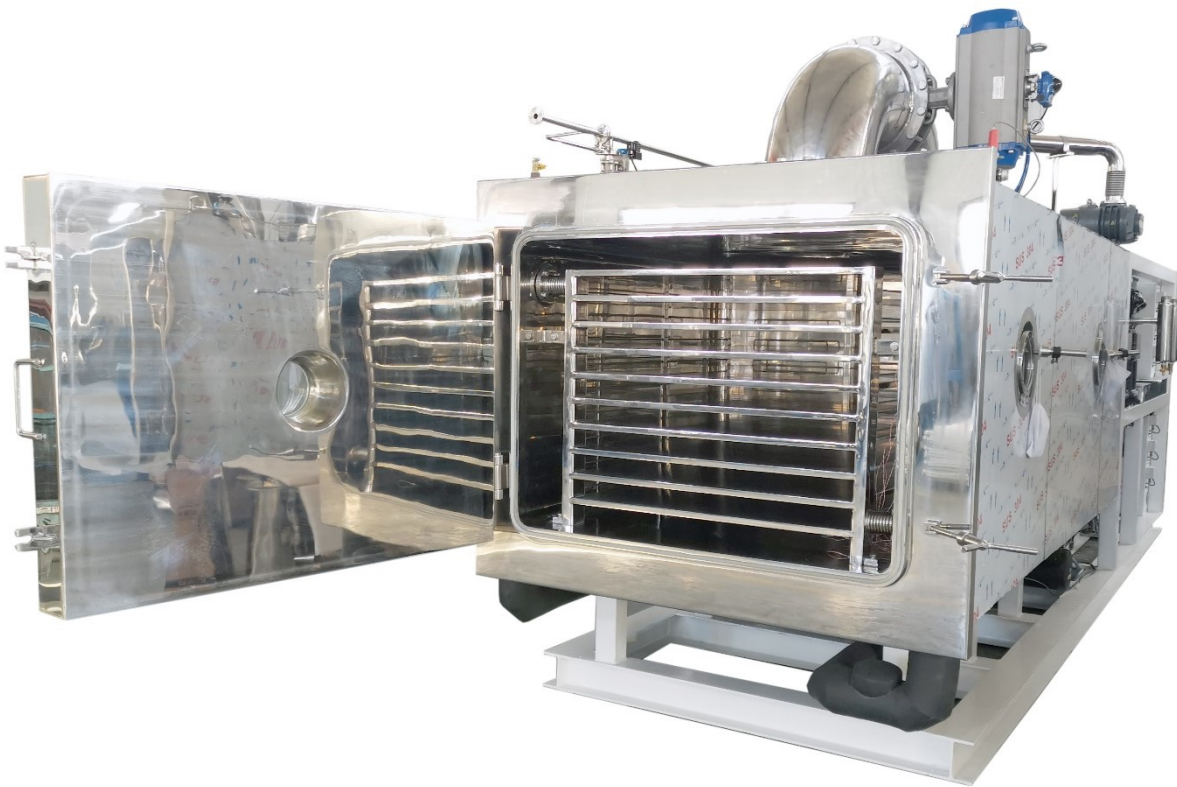


GENERAL PURPOSE FREEZE DRYER FDL SERIES



Vekuma's FDL series general purpose freeze dryers are a line of commercial freeze drying equipment that designed for a wide range of industrial lyophilization applications. Ideal for large quantities of products freeze drying in trays. Typical applications include bacterial, yogurt, nutrient, probiotics and reagents.

Technical Specifications

	FD-5L	FD-10L	FD-20L	FD-30L	FD-50L
Shelf Area	5.25m ²	9.7m ²	19.8m ²	29.2m ²	48.6m ²
No. of Shelves	7+1	9+1	11+1	13+1	18+1
Shelf Size	750*1000mm	910*1210mm	1210*1510mm	1510*1510mm	1510*1810mm
Shelf Spacing	60mm	60mm	60mm	60mm	50mm
Shelf Temp.	-55C ~ +70C	-55C ~ +70C	-55C ~ +70C	-55C ~ +70C	-55C ~ +70C
Final Vacuum	<1Pa	<1Pa	<1Pa	<1Pa	<1Pa
Condenser 24Hrs	50Kgs	100Kgs	200Kgs	300Kgs	500Kgs
Condenser Total	100Kgs	200Kgs	400Kgs	600Kgs	800Kgs
Condenser Temp.	-85C	-85C	-85C	-85C	-85C
Voltage	380V/50Hz/3P	380V/50Hz/3P	380V/50Hz/3P	380V/50Hz/3P	380V/50Hz/3P
Power	25Kwh	50Kwh	75Kwh	85Kwh	105Kwh
Size (mm)	1500*3500*2000	1700*5500*2500	2300*7000*2600	2300*7500*2800	2500*9500*3200

Performance & Features

- All-in-one structure with clean room wall panel.
- S/S304 drying chamber door.
- S/S304 drying chamber, interior polish Ra<0.6um.
- S/S304 shelves, flatness <0.5mm/m.
- Shelves upper and bottom polish Ra<0.4um.
- Shelves Temp. controllable -50C ~ +70C, accuracy <+/-1C.
- Shelves cooling and heating rate >1C/Min.
- S/S304 ice condenser, interior polish Ra<0.6um.
- S/S304 condenser coils, surface polish Ra<0.4um.
- Condenser lowest -85C, pull down to -45C <10Min.
- Condenser hot water defrost.
- System final vacuum <1Pascal.
- Chamber vacuumize to 100Pa <30Min.
- Chamber leak rate <5Pa L/Sec.
- All the machinery that involved with the operation of FDL freeze dryer is mounted in a steel frame. Thoroughly quality and performance test before it is shipped. Deliver includes:
 - Industrial grade, PLC and touch screen HMI based control system. FD-MEGA interface.
 - PUF insulated drying chamber, condenser and door.
 - Sandwich type shelves enable thermal fluid circulates inside for heating and chilling. Electric heating and PID control.
 - Exposed coil type, external ice condenser installs behind chamber.
 - 2-stage reciprocating compressor system, water cooling method. Cool condenser by refrigerant direct expand, cool shelves through an intermediate plate heat exchanger.
 - 2-stage oil sealed rotary vane vacuum pump, roots pump for larger models. All pumps have isolate valve.
 - All valves that use to isolate air and water are pneumatic operated.
 - PT-100 temperature sensor and Pirani vacuum gauge.
 - Inert gas backfill port.

Accessories and Options

Name	Part No.	Description
S/S316L Material		Drying chamber, shelves, trays, condenser & coils.
Slide Door		Door hang on a steel beam, slide open/close.
Auto Door Lock		Pneumatically.
Door Position Sensor		
PTFE Coated Trays		Suit corrosive materials.
Internal Ice Condenser		Beneath shelves.
Vacuum Break Filter		0.22um.
HEPA Filter		
Vacuum Pump Oil Mist Filter		
Screw Vacuum Pump		
Capacitive Vacuum Gauge		
Condenser Isolate Valve		
Eutectic Point Detector		
PC Control		
Redundant System		Back up compressor, vacuum pump, fluid pump.
Qualification Documentation		IQ, OPQ validation documents.
		FAT/SAT
Technical Documents		P&ID, install drawing.
Training Service		Install, worker training etc.

Vekuma Machinery Co.,Ltd

Add: No.1 GuanYun Road, Zhuozhou, Beijing, China

Tel: +86-13803827075 | **Web:** www.vekuma.com | **Mail:** sales@vekuma.com