BioSpectrix

# Vacuum Freeze Dryer




BSLFD-10C




BSLFD-10E

## Innovation Meets Reliability in Freeze Drying

Our Research & Pilot Scale Freeze Dryer empowers scientists and process developers with precise temperature control, flexible configurations, and advanced monitoring. Whether for formulation development or small-batch production, it guarantees reproducible drying cycles, excellent product recovery, and unmatched scalability — the perfect companion for modern R&D and pilot-scale success


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## Freeze Dryer

Widely used in the fields of medicine, pharmacy, biological research, chemical industry and food. The freeze-dried articles are easy to be stored for a long time, and can be restored to the state before freeze-drying and maintain the original biochemical properties after processing.

## Maifeatures

- Refrigeration uses Linde-hampson, the world's leading technology, with a refrigeratory (secondary cooling by refrigeration), high refrigeration efficiency;
- The use of environmentally friendly refrigerants (absolutely does not contain the refrigerants banned by the state, some manufacturers still use the mixed refrigerant scheme with the ratio of R 12 and R22 banned by the state);
- Refrigeration temperature

  1 Temperature of cold trap up to standard (no load): <60 (DegC) and room temperature <28 (DegC)

  2 Limit cold trap temperature (no load): <65 C, room temperature <25 C;
- Using a 7-inch touch screen, the display is intuitive and easy to operate, without defining the inexplicable button selection
- Support freeze-drying data curve recording function
- The requirement of cold trap temperature can be set when the vacuum pump starts, so as to avoid starting the vacuum pump when the cold trap temperature does not reach the effective low-temperature water catching performance, resulting in water entering the vacuum pump
- With an additional set of sensors, it can be used to measure sample temperature and record dat
- Temperature and vacuum have correction function.
- Switching unit with vacuum pressure display, supporting Mbar (millibar), Pa (Pascal), Torr (Toll).
- Free upgrade of electric defrosting function.

# Vacuum Freeze Dryer

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.

The vacuum freeze drying technology, which is also called sublimation drying, is a technical method that freezes the samples in advance, and then sublimates its moisture under vacuum state.

**Types** : standard type, manifold type, top press type, manifold with top press type, T-type.

**Series**: laboratory freeze dryer , pilot scale freeze dryer and small scale production freeze dryer and big scale production freeze dryer

## BSLFD-10 Series Bench Top Freeze Dryer



**BSLFD-10A**



**BSLFD-10B**



**BSLFD-10C**



**BSLFD-10D**



**BSLFD-10E**

# BSLFD-12/18 Series Floor Type Freeze Dryer



BSLFD-12A/18A



BSLFD-12B/18B



BSLFD-12C/18C



BSLFD-12D/18D



BSLFD-12E/18E



BSLFD-12E/18E



BSLFD type



top press type



manifold type



manifold with top press type



T-type

# BSLFD-10/12/18 Series of Freeze Dryer for laboratory research

BSLFD-10 freeze dryers are designed as bench top model, BSLD-12/18 as floor type with caster.

**Types:** standard type, top press type, manifold type, manifold with top press type, T-type

## Main features:

- Control panel display in English
- Vacuum can be displayed in Pa or mbar
- Condenser with uniform and good ice capture function
- Acrylic drying Chamber is safe and easy to view sample status
- Small and compact structure , with easy and convenient operation
- Vacuum pump with high pumping speed , to reach good final vacuum
- Big opening condenser with external coiling tubes, has pre-freezing function
- Color LCD touch screen displays running time, display sample temperature, condenser temperature , vacuum degree, and save data automatically
- Display sample temperature curve, condenser temperature curve and vacuum curve
- CFC-free refrigerant, international famous brand compressor, low noise,good efficiency
- Condenser, trays, drying shelf and pre-freezing shelf made of stainless steel 304,anti-corrosion
- Stainless steel air inlet valve (drain valve) is safe, anti-corrosion , no leak
- With USB port to output freeze drying data, open and view data in Excel format

## Options

- Vacuum control valve
- Intake backfilling filter
- Air inlet filter for pump
- Nitrogen inflation valve
- Eutectic point test device
- Electricity heating defrosting
- Exhaust filter/oil mist filter for pump
- Cascade refrigeration ,condenser temperature -80℃
- Stainless steel chamber used for organic solvent sample
- Check valve for pump to prevent oil sucked into chamber
- Leybold pump or other international brand vacuum pump
- RS232 and software: Check, keep freeze drying data and control freeze dryer through computer
- Special requirements can be customized

## Specification List

| Model | Unit | BSLFD-10 | | BSLFD-12 | | BSLFD-18 | |
|---|---|---|---|---|---|---|---|
| | | Top press | standard | Top press | standard | Top press | standard |
| Drying area | ㎡ | 0.08/0.1 | 0.12/0.18 | 0.08/0.1 | 0.12/0.18 | 0.09/0.12 | 0.18/0.27 |
| Condenser temperature | ℃ | -50℃ ( -80℃ optional ) | | | | | |
| Vacuum degree | Pa | ＜10 | | | | | |
| Condenser capacity | kg/24 hours | 3-4 | | 3-4 | | 6 | |
| Sample tray | Φmm x layer | Φ180 x3/4 | Φ200x4/6 | Φ180 x3/4 | Φ200x 4/6 | Φ200x 3/4 | Φ240 x 4/6 |
| Shelf spacing | mm | 70/50 | 70/50 | 70/50 | 70/50 | 70/50 | 70/50 |
| Bulk liquid capacity (10mm thickness) | Liter | 0.8/1 | 1.2/1.8 | 0.8/1 | 1.2/1.8 | 0.9/1.2 | 1.8/2.7 |
| Vial capacity Φ12mm | Pcs | 492/656 | 820/1230 | 492/656 | 820/1230 | 615/820 | 1220/1830 |
| Vial capacity Φ16mm | Pcs | 279/372 | 460/690 | 279/372 | 460/690 | 345/460 | 680/1020 |
| Vial capacity Φ22mm | Pcs | 147/196 | 244/366 | 147/196 | 244/366 | 183/244 | 348/522 |
| Optional manifold | ports | 8 ports | | | | | |
| Optional flask | ml | Round bottom flask: 1000ml, 500ml, 250ml, 100ml,50ml<br>Wide neck flask: 1200ml, 600ml, 300ml, 150ml | | | | | |
| Vacuum Pump Flow Rate | L/S | 2 L/S, 7.2 $m^3$/h | | 2 L/S, 7.2 $m^3$/h | | 4 L/S, 14.4 $m^3$/h | |
| Voltage | V, Hz | 220V ,50 Hz<br>110V/120V, 60Hz | | 220V ,50 Hz<br>110V/120V, 60Hz | | 220V ,50 Hz<br>110V/120V, 60Hz | |
| Power | W | 970 | | 1070 | | 1400 | |
| Dimension | mm | 565x 420 x (360+430) | | 560x460x(710+430) | | 635x540x(970+430) | |
| Weight | kg | 75 | 70 | 105 | 100 | 160 | 155 |







# BSLFD-10E vacuum freeze dryer

BSLFD-10E Freeze Dryer is suitable for freeze-drying experiment in laboratory. It is bench top equipment.

This equipment is used for long term preservation for bacteria, fungi and other microbial strains. After freeze drying process, samples can be sealed in the ampules.



## Main features

- Control panel display in English
- Vacuum can be displayed in Pa or mbar
- Condenser with uniform and good ice capture function
- Small and compact structure , with easy and convenient operation
- Vacuum pump with high pumping speed , to reach good final vacuum
- Condenser made of stainless steel 304, anti-corrosion and easy to clean
- Stainless steel air inlet valve (drain valve) is safe, anti-corrosion , no leak efficiency
- Big opening condenser with external coiling tubes, has pre-freezing function
- Color LCD touch screen displays running time, display sample temperature, condenser temperature,vacuum degree, and save data automatically
- Display sample temperature curve, condenser temperature curve and vacuum curve
- With USB port to output freeze drying data, open and view data in Excel format
- CFC-free refrigerant, international famous brand compressor, low noise,good

## Options

- Vacuum control valve
- Intake backfilling filter
- Air inlet filter for pump
- Nitrogen inflation valve
- Eutectic point test device
- Electricity heating defrosting
- Exhaust filter/oil mist filter for pump
- Cascade refrigeration ,condenser temperature -80℃
- Check valve for pump to prevent oil sucked into chamber
- Leybold pump or other international brand vacuum pump
- RS232 and software: Check and keep freeze drying data on computer, control
- freeze dryer through PC

## Technical Parameter

| | |
|---|---|
| Ice condenser capacity | 3-4 kg /24h |
| Condenser temperature | -50℃ (-80℃ optional ) |
| Rubber valve | 24 pcs, for connect with 24 ampules<br>special requirement can be customized |
| Final vacuum | < 10 Pa |
| Condenser size | Φ215mm, 140mm deep |
| T-type shelf | 430×480mm |
| Vacuum Pump Flow Rate | 2 L/S, 7.2 m3/h |
| Defrosting | Off Cycle Defrosting |
| Cooling | Air cooling, ambient temperature≤25℃ |
| Voltage | 220V/50 Hz, 110V/60Hz, 120V/ 60Hz |
| Power | 970W (-50℃)<br>1400W (-80℃) |
| Dimension | 610x 450 x (370+430)mm (-50℃)<br>850 x 680x (400+430)mm (-80℃) |
| weight | 70kg (-50℃)<br>130kg (-80℃) |

## BSLFD-12E/18E vacuum freeze dryer

BSLFD-12E/18E Freeze Dryer is suitable for freeze-drying experiment in laboratory. It is floor type equipment.

This equipment is used for long term preservation for bacteria, fungi and other microbial strains. After freeze drying process, samples can be sealed in the ampules. It is also suitable for product in flask.





## Options

- Vacuum control valve
- Intake backfilling filter
- Air inlet filter for pump
- Nitrogen inflation valve
- Eutectic point test device
- Electricity heating defrosting
- Exhaust filter/oil mist filter for pump
- Cascade refrigeration ,condenser temperature -80℃
- Check valve for pump to prevent oil sucked into chamber
- Leybold pump or other international brand vacuum pump
- RS232 and software: Check, keep freeze drying data and control freeze dryer through computer
- Special requirements can be customized

## Technical Parameter

| Model | BSLFD-12E | BSLFD-18E |
|---|---|---|
| Condenser capacity | 3 kg /24h | 6 kg/24h |
| Condenser temperature | -50℃ (-80 ℃ optional) | |
| Vacuum degree | < 10 Pa | |
| Rubber valve | Option A: 24 pcs, for 24 ampule ,<br>special requirement can be customized | |
| | Option B: 12 pcs , for connection of flask<br>Round bottom flask : 50ml,100ml,250ml,500ml,1000ml<br>Wide neck flask:150ml, 300ml, 600ml, 1200ml<br>special requirement can be customized | |
| Cooling | Air cooling， draughty, ambient temperature≤25℃ | |
| Vacuum pump flow rate | 2 L/S, 7.2 $m^3$/h | 4 L/S, 14.4 $m^3$/h |
| Voltage | 220V ,50 Hz<br>110V, 60Hz; 110V, 60Hz | 220V ,50 Hz<br>110V, 60Hz ; 110V, 60Hz |
| Power | 1070 W<br>1400W(-80℃) | 1400 W<br>1800W(-80℃) |
| Dimension | 560x460x(710+430)mm<br>660x460x(710+430) mm (-80℃) | 635x540x(970+430)mm<br>735x540x(970+430) mm (-80℃) |
| Weight | 100kg (-50℃)<br>155kg (-80℃) | 160kg (-50℃)<br>190kg (-80℃) |

# BSLFD-12H/18H series vacuum freeze dryer



BSLFD-12HA/18HA



BSLFD-12HB/18HB



BSLFD-12HC/18HC



BSLFD-12HD/18HD



BSLFD type



top press type



manifold type



manifold with top press type



T-type

# BSLFD-12H/18H series vacuum freeze dryer for Laboratory

BSLFD-12H/18H series freeze dryer is suitable for experiment and a small amount production.
**Types:** standard type, top press type, manifold type, manifold with top press type

## Main features:

- Control panel display in English
- Vacuum can be displayed in Pa or mbar
- Acrylic drying Chamber is safe and easy to view sample status
- Small and compact structure , with easy and convenient operation
- Vacuum pump with high pumping speed , to reach good final vacuum
- With electricity heating shelf, increasing drying speed
- Safety control system used for shelf heating, to control heating rate
- With programmable function, shelf temperature can be set in drying process
- Hundreds of recipe can be stored, and each recipe can be set up 36 segments
- Condenser with uniform and good ice capture function
- Big opening condenser with external coiling tubes, has pre-freezing function
- With USB port to output freeze drying data, open and view data in Excel format
- Color LCD touch screen displays running time, display sample temperature, condenser temperature , vacuum degree, and save data automatically
- Display sample temperature curve, condenser temperature curve and vacuum curve
- Historical curves and records can be checked, and storage cycles can be modified in real time
- The user level and password can be set up, and the operation management can be divided
- Powerful sensor calibration functions to ensure accuracy of measured values in long-term use
- CFC-free refrigerant, international famous brand compressor, low noise,good efficiency
- Condenser, trays, drying shelf and pre-freezing shelf are made of stainless steel 304, anti-corrosion
- Stainless steel air inlet valve (drain valve) is safe, anti-corrosion , no leak
- Real-time alarm display, historical alarm query function for fault diagnosis and maintenance

## Options

- Vacuum control valve
- Intake backfilling filter
- Air inlet filter for pump
- Nitrogen inflation valve
- Eutectic point test device
- Electricity heating defrosting
- Exhaust filter/oil mist filter for pump
- Automatic backfilling / drainage system
- Cascade refrigeration ,condenser temperature -80℃
- Stainless steel chamber used for organic solvent sample
- Check valve for pump to prevent oil sucked into chamber
- Leybold pump or other international brand vacuum pump
- RS232 and software: Check and keep freeze drying data on computer, control freeze dryer through PC

## Technical Parameters

| Model | Unit | BSLFD-12H | | BSLFD-12H | |
|---|---|---|---|---|---|
| | | Standard | | Top press | |
| Drying area | ㎡ | 0.12 ㎡ | 0.18 ㎡ | 0.08 ㎡ | 0.1 ㎡ |
| Condenser temperature | ℃ | -50℃ or -80℃ | | | |
| Vacuum degree | Pa | ＜10 | | | |
| Condenser capacity | kg/24 hours | 3-4 kg /24h | | 3-4 kg /24h | |
| Sample tray | Φmm x layer | Φ200 x 4 | Φ200 x 6 | Φ180 x3 | Φ180 x4 |
| Shelf spacing | mm | 70 | 50 | 70 | 50 |
| Shelf temp. range | ℃ | Ambient temperature to +80℃ | | | |
| Bulk liquid capacity (10mm thickness) | Liter | 1.2 L | 1.8 L | 0.8 L | 1.0 L |
| Vial capacity Φ12mm | Pcs | 820 | | 492 | 656 |
| Vial capacity Φ16mm | Pcs | 460 | | 279 | 372 |
| Vial capacity Φ22mm | Pcs | 244 | | 147 | 196 |
| Optional manifold | ports | 8 ports | | | |
| Optional flask | ml | Round bottom flask :1000ml, 500ml, 250ml, 100ml, 50ml<br>Wide neck flask:150ml, 300ml, 600ml, 1200ml | | | |
| Vacuum Pump Flow Rate | L/S | 2 L/S, 7.2 m3/h | | 2 L/S, 7.2 m3/h | |
| Voltage | V, Hz | 220V/50 Hz, 110V/120V/60Hz | | 220V/50 Hz, 110V/120V/60Hz | |
| Power | W | 1400W(-50℃)<br>1800W(-80℃) | | 1400W(-50℃)<br>1800W(-80℃) | |
| Dimension | mm | 580x500x(720+430)mm (-50°C)<br>770x550x(720+430)mm (-80°C) | | 580x500x(720+490)mm (-50°C)<br>770x550x(720+490)mm (-80°C) | |
| weight | kg | 105kg (-50°C)<br>155kg (-80°C) | | 110kg (-50°C)<br>165kg (-80°C) | |



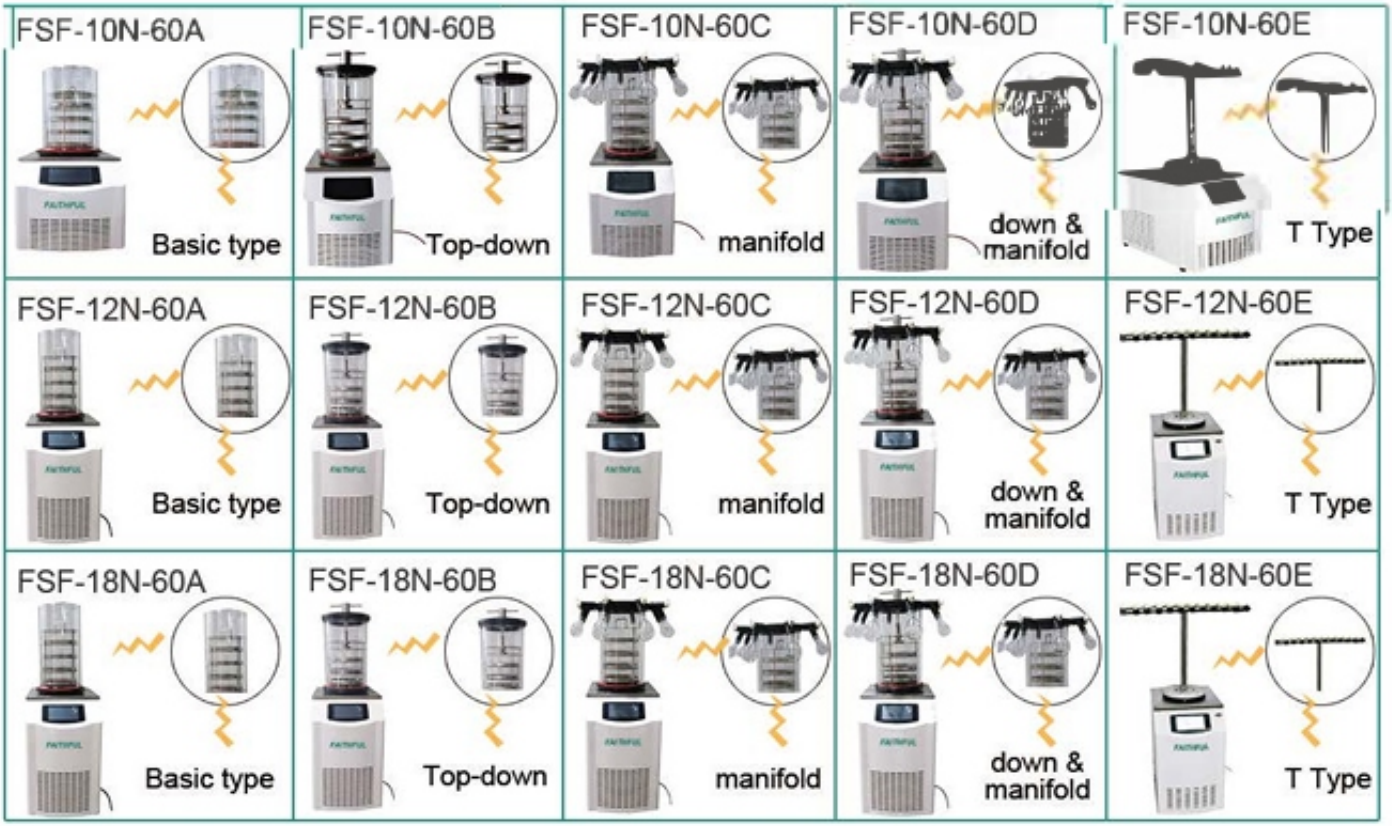
## Technical Parameters

| Model | Unit | BSLFD-18H | | BSLFD-18H | |
|---|---|---|---|---|---|
| | | Standard | | Top press | |
| Drying area | ㎡ | 0.18 ㎡ | 0.27 ㎡ | 0.09 ㎡ | 0.12 ㎡ |
| Condenser temperature | ℃ | -50℃ or -80℃ | | | |
| Vacuum degree | Pa | ＜10 | | | |
| Condenser capacity | kg/24 hours | 6 kg /24h | | 6kg /24h | |
| Sample tray | Φmm x layer | Φ240 x 4 | Φ240 x 6 | Φ200 x3 | Φ200 x4 |
| Shelf spacing | mm | 70 | 50 | 70 | 50 |
| Shelf temp. range | ℃ | Ambient temperature to +80℃ | | | |
| Bulk liquid capacity (10mm thickness) | Liter | 1.8 L | 2.7 L | 0.9 L | 1.2 L |
| Vial capacity Φ12mm | Pcs | 1220 | 1830 | 615 | 820 |
| Vial capacity Φ16mm | Pcs | 680 | 1020 | 345 | 460 |
| Vial capacity Φ22mm | Pcs | 348 | 522 | 183 | 244 |
| Optional manifold | ports | 8 ports | | | |
| Optional flask | ml | Round bottom flask :1000ml, 500ml, 250ml, 100ml, 50ml<br>Wide neck flask:150ml, 300ml, 600ml, 1200ml | | | |
| Vacuum Pump Flow Rate | L/S | 4 L/S, 14.4 m3/h | | 4 L/S, 14.4 m3/h | |
| Voltage | V, Hz | 220V/50 Hz, 110V/120V/60Hz | | 220V/50 Hz, 110V/120V/60Hz | |
| Power | W | 1400W(-50℃)<br>1800W(-80℃) | | 1400W(-50℃)<br>1800W(-80℃) | |
| Dimension | mm | 635x540x(970+430)mm<br>735x540x(970+430)mm (-80℃) | | 635x540x(970+430)mm<br>735x540x(970+430) mm (-80℃) | |
| weight | kg | 160kg (-50℃)<br>190kg (-80℃) | | 165kg (-50℃)<br>195kg (-80℃) | |










## MainTechnical Parameter

| Parameters /Model | | FSF-10N | | | | FSF-12N | | | | FSF-18N | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | -60A | -60B | -60C | -60D | -60A | -60B | -60C | -60D | -60A | -60B | -60C | -60D | -60E |
| | | Basic type | Top-down | manifold | down &manifold | Basic type | Top-down | manifold | down &manifold | Basic type | Top-down | manifold | down &manifold | T Type |
| Drying area | ㎡ | 0.12 | 0.092 | 0.12 | 0.092 | 0.12 | 0.092 | 0.12 | 0.092 | 0.27 | 0.092 | 0.27 | 0.092 | |
| Tray | mm | 200*4 | 200*3 | 200*4 | 200*3 | 200*4 | 200*3 | 200*4 | 200*3 | 240*4 | 200*3 | 240*4 | 200*3 | |
| Tray capacity | L | 1.5 | 1 | 1.5 | 1 | 1.5 | 1 | 1.5 | 1 | 2 | 1 | 2 | 1 | |
| No-load temperature | ℃ | <-60 (-80 optional) | | | | <-60 (-80 optional) | | | | <-60 (-80 optional) | | | | <-60 (-80 optional) |
| Vacuum | Pa | <10pa | | | | <10pa | | | | <10pa | | | | |
| Inter layer spacing | mm | 70 | | | | 70 | | | | 70 | | | | |
| Vals number for reference | 22 | 260 | 165 | 260 | 165 | 260 | 165 | 260 | 165 | 360 | 270 | 360 | 270 | |
| | 16 | 480 | 285 | 480 | 285 | 480 | 285 | 480 | 285 | 740 | 560 | 740 | 560 | |
| | 12 | 920 | 560 | 920 | 560 | 920 | 560 | 920 | 560 | 1320 | 990 | 1320 | 990 | |
| Ability to capture water | KG | 3 | | | | 4 | | | | 6 | | | | |
| voltage | V/Hz | 220V/50Hz or 110V/60HZ | | | | | | | | | | | | |
| Power | W | 850 | | | | 950 | | | | 1300 | | | | |
| Machine size | mm | 500*400*370 | | | | 500*400*650 | | | | 800*530*900 | | | | |