SECURITY THROUGH MVE SYSTEMS™

MVE Cryopreservation Equipment

Storage and Transport Systems for Biological Materials

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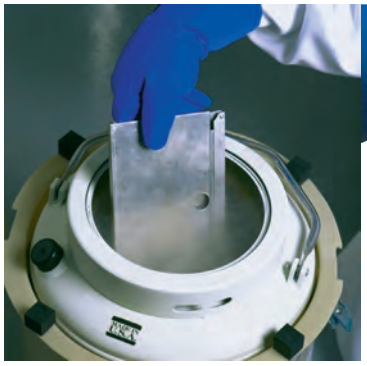


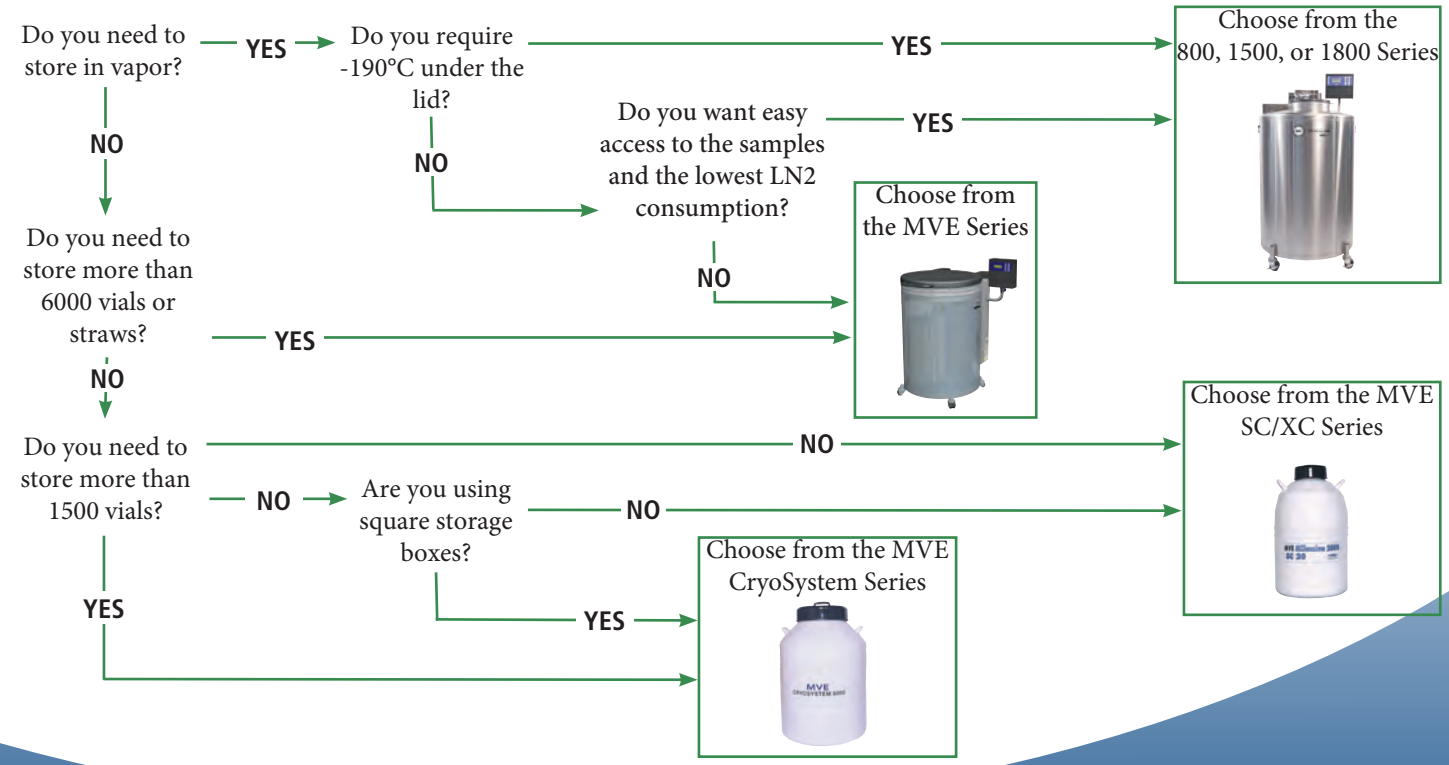

Temperature Chart & Product Selector Guide

Chart-MVE is the world's leading manufacturer of vacuum insulated products and cryogenic systems. More than forty years ago, we set the standard for storage of biological materials at low temperatures. Today, we continue to exceed these standards. Industries from around the world look to Chart-MVE for excellence and innovation. Our solutions empower industries to better utilize cryogenic technology. In this manner, Chart-MVE continues to make a vital contribution in today's biomedical industry.

Recommended maximum temperature for storage of biological samples

MATERIAL TO BE STORED	VOLUME	CONTAINER	INVENTORY CONFIGURATION	CRITICAL TEMPERATURE
Algae	0.5 - 1.0 mL	Cryovial	Boxes or canes	-150°C
Blood	0.5 - 500 mL	Cryovial/Blood Bag	Boxes or canes/bag rack	-150°C
Cells:				
Animals / Human	0.5 - 1.0 mL	Cryovial	Boxes or canes	-150°C
Plant	0.5 - 1.0 mL	Cryovial	Boxes or canes	-150°C
Embryos		Straw	Canes	-150°C
Fungi:				
Mycelium	0.5 - 1.0 mL	Cryovial	Boxes or canes	-150°C
Hybridomas	0.5 - 1.0 mL	Cryovial	Boxes or canes	-150°C
Phage:				
Libraries	0.5 - 1.0 mL	Cryovial	Boxes or canes	-150°C
Protozoa	0.5 - 1.0 mL	Cryovial	Boxes or canes	-150°C
Viruses: Animal				
In Cells	0.5 - 1.0 mL	Cryovial	Boxes or canes	-150°C

Product Selector Guide



MVE 800 Series -190°C High Efficiency Freezer

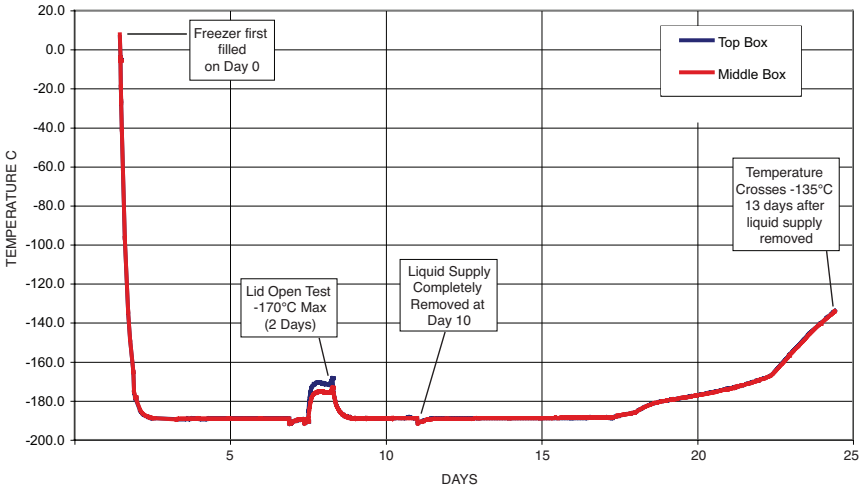
The MVE 800 Series -190°C freezers provide stable cryogenic storage for up to 19,500 1.2 / 2.0 ml vials. These freezers provide maximum storage density and provide the industry's longest hold time.
Also available in -150°C versions

Features include:

- Dry sample storage
- -190°C top box temperature
- Lowest liftover height
- Largest LN2 capacity below turn tray

Optional Step
(recommended for 818 and 819)

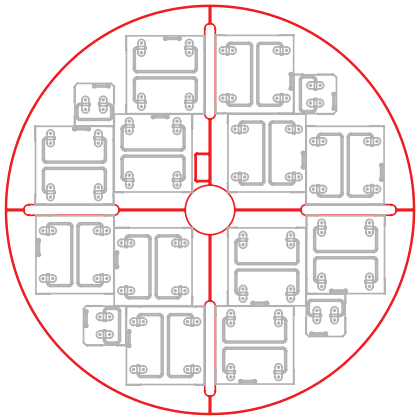
Temperature Test Graph



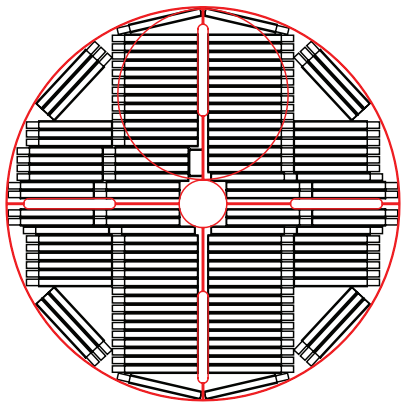
* Temp Test indicates typical performance of 800 Series -190°C freezer with full inventory system and factory recommended level settings. Actual performance may vary with atmospheric conditions and usage.

Rack Layouts (P)

Square Rack Layout



4R9951 Layout



	MVE 815P-190	MVE 818P-190	MVE 819P-190
Maximum Storage Capacity			
1.2 & 2 ml Vials (Internally Threaded)	15,600	18,200	19,500
Number of Racks 100 cell boxes	12	12	12
Number of Racks 25 cell boxes	4	4	4
Number of Stages per Rack	12	14	15
High Security Straw Capacity (0.5 ml)	36,960	46,200	55,440
Number of Canisters (73 mm)	55	55	55
Goblets/Canister : Straws/Goblet	4: 168	5:168	6:168
Performance			
LN2 Capacity L	370	420	463
LN2 Capacity Under Platform Vapor Storage L	52	55	55
Unit Dimensions			
Neck Opening in. (mm)	12.5 (317)	12.5 (317)	12.5 (317)
Usable Internal Height in. (mm)	26.6 (676)	30.7 (781)	34.5 (877)
Inner Diameter in. (mm)	28.8 (731)	28.8 (731)	28.8 (731)
Overall Height in. (mm)	49.0 (1245)	53.3 (1353)	57.0 (1449)
Door Width Requirement** in. (mm)	32.0 (813)	32.0 (813)	32.0 (813)
Weight Empty lb. (kg)	475 (215)	495 (225)	515 (234)
Weight Liquid Full* lb. (kg)	1134 (514)	1168 (530)	1340 (608)

Blood Bag Capacities

	Total Bags	Bags/ Frame	No. Frames	Total Bags	Bags/ Frame	No. Frames	Total Bags	Bags/ Frame	No. Frames
791 OS/U (25 ml)	1,224	6	204	1,632	8	204	1,836	9	204
Compact (25ml)	2,064	8	258	2,322	9	258	2,838	11	258
4R9951 (50 ml)	768	6	128	896	7	128	1024	8	128
4R9953 (250 ml)	416	4	104	416	4	104	520	5	104
4R9955 (500 ml)	304	4	76	304	4	76	380	5	76
DF200 (200 ml)	236	4	59	236	4	59	295	5	59
DF700 (700 ml)	-	-	-	-	-	-	-	-	-

TWO Year Standard Warranty • FIVE Year Vacuum Warranty

Conforms to MDD 93/42/EEC, the Medical Device Directive for the EU. Freezer systems UL/C-UL Listed.

* Without inventory

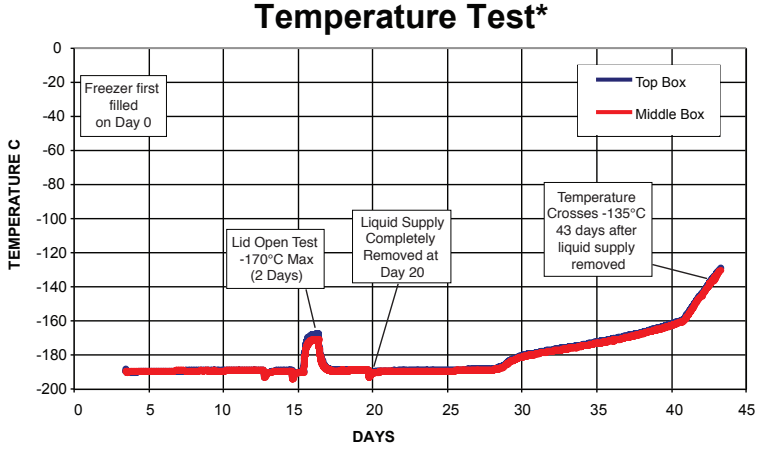
**Minimum width required for vessel to pass through opening. Footprint may vary. Contact Tech Service for detailed drawings.

MVE 1500 Series -190°C High Efficiency Freezer

The MVE 1500 Series -190°C freezers provide cryogenic storage for up to 42,000 1.2 / 2.0 ml vials. These freezers provide maximum storage density and provide the industry's longest hold time.
Also available in -150°C versions

Features include:

- Dry sample storage
- -190°C top box temperature
- Lowest liftover height
- Largest LN2 capacity below turn tray
- 2-tier folding step

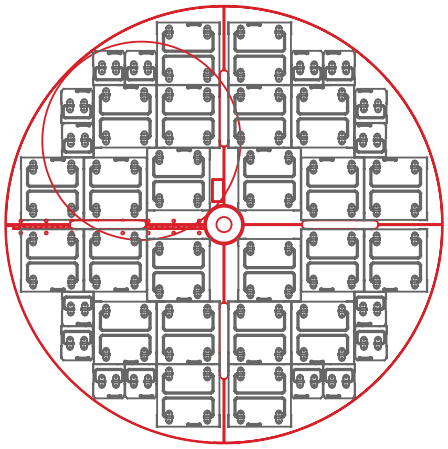


Temperature Test Graph

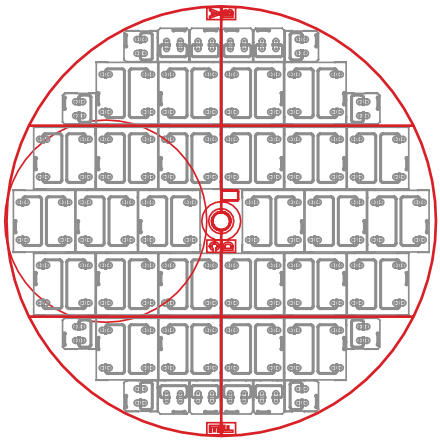
* Temp Test indicates typical performance of 1500 Series -190°C freezer with full inventory system and factory recommended level settings. Actual performance may vary with atmospheric conditions and usage.

Rack Layouts

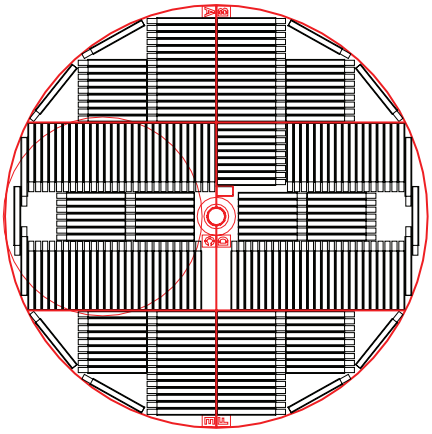
Square Rack Layout (P)



Square Rack Layout (R)



4R9551 Layout (R)



	MVE 1536P-190	MVE 1539P-190	MVE 1542R-190
Maximum Storage Capacity			
1.2 & 2 ml Vials (Internally Threaded)	36,400	39,200	42,000
Number of Racks 100 cell boxes	24	24	26
Number of Racks 25 cell boxes	16	16	16
Number of Stages per Rack	13	14	14
High Security Straw Capacity (0.5 ml)	100,800	100,800	100,800
Number of Canisters (73 mm)	120	120	120
Goblets/Canister : Straws/Goblet	5:168	5:168	5:168
Performance			
LN2 Capacity *L*	756	797	797
LN2 Capacity Under Platform Vapor Storage *L*	133	133	133
Unit Dimensions			
Neck Opening *in. (mm)*	17.5 (445)	17.5 (445)	17.5 (445)
Usable Internal Height *in. (mm)*	28.8 (732)	30.8 (782)	30.8 (782)
Inner Diameter *in. (mm)*	38.5 (978)	38.5 (978)	38.7 (983)
Overall Height *in. (mm)*	61.3 (1556)	63.3 (1607)	63.3 (1607)
Liftover Height *in. (mm)*	37.0 (940)	39.2 (995)	39.2 (995)
Door Width Requirement** *in. (mm)*	42.0 (1067)	42.0 (1067)	42.0 (1067)
Depth of Extended Step *in. (mm)*	7.9 (201)	7.9 (201)	7.9 (201)
Weight Empty *lb. (kg)*	690 (313)	720 (327)	720 (327)
Weight Liquid Full* *lb. (kg)*	2037 (924)	2140 (971)	2140 (971)

Blood Bag Capacities

	Total Bags	Bags/ Frame	No. Frames	Total Bags	Bags/ Frame	No. Frames	Total Bags	Bags/ Frame	No. Frames
791 OS/U (25 ml)	3,080	7	440	3,064	8	383	3,184	8	398
Compact (25ml)	4,338	9	482	4,338	9	482	4,464	9	496
4R9951 (50 ml)	1,488	6	248	1,736	7	248	1,687	7	241
4R9953 (250 ml)	812	4	203	812	4	203	768	4	192
4R9955 (500 ml)	608	4	152	608	4	152	576	4	144
DF200 (200 ml)	496	4	124	496	4	124	488	4	122
DF700 (700 ml)	256	4	64	256	4	64	264	4	66

TWO Year Standard Warranty • FIVE Year Vacuum Warranty

Conforms to MDD 93/42/EEC, the Medical Device Directive for the EU. Freezer systems UL/C-UL Listed.

* Without inventory

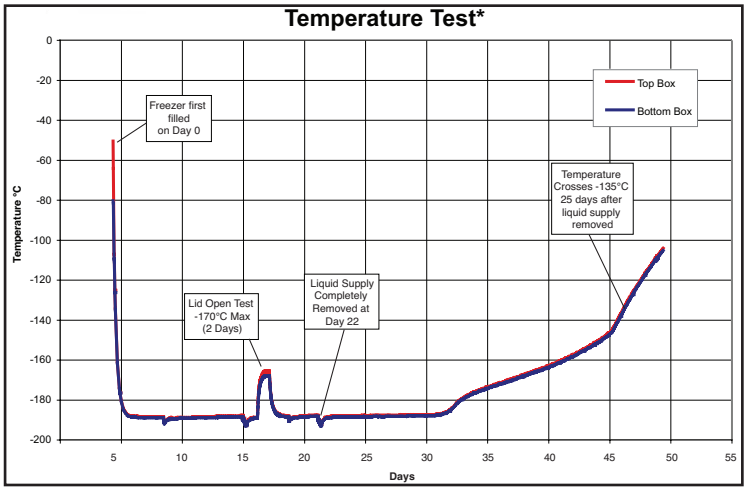
**Minimum width required for vessel to pass through opening. Footprint may vary. Contact Tech Service for detailed drawings.

MVE 1800 Series -190°C High Efficiency Freezer

The MVE 1800 Series -190°C freezers provide cryogenic storage for up to 94,500 1.2 / 2.0 ml vials. These freezers provide maximum storage density and provide the industry's longest hold time.
Also available in -150°C versions

Features include:

- Dry sample storage
- -190°C top box temperature
- Lowest liftover height
- Largest LN2 capacity below turn tray
- Two tier folding step

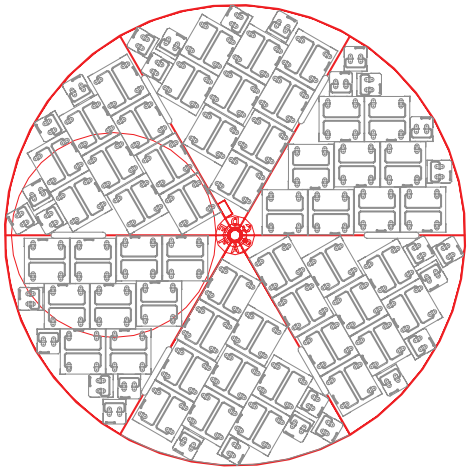


Temperature Test Graph

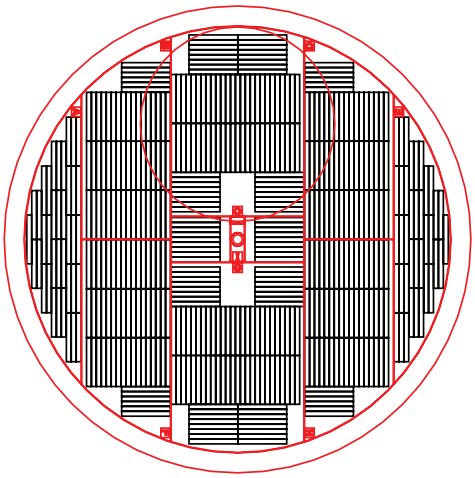
* Temp Test indicates typical performance of 1800 Series -190°C freezer with full inventory system and factory recommended level settings. Actual performance may vary with atmospheric conditions and usage.

Rack Layouts

Square Rack Layout (P)



4R9951 Layout (R)



	MVE 1879P-190	MVE 1881R-190	MVE 1892P-190	MVE 1894R-190
Maximum Storage Capacity				
1.2 & 2 ml Vials				
(Internally Threaded)	79,950	81,900	92,250	94,500
Number of Racks *100 cell boxes*	54	60	54	60
Number of Racks *25 cell boxes*	30	12	30	12
Number of Stages per Rack	13	13	15	15
High Security Straw Capacity (0.5 ml)	236,880	213,360	284,256	256,032
Number of Canisters (73 mm)	282	254	282	254
Goblets/Canister : Straws/Goblet	5:168	5:168	6:168	6:168
Performance				
LN2 Capacity ***L***	1745	1745	1770	1770
LN2 Capacity Under				
Platform Vapor Storage ***L***	318	318	296	296
Unit Dimensions				
Neck Opening ***in. (mm)***	25.0 (635)	25.0 (635)	25.0 (635)	25.0 (635)
Usable Internal Height ***in. (mm)***	29.5 (749)	29.2 (741)	34.5 (876)	34.2 (868)
Inner Diameter ***in. (mm)***	56.0 (1422)	54.8 (1391)	56.0 (1422)	54.8 (1391)
Overall Height ***in. (mm)***	62.1 (1577)	61.3 (1556)	67.1 (1704)	66.3 (1683)
Door Width Requirement** ***in. (mm)***	60.0 (1524)	60.0 (1524)	60.0 (1524)	60.0 (1524)
Weight Empty ***lb. (kg)***	1606 (728)	1721 (781)	1545 (701)	1721 (781)
Weight Liquid Full* ***lb. (kg)***	4585 (2080)	4830 (2192)	4803 (2179)	4875 (2211)

Blood Bag Capacities

	Total Bags	Bags/ Frame	No. Frames	Total Bags	Bags/ Frame	No. Frames	Total Bags	Bags/ Frame	No. Frames	Total Bags	Bags/ Frame	No. Frames
791 OS/U ***(25 ml)***	5,866	7	838	5,628	7	804	6704	8	838	6,432	8	804
Compact *(25ml)*	8,622	9	958	9,414	9	1,046	10,538	11	958	11,506	11	1,046
4R9951 ***(50 ml)***	2,952	6	492	2,940	6	490	3,936	8	492	3,920	8	490
4R9953 ***(250 ml)***	1,584	4	396	1,608	4	402	1,980	5	396	2,010	5	402
4R9955 ***(500 ml)***	1,104	4	276	1,240	4	310	1,380	5	276	1,550	5	310
DF200 ***(200 ml)***	960	4	240	984	4	246	1,200	5	240	1,230	5	246
DF700 ***(700 ml)***	504	4	126	544	4	136	630	5	126	680	5	136

TWO Year Standard Warranty • FIVE Year Vacuum Warranty

Conforms to MDD 93/42/EEC, the Medical Device Directive for the EU. Freezer systems UL/C-UL Listed.

* Without inventory

**Minimum width required for vessel to pass through opening. Footprint may vary. Contact Tech Service for detailed drawings.

MVE Series

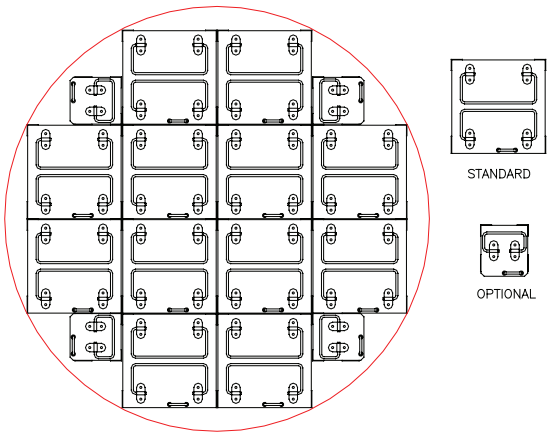
The MVE Series freezers provide stable cryogenic storage for up to 39,000 1.2 / 2.0 ml vials. These freezers provide maximum storage density and provide the industry's longest hold time. Although engineered for liquid storage, the MVE Series freezers can be operated in vapor using available vapor storage accessory packs.

Features include:

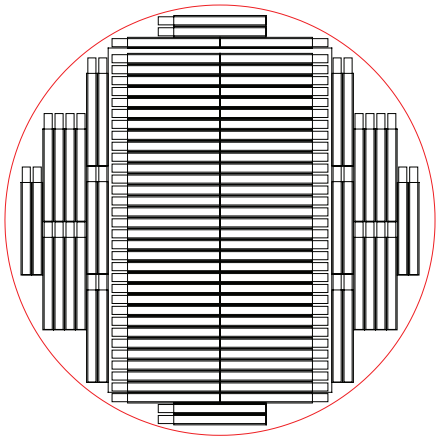
- Liquid sample storage
- Wide neck opening
- Lowest liftover height
- Largest LN2 capacity

Rack Layouts

Square Rack Layout

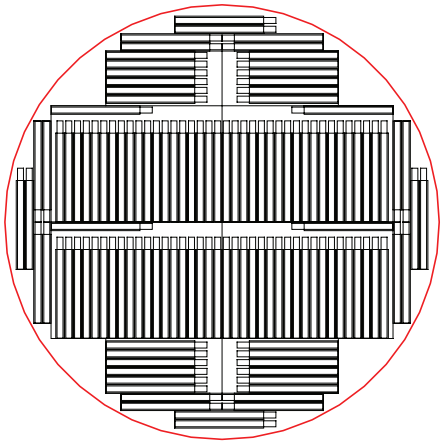


4R9951 Layout

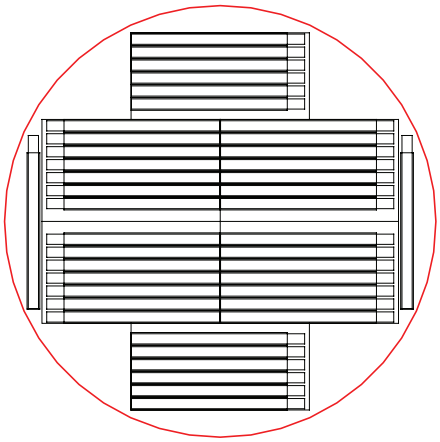


Rack Layouts

4R9953 Layout



DF700 Layout



	MVE 204*	MVE 205	MVE 510	MVE 616	MVE 1426	MVE 1839
Maximum Storage Capacity						
1.2 & 2 ml Vials						
(Internally Threaded)	3,200	5,200	10,400	16,900	26,650	39,000
Number of Racks *100 cell boxes*	4	4	7	12	18	28
Number of Racks *25 cell boxes*	-	-	4	4	10	8
Number of Stages per Rack	8	13	13	13	13	13
High Security Straw Capacity (0.5 ml)	11,592	19,320	32,760	50,400	79,800	151,200
Number of Canisters (73 mm)	23	23	39	60	95	150
Goblets/Canister : Straws/Goblet	3:168	5:168	5:168	5:168	5:168	6:168
Performance						
LN2 Capacity ***L***	65	95	166	240	388	673
Unit Dimensions						
Neck Opening ***in. (mm)***	16.00 (406)	16.00 (406)	20.70 (527)	25.10 (638)	31.75 (806)	39.40 (1002)
Usable Internal Height ***in. (mm)***	19.7 (502)	28.9 (735)	30.0 (762)	29.5 (749)	29.3 (745)	33.6 (854)
Inner Diameter ***in. (mm)***	16.00 (406)	16.00 (406)	20.70 (527)	25.13 (638)	31.75 (806)	39.40 (1002)
Overall Height ***in. (mm)***	30.8 (784)	41.6 (1059)	46.7 (1185)	45.8 (1161)	42.4 (1076)	54.0 (1372)
Door Width Requirement** ***in. (mm)***	18.0 (457)	20.4x18.5 (518x470)	30.6x29.7 (778x754)	33.5x34.6 (852x878)	33.8x41.6 (858x1056)	46.1x48.3 (1172x1225)
Weight Empty ***lb. (kg)***	79 (36)	195 (88)	281 (127)	320 (145)	490 (222)	750 (341)
Weight Liquid Full* ***lb. (kg)***	195 (88)	365 (166)	577 (262)	748 (339)	1181 (536)	1950 (885)

Blood Bag Capacities

	Total Bags	Bags/ Frame	No. Frames	Total Bags	Bags/ Frame	No. Frames	Total Bags	Bags/ Frame	No. Frames	Total Bags	Bags/ Frame	No. Frames	Total Bags	Bags/ Frame	No. Frames	Total Bags	Bags/ Frame	No. Frames
791 OS/U (25 ml)	-	-	-	539	7	77	882	7	126	1,372	7	196	2,226	7	318	3,968	8	496
4R9951 (50 ml)	-	-	-	228	6	38	420	6	70	612	6	102	924	6	154	1,856	8	232
4R9953 (250 ml)	-	-	-	128	4	32	224	4	56	336	4	84	512	4	128	1,010	5	202
4R9955 (500 ml)	-	-	-	96	4	24	160	4	40	248	4	62	424	4	106	770	5	154
DF200 (200 ml)	-	-	-	80	4	20	128	4	32	200	4	50	336	4	84	610	5	122
DF700 (700 ml)	-	-	-	40	4	10	68	4	17	116	4	29	168	4	42	380	5	76

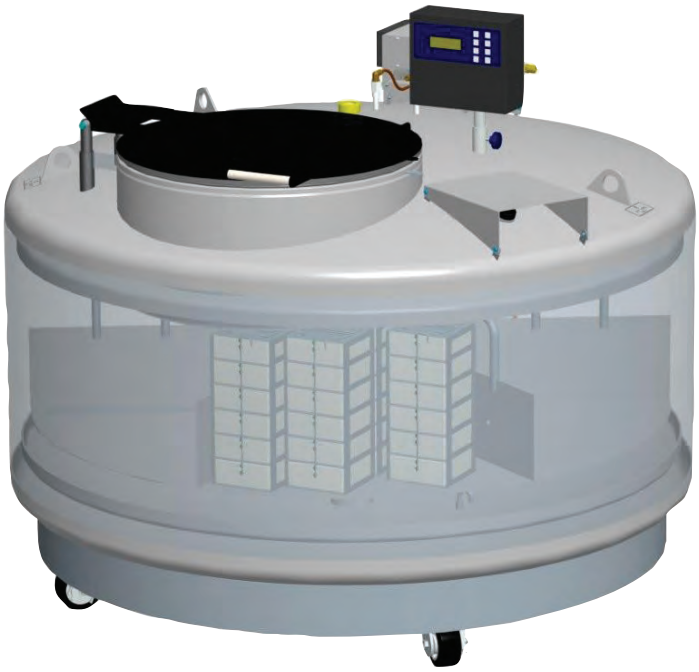
TWO Year Standard Warranty • FIVE Year Vacuum Warranty

Conforms to MDD 93/42/EEC, the Medical Device Directive for the EU. Freezer systems UL/C-UL Listed.

* Without inventory

**Minimum width required for vessel to pass through opening. Footprint may vary. Contact Tech Service for detailed drawings.

MVE Stock Series



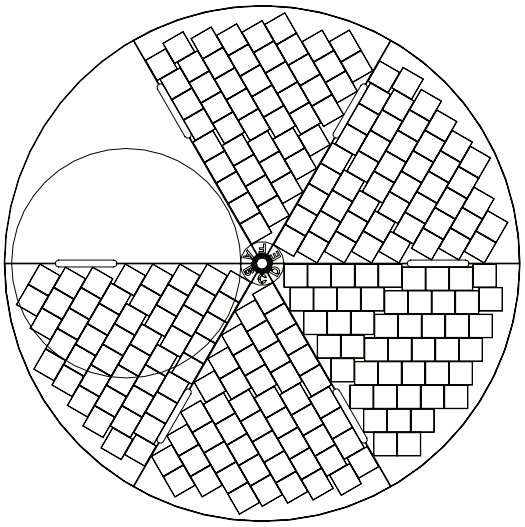
The MVE Stock Series provides the ultimate in security for the breeding industry and are primarily used to store semen and embryos. The freezers are designed for pull and pack shipment, with a wide neck opening for easy access. Although engineered for full liquid storage, the MVE Stock Series can be operated in vapor using the available vapor storage accessory packs.

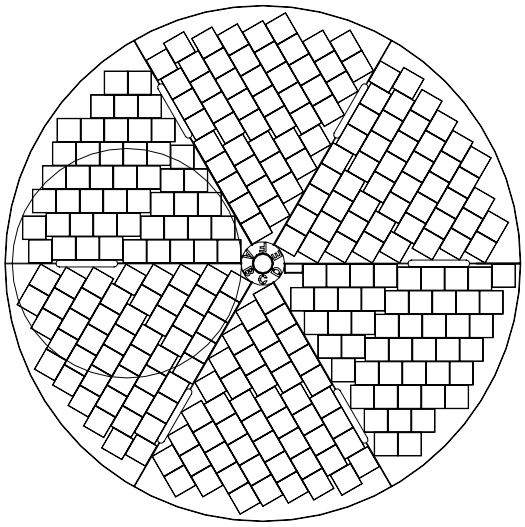
Features include:

- Wide neck opening
- Lowest liftover height
- Largest LN2 capacity

Rack Layouts

1877P-2T-150





	MVE 103	MVE 808	MVE 816P-2T-190	MVE 1318	MVE 1842P-150	MVE 1877P-2T-150
Maximum Storage Capacity						
1.2 & 2 ml Vials						
(Internally Threaded)	-	11,700	10,500	20,800	-	-
Number of Racks *100 cell boxes*	-	12	105	24	-	-
Number of Racks *25 cell boxes*	-	4	-	8	-	-
Total Number of Racks	-	16	21	32	-	-
High Security Straw Capacity (0.5 ml)	7,728	37,296	31,584	76,104	-	347,424
Number of Canisters (73 mm)	23	74	94	151	-	517
Goblets/Canister : Straws/Goblet	2:168	3:168	2:168	3:168	2:168	4:168
Number of SUC-1 canisters						
(2.5"x2.5"x11)	22	61	115	129	294	539
Number of 1.2 ml vials on canes	3,168	8,784	16,560	18,576	42,336	77,616
Number of 2.o ml vials on canes	1,760	4,880	9,200	10,320	23,520	43,120
Number of 1/2 cc straws *10/cane*	6,820	18,910	35,650	39,990	91,140	167,090
Performance						
LN2 Capacity ***L***	39	230	381	482	915	1400
Unit Dimensions						
Neck Opening ***in. (mm)***	16.0 (406)	25.0 (634)	12.5 (317)	35.5 (901)	25.0 (635)	25.0 (635)
Usable Internal Height ***in. (mm)***	12.0 (305)	22.0 (558)	13.0 (330) per level	18.8 (479)	13.0 (332)	13.0 (330) per tray
Inner Diameter ***in. (mm)***	16.00 (406)	28.30 (720)	28.70 (728) top tray 27.70 (702) bottom	39.60 (1007)	56.25 (1429)	56.25 (1429)
Overall Height ***in. (mm)***	16.4 (415)	42.8 (1088)	50.0 (1271)	47.0 (1193)	44.3 (1127)	58.2 (1479)
Door Width						
Requirement** ***in. (mm)***	18 (457)	31 (787)	32 (813)	42 (1067)	60 (1524)	60 (1524)
Weight Empty ***lb. (kg)***	48 (22)	250 (114)	475 (215) est.	469 (213)	1167 (530)	1600 (726)
Weight Liquid Full* ***lb. (kg)***	117 (53)	660 (300)	1155 (524) est.	1328 (602)	2798 (1270)	4094 (1857)

TWO Year Standard Warranty • FIVE Year Vacuum Warranty

Conforms to MDD 93/42/EEC, the Medical Device Directive for the EU. Freezer systems UL/C-UL Listed.

* Without inventory

**Minimum width required for vessel to pass through opening. Footprint may vary. Contact Tech Service for detailed drawings.

MVE Cabinet Series

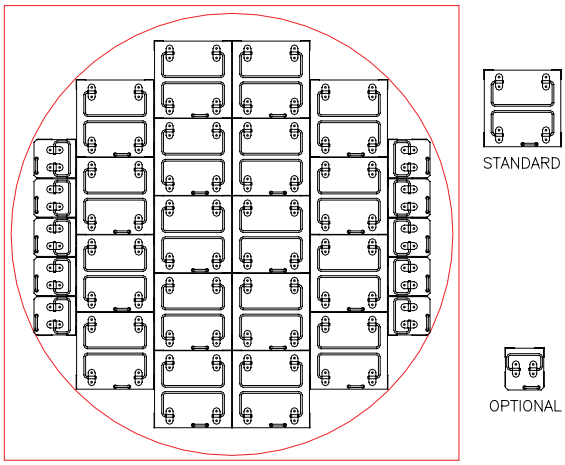
The MVE Cabinet Series provides stable cryogenic storage for up to 26,550 1.2 / 2.0 ml vials in a square outer package. These freezers provide maximum storage density and the industry's longest hold time. Although engineered for storage in liquid, the MVE Cabinet Series can be operated in vapor using available vapor storage accessory packs.

Features include:

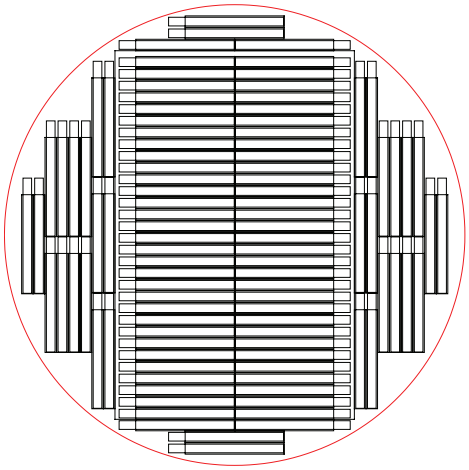
- Liquid sample storage
- Ergonomic design
- Largest LN2 capacity

Rack Layouts

Square Rack Layout



4R9951 Layout



	MVE 616C	MVE 1426C
Maximum Storage Capacity		
1.2 & 2 ml Vials (Internally Threaded)	16,900	26,650
Number of Racks *100 cell boxes*	12	18
Number of Racks *25 cell boxes*	4	10
Number of Stages per Rack	13	13
High Security Straw Capacity (0.5 ml)	50,400	79,800
Number of Canisters (73 mm)	60	95
Goblets/Canister : Straws/Goblet	5:168	5:168
Performance		
LN2 Capacity ***L***	243	388
Unit Dimensions		
Neck Opening ***in. (mm)***	25.1 (638)	31.8 (806)
Usable Internal Height ***in. (mm)***	30.0 (762)	29.9 (759)
Overall Height ***in. (mm)***	41.4 (1051)	42.3 (1075)
Outside Diameter ***in. (mm)***	35.1x28 (892x711)	41.1x34.8 (1044x883)
Inner Diameter ***in. (mm)***	25.1 (638)	31.8 (806)
Door Width Requirement** ***in. (mm)***	35.1x28 (892x711)	41.1x34.8 (1044x883)
Weight Empty ***lb. (kg)***	352 (160)	530 (240)
Weight Liquid Full* ***lb. (kg)***	785 (356)	1198 (543)

Blood Bag Capacities

	Total Bags	Bags/ Frame	No. Frames	Total Bags	Bags/ Frame	No. Frames
791 OS/U (25 ml)	1,372	7	196	2,226	7	318
4R9951 (50 ml)	612	6	102	924	6	154
4R9953 (250 ml)	336	4	84	512	4	128
4R9955 (500 ml)	248	4	62	424	4	106
DF200 (200 ml)	200	4	50	336	4	84
DF700 (700 ml)	116	4	29	168	4	42

TWO Year Standard Warranty • FIVE Year Vacuum Warranty

Conforms to MDD 93/42/EEC, the Medical Device Directive for the EU. Freezer systems UL/C-UL Listed.

* Without inventory

**Minimum width required for vessel to pass through opening. Footprint may vary. Contact Tech Service for detailed drawings.

MVE CryoCart

MVE CryoCarts are designed for the loading of biological samples into canes, boxes, racks or frames. When used as a portable workbench, the unit will provide a safe and controlled environment for your samples for up to eight hours with the lid open. MVE CryoCart is ideal for transporting large quantities of samples from one tank to another within the same facility.

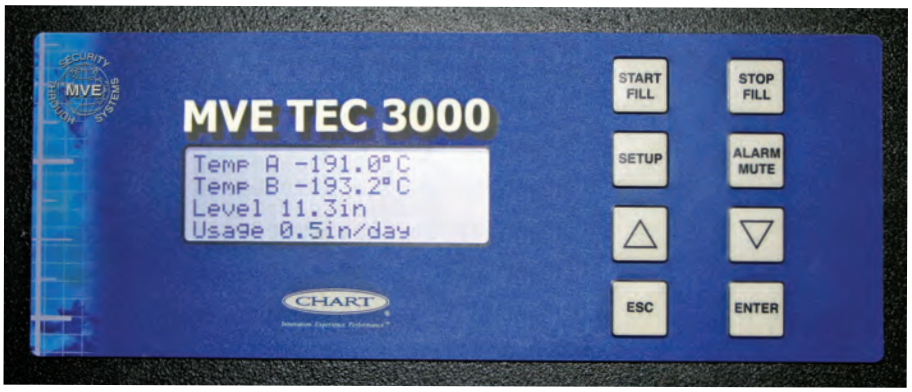
Features Include:

- Approximate hold time of 18 hours with lid on
- Omega temperature monitor with type T Thermocouple
- Traceable calibration certificate with RS232 PC interface
- LN2 transfer hose connection with ball valve and relief valve
- Available without plumbing and temperature recorder.

Product Specifications

Unit Capacity	
LN2 Capacity To Top of Platform *L*	53
Unit Dimensions	
Overall Length *in (mm)*	51.7 (1313)
Overall Width *in (mm)*	17.6 (447)
Overall Height *in (mm)*	38.9 (988)
Lift Overall Height *in (mm)*	36.3 (922)
Inside Length *in (mm)*	41.0 (1041)
Inside Width *in (mm)*	13.2 (335)
Inside Depth *in (mm)*	15.4 (391)
Platform Height *in (mm)*	6.0 (152)
Footprint *in (mm)*	17.6x51.7 (447x1313)
Weight Empty *lb. (kg)*	241 (109)
Weight w/LN2 Filled To Top Of Platform *lb. (kg)*	356 (161)
Approximate Hold Time With Lid On *hrs*	18
Number of Racks (15-2)	2

MVE TEC 3000



The TEC 3000 employs a variety of advanced features that enable the controller to monitor and control the environment inside a freezer with a high level of precision.

Liquid Nitrogen Level Measurement

The TEC 3000 uses a differential pressure system to determine the LN2 level to an accuracy of ± 0.5 in. (15 mm) and a resolution of 0.1 in. (5.0 mm). Unlike alternative level sensing systems, differential pressure allows the exact level to be measured and displayed. Using the simple single point calibration in a range of 3.0 in. to 48.0 in. (75 mm to 1220 mm), the patented, self-maintaining, closed-loop system displays in inches, millimeters, or a percentage full.

Automatic Liquid Nitrogen Level Control

The fully automated LN2 level control system is based on user-defined parameters that can be electronically adjusted over the entire level range. The parameters include Low Level Alarm, Low Level Fill Point, High Level Fill Point and High Level Alarm. The redundant Dual Solenoid Valves for overfill protection run on 24 VDC, 1.0 amp (max).

Liquid Usage

This exclusive feature provides an estimation of liquid usage to track LN2 consumption and can provide an early failure warning to allow sufficient time to implement corrective action and save irreplacable samples.

User-Defined Alarms

A total of 17 audio/visual alarms are used to alert the user to any potential or developing problems. The alarms include: High Temperatures, Low Temperatures, High Level, Low Level, Liquid Usage, Maximum Fill Time, Gas Bypass, Temperature Calibrations, Low Battery, Power Failure, Lid Open and Communication Loss.

Remote Alarm Monitoring

The TEC 3000 Alarm monitoring includes a Global Remote Alarm Relay, as well as four discrete contacts for High Level, Low Level, Temp A High and Low Battery.

Temperature Measurement

Two independent temperature measurement channels are employed to accurately measure the temperature across the entire storage space. The two platinum RTD sensors have an accuracy of ± 1.0°C and a resolution of 0.1°C. The temperature can be displayed in °C, °F or K. The single or two point calibration also has altitude compensation for the highest accuracy.

Hot Gas Bypass

This unique feature is able to vent warm nitrogen gas from the supply line before initiating a fill. This prevents warm gas from entering the freezer space, which helps maintain a stable temperature gradient and increases the efficiency by reducing excess LN2 evaporation.

Event Log / Data Storage

The TEC 3000 is able to store vital, unalterable, time-stamped data in nonvolatile memory. This is a great tool for assessing freezer performance and troubleshooting any problems. The memory can store 30,000 events, an estimated 10 years of storage capacity. The data includes time-stamped temperatures, LN2 level, liquid usage, and any alarms or events.

Password Security

The multilevel security system comprised of up to ten user-specific programmable passwords and four security levels can be customized to grant or restrict personnel access to certain menus and settings.

Communication Capabilities

Two independent ports can be used to communicate with other TEC 3000 controllers, a remote PC, serial printer, or other RS-485 networks and devices. Options include ASCII, MODBUS, Printer and One Fill All Fill (OFAF).

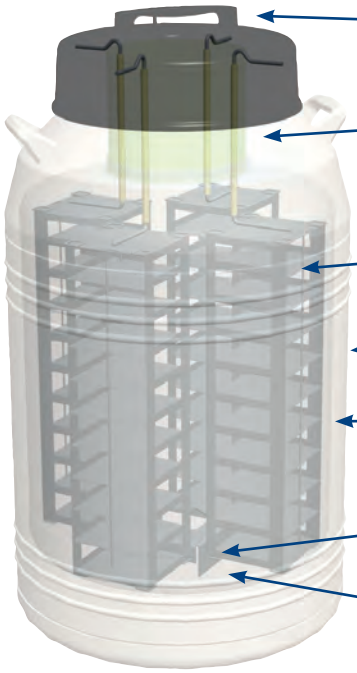
MVE CryoSystem Series

The MVE CryoSystem Series combines the benefits of low nitrogen consumption with mid-range vial capacity to meet the diverse needs of today's professionals worldwide. The lightweight and low-space demands of these containers make them the most economical units in their class.

Features Include:

- Designed for large capacity storage
- Low liquid nitrogen consumption
- Convenient lightweight package

Tank Features



A Durable, tamper-proof lid design

B High strength neck tube reduces liquid nitrogen loss

C Canisters

D Strong, lightweight aluminum construction

E Advanced chemical vacuum retention system

F Spider design on platform for easy retrieval and insertion of product canisters

G Liquid Nitrogen Reservoir

	CryoSystem 750	CryoSystem 2000	CryoSystem 4000	CryoSystem 6000
Maximum Storage Capacity				
Number of Canisters	6	4	4	6
Number of 1.2 & 2.0 ml vials 100/box	-	2,000	4,000	6,000
Number of 1.2 & 2.0ml via 25/box	750	-	-	-
Boxes per Rack	5	5	10	10
Performance				
LN2 Capacity L	47.4	61.0	121.0	175.0
Static Evaporation Rate* L/day	0.39	0.85	0.99	0.99
Working Volume L	47	51	111	165
Normal Working Duration**, Full Days	76	38	70	104
Unit Dimensions				
Neck Opening in. (mm)	5.0 (127)	8.5 (216)	8.5 (216)	8.5 (216)
Overall Height in. (mm)	26.50 (673)	27.25 (692)	38.00 (965)	37.75 (959)
Outer Diameter in. (mm)	20 (508)	22 (559)	22 (559)	26 (665)
Weight Empty lb. (kg)	42 (19.0)	58 (26.3)	81 (36.7)	103 (46.7)
Weight Full lb. (kg)	126 (57)	182 (82.5)	300 (136)	425 (193)

* Static evaporation rate and static holding time are nominal. Actual rate and holding time will be affected by the nature of container use, atmospheric conditions, and manufacturing tolerances.

** Normal Working Duration is an arbitrary reference, to estimate container performance under normal operating conditions. Actual working time may vary due to current atmospheric conditions, container history, manufacturing tolerances and any individual patterns of use.

TWO Year Standard Warranty • THREE Year Vacuum Warranty

Conforms to MDD 93/42/EEC, the Medical Device Directive for the EU.

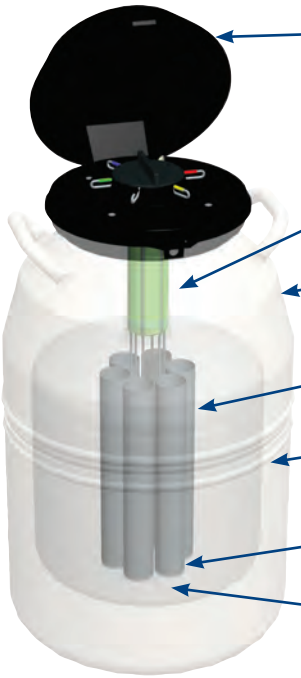
MVE SC Series

MVE offers the widest range of compact aluminum storage tanks available on the market today. Over the past 50 years, our product designs have improved through end-user input and evolved into a unique selection of units. The SC Series is designed for the user who has small capacity needs, but requires long-term storage and low liquid nitrogen consumption in a convenient lightweight package.

Features Include:

- Designed for large capacity storage
- Low liquid nitrogen consumption
- Convenient lightweight package

Tank Features



A Durable, tamper-proof lid design

B High strength neck tube reduces liquid nitrogen loss

C Strong, lightweight aluminum construction

D Canisters

E Advanced chemical vacuum retention system

F Spider design on platform for easy retrieval and insertion of product canisters

G Liquid Nitrogen Reservoir

	SC 3/3	SC 8/5	SC 11/7	SC 16/11	SC 20/20	SC 33/26	SC 36/32	Super 2
Maximum Storage Capacity								
Number of Canisters	6	6	6	9	6	6	6	6
Number of 1/2 cc Straws 10/cane	-	-	720	-	540	540	540	720
Number of 1/2 cc Straws 1 Level Bulk	1,122	1,122	1,122	1,098	780	780	780	1,122
Number of 1.2 & 2.0 ml Vials 5/cane	-	-	210	-	150	150	150	210
Performance								
LN2 Capacity L	3.6	8.4	11.0	16.4	20.5	33.0	36.5	24.5
Static Evaporation Rate* L/day	0.13	0.15	0.16	0.14	0.09	0.13	0.10	0.085
Normal Working Duration**, Full Days	17	35	43	74	142	182	224	180
Unit Dimensions								
Neck Opening in. (mm)	2.18 (55)	2.18 (55)	2.18 (55)	2.18 (55)	2.00 (51)	2.00 (51)	2.00 (51)	2.18 (55.4)
Overall Height in. (mm)	16.0 (406)	18.5 (470)	21.6 (549)	17.5 (444)	25.7 (652)	25.9 (657)	27.2 (690)	28.2 (716)
Outer Diameter in. (mm)	8.7 (222)	10.2 (260)	10.2 (260)	17.2 (438)	14.5 (368)	18.2 (464)	18.2 (464)	14.5 (368)
Canister Height in. (mm)	5.0 (127)	5.0 (127)	11.0 (279)	5.0 (127)	11.0 (279)	11.0 (279)	11.0 (279)	11.0 (279)
Canister Diameter in. (mm)	1.65 (41.9)	1.65 (41.9)	1.65 (41.9)	1.50 (38)	1.50 (38)	1.50 (38)	1.50 (38)	1.65 (41.9)
Weight Empty lb. (kg)	8 (3.6)	12 (5.3)	17 (7.7)	14 (6.4)	26 (11.8)	34 (15.4)	34 (15.4)	26.5 (12)
Weight Full lb. (kg)	14.4 (65)	27.0 (12.1)	36.6 (16.6)	43.0 (19.6)	62.5 (28.3)	93.4 (42.4)	100.0 (44.8)	68.4 (31)

* Static evaporation rate and static holding time are nominal. Actual rate and holding time will be affected by the nature of container use, atmospheric conditions, and manufacturing tolerances.

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TWO Year Standard Warranty • FIVE Year Vacuum Warranty

Conforms to MDD 93/42/EEC, the Medical Device Directive for the EU.

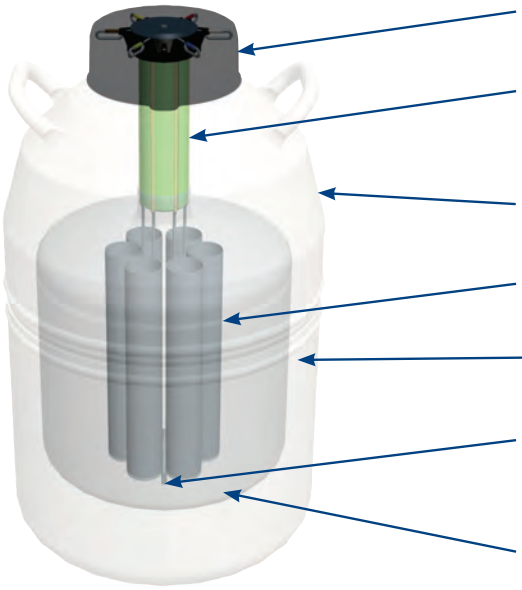
MVE XC Series

MVE XC Series tanks have capacities ranging from 700–5000 straws and 150 to over 1000 vials. Manufactured to a world class level of excellence and backed by an industry-leading 5 year vacuum warranty, these durable, lightweight units can be relied on to perform in the most demanding of environments.

Features Include:

- Designed for large capacity storage
- Low liquid nitrogen consumption
- Convenient lightweight package

Tank Features



A Durable, tamper-proof lid design

B High strength neck tube reduces liquid nitrogen loss

C Strong, lightweight aluminum construction

D Canisters

E Advanced chemical vacuum retention system

F Spider design on platform for easy retrieval and insertion of product canisters

G Liquid Nitrogen Reservoir

	XC 20 Millennium	XC 21/6	XC 22/5	XC 32/8	XC 33/22	XC 34/18	XC 34/18 Plus***	XC 43/28	XC 47/11-6SQ	XC 47/11-6	XC 47/11-10
Maximum Storage Capacity											
Number of Canisters	6	9	6	9	6	6	6	6	6 sq.	6	10
Number of 1/2 cc Straws 10/cane	720	N/A	2,400	2,520	1,260	2,100	2,100	1,260	-	4,500+	3,500
Number of 1/2 cc Straws 1 Level Bulk	1,122	3,870	3,666	3,960	1,764	300	3,000	1,764	-	6,216	5,000
Number of 1.2 & 2.0 ml Vials 5/cane	210	N/A	810	855	360	630	630	360	-	1,320	1,050
Number of Racks 25 Vials	-	-	-	-	-	-	-	-	750	-	-
Performance											
LN2 Capacity L	20.5	21.0	22.4	32.0	33.4	67.5	34.8	42.2	47.4	47.4	47.4
LN2 Capacity Below Spider L	-	-	-	-	-	32.7	-	-	-	-	-
Static Evaporation Rate* L/day	.095	0.35	0.35	0.35	0.14	0.31	0.18	0.14	0.39	0.39	0.39
Normal Working Duration**, Full Days	135	38	40	57	154	136	123	193	76	76	76
Unit Dimensions											
Neck Opening in. (mm)	2.18 (55)	3.50 (89)	3.81 (97)	3.81 (97)	2.75 (70)	3.5 (89)	3.50 (89)	2.75 (70)	5.00 (127)	5.00 (127)	5.00 (127)
Overall Height in. (mm)	25.7 (652)	17.2 (438)	22.0 (559)	21.5 (546)	26.0 (660)	37.5 (952)	26.6 (675)	26.4 (670)	26.5 (673)	26.5 (673)	26.5 (673)
Overall Inner Height in. (mm)	-	-	-	-	-	-	33.5 (850)	-	-	-	-
Outer Diameter in. (mm)	14.5 (368)	18.2 (464)	14.5 (368)	18.2 (464)	18.2 (464)	18.2 (46.4)	18.2 (464)	20.0 (508)	20.0 (508)	20.0 (508)	20.0 (508)
Canister Height in. (mm)	11 (279)	5 (127)	11 (279)	11 (279)	111 (279)	11 (279)	11 (279)	11 (279)	-	11 (279)	11 (279)
Canister Diameter in. (mm)	1.65 (41)	2.59 (68)	3.09 (79)	2.62 (67)	2.22 (56)	2.8 (71)	2.81 (71)	2.22 (56)	-	4.00 (102)	2.81 (71)
Distance: Platform to Top of Neck in. (mm)	-	-	-	-	-	-	21 (533)	-	-	-	-
Weight Empty lb. (kg)	23 (10.5)	30 (13.6)	26 (11.8)	30 (13.6)	34 (15.4)	45.9 (20.8)	34 (15.4)	36 (16.4)	42 (19.0)	42 (19.0)	42 (19.0)
Weight with Canisters lb. (kg)	-	-	-	-	-	-	45.9 (20.8)	-	-	-	-
Weight Full lb. (kg)	59.5 (27.0)	62.5 (28.3)	66.0 (30)	87.0 (39.5)	94.0 (42.5)	104.4 (47.3)	96.0 (43.5)	111.0 (50.5)	120.4 (54.6)	120.4 (54.6)	120.4 (54.6)

* Static evaporation rate and static holding time are nominal. Actual rate and holding time will be affected by the nature of container use, atmospheric conditions, and manufacturing tolerances.

** Normal Working Duration is an arbitrary reference, to estimate container performance under normal operating conditions. Actual working time may vary due to current atmospheric conditions, container history, manufacturing tolerances and any individual patterns of use.

*** Weight full determined with LN2 level at bottom of canisters.

TWO Year Standard Warranty • FIVE Year Vacuum Warranty

Conforms to MDD 93/42/EEC, the Medical Device Directive for the EU.

MVE Lab Series

The Lab Series cryogenic liquid dewars are named for their acceptance in laboratories and medical facilities worldwide. These high-efficiency, super insulated dewars are the most convenient, economical way to store and dispense liquid nitrogen. Many lab units can be fitted with pouring spouts, pressurized dispensing devices or dippers to aid in the transfer of liquid nitrogen.

Features Include:

- Designed for efficient storage of liquid nitrogen
- Low liquid nitrogen consumption
- Convenient lightweight package

Tank Features

A Durable composite lid design

B High strength neck tube reduces liquid nitrogen loss

C Strong, lightweight aluminum construction

D Advanced chemical vacuum retention system

E Liquid Nitrogen Reservoir

	LAB 4	LAB 5	LAB 10	LAB 20	LAB 30	LAB 50
Performance						
LN2 Capacity L	4	5	10	20	32	50
Static Evaporation Rate* L/day	0.19	0.15	0.18	0.18	0.22	0.49
Unit Dimensions						
Neck Opening in. (mm)	1.40 (35)	2.18 (56)	2.18 (56)	2.18 (51)	2.50 (64)	2.50 (64)
Useable Height in. (mm)	7.8 (198)	10.5 (266)	13.5 (343)	13.7 (348)	14.9 (378)	22.0 (559)
Overall Height in. (mm)	16.8 (426)	18.2 (462)	21.5 (546)	24.5 (622)	24.0 (610)	30.5 (775)
Outer Diameter in. (mm)	7.3 (185)	8.8 (222)	10.3 (260)	14.5 (368)	17.0 (432)	17.0 (432)
Internal Diameter in. (mm)	5.5 (139)	6.5 (165)	8.3 (210)	11.4 (289)	14.0 (356)	14.0 (356)
Weight Empty lb. (kg)	6 (2.7)	8 (4)	12 (5.4)	19 (9)	25 (11.4)	31 (14)
Weight Full lb. (kg)	13 (6)	17 (8)	31 (14)	55 (25)	82 (37.2)	120 (54.4)

* Static evaporation rate and static holding time are nominal. Actual rate and holding time will be affected by the nature of container use, atmospheric conditions, and manufacturing tolerances.

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TWO Year Standard Warranty • FIVE Year Vacuum Warranty

Conforms to MDD 93/42/EEC, the Medical Device Directive for the EU.

MVE CryoShipper QWick & Vapor Series

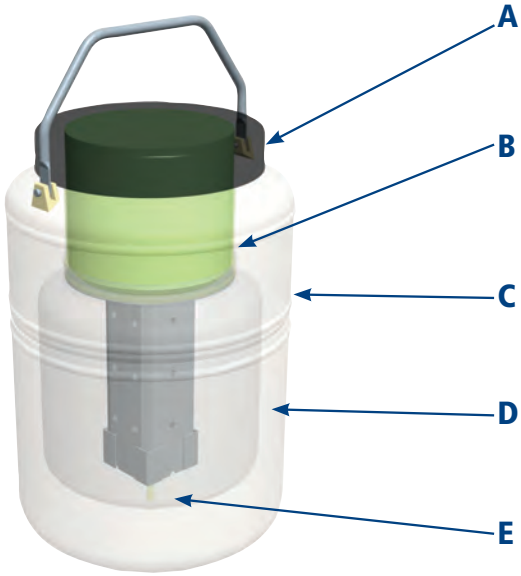
MVE Vapor Shippers are designed for the safe transportation of biological samples at cryogenic (-150°C or colder) temperatures. MVE CryoShipper QWick Series utilizes an absorbent wicking material that charges with liquid nitrogen in fewer than two hours, providing the capacity for same-day vapor shipping. Manufactured from durable, lightweight aluminum, both series employ a hydrophobic compound which absorbs the liquid nitrogen to ensure dry, spill-free vapor-phase shipping.

A protective shipping carton is available for all models (except the SC 20/12V). These containers may be used to ship your samples with a "non-hazardous" classification throughout the world, thus reducing costs and helping to assure sample viability.

Features Include:

- Protective shipping carton to ensure upright shipping
- Low liquid nitrogen consumption
- Convenient lightweight package
- **QWick Series CHARGES IN LESS THAN TWO HOURS**

Tank Features



CryoShipper QWick Series	QWick 6/9	QWick 10/100	QWick 14/48	QWick 62/180		QWick 14/24			QWick 9/500	QWick 10/950	
Static Holding Time Days	6	10	14	62		14			9	10	
Vapor Series	**SC 2/1V**	**SC 4/2V**	**SC 4/3V**	**SC 20/12V**	**XC 20/3V****	**Mini Moover**	**CryoShipper Mini**	**Cryo Moover**	**Cryo Shipper**	**Cryo Shipper XC**	**IATA**
Static Holding Time Days	8	13	21	85	16	14	7	12	10	14	14
Maximum Storage Capacity											
No. of Canisters	1	1	1	6	4 + 1 Center	1	-	7	1 Rack	-	Secondary Container
No. of 1/2 cc Straws 10/cane	-	280	120	540	2500/2000**	60	-	3080	-	-	-
No. of 1/2 cc Straws 1 Level Bulk	88	440	210	780	3750/3000**	88	-	4354	-	-	-
No. of 1/4 cc Straws 1 Level Bulk	182	938	452	1630	7410/6000	185	-	-	-	-	-
No. of 1.2 & 2.0 ml Vials 5/cane	-	95	40	150	675/560**	20	-	945	-	-	-
No. of 1.2 & 2.0 ml Vials 6/cane	9	106	48	180	840/672**	24	-	1134	500	966 (Bulk)	-
No. of blood bags stored 4R9953	-	-	-	-	-	-	-	-	10	10	-
Performance											
LN2 Capacity L	1.5	3.6	4.3	12.3	6.8	2.9	5.9	4.2	8.5	10.0	11.8
Static Evaporation Rate* L/day	0.19	0.26	0.20	0.09	0.35	0.20	0.84	0.35	0.85	0.70	0.80
Unit Dimensions											
Neck Opening in. (mm)	1.40 (35.0)	2.75 (70.0)	2.00 (51.0)	2.00 (51.0)	3.81 (96.7)	1.40 (35.0)	8.50 (216.0)	3.80 (97.0)	8.50 (216.0)	8.50 (216.0)	8.50 (216.0)
Overall Height in. (mm)	13.5 (343)	18.4 (468)	19.4 (492)	25.7 (652)	25.0 (635)	19.5 (495)	20.0 (508)	22.0 (558)	21.5 (546)	23.0 (584)	24.0 (610)
Outer Diameter in. (mm)	7.25 (184)	8.70 (222)	8.70 (222)	14.50 (368)	14.50 (368)	7.20 (184)	11.60 (295)	18.30 (464)	14.50 (369)	15.00 (381)	15.00 (381)
Canister Height in. (mm)	5.0 (127)	11.0 (278)	11.0 (278)	11.0 (278)	11.0 (278)	11.0 (278)	-	11.0 (278)	-	12.5 (317.5‡)	8.5 (215)
Canister Diameter in. (mm)	1.20 (31)	2.62 (67)	1.81 (46)	1.50 (38)	3.20 (80)	1.20 (31)	-	3.10 (79)	-	-	7.50 (190)
Weight Empty lb. (kg)	6.0 (2.7)	11.0 (5.0)	13.0 (5.9)	30.0 (13.6)	28.4 (12.9)	8.0 (3.6)	16.5 (7.5)	30.5 (13.8)	26.2 (11.9)	31.0 (14.1)	29.0 (131.0)
Weight Full lb. (kg)	8.8 (4.0)	17.0 (7.7)	20.6 (9.3)	52.0 (23.6)	38.4 (17.4)	11.6 (5.3)	34.3 (15.5)	38.0 (17.2)	41.3 (18.7)	48.0 (21.8)	50.5 (22.9)

* Static evaporation rate and static holding time are nominal. Actual rate and holding time will be affected by the nature of container use, atmospheric conditions, and manufacturing tolerances.
** With center absorbent canister (3 week holding time)
‡ Useable Height

THREE Year Vacuum Warranty

Conforms to MDD 93/42/EEC, the Medical Device Directive for the EU.

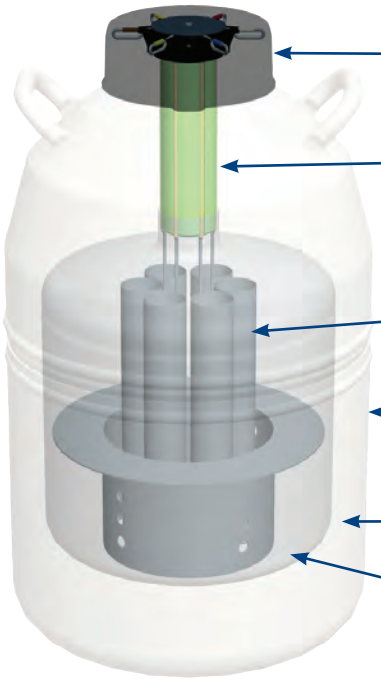
MVE Doble QWick & Doble Series

The Doble Series cryogenic liquid dewars are the first units to be designed for both vapor shipment and liquid storage. The Doble QWick Series utilizes an absorbent wicking material that charges with liquid nitrogen in fewer than two hours, providing the capacity for same-day vapor shipping. A unique absorbent layer in the base of the storage tanks of both series enables them to be charged with nitrogen and employed as dry shippers with hold times of up to 30 days. Once at the final destination, the tanks can be filled with liquid and used for long term storage, therefore avoiding the need for return shipments.

Features Include:

- Liquid and vapor storage options
- Low liquid nitrogen consumption
- Convenient lightweight package
- **Doble QWick Series CHARGES IN LESS THAN TWO HOURS**

Tank Features



A Durable composite lid design

B High strength neck tube reduces liquid nitrogen loss

C Canisters

D Strong, lightweight aluminum construction

E Advanced chemical vacuum retention system

F Hydrophobic liquid nitrogen absorbent system

Doble QWick Series	10/660	20/660	17/2400	20/2100	14/4500	14/3500
Normal Working Duration *days for liquid*	37	116	50	100	74	72
Normal Working Duration *days for vapor*	10	20	17	20	14	14

Doble Series	Doble 11	Doble 20	Doble 28	Doble 34	Doble 47	Doble 47-10
Normal Working Duration *days for liquid*	37	116	50	100	74	72
Normal Working Duration *days for vapor*	17	21	24	30	21	21
Maximum Storage Capacity						
Number of Canisters	6	6	6	6	6	10
No. of 1/2 cc Straws *10/cane*	660	660	2400	2100	4500	3500
Vial Capacity	210	210	810	630	1320	1050
Performance						
Liquid Nitrogen Capacity *L*	10.0	18.5	28.0	32.0	46.0	46.0
Vapor Capacity *L*	3.1	2.8	8.4	6.7	8.4	9.6
Static Evaporation Rate *L/day*	0.17	0.10	0.35	0.20	0.40	0.40
Unit Dimensions						
Neck Opening *in (mm)*	2.18 (55)	2.18 (55)	3.81 (97)	3.50 (89)	5.00 (127)	5.00 (127)
Overall Height *in (mm)*	21.6 (549)	25.7 (652)	22 (559)	26.6 (676)	26.5 (673)	26.5 (673)
Outside Diameter *in (mm)*	10.2 (260)	14.5 (368)	18.2 (462)	18.2 (462)	20.0 (508)	20.0 (508)
Canister Height *in (mm)*	11 (279)	11 (279)	11 (279)	11 (279)	11 (279)	11 (279)
Canister Diameter *in (mm)*	1.65 (41)	1.65 (42)	3.09 (78)	2.81 (72)	4.00 (101)	2.81 (72)
Weight Empty *lb. (kg)*	17.0 (7.7)	25.2 (11.4)	34.0 (15.4)	39.2 (17.8)	47.0 (21.3)	48.0 (21.8)
Weight Charged *vapor lb. (kg)*	22.5 (10.2)	30.2 (13.7)	49.0 (22.2)	51.0 (23.1)	63.0 (28.6)	64.0 (29)
Weight Full *liquid lb. (kg)*	36 (16)	60 (27)	84 (38)	95 (43)	125 (57)	120 (54.5)
Cabosil *lb. (kg)*	1.0 (.45)	1.0 (.45)	3.5 (1.58)	2.0 (.9)	2.5 (1.2)	3.4 (1.6)

THREE Year Warranty

Conforms to MDD 93/42/EEC, the Medical Device Directive for the EU.

MVE CryoCube

The MVE CryoCube™ provides a cryogenic shipping option for your biological samples. In keeping with MVE tradition, the CryoCube incorporates creative engineering and simplistic design to allow shipping in any orientation without sacrificing temperature or hold time.

Features include:

- Charges in under 1 hour
- Operates as a dry shipper
- -150°C temperature
- 5-day holding time
- Weighs less than 9 lbs. charged
- Safe shipping in any orientation
- Safe for international shipping

	CryoCube™
Maximum Storage Capacity	
Number of Canisters	1
Number of 1/2 cc Straws 1 Level Bulk	88
Number of 1/4 cc Straws 1 Level Bulk	182
Number of 1.2 & 2.0 ml Vials bulk	6
Performance	
LN2 Capacity(min) L	2
Static Holding Time days	5
Unit Dimensions	
Neck Opening in. (mm)	1.4 (35)
Overall Height in. (mm)	12 (305)
Outer Width in. (mm)	12 (305)
Inner Canister Height in. (mm)	5.25 (127)
Inner Canister Diameter in. (mm)	1 (35)
Weight Empty lb. (kg)	5.25(1.8)
Weight Charged lb. (kg)	9 (4)

90 Day Standard Warranty

PDF Logger®

With the PDF Logger®, you require only one single device and no specific software or cables to monitor temperature during the global transfer of cryobiological goods. The incredibly easy-to-use "Transit" and "Arrived" buttons make initiating and receiving monitored shipments fast and simple. The PDF Logger can be plugged into the USB of any PC to automatically generate a PDF evaluation report including statistics, alarm status, and temperature graph which can be read anywhere without difficulty.

With the 1-year lifespan, there are no more hassles of recalibration and recertification. After the datalogger has been in service for 1 year, simply discard the logger and purchase a new one for about the same cost of recalibration and battery replacement. Your PDF Logger is always under warranty!

Specifications	
Dimensions L, W, H in (mm)	3.7 x 1.6 x 0.5 (95 x 40 x 12)
Weight oz (g)	1.4 (40)
Temperature Range	-200°C to +200°C
Accuracy	± 0.5°C [-200°C, -10.1°C]
Resolution	0.1°C
Display	Multifunction LCD, 23.5 x 23.5 mm
Case	ABS plastic
Battery	3.6V
Battery Life	400 days
Sensor	Pt100 3-wire class 0.5
Memory	16,000 data points
Interface	USB – PC Universal Serial Bus
Software Compatability	Windows 7, VISTA, XP, Win2000, Win 98/ME
Configuration	LIBERO Configuration Utility – Free of charge on www.pdf-logger.com
Evaluation Report	Built-in PDF file generator that automatically establishes an evaluation file including graph. Complies to the ISO Standard 19005-1 Document Management for the long-term preservation of electronic documents

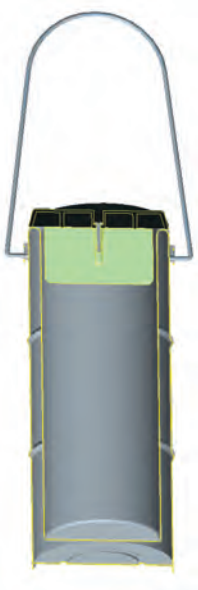
Features Include:

- Displays temperature and alarm status
- Records and stores up to 16,000 data points
- High and Low Alarm Settings
- No recalibrations
- 1 year lifespan – after 1 year, simply discard and purchase new logger
- Battery life remaining days displayed
- No additional software or cables needed!
- Automatically generates PDF /A evaluation report including graph
- CE marked CE
- ISO 19005-1
- **Compliant: FDA 21 CFR Part II, GMP, GLP**

1 Year Warranty
By ELPRO

MVE Research Dewars

The MVE Research Dewars are developed specifically for easy and safe transport of liquid nitrogen and samples within facilities. These units are vacuum insulated for superior thermal performance and long hold times.



Features include:

- All stainless steel construction
- Insulated lid
- Wide mouth for easy access
- Convenient carrying handle (except .5L)
- Meets laboratory safety requirements that prohibit glass lined dewars

	RD-6	RD-3	RD-2	RD-1	RD-1W	RD-0.5
Performance						
LN2 Capacity *L*	6	3	2	1	1	0.5
Handle	yes	yes	yes	yes	yes	no
Unit Dimensions						
Neck Opening *in. (mm)*	7.3 (185)	7.3 (185)	3.9 (99)	3.3 (84)	3.9 (99)	2.6 (66)
Inner Diameter *in. (mm)*	7.3 (185)	7.3 (185)	3.9 (99)	3.3 (84)	3.9 (99)	2.6 (66)
Outer Diameter *in. (mm)*	7.8 (198)	7.8 (198)	4.8 (122)	4.3 (109)	4.8 (122)	3.4 (86)
Usable Internal Height *in. (mm)*	10.6 (269)	6.3 (160)	7.1 (180)	6.2 (157)	6.1 (155)	7.1 (180)
Overall Height *in. (mm)*	11.8 (300)	7.5 (191)	12.3 (312)	9.1 (231)	7.0 (178)	8.0 (203)
NER without cover *L/hr*	0.4	0.2	0.1	0.1	0.2	0.1

90 Day Warranty

LN2 Tx

The LN2 Tx was designed specifically to make removing excess liquid nitrogen from open vessels safe and easy. Instead of lifting and pouring from heavy Dewars, personnel can simply utilize the LN2 Tx to transfer liquid nitrogen from one open vessel to another. By using a pressurized nitrogen gas source, the LN2 Tx efficiently transfers liquid nitrogen without straining your back or causing structural damage from spills.

Features Include:

- Safely, easily, quickly and efficiently transfer LN2 from one open dewar to another
- Avoid having to lift and pour out heavy dry vapor shippers
- Can be used to empty LN2 freezers for maintenance, transport, cleaning, etc.
- Saves employees backs and avoids injury
- Improves safety and reduces workman compensation
- Minimal transfer losses
- Reduce long term LN2 usage - allows you to reuse by transferring between Dewars
- Operating pressure of gaseous nitrogen source must be 22-50 psi (1.5-3.4 bar)
- Approximate flow rate up to 2 LPM

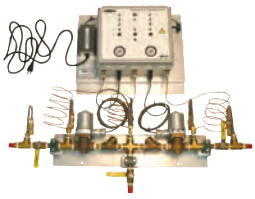
Note: You must use compressed nitrogen or nitrogen gas use valve on cylinder or piping – no compressed air.

CGA 295 Connection

Unit Dimensions	
Rigid Aluminum Tube Length ft (m)	4 (1.2)
Flex Hose Length ft (m)	8 (2.4)
Overall Weight lbs (kg)	8.5 (3.9)
Minimum Neck Opening in (mm)	3.5 (89)

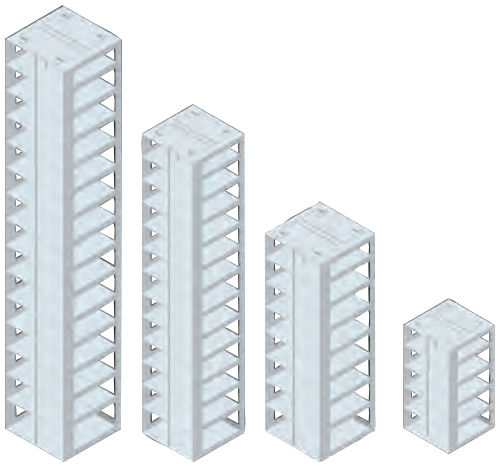
CE 90 Day Warranty

Accessories

Item	Image
Transfer Hose	
Tank Switcher	
Liquid Level Alarm	
Level Measuring Tool	
Roller Base	
Protective Shipping Carton	
Manual Discharge Device	
Rigid Dipper Swivel Dipper	

Item	Image
Pouring Spouts	
Vapor Inserts	
Cryo Block 2” Cryo Block 3” Cryo Block 4”	
Cryo Gloves	
Cryo Apron	

Inventory

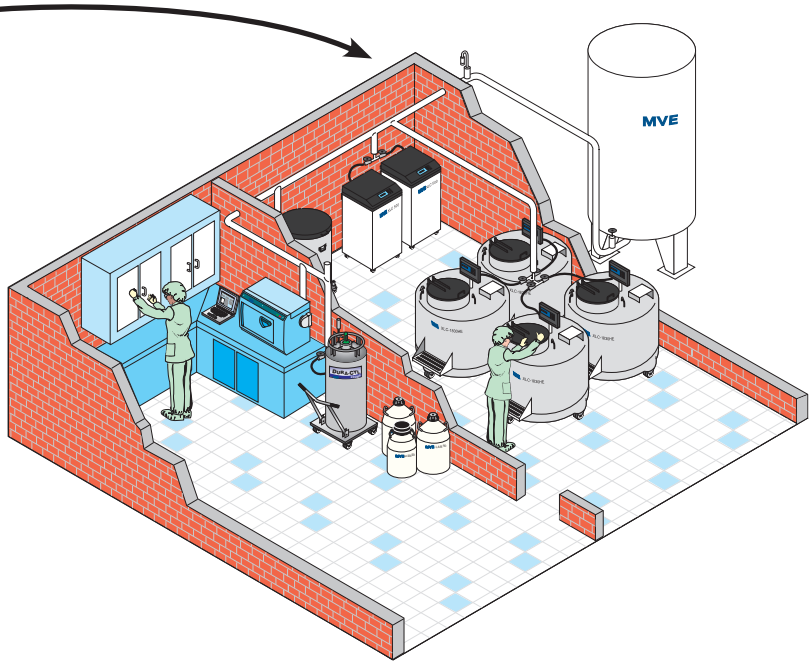
Item	Description/Options	Image
Standard Square Racks with Locking Rods	2″ Box Large Racks 2″ Box Mini Racks 3″ Box Large Racks 3″ Box Mini Racks 3.75″ Box Large Racks 3.75″ Box Mini Racks	
Standard Shelf Heights	For 2″ Boxes For 3″ Boxes For 3.75″ Boxes	
Square Racks	3–3.75 Large 4–3 Large 4–3.75 Large 5–3 Large 5–3 Mini 5–3.75 Large 5–3.75 Mini 6–2 Large 6–3 Large 6–3.75 Large 7–2 Large 7–2 MIni 7–3 Large 7–3 Mini 7–3.75 Large 8–2 Large 8–3 Large 8–3 Mini 9–2 Large 9–2 Mini 9–3 Large 9–3 Mini 10–2 Large 11–2 Large 11–2 Mini 11–3 Large 11–3 Mini 12–2 Large 12–2 Mini 13–2 Large 13–2 Mini 14–2 Large 12–2 Mini 15–2 Large 15–2 Mini	
Plastic Boxes	Large Box—100 Cell (5.25x5.25″; 133x133 mm) Large Clear Box—100 Cell (5.25x5.25″; 133x133 mm) Mini Box—25 Cell (2.65x2.65″; 67x67 mm)	
Cardboard Boxes	Large Box—81 Cell (5.25x5.25″; 133x133 mm)	
SUC-1 Canisters	Square canister available in one size	
Blood Bag Frames & Cassettes	Medsep (791 OS/U) —25 mL 4R9951–50 mL 4R9953–250 mL 4R9955–500 mL DF 200–200 mL DF 700–700 mL	

Please reference MVE Freezer Inventory Systems catalog for a complete list of inventory products.

Chart: Total Cryogenic Solutions

Air Separation

Distribution & Storage



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