

CryoMatrix Series

Cryogenic Vapor Freezer

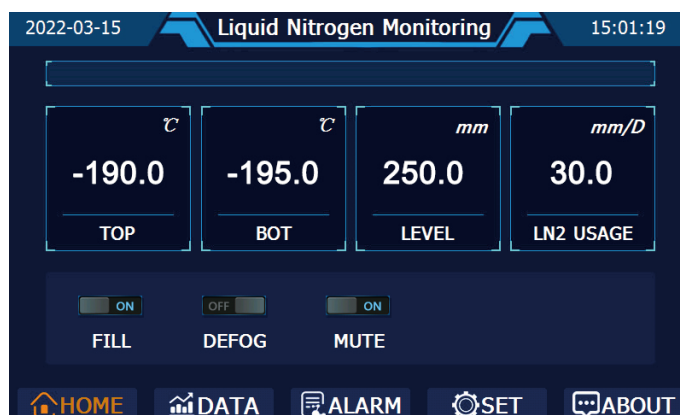
CryoMatrix series high-efficiency vapor phase liquid nitrogen storage system provides the most ideal storage conditions for biological samples. The whole series realize -190°C vapor phase storage. Supported by LN_2 automatic filling system and temperature & LN_2 level monitoring system, CryoMatrix freezers 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

- 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

- 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_2 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



- 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?

- 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 LN₂ evaporation. Even when the lid is opened for up to 48 hours, the inner temperature can remains 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 LN₂ 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

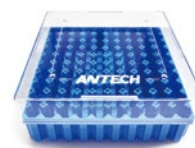
The warm gas bypass design can remove the high temperature nitrogen (gas) in the pipeline before the liquid nitrogen is injected, so as to ensure that only ultra-low temperature liquid nitrogen is injected into freezer, which avoids the temperature fluctuation in the freezer & thermo shock to samples during filling process, protecting the safety of samples.



Rack for cryogenic boxes



Inventory racks for cryobox



Model	Description	Part Number
For 81/100-place 2" height box		
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
For 25-place 2" height box		
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
For 81-place 3.75" height box		
CFC-5-3	5-place	5123153
CFC-6-3	6-place	5123163
CFC-8-3	8-place	5123183
Cryogenic box, polycarbonate material, LN ₂ duration		
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



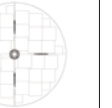
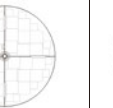
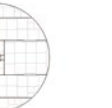
Blood bag cassette



Blood bag frame

Model	Description/capacity	Part Number
Cassette & frame		
BBC-A	Pall MEDSEPTM 25 mL, OriGen CS 25[Dimensions(mm): 91*100*11]	5241100
CFB-A-3	3-place	5124135
CFB-A-4	4-place	5124145
CFB-A-5	5-place	5124155
CFB-A-6	6-place	5124165
CFB-A-7	7-place	5124175
CFB-A-8	8-place	5124185
CFB-A-9	9-place	5124195
Cassette & Frame		
BBC-B	Ferwal 4R9951, OriGen CS 50[Dimensions(mm): 91*157*11]	5241200
CFB-B-3	3-place	5125135
CFB-B-4	4-place	5125145
CFB-B-5	5-place	5125155
CFB-B-6	6-place	5125165
CFB-B-7	7-place	5125175
CFB-B-8	8-place	5125185
CFB-B-9	9-place	5125195
CFB-B-10	10-place	51251A5
CFB-B-11	11-place	51251B5
Cassette & Frame		
BBC-C	Ferwal 4R9953 & 4R5461, OriGen CS 25, CryoMACS 50 & 250, CryoPAC 025B & 050B [Dimensions(mm): 143*202*11]	5241300
CFB-C-3	3-place	5126135
CFB-C-4	4-place	5126145
CFB-C-5	5-place	5126155
CFB-C-6	6-place	5126165
CFB-C-7	7-place	5126175
Cassette & Frame		
BBC-D	Ferwal 4R9955 & 4R5462, OriGen CS 500, CryoPAC 250B & 500B [Dimensions(mm): 143*277*11]	5241400
CFB-D-3	3-place	5127135
CFB-D-4	4-place	5127145
CFB-D-5	5-place	5127155
CFB-D-6	6-place	5127165
CFB-D-7	7-place	5127175
Cassette & Frame		
BBC-E	Gambro DF-200 or CryoMACS 50 & 250[Dimensions(mm): 163*191*20]	5241500
CFB-E-3	3-place	5128135
CFB-E-4	4-place	5128145
CFB-E-5	5-place	5128155
Cassette & Frame		
BBC-F	Gambro DF-700, OriGen CS 1000, CryoMACS 500 & 750 & 1000, CryoPAC 750B[Dimensions(mm): 165*300*20]	5241600
CFB-F-3	3-place	5129135
CFB-F-4	4-place	5129145
CFB-F-5	5-place	5129155

Inventory & Layout

Model	CryoMatrix 15K	CryoMatrix 19K	CryoMatrix 28K	CryoMatrix 39K	CryoMatrix 44K	CryoMatrix 55K	CryoMatrix 94K
2ml vial (square rack)							
Rack layout							
Maximum capacity	15600	19500	28000	39200	42900	51000	94875
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-13-2 x 32	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-13-2S x 4	CFC-15-2S x 8	CFC-15-2S x 13
5ml vial (square rack)							
Maximum capacity	5832	6840	9720	13608	15552	18144	34020
Rack model x rack qty	CFC-6-3 x 12	CFC-7-3 x 12	CFC-5-3 x 24	CFC-7-3 x 24	CFC-6-3 x 32	CFC-7-3 x 32	CFC-7-3 x 60
25ml blood bag (Pall MEDSEPTM 25 mL, OriGen CS 25)							
Maximum capacity	1176	1568	2448	3264	2996	3852	7218
Cassette model x qty	BBC-A x 1176	BBC-A x 1568	BBC-A x 2448	BBC-A x 3264	BBC-A x 2996	BBC-A x 3852	BBC-A x 7218
Rack model x rack qty	CFB-A-6 x 196	CFB-A-8 x 196	CFB-A-6 x 408	CFB-A-8 x 408	CFB-A-7 x 428	CFB-A-9 x 428	CFB-A-9 x 802
50ml blood bag (Fenwal 4R9951, OriGen CS 50)							
Maximum capacity	720	960	1488	1984	1904	2394	4446
Cassette model x qty	BBC-B x 720	BBC-B x 960	BBC-B x 1488	BBC-B x 1984	BBC-B x 1904	BBC-B x 2394	BBC-B x 4446
Rack model x rack qty	CFB-B-6 x 120	CFB-B-8 x 120	CFB-B-6 x 248	CFB-B-8 x 248	CFB-B-7 x 272	CFB-B-9 x 266	CFB-B-9 x 494
250ml blood bag (Fenwal 4R9953 & 4R5461, OriGen CS 25 or CryoMACS 50 & 250)							
Maximum capacity	276	460	588	980	832	1020	1940
Cassette model x qty	BBC-C x 276	BBC-C x 460	BBC-C x 588	BBC-C x 980	BBC-C x 832	BBC-C x 1020	BBC-C x 1940
Rack model x rack qty	CFB-C-3 x 92	CFB-C-5 x 92	CFB-C-3 x 196	CFB-C-5 x 196	CFB-C-4 x 208	CFB-C-5 x 204	CFB-C-5 x 388
500ml blood bag (Fenwal 4R9955 & 4R5462, OriGen CS 500)							
Maximum capacity	156	260	396	660	464	670	1090
Cassette model x qty	BBC-D x 156	BBC-D x 260	BBC-D x 396	BBC-D x 660	BBC-D x 464	BBC-D x 670	BBC-D x 1090
Rack model x rack qty	CFB-D-3 x 52	CFB-D-5 x 52	CFB-D-3 x 132	CFB-D-5 x 132	CFB-D-4 x 116	CFB-D-5 x 134	CFB-D-5 x 218
200ml blood bag (Gambro DF-200 or CryoMACS 50 & 250)							
Maximum capacity	144	240	348	464	576	800	1250
Cassette model x qty	BBC-E x 144	BBC-E x 240	BBC-E x 348	BBC-E x 464	BBC-E x 576	BBC-E x 800	BBC-E x 1250
Rack model x rack qty	CFB-E-3 x 48	CFB-E-5 x 48	CFB-E-3 x 116	CFB-E-4x 116	CFB-E-4 x 144	CFB-E-5 x 160	CFB-E-5 x 250
700ml blood bag (Gambro DF-700, OriGen CS 1000 or CryoMACS 500& 750 & 1000)							
Maximum capacity	96	160	204	272	336	480	690
Cassette model x qty	BBC-F x 96	BBC-F x 160	BBC-F x 204	BBC-F x 272	BBC-F x 336	BBC-F x 480	BBC-F x 690
Rack model x rack qty	CFB-F-3 x 32	CFB-F-5 x 32	CFB-F-3 x 68	CFB-F-4 x 68	CFB-F-4 x 84	CFB-F-5 x 96	CFB-F-5 x 138

Specification

Model CryoMatrix 15K CryoMatrix 19K CryoMatrix 28K CryoMatrix 39K CryoMatrix 44K CryoMatrix 55K CryoMatrix 94K

Maximum Storage Capacity								
1.2 & 2ml vial	1.2 & 2ml vial	15600	19500	28000	39200	42900	51000	94875
	Number of large rack (81/100-place box)	12	12	24	24	32	32	60
	Number of small rack (25-place box)	4	4	16	16	4	8	13
	2" Boxes per rack	12	15	10	14	13	15	15
5ml vial	5ml vial (81-place)	5832	6804	9720	13608	15552	18144	34020
	Number of racks	12	12	24	24	32	32	60
	3.75" Boxes per rack	6	7	5	7	6	7	7
Cassette BBC-A	Numbers of blood bag	1176	1568	2448	3264	2996	3852	7218
	Layers per rack	6	8	6	8	7	9	9
	Number of racks	196	196	408	408	428	428	802
Cassette BBC-B	Numbers of blood bag	720	960	1488	1984	1904	2394	4446
	Layers per rack	6	8	6	8	7	9	9
	Number of racks	120	120	248	248	272	266	494
Cassette BBC-C	Numbers of blood bag	276	460	588	980	832	1020	1940
	Layers per rack	3	5	3	5	4	5	5
	Number of racks	92	92	196	196	208	204	388
Cassette BBC-D	Numbers of blood bag	156	260	396	660	464	670	1090
	Layers per rack	3	5	3	5	4	5	5
	Number of racks	52	52	132	132	116	134	218
Cassette BBC-E	Numbers of blood bag	144	240	348	464	576	800	1250
	Layers per rack	3	5	3	4	4	5	5
	Number of racks	48	48	116	116	144	160	250
Cassette BBC-F	Numbers of blood bag	96	160	204	272	336	480	690
	Layers per rack	3	5	3	4	4	5	5
	Number of racks	32	32	68	68	84	96	138
LN ₂ Capacity								
LN ₂ capacity (L)		370	460	588	800	890	1031	1854
LN ₂ capacity at vapor platform (L)		55	55	125	133	165	165	295
Dimensions								
Neck opening (mm)		320	320	445	445	465	465	635
Usable internal height (mm)		708	914	590	840	765	889	906
Inner diameter (mm)		758	758	1012	1012	1113	1130	1467
External diameter (mm)		820	820	1090	1090	1190	1190	1565
Overall height (mm)		1400	1600	1400	1650	1600	1700	1750
Door width limit (mm)		850	850	1140	1140	1210	1300	1615
Weight empty (kg)		212	264	310	394	400	495	805
Weight full, vapor charged (kg)		513	638	750	1040	1112	1319	2270
Functions								
Controller		Touch screen	Touch screen	Touch screen	Touch screen	Touch screen	Touch screen	Touch screen
Full auto fill		Standard	Standard	Standard	Standard	Standard	Standard	Standard
Data storage / USB port / RS485 port		Standard	Standard	Standard	Standard	Standard	Standard	Standard
Defog		Standard	Standard	Standard	Standard	Standard	Standard	Standard
Foldable step		Standard	Standard	Standard	Standard	Standard	Standard	Standard
Backup battery		Optional	Optional	Optional	Optional	Optional	Optional	Optional
Vacuum jacketed hose		Optional	Optional	Optional	Optional	Optional	Optional	Optional
Inventory rack		Optional	Optional	Optional	Optional	Optional	Optional	Optional
Wi-Fi connection & cloud access		Optional	Optional	Optional	Optional	Optional	Optional	Optional

* Cassette BBC-A: Pall MEDSEPTM 25 mL, OriGen CS 25; Cassette BBC-B: Fenwal 4R9951, OriGen CS 50;

Cassette BBC-C: Fenwal 4R9953 & 4R5461, OriGen CS 25, CryoMACS 50 & 250, CryoPAC 025B & 050B; Cassette BBC-D: Fenwal 4R9955 & 4R5462, OriGen CS 500, CryoPAC 250B & 500B;

Cassette BBC-E: Gambro DF-200 or CryoMACS 50 & 250; Cassette BBC-F: Gambro DF-700, OriGen CS 1000, CryoMACS 500 & 750 & 1000, CryoPAC 750B.