BioSpectrix

PRECISION SCIENTIFIC INSTRUMENTS

INNOVATION FOR A HEALTHIER TOMORROW

Madel

BSZLGJ-20FY VACUUM FREEZE DRYER

Compact. Powerful. Reliable.

A high-performance laboratory freeze-drying solution designed for research, formulation development and small-scale production.



- 0.2 m² Drying Area
- ≤ -85°C Condenser Temperature
- ≤ 0.2 Pa Final Vacuum
- 2+1 Shelves

FREEZE TODAY
PRESERVE TOMORROW

BSZLGJ-20FY| PRODUCT OVERVIEW

Engineered for Reliable Lyophilization

The BSZLGJ-20FY vacuum freeze dryer offers precise temperature control, deep condenser cooling and high-vacuum performance in a compact design. It is an ideal solution for laborateries in pharmaceutical, biotechnology, food, academic and research environments.

0.2 m² Freeze-drying area	**2+1** Shelf layers
≤ -85°C Min. condenser temp. (no-load)	**≤ 0.2 Pa** Final vacuum degree
> 4 kg Water capture capability	**4 L** Liquid material (10 mm thickness)

Key Features

- Manual + Auto control mode
- Sensor calibration
- Intelligent temperature control
- Freeze-drying termination reminder
- Fan cooling with high-pressure defrosting

STABILITY PRESERVED
POTENTIAL UNLOCKED



Drying Chamber & Shelves



Precision design for uniform and reliable drying

Chamber shape	Rectangular
Chamber material	AISI 316 stainless steel
Inner wall roughness	Ra ≤ 0.6 μm
Door material	ACRYLIC
Opening direction	Clockwise opening
Working temperature	≥ 70 °C
Thermal insulation	Polyurethane foam
Shelf material	AISI 304 stainless steel (Top and bottom plate thickness 5 mm)
Shelf structure	AISI 304 stainless steel (Our company's unique patented internal welding method)
Effective shelf size	270 × 400 mm
Number of shelves	2 + 1 (Top shelf as temperature compensating plate)
Effective shelf area	0.2 m²
Shelf spacing	100 mm (maximum)
Shelf temperature range	−50 °C to + 70 °C (no-load)
Shelf temperature error	≤ ±1 °C (in balance)
Temperature decreasing rate	+20 °C to −40 °C within 60 min (no-load, entrance of silicon oil)
Temperature elevating rate	−40 °C to + 20 °C within 60 min (no-load, entrance of silicon oil)
Shelf lowest temperature	≤ −50 °C (no-load, entrance of silicon oil)
Shelf highest temperature	≥ +70 °C (no-load, entrance of silicon oil)

Uniform temperature control for consistent results

Condenser & Refrigeration System



Deep cooling. High efficiency. Reliable performance.

Parameter	Vertical type
Condenser shape	Vertical type, cylindrical
Cooling pipe material	AISI 316L or equivalent available) Copper
Condenser chamber volume	10 L
Minimum condenser temperature	≤ −85 °C (no-load) (−85 °C or lower available as required)
Condenser cooling performance	+20 °C to −40 °C within 30 min
Water capture capability	> 4 kg
Defrosting method	High pressure defrosting (Gas defrosting system available)
Thermal insulation	Polyurethane foam
Refrigeration system	Dual Compressor > 1500 W or better
Refrigerant	CFC/HCFC free with Global Warming Ponential (GWP) less than 10, Certificate for the same provided.
Compressor	France original imported TECUMSEH full closure compresser
Number of refrigeration sets	2 sets 1 for shelf – indirect refrigeration, 1 for condenser – direct refrigeration
Expansion valve	DANFOSS or equivalent
Solenoid valve	DANFOSS or equivalent
High pressure controller	DANFOSS or equivalent
Oil separator	ZOER or equivalent
Disacidity filter	DANFOSS or equivalent
Pressure meter	LR REFCO (Germany/Swiss) oil submerge pressure meter
Condenser circulation fan	Included for uniform temperature distribution

Compact condenser design for better water capture and easy cleaning

Vacuum System

High vacuum. Stable performance.



Pump type	Chemical resistant hybrid vacuum pump (oil sealed, two stages)
Displacement capacity	≥ 90 L/min or better
Ultimate vacuum	2×10^{-1} mbar or better
Quantity	1 set
Chamber pumping rate	Atmosphere to 10 Pa ≤ 30 min (in dry condition)
System maximum vacuum	≤ 0.2 Pa
System leaking rate	≤ 10 Pa·L / sec
Vacuum gauge	Reborn or equivalent
Vacuum controller	Included

Reliable vacuum control for consistent drying

Liquid Circulation System

Stable temperature. Uniform heating.

Circulation liquid	Low viscosity silicon oil (25°C, 6 cSt) (optional sanitized product)
Liquid tubing material	AISI 304, welding, heat keeping
Circulation pump	GRUNDFOS, web rotor canned pump (from Denmark)
Pump quantity	1 set
Heating rate	0.8 kW
Heating control style	Solid-state relay
Temperature sensor	PT-100 platinum resistance sensor

Precise temperature control for optimal drying performance

Control, Monitoring & Safety

Intelligent control for a safe and efficient process.

Control mode	Manual + Auto
Touchscreen display	MCGS (or equivalent) with user-friendly interface
Display parameters	Collector temperature, shelf temperature, vacuum level (mBar, Pa, Torr), temperature unit (°C or °F)
Programmable drying steps	40 or more (with primary and secondary drying)
Data export	Via USB port (direct export without computer)
Process documentation	Process available for process documentation
Software temperature monitoring	Programmable between -50°C (or lower) to +70°C (or above), without monitoring control accuracy ± 1°C
Real-time display	Product temperature and shelf temperature online
Alarm system	Audible and visual alarms for: • Power failure • Improper line voltage supply • Circuit or fan failure • Collector temperature rise > 35°C • Service vacuum pump (after 1000h) • Moisture in collector
Electrical system	CHINT relays / contactors / air circuit breaker with ground protection
Safety features	Logic interlock, vacuum pressure and heating protection, power cut safety measures

Safe operation with intelligent monitoring

Vials, Stoppering & Utilities

Complete support for your freeze-drying workflow.

Vial capacity	12 mm: > 1400 vials 16 mm: > 790 vials 22 mm: > 420 vials
Pre-freezing capability	≤ −50°C
Stoppering system	Single chambered with in-built pneumatic stoppering mechanism
Vial sealing	Under vacuum while maintaining aseptic condition
Solvent compatibility	Capable of handling low eutectic point solvents like acetonitrile and other mild solvents apart from aqueous samples
Condenser pan&drains	Stainless steel condensate pan with drain hose



COMPLETE ACCESSORIES
FOR SEAMLESS OPERATION

BSZLGJ-20FY Technical Specifications

Parameter	Specification
Model	BSZLGJ-20FY
Freeze-drying area	0.2 m^2
Shelf configuration	2 + 1
Shelf size	270 × 400 mm
Shelf spacing	100 mm (maximum)
Shelf temperature range	−50°C to + 70°C (no-load)
Shelf temperature error	≤ ± 1°C (in balance)
Condenser chamber volume	10 L
Minimum condenser temp.	≤ −85°C (no-load)
Water capture capability	> 4 kg
Liquid material	4 L (thickness 10 mm)
Defrosting method	High pressure defrosting (Gas defrosting available)
Final vacuum degree	0.2 Pa
Refrigeration system	Dual compressor > 1500 W
Refrigerant	CFC/HCFC free (GWP < 10)
Cooling	Fan cooling
Installation power	2.8 kW (installed power)
Dimensions (W × D × H)	Approx. 800×800×1650mm
Weight	Approx. 323 kg
Noise	≤ 80 dB
Power supply	Single phase 220V or three phase 380V
Certifications	ISO 9000, CE
Data export	USB (direct)

BioSpectrix
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INNOVATE. COLLABORATE. ELEVATE SCIENCE.