

# CryoMatrix Series

## Cryogenic Vapor Freezer

CryoMatrix series high-efficiency vapor phase liquid nitrogen storage system provides the most ideal storage conditions for biological samples. The whole series realize  $-190^{\circ}\text{C}$  vapor phase storage. Supported by  $\text{LN}_2$  automatic filling system and temperature &  $\text{LN}_2$  level monitoring system, CryoMatrix freezers provide all-round protection to precious sample, assisting life science research and cell therapy applications.

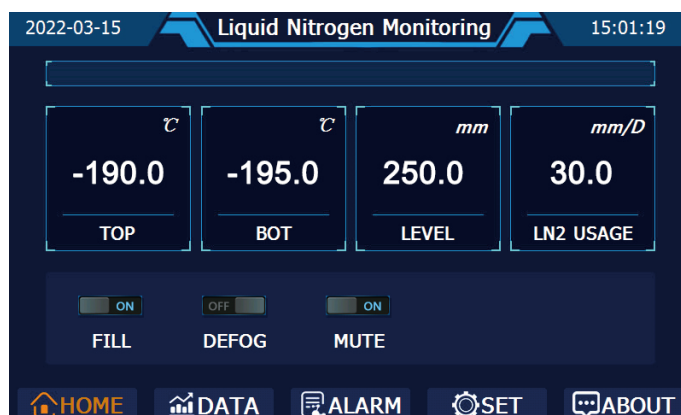
Based on the actual needs of users, Antech has innovatively optimized the performance, structure and control system of the vapor-phase cryogenic freezer to meet the user's highest standard of large-capacity vapor-phase cryogenic storage requirements.



### Advanced Control System

# ANTECH

- HMI human-machine interactive touch screen, display temperature, liquid level, temperature curve and alarm information.
- Important events such as temperature, alarm, liquid nitrogen fill, can be checked, and can also download through USB disk.
- Various alarms, and the alarm information can be stored and downloaded through the USB disk.
- Operating data, such as temperature and liquid level, can be stored for up to 10 years.
- Optimized structure design to achieve the best sample storage density and save space.



## Features

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- Multiple capacity freezers, from 370L to 1,800L, 2.0ml vials storage capacity from 15,600 to 94,500.
- Excellent temperature uniformity and stability, enabling samples to be stored at -190°C vapor phase environment.
- Excellent vacuum performance and structural design ensure minimum liquid nitrogen consumption and lower storage costs.
- Advanced temperature, liquid level monitoring and alarm system, and can realize remote monitoring.
- Automatic supply of liquid nitrogen, safe and labor-saving.
- The liquid nitrogen supply system is controlled by multiple solenoid valves, which can effectively prevent the overflow of liquid nitrogen and sample contamination caused by high LN<sub>2</sub> level.
- Manual filling available under special circumstances.
- Compatible with vapor phase and liquid phase storage modes, users can choose according to their needs.
- The optimized mechanism design realizes high-density storage to save space.

## Humanized Design

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- Defog function, easier to find samples and shorten lid opening time.
- After 48 hours of lid open, temperature in the freezer remains below -150°C (according to the factory test standard).
- The remote alarm interface can be connected to the central alarm system.
- Foldable step for convenient operation & space saving.
- Optional backup battery in case of power failure.
- Optional vacuum jacketed hose for lower liquid nitrogen consumption.

## Why CryoMatrix?

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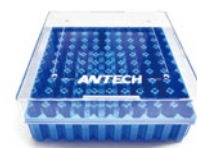
- High density storage  
Compared with similar products, CryoMatrix freezers have a small footprint and can store a large number of samples. It truly realizes high-density storage, which not only saves space, but also reduces the storage cost per sample. Both horizontal and vertical rack systems available.
- Excellent temperature uniformity  
Vacuum insulated stainless steel tank structure, high vacuum coverage, to ensure excellent thermal insulation performance. When samples are stored at vapor phase, top level sample temperature is lower than -180°C.

- Stable opening temperature  
The innovative lid and vacuum insulated neck design reduce LN<sub>2</sub> evaporation. Even when the lid is opened for up to 48 hours, the inner temperature can remain stable.
- Advanced temperature monitoring system  
The monitoring system based on microprocessor and platinum temperature probe can display the maximum and minimum temperature inside the tank in real time with an accuracy of  $\pm 1^{\circ}\text{C}$ . The user can set the alarm point by himself, with the option of alarm mute.
- Automatic LN<sub>2</sub> filling & level monitoring system  
The liquid level monitoring system based on high-precision differential pressure sensor displays the liquid level in real time to ensure the safety and reliability of the automatic filling of liquid nitrogen. The color touch screen can display: top temperature, bottom temperature, liquid level height, daily liquid nitrogen consumption and other parameters.
- Warm gas bypass  
The warm gas bypass design can remove the high temperature nitrogen (gas) in the pipeline before the liquid nitrogen is injected, so as to ensure that only ultra-low temperature liquid nitrogen is injected into freezer, which avoids the temperature fluctuation in the freezer & thermo shock to samples during filling process, protecting the safety of samples.

## Rack for cryogenic boxes



Inventory racks for cryobox



Model	Description	Part Number
<b>For 81/100-place 2" height box</b>		
CFC-10-2	10-place	5122A93
CFC-12-2	12-place	5122C93
CFC-13-2	13-place	5122D93
CFC-14-2	14-place	5122E93
CFC-15-2	15-place	5122F93
<b>For 25-place 2" height box</b>		
CFC-10-2S	10-place	5121A93
CFC-12-2S	12-place	5121C93
CFC-13-2S	13-place	5121D93
CFC-14-2S	14-place	5121E93
CFC-15-2S	15-place	5121F93
<b>For 81-place 3.75" height box</b>		
CFC-5-3	5-place	5123153
CFC-6-3	6-place	5123163
CFC-8-3	8-place	5123183
<b>Cryogenic box, polycarbonate material, LN<sub>2</sub> duration</b>		
CBA-25-2	25-place box, 2" height, for 1.5~2.0ml vials	5211110
CBA-81-2	81-place box, 2" height, for 1.5~2.0ml vials	5211120
CBA-100-2	100-place box, 2" height, for 1.5~2.0ml vials	5211130
CBA-81-3	81-place box, 3.75" height, for 5ml vials	5211140

## Frame Rack & Cassette for Blood Bags



Blood bag cassette



Blood bag frame

Model	Description/capacity	Part Number
<b>Cassette &amp; frame for 25 ml blood bag</b>		
BBC-25	Cassette for 25 ml blood bag	5241100
CFB-25-6	6-place	5124165
CFB-25-7	7-place	5124175
CFB-25-8	8-place	5124185
CFB-25-9	9-place	5124195
<b>Cassette &amp; Frame for 50 ml Blood Bag</b>		
BBC-50	Cassette for 50 ml blood bag	5241200
CFB-50-6	6 positions	5125165
CFB-50-7	7 positions	5125175
CFB-50-8	8 positions	5125185
CFB-50-9	9 positions	5125195
<b>Cassette &amp; Frame for 250 ml Blood Bag</b>		
BBC-250	Cassette for 250 ml blood bag	5241300
CFB-250-3	3 positions	5126135
CFB-250-4	4 positions	5126145
CFB-250-5	5 positions	5126155
<b>Cassette &amp; Frame for 500 ml Blood Bag</b>		
BBC-500	Cassette for 500 ml blood bag	5241400
CFB-500-3	3 positions	5127135
CFB-500-4	4 positions	5127145
CFB-500-5	5 positions	5127155

# Inventory & Layout

Model	CryoMatrix 15K	CryoMatrix 19K	CryoMatrix 28K	CryoMatrix 39K	CryoMatrix 55K	CryoMatrix 94K
<b>2ml vial (square rack)</b>						
Rack layout						
Maximum capacity	15600	19500	28000	39200	55500	94500
Large rack model x rack qty	CFC-12-2 x 12	CFC-15-2 x 12	CFC-10-2 x 24	CFC-14-2 x 24	CFC-15-2 x 32	CFC-15-2 x 60
Small rack model x rack qty	CFC-12-2S x 4	CFC-15-2S x 4	CFC-10-2S x 16	CFC-14-2S x 16	CFC-15-2S x 20	CFC-15-2S x 12
<b>5ml blood bag (frame rack &amp; cassette)</b>						
Rack layout						
Maximum capacity	5832	7776	9720	15552	20736	38880
Rack model x rack qty	CFC-6-3 x 12	CFC-8-3 x 12	CFC-5-3 x 24	CFC-8-3 x 24	CFC-8-3 x 32	CFC-8-3 x 60
<b>25ml blood bag (frame rack &amp; cassette)</b>						
Rack layout						
Maximum capacity	1484	1908	2448	3264	4988	7992
Rack model x rack qty	CFB-25-7 x 212	CFB-25-9 x 212	CFB-25-6 x 408	CFB-25-8 x 408	CFB-25-9 x 532	CFB-25-9 x 888
Cassette model x qty	BBC-25 x 1484	BBC-25 x 1908	BBC-25 x 2448	BBC-25 x 3264	BBC-25 x 4988	BBC-25 x 7992
<b>50ml blood bag (frame rack &amp; cassette)</b>						
Rack layout						
Maximum capacity	896	1152	1488	1984	3132	4788
Rack model x rack qty	CFB-50-7 x 128	CFB-50-9 x 128	CFB-50-6 x 248	CFB-50-8 x 248	CFB-50-9 x 348	CFB-50-9 x 532
Cassette model x qty	BBC-50 x 896	BBC-50 x 1152	BBC-50 x 1488	BBC-50 x 1984	BBC-50 x 3132	BBC-50 x 4788
<b>250ml blood bag (frame rack &amp; cassette)</b>						
Rack layout						
Maximum capacity	400	500	588	980	1340	2140
Rack model x rack qty	CFB-250-4 x 100	CFB-250-5 x 100	CFB-250-3 x 196	CFB-250-5 x 196	CFB-250-5 x 268	CFB-250-5 x 428
Cassette model x qty	BBC-250 x 400	BBC-250 x 500	BBC-250 x 588	BBC-250 x 980	BBC-250 x 1340	BBC-250 x 2140
<b>500ml blood bag (frame rack &amp; cassette)</b>						
Rack layout						
Maximum capacity	240	300	396	660	900	1360
Rack model x rack qty	CFB-500-4 x 60	CFB-500-5 x 60	CFB-500-3 x 132	CFB-500-5 x 132	CFB-500-5 x 180	CFB-500-5 x 272
Cassette model x qty	BBC-500 x 240	BBC-500 x 300	BBC-500 x 396	BBC-500 x 660	BBC-500 x 900	BBC-500 x 1360

# Specification

Model

CryoMatrix 15K CryoMatrix 19K CryoMatrix 28K CryoMatrix 39K CryoMatrix 55K CryoMatrix 94K

Maximum Storage Capacity							
1.2 & 2ml vial	1.2 & 2ml vials	15600	19500	28000	39200	55500	94500
	Number of large rack (81/100-place box)	12	12	24	24	32	60
	Number of small rack (25-place box)	4	4	16	16	20	12
	2" Boxes per rack	12	15	10	14	15	15
5ml vial	5ml vials (81-place)	5832	7776	9720	15552	20736	38880
	Number of racks	12	12	24	24	32	60
	3.75" Boxes per rack	6	8	5	8	8	8
25ml blood bag	Numbers of blood bag	1484	1908	2448	3264	4788	7992
	Number of racks	212	9	6	8	9	9
	Layers per rack	7	212	408	408	532	888
50ml blood bag	Numbers of blood bag	896	1152	1488	1984	3132	4788
	Number of racks	128	128	248	248	348	532
	Layers per rack	7	9	6	8	9	9
250ml blood bag	Numbers of blood bag	400	500	588	980	1340	2140
	Number of racks	100	100	196	196	268	428
	Layers per rack	4	5	3	5	5	5
500ml blood bag	Numbers of blood bag	240	300	396	660	900	1360
	Number of racks	60	60	132	132	180	272
	Layers per rack	4	5	3	5	5	5
LN <sub>2</sub> Capacity							
LN <sub>2</sub> capacity (L)		370	460	550	800	1160	1800
LN <sub>2</sub> capacity at vapor platform (L)		55	55	125	133	200	295
Dimensions							
Neck opening (mm)		320	320	445	445	526	635
Usable internal height (mm)		708	914	590	840	887	906
Inner diameter (mm)		730	730	980	980	1130	1390
External diameter (mm)		820	820	1090	1090	1256	1565
Overall height (mm)		1400	1600	1400	1650	1790	1750
Door width limit (mm)		900	900	1110	1110	1300	1585
Weight empty (kg)		210	264	310	395	580	805
Weight full, vapor charged (kg)		255	309	412	503	743	1045
Functions							
Controller		Touch screen	Touch screen	Touch screen	Touch screen	Touch screen	Touch screen
Full auto fill		Standard	Standard	Standard	Standard	Standard	Standard
Data storage / USB port		Standard	Standard	Standard	Standard	Standard	Standard
Defog		Standard	Standard	Standard	Standard	Standard	Standard
Foldable step		Standard	Standard	Standard	Standard	Standard	Standard
Backup battery		Optional	Optional	Optional	Optional	Optional	Optional
Vacuum jacketed hose		Optional	Optional	Optional	Optional	Optional	Optional
Inventory rack		Optional	Optional	Optional	Optional	Optional	Optional
Wi-Fi connection & cloud access		Optional	Optional	Optional	Optional	Optional	Optional