

# Freeze dryer-FDG

## Glass type freeze dryer (for acid)

It is highly recommended to use FDG (for acid) of OPERON. If samples or solvents to be diluted in samples contain sulfuric acid, hydrochloric acid or acetic acid. The drying chamber and the cold trap of FDG is made with borosilicate glass. Therefore, if the proper experiment or production is difficult because of corrosion of stainless or Teflon coated materials, the model for acid of OPERON is appropriate.



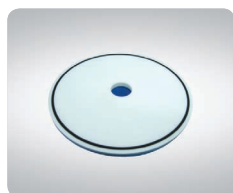
[FDG-120]



Glass drying chamber



Glass cold trap



Teflon Disc

### Features and advantages

- The drying chamber and the cold trap of freeze dryer for acid is made with borosilicate glass, so it is appropriate to dry samples which contain toxic substances like sulfuric acid, hydrochloric acid or acetic acid.
- -156°C cryogenic cooling system registered to the international patent and Operon Auto Cascade System, the original technology for -203°C cryogenic cooling system are combined to realize quick freezing and quick defrosting functions.
- Selected vacuum pump contains automatic Gas Ballasting function, so it releases gas which fills the pump to get better degree of vacuum.
- Embedded vacuum release valve automatically operates to prevent a back flow of contaminated oil and gas in the pump when blackout, cold trap temperature rise or pump operation stop by mishandling.
- It is equipped with automatic protection function for the vacuum pump which makes the vacuum pump operates automatically when the temperature of the cold trap decreases below the certain temperature which the user sets regarding the freezing point of samples and the vacuum pump automatically turns out when the temperature increases over the setting temperature.
- Transparent borosilicate glass chamber is safe for the user to see the drying process (embedded).
- After drying, defrost water is easily separated to discharge into the special container.

### Freeze dryer (Glass type - borosilicate type for acid) - Lab scale / Industrial scale

Model		FDG-120	FDG-105	FDG-90	
Main Body	Cold Trap Temp	-120°C	-105°C	-90°C	
	Cold Trap Capacity(total)	12L ~ 15L			
	Dimension(mm)	Drying Chamber	Φ300 x L230		
		Cold Trap	Φ300 x L250		
		Overall	W850 x D800 x H1410(Included drying chamber)		
	Materials	Drying Chamber	Borosilicate Glass A3.3		
		Cold Trap	Borosilicate Glass A3.3		
		External	Cold rolled steel with powder coated		
		Insulation	High density urethane foam		
	Controller	Auto/Manual start-up controller, Display cold trap temperature & vacuum pressure(2000mTorr~0mTorr), printer set			
Pump Protection System	(Automatic vacuum pump start & Stop control system)				
Defrost	Manual defrost				
Electric	220V/1Ph, 60Hz/50Hz				
Weight	230kg				

**Options** Vacuum pump (range): 100LPM ~ 1600LPM / Chemical trap / Oil mist trap / Activated carbon / Drain device