

3000 Series

Pilot Freeze Dryer



EPCC / PRODUCTS / APPLICATION / SOFTWARE / ACCESSORIES / CONSUMABLES / SERVICES

Analytical Technologies Limited

An ISO 9001 Certified Company

www.analyticalgroup.net

Introduction:

Freeze dryer is widely used in medicine, pharmacy, biology research, chemical industry and food production, etc. After freeze drying process, a long term preservation for material is much easier. They can be restored to original state and maintain their chemical and biological characteristics after being watered.

Small samples can be pre-frozen directly inside the cold trap, suitable for laboratory use, meeting most routine freeze-drying needs. Suitable for freeze-drying liquids, pastes, and solids, among other substances.

PILOT FREEZE DRYER

Introduction:

Freeze-drying process research and development

This series of pilot freeze-drying machines (R&D) can restore the functions of production freeze-drying machines and are suitable for parameter optimization of industrial freeze drying. It can be used for process amplification and close to production parameters. High-performance process parameters can be provided in both early research and development and later process amplification stages.

- Biotech 
- Pharmaceuticals 
- Materials 
- Chemicals 
- Food 

- The heating and cooling rate reaches 1C/min, which is the same as that of industrial freeze-dryer,
- The top layer of the partition is a heat radiation laminate to ensure that all samples on the partition are heated uniformly.
- The materials in contact with the materials are made of high-quality stainless steel and the internal components are easy to clean;
- Adopt the same PLC system as the industrial freeze-dryer to provide sufficient control for various processes and ensure the repeatability of the process; It can design, load and store the process program to record the freeze-drying process in real time, draw the freeze-drying curve, generate reports, historical records, alarms and so

Features:

- Square chamber in-situ vacuum freeze dryer, automated freeze-drying process.
- The main unit consists of dual chambers: cold trap and drying chamber.
- Sublimation curve control, allowing for stepwise and ramp temperature changes.
- Shelf temperature control accuracy $\pm 1^{\circ}\text{C}$.
- The casing can be easily disassembled without tools for maintenance access.
- PLC controller, PID temperature control adjustment.
- Each level is equipped with independent sample temperature probes.
- Nitrogen filling device for inert gas during drying.
- Cold trap cooling rate: 20°C to -40°C , 20 minutes.
- Maintenance reminder and multiple safety protection functions

Optional Parts:

Vacuum degree control, Eutectic point testing, Chamber isolation valve, PC or mobile app remote control, International brand vacuum pump Anti-backflow oil electromagnetic valve, Oil mist filter, etc.

Optional Functions:

Online sampling, Online weighing, Online visualization

The above models offer optional features including:

Vacuum level control, Eutectic point testing, Chamber isolation valve, Remote control via PC or mobile app, Imported vacuum pumps, Anti-oil backflow solenoid valve, Oil mist filter, and more.

Optional Features: Online Sampling, Online Weighing, Online Visualization



		3020F	3030F	3050F	3100F	3020FD	3030FD	3050FD	3100FD
Specification	Unit	Standard	Standard	Standard	Standard				
Freeze-drying area	m ²	0.3	0.4	0.7	1.03	0.2	0.3	0.5	1.15
Cold trap temperature	°C	<-75/-85/-110(No-Load)							
Vacuum degree	Pa	1(No-Load)							
Shelf temperature range	°C	55-65-75-100							
Ice capacity	kg/24h	70/80							
Number of shelves	Layer	≥6	≥8	≥10	≥15	≥6	≥8	≥10	≥15
Shelf dimensions	mm	3+1	4+1	4+1	6+1	2+1	3+1	3+1	4+1
Shelf spacing	mm	400x270	340x300	480x360	480x360	400x270	300x340	410x410	480x600
Power	kW	70	50	50/optional70	70	100	70	100	100
Main unit weight	Kg	3	4.5	5.5	6.5	4	5.5	6.5	7.5
Dimensions	mm	300	400	600	700	300	400	800	1000
Material capacity (10mm thickness)	L	1033×781 x1580	1033×781 x1580	1033×781 x1580	823×1008 x1420	876×1190 x1727	853×1272 x1679	911×1405 x1983	1823×1144 x2014
Capacity for vials	Piece Piece Piece	-	-	-	-	Φ12mm: 1554 Φ16mm: 868 Φ22mm: 440	Φ12mm: 2187 Φ16mm: 1200 Φ22mm: 654	Φ12mm: 3705 Φ16mm: 2058 Φ22mm: 1050	Φ12mm: 8624 Φ16mm: 4788 Φ22mm: 2460
Defrosting mode		Independent cold trap electric defrosting	Integrated chamber natural defrosting	Natural defrosting optional electric defrosting	Independent cold trap-electric defrosting	Independent cold trap electric defrosting	Independent cold trap electric defrosting	Independent cold trap electric defrosting	Independent cold trap electric defrosting
Safety Devices	Audible alarm, Emergency stop switch, Overpressure protection								
Power supply	Single-phase 3-wire, 220V 50Hz		Shine 3 2050: Three-phase 5-wire, 300/50		Three-phase 5-wire 380V 50Hz	Single-phase 3-wire, 220V 50Hz		Three-phase 5-wire, 380V 50Hz	

Comprehensive Quality Assurance System: Includes complete technical documentation such as instrument manuals and operating instructions.

Lifetime Free Consultation Service: Provides lifelong free consultation for technical issues during use.

GMP Freeze Dryer

The Pilot series GMP freeze-drying equipment meets the requirements of the production process. The equipment's internal surfaces, which come into direct contact with drugs, are smooth, even, and free from dead corners, ensuring effective quality control.

The equipment itself does not pollute the production environment or contaminate materials. It prevents cross-contamination without affecting product quality, making it easy to clean and maintain.

Optional features include CIP and VHP functions.

Multiple Optional Configurations Available



- Program setting
- Authorization management
- Curve temperature control
- Automatic air intake
- Backfill filtration
- Remote control
- Endpoint determination
- Eutectic point testing
- External vial attachment
- Chamber trap valve isolation
- Vacuum fine-tuning
- Pressure rise experiment
- Data recording and storage
- Capacitance gauge vacuum

Product Diversification:

It has introduced differentiated products such as ultra-low temperature freeze-dryers with shelves temperatures of -55 °C, -65 °C, -75 C and -100 °C respectively, which have been widely used in domestic scientific research institutes and biomedical enterprises, and become an important part of ensuring life science research.

Special sample process requirements:

In the fields of medicine, life science and freeze-drying application of special materials, the key temperature values of some products are relatively low, even lower than the pre-freezing and sublimation temperature control values of conventional freeze-dryers, which puts forward higher requirements for freeze-drying technology. Through targeted structural design, functional upgrade and related process optimization, helps users to make breakthroughs in the field of freeze-drying of special samples at the equipment level. In the fields of medicine, life science and freeze-drying application of special materials, the key temperature values of some products are relatively low, even lower than the pre-freezing and sublimation temperature control values of conventional freeze-dryers, which puts forward higher requirements for freeze-drying technology. Through targeted structural design, functional upgrade and related process optimization, It helps users to make breakthroughs in the field of freeze-drying of special samples at the equipment level.

GMP and other related requirements

All series of freeze-dryers in adopt self-developed and copyrighted dryer control system, which has friendly usability and usability. Safe and reliable FAD-LAB, FAD-EMB, FD-PILOT, LYO-CONTROL and LYO-MEGA remote control systems ensure that the freeze-drying process can be carried out smoothly, which meets the requirements of CFR Part 11 of FDA and new GMP.

GMP and other related requirements

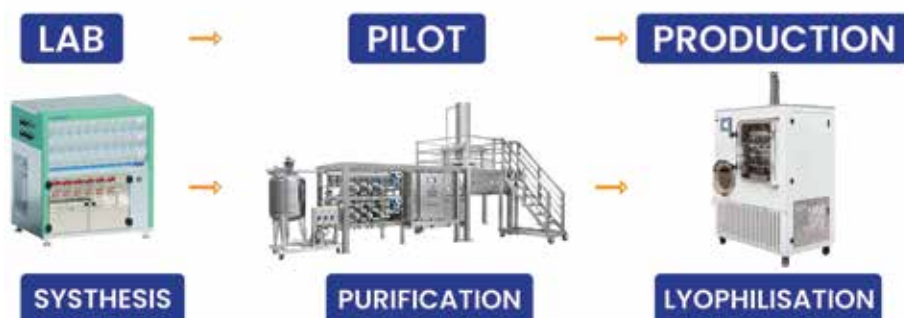
Design Verification (DQ), Installation Verification (IQ), Operation Verification (OQ), Performance Verification (PQ), Factory Acceptance Test (FAT), Site Acceptance Test (SAT), Operation Manual (OM), Maintenance Manual (MM), Installation Manual (IM), Process Flow Chart (P&ID), etc.

		3020FQ	3030FQ	3050FQ	3100FQ	3200FQ	3020FYD	3030FYD	3050FYD	3100FYD	3200FYD	
Specification	Unit	Standard	Standard	Standard	Standard	Standard	Stoppering	Stoppering	Stoppering	Stoppering	Stoppering	
Freeze-drying area	m ²	0.3	0.4	0.7	1.03	2.25	0.2	0.3	0.5	1.15	2.2	
Cold trap temperature	°C	≤-75/≤-85/≤-110(No-Load)										
Vacuum degree	Pa	≤1(No-Load)										
MIN shelf temperature	°C	-55/-65/-75/-100										
MAX shelf temperature	°C	70/80										
Ice capacity	kg/24h	≥6	≥8	≥10	≥15	≥30	≥6	≥8	≥10	≥15	≥30	
Number of shelves	Layer	3+1	4+1	4+1	6+1	5+1	2+1	3+1	3+1	4+1	4+1	
Shelf dimensions	mm	400x270	340x300	480x360	480x360	900x500	400x270	300x340	410x410	480x600	610x910	
Shelf spacing	mm	70	70	70	70	80	100	70	100	100	100	
Power	kW	3	4.5	5.5	6.5	13.5	4	5.5	6.5	7.5	14.5	
Main unit weight	Kg	300	400	600	700	1200	340	400	800	1000	1500	
Dimensions	mm	1390x815x1631	1492x780x1570	1662x790x1450	1735x930x1633	2008x1180x1730	1390x815x1590	1687x780x1673	1730x985x1855	1823x1144x2014	2193x1402x2370	
Capacity for vials	Piece Piece Piece		-	-	-	-	Φ12mm: 1554 Φ16mm: 868 Φ22mm: 440	Φ12mm: 2187 Φ16mm: 1200 Φ22mm: 654	Φ12mm: 3705 Φ16mm: 2058 Φ22mm: 1050	Φ12mm: 8624 Φ16mm: 4788 Φ22mm: 2460	Φ12mm: 13400 Φ16mm: 7600 Φ22mm: 3888	
Material capacity (10mm thickness)	L	3	4	7	10	22.5	2	3	5	11	22	
Sealing method		-	-	-	-	-						
Vacuum control		Electromagnetic valve + fine adjustment valve										
Defrosting mode		Independent cold trap, electric defrosting										
Safety Devices		Udible alarm, Emergency stop switch, Overpressure protection										
Casing material		304 stainless steel				* Front casing SUS 304			304 stainless steel			
Power supply		Single-phase 3-wire, 220V 50Hz			Shine 3 2050: Thee-phase 5-wire, 300/50		Three-phase 5-wire 380V 50Hz		Single-phase 3-wire, 220V 50Hz		Three-phase 5-wire, 380V 50Hz	

The above models can be equipped with:

Eutectic point testing, Chamber trap isolation valve, Data recorder, Chart recorder/online printing, PC or mobile app remote control, Imported brand vacuum pump, Anti-oil return solenoid valve, Oil mist filter, For detailed technical specifications, please refer to our website or contact our staff

COMPLETE DOWN STREAM PROCESS (DSP) SOLUTIONS



HPLC Servicing, Validation, Trainings and Preventive Maintenance :

HPLC Servicing :HPLC Servicing : We have team of service engineers who can attend to any make of HPLC promptly @the most affordable cost.

Trainings :We also take up preventive Maintenance to reduce downtime of HPLC's Trainings.

AMC's/CMC :AMC's/CMC :We offer user training both in-House and at customer sites on HPLC principles, operations, trouble-shooting.

Validations :Validations :We have protocols for carrying out periodic Validations as per GLP/GMP/USFDA norms.

Instruments :Instruments :We offer instruments/Renting Services Modules like pumps,detector etc. on Rent.



About Analytical Technologies

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Our Products & Technologies



LCMS



Automated Prep-Flash Chromatography system



Maldi TOF



Optima Gas Chromatograph



Flash Chromatograph



DAC Column



GCMS 3068



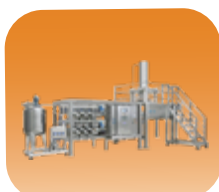
UHPLC



HPTLC



Ion Chromatograph



Production HPLC



Helium Mass Spectrometer Leak Detector



Column



DLS



Water purification system

▶▶▶ Regulatory compliances



▶▶▶ Corporate Social Responsibility

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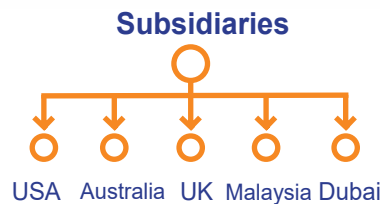
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2. Improving quality of life by offering **YOGA Training courses, Work shops / Seminars** etc.

3. **ANALYTICAL FOUNDATION** aims to DETOXIFY human minds, souls and body by means of Yoga, Meditation, Ayurveda, Naturecure, Health Care, Ara, Events, Camps etc.

▶▶ A portion of profit of **ANALYTICAL GROUP** Company's goes into **ANALYTICAL FOUNDATION** for the aboce noble cause.

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