800	97700	122000	157000	199000	
Bottling Capacity Φ22mm (pieces)	2100	4200	6300	11000	15700	19900	29500	40590	51600	64500	83000	105000	
Volume of liquid (L)	20	40	60	90	130	180	300	400	500	600	800	1000	
Plate size Width (mm)	450	600	600	900	900	900	1200	1200	1200	1500	1500	1500	
Plate size Length (mm)	600	900	900	1200	1200	1200	1500	1500	1500	1500	1800	1800	
Layer spacing (mm)	90	90	90	90	90	90	90	90	90	90	90	90	
Plate number (block)	4+1	4+1	6+1	5+1	7+1	9+1	8+1	11+1	14+1	14+1	15+1	19+1	
Plate temperature range (°C)	-50 ~ + 80 (NO Load)												
Layer temperature difference (°C)	± 1.0 (After Balancing)												
Cold trap minimum temperature (°C)	≤ -70 (NO Load)												
Ultimate vacuum degree (pa)	≤ 5 (NO Load)												
Length (mm)	2100	2800	3000	3800	5000	5800	6500	7400	8200	8500	9000	9400	
Width (mm)	900	1200	1200	1500	1500	2000	2300	2300	2300	2600	2600	2600	
Height (mm)	2000	2000	2300	2900	3000	3200	3400	3800	4000	4000	4100	4500	

# Fruit and vegetable freeze-drying machine



## Features

- The interior of the cabin is made of stainless steel, which meets the processing requirements of high standard products.
- Plate refrigeration  $\leq -50^{\circ}\text{C}$ , cold trap refrigeration  $\leq -60^{\circ}\text{C}$ . (excluding radiant type)
- R404a Environmental protection refrigeration, international brand high efficiency piston/screw compressor.
- The layer has a constant temperature function during refrigeration and sublimation.
- High efficiency vacuum pump with Roots pump, with oil and water separation function.
- Efficient water trap, fast frost function.

## Main Technical Parameters

Unit	Traditional heating methods						Radiation heating method							
	XZ-CG10	XZ-CG15	XZ-CG20	XZ-CG35	XZ-CG50	XZ-CG75	XZ-CF50	XZ-CF75	XZ-CF100	XZ-CF125	XZ-CF150	XZ-CF200		
capacity	Effective shelf area (m <sup>2</sup> )	10	15	20	35	50	75	54.4	75.7	100.9	126.1	150.3	204.3	
	Water vapor condenser capacity(g/B)	200	300	400	700	1000	1500	1000	1500	2000	2500	3000	4000	
Basic parameter	Cabin	Diameter(mm)	1300	1300	2000	2000	2200	2200	2200	2200	2600	2600	2600	
		Length(mm)	2230	3010	2350	3300	3650	4650	7570	9770	11620	13000	13580	16100
	Shelf dimension	Width(mm)	600	600	1000	1000	1000	1000	540	540	540	540	580	580
		Length(mm)	1520	2300	1250	2200	2500	3750	3280	4880	6680	6520	7120	9720
	Shelf spacing(mm)	70						76						
	Number of shelf layers(No)	11+1	11+1	16+1	16+1	20+1	20+1	17*2	17*2	17*2	21*2	21*2	21*2	
	Shelf temperature range(°C)	- 50 ~ + 90°C						Ordinary temp - 120°C						
	Shelf temperature difference(°C)	±3°C						≤ ± 3°C						
Minimum cold trap temp(°C)	≤ - 60°C						≤ 60°C							
Ultimate vacuum (Pa)	13Pa													
Basic supply	Cooling water (m <sup>3</sup> /hr)	12	17	21	25	36	34	45	52	82	90	106		
	Compressed air volume(min)	0.45												
	Defrost water volume (m <sup>3</sup> /hr)	0.5	0.7	1	1.6	2.3	3.5	/						
	Installed power(kw)	40	50	70	120	140	200	75+12	100+19	160+23	195+30	270+36	315+45	
Dimensions	Length(mm)	2300	3100	2400	3300	3700	5000	7600	9800	12000	13000	136000	161000	
	Width(mm)	2000	2000	2700	3400	3400	3400	9100	7000	4700	5000	5000	6000	
	Height(mm)	2000	2000	2500	2500	2500	2500	5000	5000	5000	5500	5500	5500	
Nominal area (m <sup>2</sup> )	10	15	20	35	50	75	50	75	100	125	150	200		

## Application area



### Pharmaceutical industry



Freeze-drying of drug production



Freeze-drying of precious Chinese medicine



Freeze-drying of chemical raw material



### Food Industry



Freeze-drying of fruits and vegetables



Freeze-drying of various bacterial strains



Freeze-drying of pet food



### Soil inspection and remediation



Soil sample pretreatment



Freeze-drying and preservation of soil



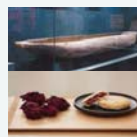
Mineral freeze-drying



### Other applications



Cultural relics protection



Freeze-drying of flowers



Preparation of specimen

**Pharmaceutical industry:** Freeze-drying is the most stable and effective drying technology, no degradation and molecular modification, no damage to biological activity, and easy preservation of products.

**Food industry:** Used for freeze-drying of traditional Chinese medicine, fruits and vegetables, pet food, cosmetics, etc., in addition to keeping food shape and nutrition unchanged, it is more conducive to long-term storage and transportation.

**Others:** aerospace thermal insulation ceramic production, preservation of kapok products in archaeology, specimen preparation, preparation of special materials and other applications.

#### Soil testing and remediation:

- High retention rate: volatile substances can be retained during the drying process, maintaining soil properties and making test results more accurate.
- Low moisture content: the sample moisture content is low after lyophilization, and the sample is crisp and easy to grind
- Simple and efficient: several times the efficiency of natural air drying.
- Large processing capacity: a professional equipment can prepare hundreds of soil samples a day to meet the needs of sample pretreatment
- Avoid cross-contamination: Cross-contamination of different batches and the same batch can be completely avoided
- Convenient and fast: For the detection of semi-volatile organic compounds, freeze-dried storage treatment.

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