

## The Characteristics of Freeze Dryer

YBOTECH YBFD-50 series table-top 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:

**Standard Chamber:** suitable for bulk materials, liquid and solid dry

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

**Standard Chamber with 8-port manifolds:** suitable for a variety of different materials, small freeze-dried, and can be linked to freeze-dried bottles, eggplant bottles, jars.

**Stoppered Chamber with 8-port manifolds** 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-type Rack:** for fungal ampoule tube package.



Historical curve



Control interface



U disk extraction data interface



YBFD-5010C



YBFD-5010A



YBFD-5010D



A: **Standard Chamber**

Suitable for bulk materials, liquids and solids drying



B: **Stopper Chamber**

Suitable for the drying of Schering bottled material, the vacuum bag can be sealed and sealed by the sample, including the common type of using function



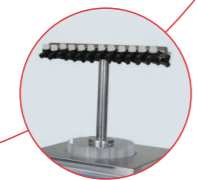
C: **Standard Chamber with 8-port manifolds**

Suitable for bulk materials or small materials of freeze-dried, while the external freeze-dried bottles, eggplant-shaped bottles, jars



D: **Stoppered Chamber with 8-port manifold**

Contains the use of stoppered chamber with 8-port manifold is enabling the vacuum bagging of the sample envelope, to meet most of the laboratory technical requirements



E: **T-type Rack**

For vacuum ampoule package

## FEATURES

- The machine uses international brands Danfoss 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 infalatable valve, can be filled with dry inert gas.

## TECHNICAL ARAMETERS

Model	YBFD-5010A	YBFD-5010B	YBFD-5010C	YBFD-5010D
Type	Standard Chamber	Stoppered Chamber	Standard chamber with 8-port manifolds	Stoppered chamber with 8-port manifolds
Final condenser temp.	-50°C			
Lowest condenser temp.	≤ -60°C (empty load)			
Ultimate vacuum	<5 Pa			
Condenser dimension	Φ 240x150mm			
Freeze drying area	0.12 m <sup>2</sup>	0.08 m <sup>2</sup>	0.12 m <sup>2</sup>	0.08 m <sup>2</sup>
Water capture capacity	3 Kg/24hrs			
Qty of shelf	Φ200mm * 4pcs	Φ180mm * 3pcs	Φ200mm * 4pcs	Φ180mm * 3pcs
Plate distance	70mm			
Plate loading capacity	1.5L	1.0L	1.5L	1.0L
Freeze drying time	24 hrs	24 hrs	24 hrs	24 hrs
Mainfold	/	/	8 pcs	8pcs
USB Interface	Y			
Drying chamber	Transparent acrylic			
Vacuum pump	Speed: 2L/s			
Control system	Microprocessor, touch screen			
Power supply	220V, 50/60Hz			
Power consumption	900 W			
Ambient temp.	≤25 °C			
Overall dimension	400*620*400+420mm	400*620*400+520mm	400*620*400+420mm	400*620*400+520mm
Weight	36kg			
Penicillin vial Φ12mm	920 pcs	560 pcs	920 pcs	560 pcs
Penicillin vial Φ16mm	480 pcs	285 pcs	480 pcs	285 pcs
Penicillin vial Φ22mm	260 pcs	165 pcs	260 pcs	165 pcs
Remark	The device size and weight do not include the external vacuum pump, Stoppered mode height doesn't include maual gland handle (The height of handle is 70mm)			

## SELECTION FUNCTION

- ⊗ Double refrigeration system, Cold trap up to -80 °C
- ⊗ Imported vacuum pump
- ⊗ T-type ampoule bottle rack
- ⊗ Defrost function
- ⊗ Plate heating function
- ⊗ Automatic nitrogen filling interface

## YBFD-80 SERIES VERTICAL FREEZE DRYER

The YBFD-80 Series vertical freeze-dryer offers more capacities of 3.0kg/24h and 6.0kg/24h available.

The rack heating is optional which could accelerate the drying process, saving energy, and providing heating curve settings with a variety of drying solution for widely used in pharmaceuticals, biological products, chemical and food industries. The freeze-drying technology is very suitable for heat-sensitive substances such as antibiotics, vaccines, blood products, enzyme hormones and other biological tissues.

**Standard chamber:** suitable for bulk materials, liquid and solid dry

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

**Standard Chamber with 8-port manifolds:** suitable for a variety of different materials, small freeze-dried, and can be linked to freeze-dried bottles, eggplant bottles, jars.

**Stoppered chamber with 8-port manifolds:** 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-Type rack:** for fungal ampoule tube package.

Optional for gas interface: can inject inert gas;  
Optional for Cold trap electrical heating defrost function;  
Optional for rack heating which is help to test in production;  
Optional for imported vacuum pump;  
Optional for Oil mist filter;  
Optional for Anti-oil return device;  
Eutectic Point Testing, it can have sublimation temperature.



A: Standard Chamber

Suitable for bulk materials, liquids and solids drying



B: Stoppered Chamber

Suitable for the drying of Schering bottled material, the vacuum bag can be sealed and sealed by the sample, including the common type of using function



C: Standard Chamber with 8-port manifolds

Suitable for bulk materials or small materials of freeze-dried, while the external freeze-dried bottles, eggplant-shaped bottles, jars

D: Stoppered chamber with 8-port manifolds

Contains the use of ordinary multi-manifold features, enabling the vacuum bagging of the sample envelope, to meet most of the laboratory technical requirements



YBFD-8010A



YBFD-8010B



YBFD-8018D

### FEATURES

- The machine uses the international brand Danfoss 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 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.

### TECHNICAL PARAMETERS

Model	YBFD-8010A	YBFD-8010B	YBFD-8010C	YBFD-8010D	YBFD-8018A	YBFD-8018B	YBFD-8018C	YBFD-8018D
Type	Standard Chamber	Stoppered Chamber	Standard chamber manifolds	Stoppered chamber manifolds	Standard chamber	Stoppered chamber	Standard chamber manifolds	Stoppered chamber manifolds
Final condenser temp.	-80°C							
Lowest condenser temp.	≤ -85°C (empty load)							
Ultimate vacuum	<2.5 Pa							
Condenser dimension	Φ 240x260mm				Φ 280x425mm			
Freeze drying area	0.12 m <sup>2</sup>	0.08 m <sup>2</sup>	0.12 m <sup>2</sup>	0.08 m <sup>2</sup>	0.27m <sup>2</sup>	0.11 m <sup>2</sup>	0.27 m <sup>2</sup>	0.11 m <sup>2</sup>
Water capture capacity	3 Kg/24hrs				6 Kg/24hrs			
Plate size	Φ200mm	Φ180mm	Φ200mm	Φ180mm	Φ240mm	Φ220mm	Φ240mm	Φ220mm
Qty of plate	4 pcs	3 pcs	4 pcs	3 pcs	6 pcs	3 pcs	6 pcs	3 pcs
Plate distance	70mm	80mm	70mm	80mm	70mm	80mm	70mm	80mm
Plate loading capacity	1.5L	1.0L	1.5L	1.0L	2.7L	1.3L	2.7L	1.3L
Freeze drying time	24 hrs							
Mainfold	/	/	8 pcs	8 pcs	/	/	8 pcs	8pcs
USB Interface	Y							
Drying chamber	Transparent acrylic							
Vacuum pump	Speed: 4L/s							
Control system	Microprocessor, touch screen							
Power supply	220V, 50/60Hz							
Power consumption	1500 W				1800 W			
Amibient temp.	≤25 °C							
Overall dimension	480*620*880+420mm				540*640*920+520mm			
Weight	85 kg				90 kg			
Penicillin vial Φ12mm	920 pcs	560 pcs	920 pcs	560 pcs	920 pcs	712 pcs	920 pcs	712 pcs
Penicillin vial Φ16mm	480 pcs	285 pcs	480 pcs	285 pcs	480 pcs	410 pcs	480 pcs	410 pcs
Penicillin vial Φ22mm	260 pcs	165 pcs	260 pcs	165 pcs	260 pcs	212 pcs	260 pcs	212 pcs

## Pilot SERIES FREEZE DRYER

YBOTECH Pilot series freeze dryers are designed for two heating methods: electrical heating and silicone oil heating.

Standard chamber: suitable for bulk materials, liquid and solid dry;

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

### FEATURES

- Pre-freezing functions at the same place for the drying process, thus realizing automation.
- 36 users' programs, each of them can control up to 40 temperature zones and memorize the freeze temperature curve.
- The drying room employs a glass window with high transparency to witness the process
- Accurate temperature control and smooth drying effect by the circulating medium of silicone oil.
- The tray possesses the freezing function, eliminating the process of pre-freezing the sample and automatically starting the drying process afterward.
- The tray is made of a silicon rubber electric heating plate, which can pre-set the temperature heating curve, so as to automate the sublimation.
- Efficient protection for the vacuum pump, starting after reaching the pre-set temperature.
- Digital PLC touch screen, recording the temperature of cold trap and sample as well as the vacuum degree, whose data can be exported.
- Excellent capability of vapor capturing and outstandingly short drying time as a result of the separate structure of the drying chamber and cold trap.



Standard Chamber



Stoppered Chamber



Stoppered Chamber (separated)

### OPTIONAL

- 4/8 Manifolds
- Imported vacuum pump
- Eutectic Point Testing
- Computer software
- Drying degree judgment device
- Vacuum degree control device
- Anti-oil-return device
- APP and PC remote control function

### TECHNICAL PARAMETERS

Model	YBFD-P1000A	YBFD-P1000B	YBFD-P2000A	YBFD-P2000AD	YBFD-P2000BD
Type	Standard Chamber	Stoppered Chamber	Standard Chamber	Dual Chambers	Stoppered Chamber
Shelf temperature	-50°C ~ +70°C				
Lowest condenser temp.	≤ -80°C (empty load)				
Ultimate vacuum	<5 Pa				
Freeze drying area	0.1 m <sup>2</sup>	0.1 m <sup>2</sup>	0.2 m <sup>2</sup>	0.2 m <sup>2</sup>	0.2 m <sup>2</sup>
Water capture capacity	2 Kg/24hrs		3 Kg/24hrs		
Plate dimension	300x340x15mm		300x340x15mm		
Qty of shelf	2 pcs	2 pcs	3 pcs	3 pcs	3 pcs
Plate distance	80mm	80mm	70mm	70mm	80mm
Plate loading capacity	1.0L	1.0L	2.0L	2.0L	2.0L
Freeze drying time	24 hrs				
Mainfold	4/8 pcs				
USB Interface	Y				
Vacuum pump	Speed: 4L/s				
Control system	Microprocessor, touch screen				
Power supply	220V, 50/60Hz				
Power consumption	2.2KW	2.8KW	2.2 KW	2.5 KW	2.8 KW
Amibient temp.	≤25 °C				
Overall dimension	650*750*1250mm	750*860*1300+100mm	650*750*1350mm	650*750*1560mm	750*860*1620+100mm
Weight	220 KG	240 KG	240 KG	260 KG	350 KG
Penicillin vial Φ12mm	768 pcs	768 pcs	1536 pcs	1536 pcs	1536 pcs
Penicillin vial Φ16mm	437 pcs	437 pcs	874 pcs	874 pcs	874 pcs
Penicillin vial Φ22mm	217 pcs	217 pcs	434 pcs	434 pcs	434 pcs

## M SERIES FREEZE DRYER

### FEATURES

- Pre-freeze drying process at in situ situation, reduce the complicate operation from drying process, become automatically;
- Shelf temperature differences  $\pm 1^{\circ}\text{C}$ , dry effect uniform;
- Intermediate medium circulation technique, shelf can refrigeration, heating, temperature adjustable, controllable, pilot scale test and production process;
- Due to drying chamber and cold trap for fission structure, special gas circuit designed; capture water ability is strong and drying time to be short;
- Equipped 7 inch LCD touch screen, PLC controlled and PID temperature controlled display lyophilized curve and history curve;
- Control system can be stored 32 freeze-dry process programs, each program can have 40 temperature settings, and can choose the manual operation and automatic operation, the Top-Press type is equipped with an automatic defrost function;
- Optional eutectic point test device;
- U disk data available;
- Equipped with PC software can print curve, browsing curve, modify data;
- Square tray is shape not easily to deformed, easy to operate and clean;



### TECHNICAL PARAMETERS

Model	YBFD-M4000A	YBFD-M3000B	YBFD-M5000A	YB-FD-M5000B
Type	Standard Chamber	Stoppered Chamber	Standard Chamber	Stoppered Chamber
Shelf temperature	-50 ~ +70°C	-50 ~ +70°C	-50 ~ +70°C	-50 ~ +70°C
Condenser temperature	-80°C (empty load)	-80°C (empty load)	-80°C (empty load)	-80°C (empty load)
Ultimate vacuum	$\leq 5$ Pa	$\leq 5$ Pa	$\leq 5$ Pa	$\leq 5$ Pa
Water capture capacity	6.0 kg/24hrs		10.0 kg/24hrs	
Freeze drying area	0.4 m <sup>2</sup>	0.4 m <sup>2</sup>	0.5 m <sup>2</sup>	0.5 m <sup>2</sup>
Plate size	340x300x20mm	340x300x20mm	400x320x20mm	480x360x20mm
Qty of shelf	4+1 pcs	3+1 pcs	4+1 pcs	3+1 pcs
Plate distance	70 mm	90 mm	70 mm	90 mm
Plate loading capacity	4.0 L	3.0 L	5.0 L	5.0 L
Temperature uniformity	$\pm 1^{\circ}\text{C}$	$\pm 1^{\circ}\text{C}$	$\pm 1^{\circ}\text{C}$	$\pm 1^{\circ}\text{C}$
Cooling mode	Air cooling	Air cooling	Air cooling	Air cooling
Electric heater defrosted	Y	Y	Y	Y
Cap seal method	/	Hydraulic pressure	/	Hydraulic pressure
Power supply	380V/220V, 50/60Hz			
Power consumption	4.0 KW	4.5 KW	4.5 KW	5.0 KW
Overall dimension	900*940*1500mm	1250*950*1360+480mm	1250*900*1380mm	1360*1000*1440+500mm
Weight	420 kg	460 kg	480 kg	550 kg
Penicillin vial $\Phi 12\text{mm}$	3027 pcs	2304 pcs	3780 pcs	4071 pcs
Penicillin vial $\Phi 16\text{mm}$	1728 pcs	1296 pcs	2068 pcs	2244 pcs
Penicillin vial $\Phi 22\text{mm}$	884 pcs	663 pcs	1120 pcs	1164 pcs

## LAB SERIES VACUUM FREEZE DRYER

- Optional for gas interface: can inject inert gas
- Optional for Cold trap electrical heating defrost function
- Optional for rack heating which is help to test in production
- Optional for imported vacuum pump
- Optional for Oil mist filter
- Optional for Anti-oil return device
- Eutectic Point Testing, it can have sublimation temperature.



### TECHNICAL PARAMETERS

Model	LAB-2G	LAB-3G	LAB-5G	LAB-10G	LAB-15G	LAB-20G	LAB-25G	LAB-30G	LAB-40G	LAB-50G	
Freeze drying area (m <sup>2</sup> )	2.16	3.2	5.4	10	14.4	19.8	25.2	31.5	40.5	51.3	
Water capture capacity (kg/batch)	40	60	90	180	300	400	500	600	800	10000	
Penicillin vial	$\Phi 16\text{mm}$ (pcs)	8200	12300	20000	38900	55800	76800	97700	122000	157000	199000
	$\Phi 22\text{mm}$ (pcs)	4200	6300	11000	19900	29500	40590	51600	64500	83000	105000
Plate volume (L)	40	60	90	180	300	400	500	600	800	1000	
Plate size	Width (mm)	600	600	900	900	1200	1200	1200	1500	1500	1500
	Length (mm)	900	900	1200	1200	1500	1500	1500	1500	1800	1800
Plate distance (mm)	90	90	90	90	90	90	90	90	90	90	
Qty of plate (pcs)	4+1	6+1	5+1	9+1	8+1	11+1	14+1	14+1	15+1	19+1	
Plate temp. range (°C)	-50 ~ 80°C (empty load)										
Temperature accuracy (°C)	$\pm 1^{\circ}\text{C}$										
Lowest condenser temp.	-70 °C (empty load)										
Ultimate vacuum	$\leq 1.0$ Pa										