

## Desktop Freeze Dryer FD-1000



FD-1000

### Features

- This freeze-dryer is designed exclusively for small samples as micro-plates, micro-tubes, ampoules and test tubes. As vacuum level, trap temperature and time are simultaneously displayed on the control panel, operation condition can be confirmed.
- Trap cooling temperature and vacuum level are measured during auto mode operation and it informs whether the sample container can be installed or not.
- An easy operation requires only a flask mounting and drying termination signal input.
- Timer function is equipped. Oil exchange time can be confirmed by the display of the integrated operation time meter of the vacuum pump.
- Time setting for continued operation or termination can be done according to time from power failure to return.
- By the use of service outlet, vacuum pump will not restart automatically when power failure recovers. It prevents samples melted due to the power failure from bumping and dispersing.
- The filter of 0.2 $\mu$ m installed at air inlet prevents leak contamination.
- The unit is equipped with trap temperature and vacuum level signal outlet to recorder to realize dry freezing data management(FD-1000 Recordr Type)

### Specifications

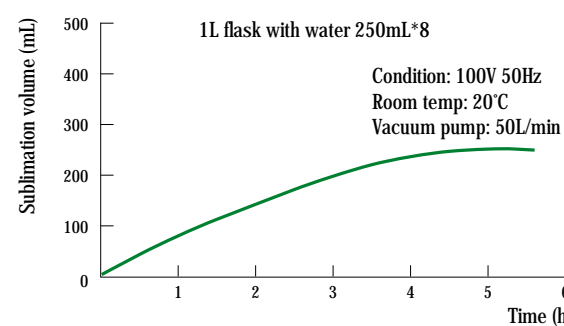
Product Name	Desktop Freeze Dryer				
	FD-1000		FD-1000REC		
Model	188809	188806	188800	191166	191160
Cat.No.	188809	188806	188800	191166	191160
Cold trap temperature	-45°C				
Ice holding capacity	500mL/one batch				
Temp. setting & display	Sheet key input, digital display				
Safety features	Leakage/Over current breaker, Vacuum pump automatic operating function, Vacuum monitoring function, Trap temperature monitoring function, Refrigerator overload relay.				
Vacuum leak function	Auto-leak at power OFF or power failure				
Trap Defrost Method	Hot gas				
Refrigerator power & Refrigerant	250W.HFC				
Vacuum pump	Option (Pumping speed 50L/min over)				
Manifold	8 vials port				
Trap dimensions (mm) & Volume	ø83.1*227H 1.5L				
Cooling coil materials	SUS304				
Vacuum outlet connection	OD 16mm				
Vacuum display	Digital display, 0.0~533.0Pa. Minimum scale 0.1Pa				
Recorder output	NA		Yes. 1°C/mV, 1Pa/mV		
Ambient temperature	5~35°C				
Overall dimensions (mm)	195(263)W*440(475)D*790H				
Weight	32kg				
Power source	AC115V 50/60Hz	AC230V 50/60Hz	AC100V 50/60Hz	AC230V 50/60Hz	AC100V 50/60Hz
Input power	2.9A 450VA	2A 450VA	4.5A 450VA	2A 450VA	4.5A 450VA

### Operation panel



Freeze drying of small samples using micro-plates or deep-well is easily implemented in this chamber. The chamber can be used separately from test tube port.

### Sublimation Speed Data



## Freeze Dryer FDU-1000 • 1100 • 2000 • 2100



FDU-1000

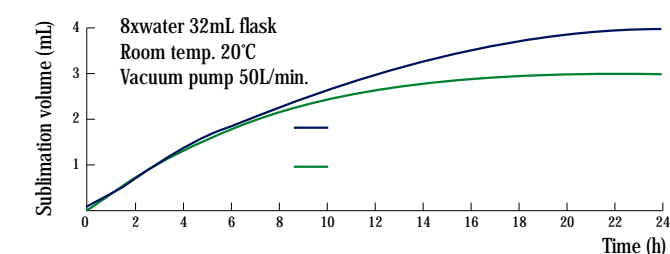
FDU-2100

### Features

- Unit type design concept makes it possible to build up optimum freeze dryer system by desired combination of optional manifold.
- Trap cooling temperature and vacuum level are measured during auto-mode operation and it informs whether the sample container can be installed or not. An easy operation requires only a flask mounting and drying termination signal input (FDU-1100, 2100 with manifold).
- Trap volume monitor is available as option. Maximum dehumidification can be confirmed by monitor lamp.
- Timer function is equipped. Oil exchange time can be confirmed by the display of the integrated operation time meter of the vacuum pump. Also, it is convenient to measure subliminal time.

- Vacuum pump will not re-start automatically when power failure is recovered. It prevents sample melted from bumping and dispersing.
- Vacuum pump installed inside the main unit implements minimum installation space.

### Sublimation Speed Data



### Specifications

Product Name	Freeze Dryer			
	FDU-1000	FDU-2000	FDU-1100	FDU-2100
Model	197390	197370	197400	197380
Cat.NO.	197390	197370	197400	197380
Cold trap temperature	-45°C	-80°C	-45°C	-80°C
Ice holding capacity	4L/one batch	3L/one batch	4L/one batch	3L/one batch
Temp. setting & display	Sheet key input, digital display			
Safety functions	Leakage/Over current breaker, Refrigeration system protection circuit, Fuse for service outlet, Automatic leak at vacuum break		Leakage/Over current breaker, Refrigeration system protection circuit, Fuse for service outlet, Control substrate self-diagnosis	
Additional functions	Thaw method by hot gas, Trap holding volume monitor (Option)		Vacuum pump automatic operating function, Vacuum and trap temperature monitor function, Time function, Thaw method by hot gas, Trap holding volume monitor (Option)	
Refrigerator power & Refrigerant	600W•R404A	500W*2•R404A•R23	600W•R404A	500W*2•R404A•R23
Vacuum pump	Option • Pumping speed 135/162L/min (50/60Hz)			
Vacuum Gauge	Piranr vacuum Guage (Analog display) 0.4 to 533Pa		Piranr vacuum Guage (Digital display) 0.4 to 533Pa	
Trap dimensions(mm) & Material	ø200*395H, SUS304 (Teflon coating available as option)			
Trap lid	Glass puls Transparent PVC 238*238 (mm)			
Recorder output	—		Trap temperature: 1°C/mV, Vacuum: 1Pa/mV	
Service outlet	For Dry chamber Max. 3A			
Ambient temperature	5~35°C			
Overall dimensions (mm)	700W*550D*935H			
Weight	100kg	139kg	100kg	139kg