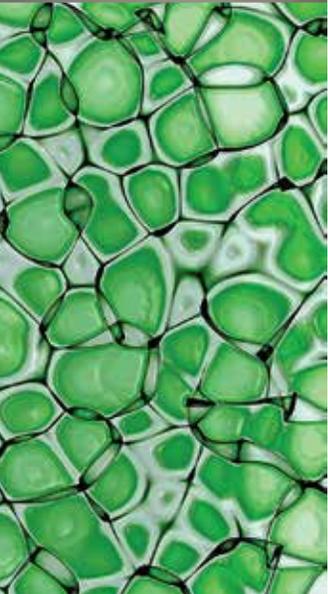


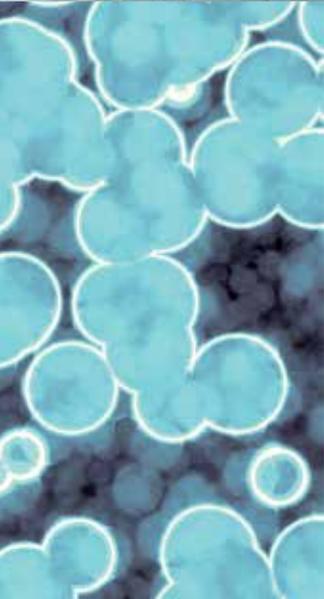
MVE Cryopreservation for Life Science



**Storage & Transport Systems
for MVE Cryopreservation**

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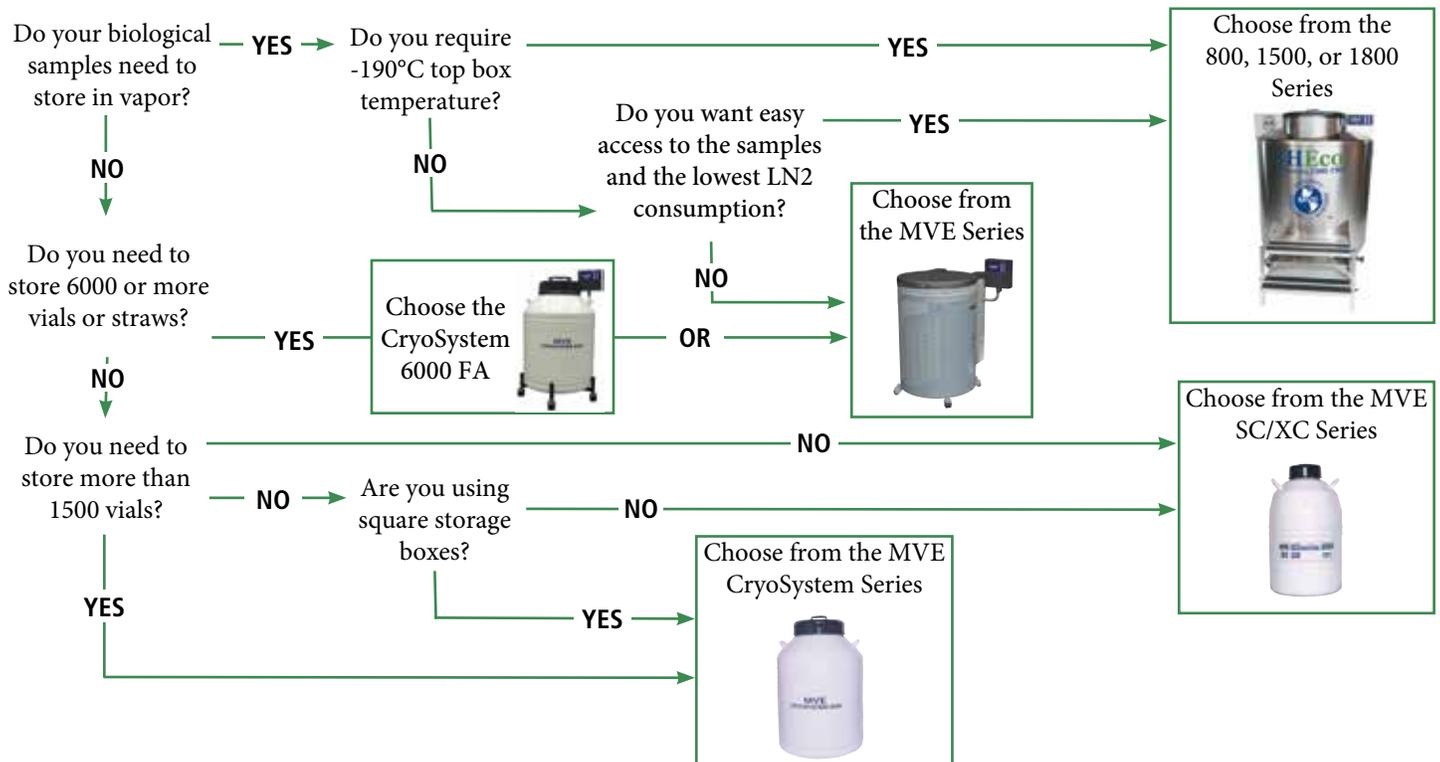
Temperature Chart

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 HEco™ 800 Series Freezers

The MVE HEco Series is the next generation High Efficiency freezer from Chart BioMedical. With their streamlined LN2 plumbing and vacuum jacketed transfer hose, the new MVE HEco 800 Series freezers provide a reduction in LN2 usage, making them the most efficient vapor freezers available. These next generation high efficiency freezers incorporate hinged work surfaces that fully enclose all electronics and plumbing to enhance overall safety and usability.

The technical and visual improvements combine to create a more aesthetically pleasing freezer that offers greater functionality. As with all of MVE's cryogenic freezers, the MVE HEco 800 Series freezers provide maximum storage density as well as the longest hold time and highest sample security in the industry.

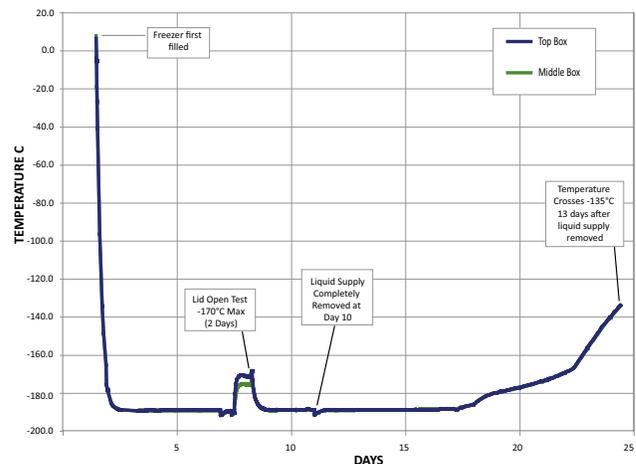
Available now for ease of ordering, HEco Series with Battery Backup has one new part number.

Features include:

- LN2 usage reduction
- Fully enclosed wiring and plumbing
- Vacuum jacketed transfer hose
- Dry sample storage
- -190°C top box temperature
- Lowest liftover height
- Single step standard
- Optional double-tier step
- Optional battery backup



MVE HEco 800 Temperature Test*



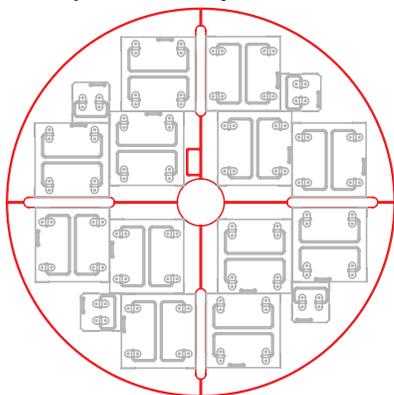
Temperature Test Graph

* Temperature test indicates typical performance of HEco Series freezer with full inventory system and factory recommended level settings. Actual performance may vary with atmospheric conditions and usage.

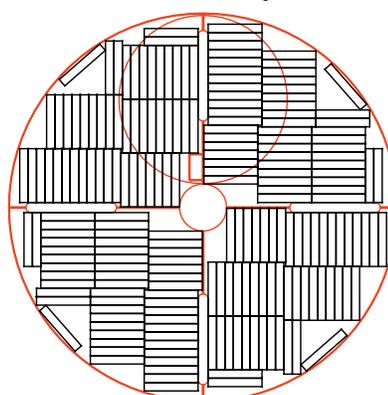
Visit www.chartbiomed.com for more information.

Rack Layouts

Square Rack Layout (P)



791 OS/U Layout



	MVE HEco 815P-190	MVE HEco 818P-190	MVE HEco 819P-190						
Maximum Storage Capacity									
1.2 & 2 ml Vials (Internally Threaded)	15,600	18,200	19,500						
Number of Large Racks 100 cell boxes	12	12	12						
Number of Mini Racks 25 cell boxes	4	4	4						
Number of Shelves per Rack	12	14	15						
Performance									
LN2 Capacity <i>L</i>	370	420	463						
LN2 Capacity Under Tray <i>L</i>	52	55	55						
Static Hold Time—Vapor <i>days</i>	10	11	11						
Static Hold Time—Liquid Full <i>days</i>	74	84	92						
Unit Dimensions									
Neck Opening <i>in. (mm)</i>	12.5 (317)	12.5 (317)	12.5 (317)						
Usable Internal Height <i>in. (mm)</i>	26.6 (676)	30.7 (78)	34.5 (877)						
Inner Diameter <i>in. (mm)</i>	28.8 (731)	28.8 (731)	28.8 (731)						
Overall Height <i>in. (mm)</i>	49.5 (1257)	53.9 (1370)	57.70 (1465)						
Liftover Height <i>in. (mm)</i>	40 (1016)	43.8 (1115)	47.63 (1209)						
Door Width Requirement** <i>in. (mm)</i>	32.0 (813)	32.0 (813)	32.0 (813)						
Weight Empty* <i>lb. (kg)</i>	475 (215)	495 (225)	515 (234)						
Weight Liquid Full* <i>lb. (kg)</i>	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	1632	7	128	1,836	9	204
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 Parts 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.

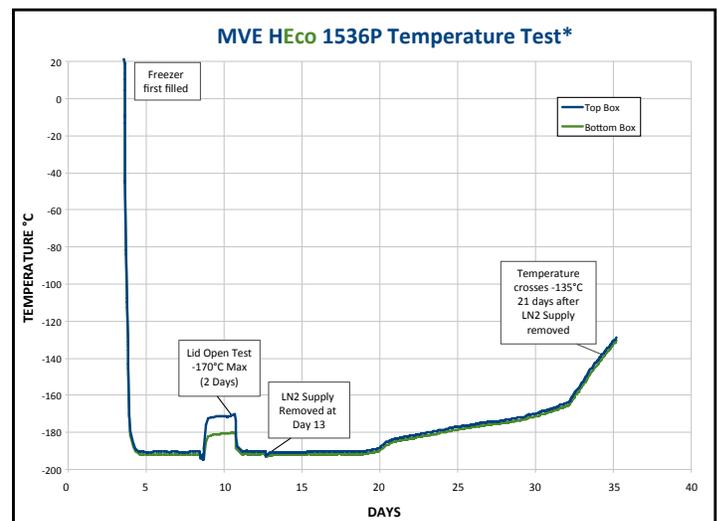
MVE HEco™ 1500 Series Freezers

The new MVE HEco 1500 Series freezers provide a 20% reduction in LN2 usage, making them the most efficient vapor freezers available. These next generation high efficiency freezers incorporate new hinged work surfaces that fully enclose all electronics and plumbing to enhance overall safety and usability. The technical and visual improvements combine to create a more aesthetically pleasing freezer that offers greater functionality. As with all of MVE's cryogenic freezers, the MVE HEco 1500 Series freezers provide maximum storage density as well as the longest hold time and highest sample security in the industry.

Available now for ease of ordering, HEco Series with Battery Backup has one new part number.

Features include:

- 20% reduction in LN2 usage
- Fully enclosed wiring and plumbing
- Vacuum jacketed transfer hose
- Dry sample storage
- -190°C top box temperature
- Lowest liftover height
- Two tier folding step
- Optional battery backup



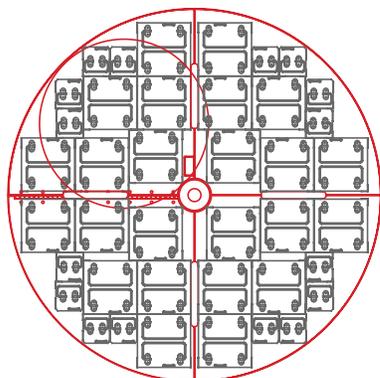
Temperature Test Graph

* Temperature test indicates typical performance of HEco Series freezer with full inventory system and factory recommended level settings. Actual performance may vary with atmospheric conditions and usage.

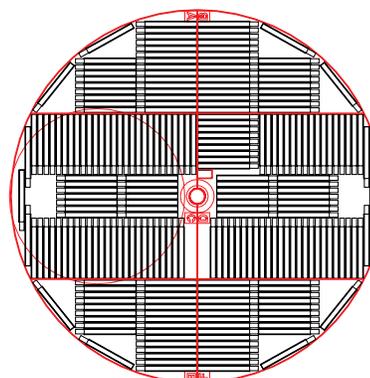
Visit www.chartbiomed.com for more information.

Rack Layouts

Square Rack Layout (P)



4R9951 Layout (R)



	MVE HEco 1536P-190	MVE HEco 1539P-190	MVE HEco 1542R-190						
Maximum Storage Capacity									
1.2 & 2 ml Vials (Internally Threaded)	36,400	39,200	42,000						
Number of Large Racks 100 cell boxes	24	24	26						
Number of Mini Racks 25 cell boxes	16	16	16						
Number of Shelves per Rack	13	14	14						
Performance									
LN2 Capacity L	730	797	797						
LN2 Capacity Under Tray L	115	133	133						
Static Hold Time—Vapor <i>days</i>	21	20	20						
Static Hold Time—Liquid Full <i>days</i>	112	118	118						
Unit Dimensions									
Neck Opening <i>in. (mm)</i>	17.4 (442)	17.5 (445)	17.5 (445)						
Usable Internal Height <i>in. (mm)</i>	28.8 (732)	30.8 (782)	30.8 (782)						
Inner Diameter <i>in. (mm)</i>	38.5 (978)	38.5 (978)	38.5 (978)						
Overall Height <i>in. (mm)</i>	54.7 (1389)	63.3 (1607)	63.3 (1607)						
Liftover Height <i>in. (mm)</i>	37.3 (947)	39.2 (995)	39.2 (995)						
Door Width Requirement** <i>in. (mm)</i>	42.0 (1067)	42.0 (1067)	42.0 (1067)						
Weight Empty* <i>lb. (kg)</i>	700 (318)	720 (327)	720 (327)						
Weight Liquid Full* <i>lb. (kg)</i>	2000 (907)	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)	2,905	7	415	3,320	8	415	3,184	8	398
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 Parts 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.

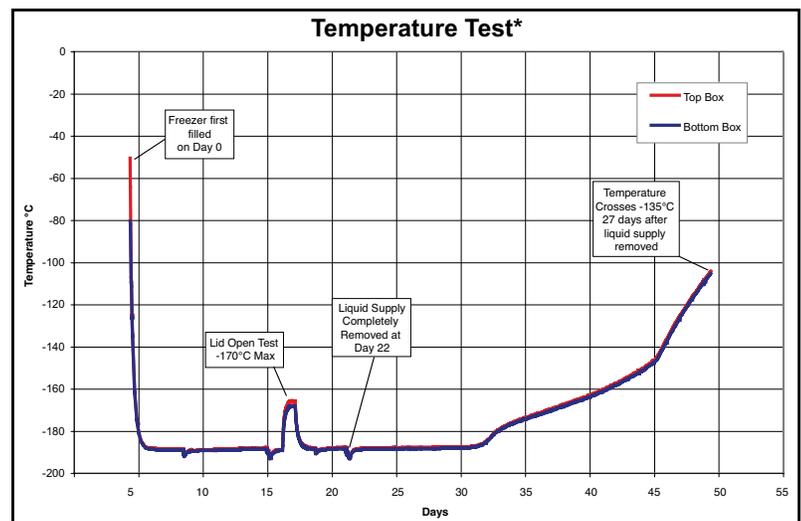
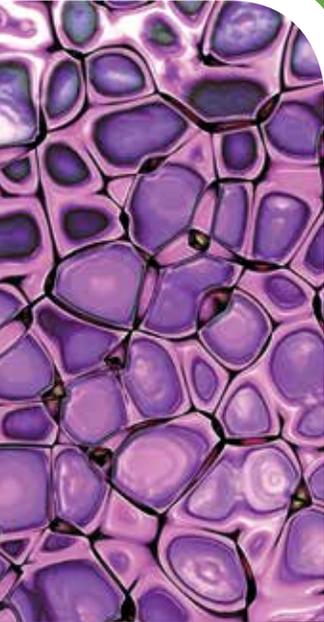
MVE HEco™ 1800 Series Freezers

The new MVE HEco 1800 Series freezers provide a reduction in LN2 usage, making them the most efficient vapor freezers available. When an LN2 fill is initiated, the redesigned plumbing system optimizes the LN2 flow and reduces transfer loss, increasing efficiency and LN2 cost savings. The 1800 series provides option for greater storage in one freezer. These next generation high efficiency freezers incorporate new hinged work surfaces that fully enclose all electronics and plumbing to enhance overall safety and usability. The technical and visual improvements provide an aesthetically more pleasing freezer while offering greater functionality. As with all of MVE's cryogenic freezers, the MVE HEco 1800 Series freezers provide maximum storage density as well as the longest hold time and highest sample security in the industry.

Available now for ease of ordering, HEco Series with Battery Backup has one new part number.

Features include:

- LN2 usage reduction
- Fully enclosed wiring and plumbing
- Vacuum jacketed transfer hose
- Dry sample storage
- -190°C top box temperature
- Lowest liftover height
- Two tier folding step
- Optional battery backup



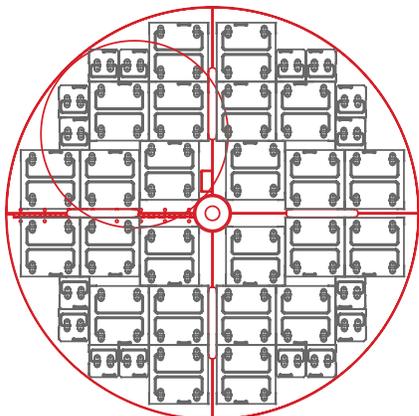
Temperature Test Graph

* Temperature test indicates typical performance of HEco Series freezer with full inventory system and factory recommended level settings. Actual performance may vary with atmospheric conditions and usage.

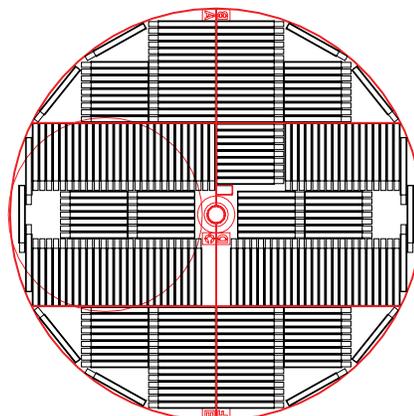
Visit www.chartbiomed.com for more information.

Rack Layouts

Square Rack Layout (P)



4R9951 Layout (R)



	MVE HEco 1879P-190	MVE HEco 1892P-190	MVE HEco 1894R-190						
Maximum Storage Capacity									
1.2 & 2 ml Vials (Internally Threaded)	79,950	92,250	94,500						
Number of Large Racks 100 cell boxes	54	54	60						
Number of Mini Racks 25 cell boxes	30	30	12						
Number of Shelves per Rack	13	15	15						
Performance									
LN2 Capacity <i>L</i>	1745	1770	1770						
LN2 Capacity Under Tray <i>L</i>	318	295	295						
Static Hold Time—Vapor <i>days</i>	35	30	30						
Static Hold Time—Liquid Full <i>days</i>	174	177	177						
Unit Dimensions									
Neck Opening <i>in. (mm)</i>	24.7 (627)	24.7 (627)	24.7 (627)						
Usable Internal Height <i>in. (mm)</i>	29.5 (749)	34.5 (876)	34.2 (868)						
Inner Diameter <i>in. (mm)</i>	56.0 (1422)	56.0 (1422)	54.7 (1389)						
Overall Height <i>in. (mm)</i>	63.7 (1618)	68.6 (1742)	68.6 (1742)						
Liftover Height <i>in. (mm)</i>	38.8 (985)	44.0 (1118)	44.0 (1118)						
Door Width Requirement** <i>in. (mm)</i>	60.0 (1524)	60.0 (1524)	60.0 (1524)						
Weight Empty* <i>lb. (kg)</i>	1712 (781)	1721 (781)	1721 (781)						
Weight Liquid Full* <i>lb. (kg)</i>	4830 (2191)	4875 (2211)	4875 (2211)						
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)	5,866	7	838	6,704	8	838	6,432	8	804
4R9951 (50 ml)	2,952	6	492	3,936	8	492	3,920	8	490
4R9953 (250 ml)	1,584	4	396	1,980	5	396	2,010	5	402
4R9955 (500 ml)	1,104	4	276	1,380	5	276	1,550	5	310
DF200 (200 ml)	960	4	240	1,200	5	240	1,230	5	246
DF700 (700 ml)	504	4	126	630	5	126	680	5	136

TWO Year Parts 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 800 Series -190°C High Efficiency Freezer

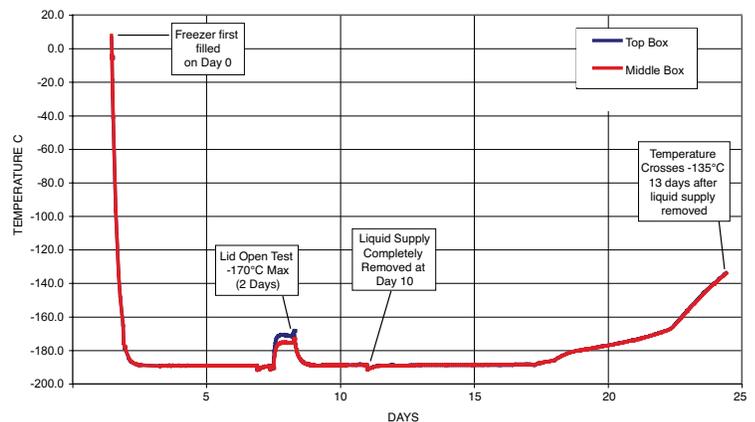
The MVE 800 Series -190°C freezers provide stable cryogenic storage for up to 19,500 1.2 / 2.0 ml vials. These freezers provide maximum storage density and provide the industry's longest hold time. Also available in -150°C versions

Features include:

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



- Optional One-Tier Step (recommended for 818 and 819)
- Optional Two-Tier Step available



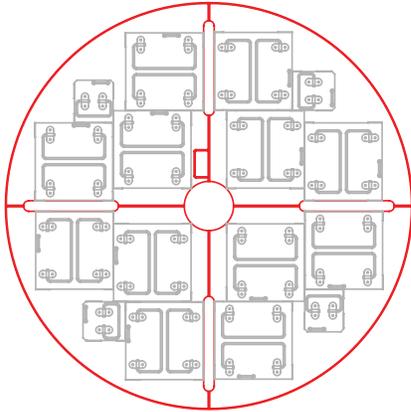
Temperature Test Graph

* 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.

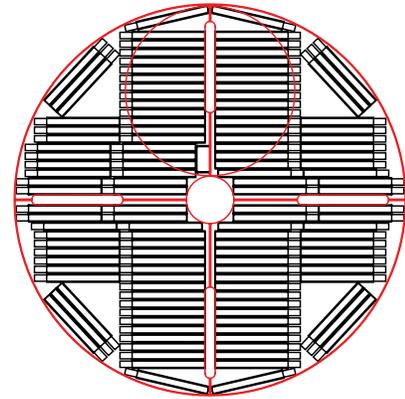
Visit www.chartbiomed.com for more information.

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 Large Racks 100 cell boxes	12	12	12						
Number of Mini Racks 25 cell boxes	4	4	4						
Number of Shelves 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
4R9951 (50 ml)	2,322	7	258	2,064	8	258	1,806	9	258
Compact (25 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 Parts 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

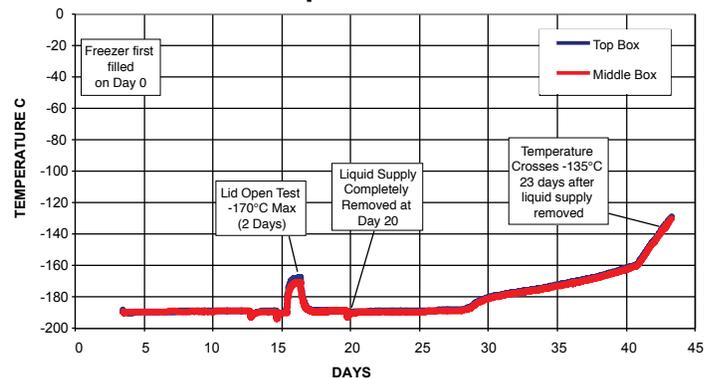
The MVE 1500 Series -190°C freezers provide cryogenic storage for up to 42,000 1.2 / 2.0 ml vials. These freezers provide maximum storage density and provide the industry's longest hold time.

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*



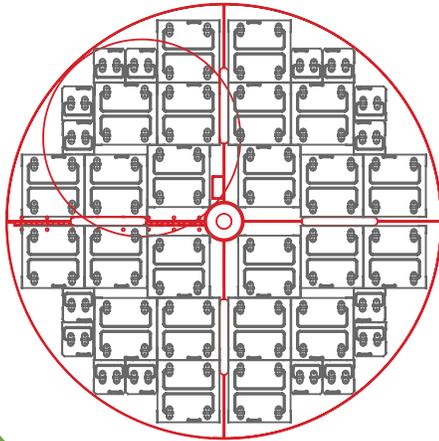
Temperature Test Graph

* 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.

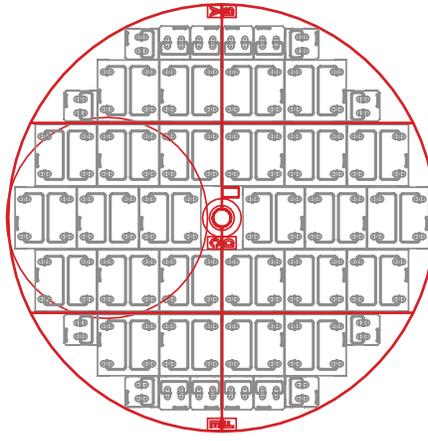
Visit www.chartbiomed.com for more information.

Rack Layouts

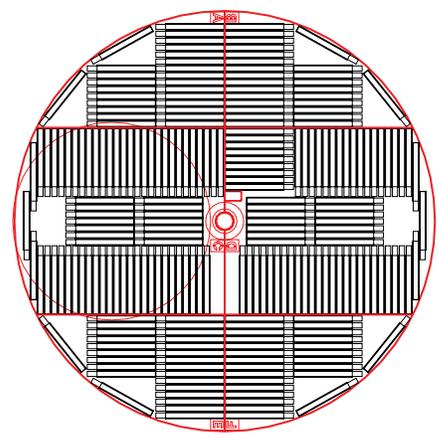
Square Rack Layout (P)



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	39,000	42,000						
Number of Large Racks 100 cell boxes	24	26	26						
Number of Mini Racks 25 cell boxes	16	16	16						
Number of Shelves 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	4: 168	5:168	5:168						
Performance									
LN2 Capacity <i>L</i>	756	756	797						
LN2 Capacity Under Platform Vapor Storage <i>L</i>	133	133	133						
Unit Dimensions									
Neck Opening <i>in. (mm)</i>	17.5 (445)	17.5 (445)	17.5 (445)						
Usable Internal Height <i>in. (mm)</i>	28.8 (732)	29.3 (745)	30.8 (782)						
Inner Diameter <i>in. (mm)</i>	38.5 (978)	38.7 (983)	38.7 (983)						
Overall Height <i>in. (mm)</i>	61.3 (1556)	61.3 (1556)	61.3 (1556)						
Liftover Height <i>in. (mm)</i>	37.0 (940)	37.1 (944)	39.2 (995)						
Door Width Requirement** <i>in. (mm)</i>	42.0 (1067)	42.0 (1067)	42.0 (1067)						
Depth of Extended Step <i>in. (mm)</i>	7.9 (201)	7.9 (201)	7.9 (201)						
Weight Empty* <i>lb. (kg)</i>	690 (313)	690 (313)	720 (327)						
Weight Liquid Full* <i>lb. (kg)</i>	2037 (924)	2037 (924)	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)	2,905	7	415	3,320	8	415	3,184	8	398
Compact (25 ml)	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 Parts 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

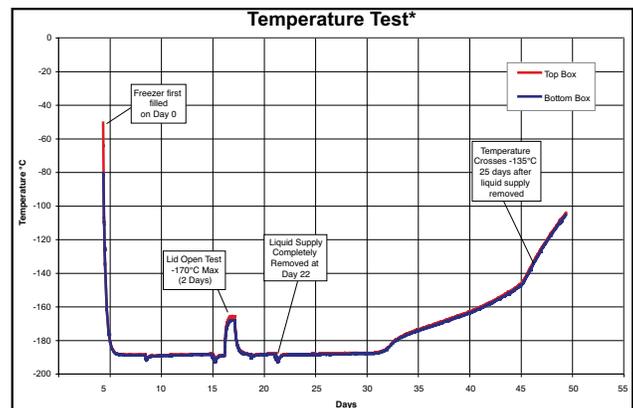
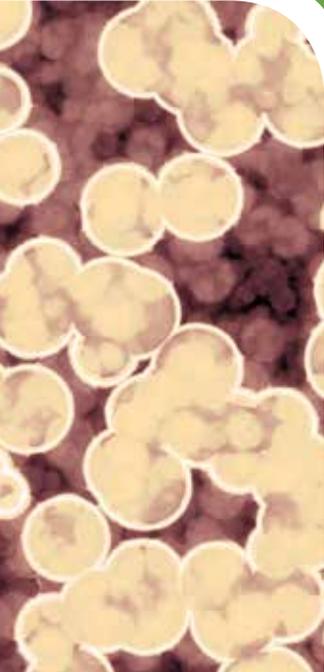
**Minimum width required for vessel to pass through opening. Footprint may vary. Contact Tech Service for detailed drawings.

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



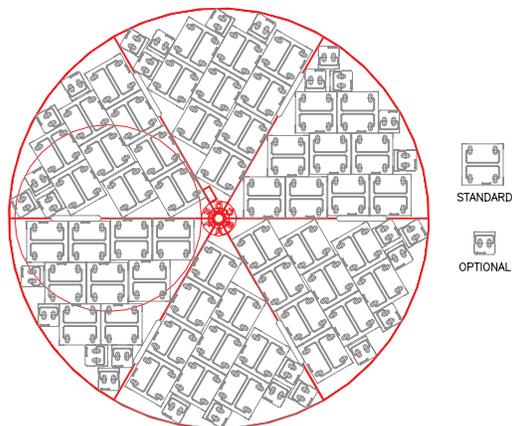
Temperature Test Graph

* 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.

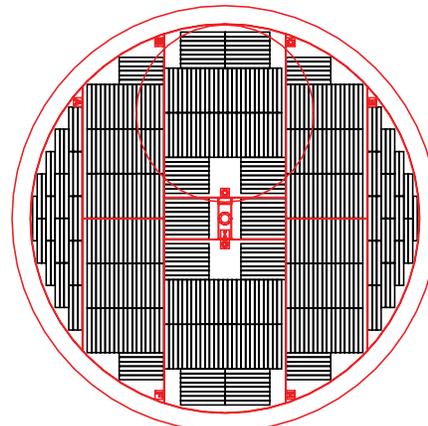
Visit www.chartbiomed.com for more information.

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 Large Racks 100 cell boxes	54	60	54	60								
Number of Mini Racks 25 cell boxes	30	12	30	12								
Number of Shelves 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 <i>in. (mm)</i>	25.0 (635)	25.0 (635)	25.0 (635)	25.0 (635)								
Usable Internal Height <i>in. (mm)</i>	29.5 (749)	29.2 (741)	34.5 (876)	34.2 (868)								
Inner Diameter <i>in. (mm)</i>	56.0 (1422)	54.8 (1391)	56.0 (1422)	54.8 (1391)								
Overall Height <i>in. (mm)</i>	62.1 (1577)	61.3 (1556)	67.1 (1704)	66.3 (1683)								
Door Width Requirement** <i>in. (mm)</i>	60.0 (1524)	60.0 (1524)	60.0 (1524)	60.0 (1524)								
Weight Empty* <i>lb. (kg)</i>	1606 (728)	1721 (781)	1545 (701)	1721 (781)								
Weight Liquid Full* <i>lb. (kg)</i>	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	6,704	8	838	6,432	8	804
Compact (25 ml)	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 Parts 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.

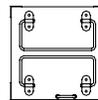
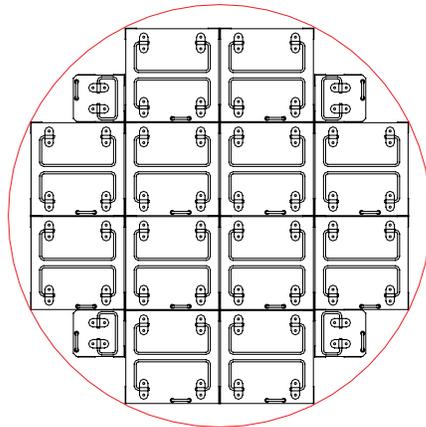
Features include:

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



Rack Layouts

Square Rack Layout

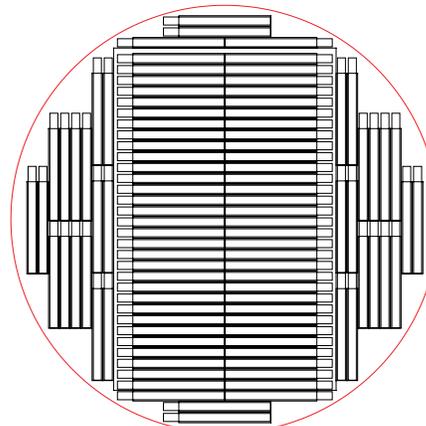


STANDARD



OPTIONAL

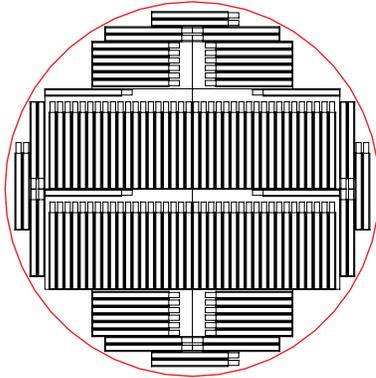
4R9951 Layout



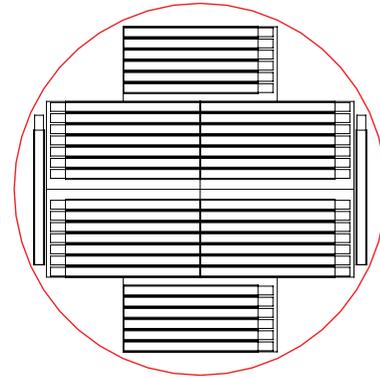
Visit www.chartbiomed.com for more information.

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 Large Racks 100 cell boxes	4	4	7	12	18	28												
Number of Mini Racks 25 cell boxes	-	-	4	4	10	8												
Number of Shelves 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 Parts Warranty • FIVE Year Vacuum Warranty

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

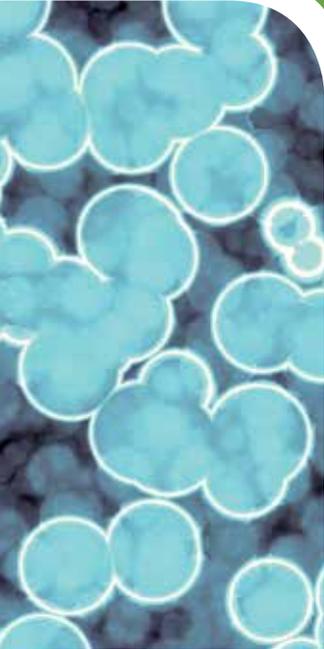
* Without inventory

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:

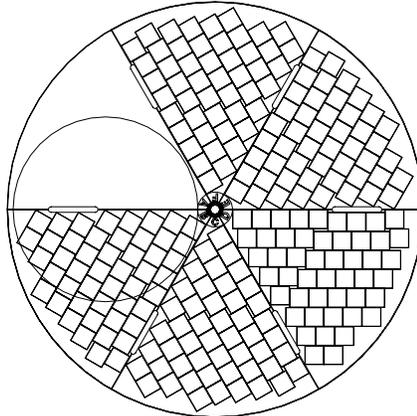
- Wide neck opening
- Lowest liftover height
- Largest LN2 capacity



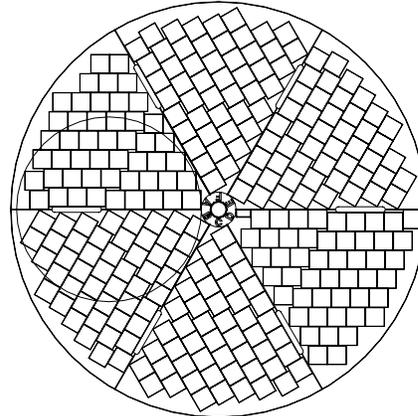
Visit www.chartbiomed.com for more information.

Rack Layouts

1877P-2T-150



TOP TIER CAPACITY
245 BOXES



BOTTOM TIER CAPACITY
294 BOXES

	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 Large Racks 100 cell boxes	-	12	105	24	-	-
Number of Mini 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 2.0 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 Parts 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

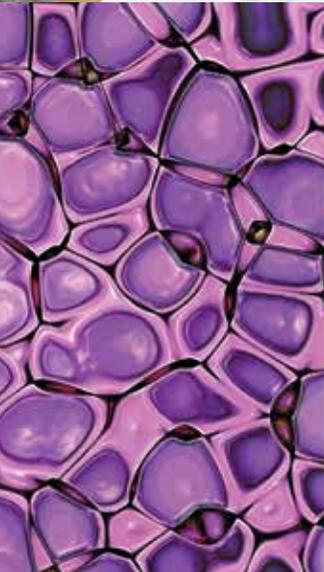
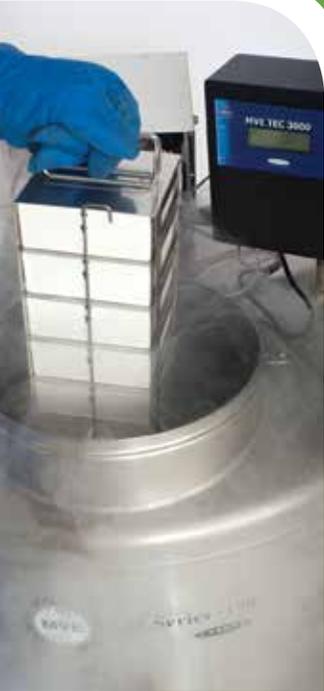
**Minimum width required for vessel to pass through opening. Footprint may vary. Contact Tech Service for detailed drawings.

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:

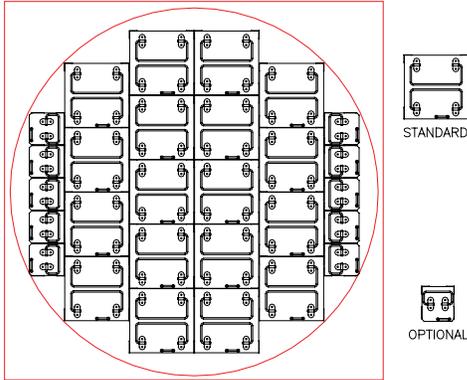
- Liquid sample storage
- Ergonomic design
- Largest LN2 capacity



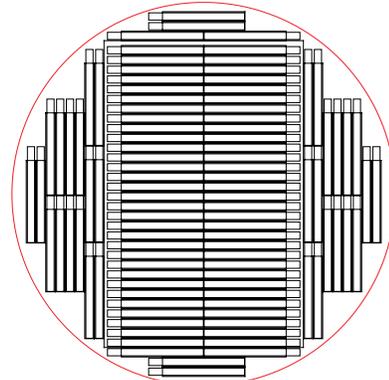
Visit www.chartbiomed.com for more information.

Rack Layouts

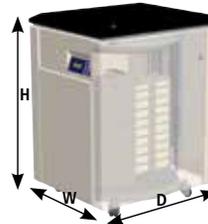
Square Rack Layout



4R9951 Layout



	MVE 616C	MVE 1426C				
Maximum Storage Capacity						
1.2 & 2 ml Vials (Internally Threaded)	16,900	26,650				
Number of Large Racks 100 cell boxes	12	18				
Number of Mini Racks 25 cell boxes	4	10				
Number of Shelves 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 <i>in. (mm)</i>	25.1 (638)	31.8 (806)				
Usable Internal Height <i>in. (mm)</i>	30.0 (762)	29.9 (759)				
Overall Height <i>in. (mm)</i>	41.4 (1051)	42.3 (1075)				
Outside Dimensions (H x W x D) <i>in. (mm)</i>	41.1 x 28 x 35.1 (104.4 x 71.1 x 89.2)	42.3 x 34.8 x 41.1 (88.4 x 180.3 x 104.4)				
Inner Diameter <i>in. (mm)</i>	25.1 (638)	31.8 (806)				
Door Width Requirement** <i>in. (mm)</i>	35.1x28 (892x711)	41.1x34.8 (1044x883)				
Weight Empty* <i>lb. (kg)</i>	352 (160)	530 (240)				
Weight Liquid Full* <i>lb. (kg)</i>	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 Parts 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:

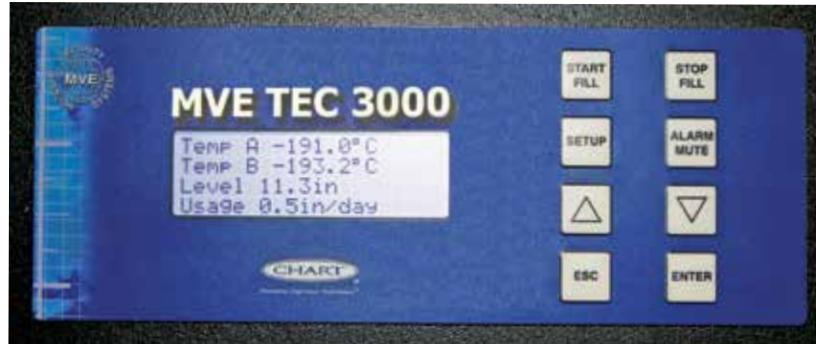
- Approximate hold time of 18 hours with lid on
- Omega temperature monitor with type T Thermocouple
- Traceable calibration certificate with RS232 PC interface
- LN2 transfer hose connection with ball valve and relief valve
- Available without plumbing and temperature recorder.



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

Visit www.chartbiomed.com for more information.

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 overflow 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 irreplaceable 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 $\pm 1.0^\circ\text{C}$ and a resolution of 0.1°C . The temperature can be displayed in $^\circ\text{C}$, $^\circ\text{F}$ 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 6000 Full Auto

The MVE CryoSystem 6000 Full Auto combines the compact efficiency of aluminum dewars with the monitoring and auto fill features of the TEC 3000 control system. The differential pressure-based level control allows this unit to easily be used for liquid or vapor storage with a -190°C top box temperature. The TEC3000 continually monitors and records temperature and LN2 levels, auto filling when needed, and providing audio/visual alarms with remote connectivity when necessary. The enhanced safety factor of not having to manually fill this unit also helps maintain a consistent temperature profile for vapor storage.

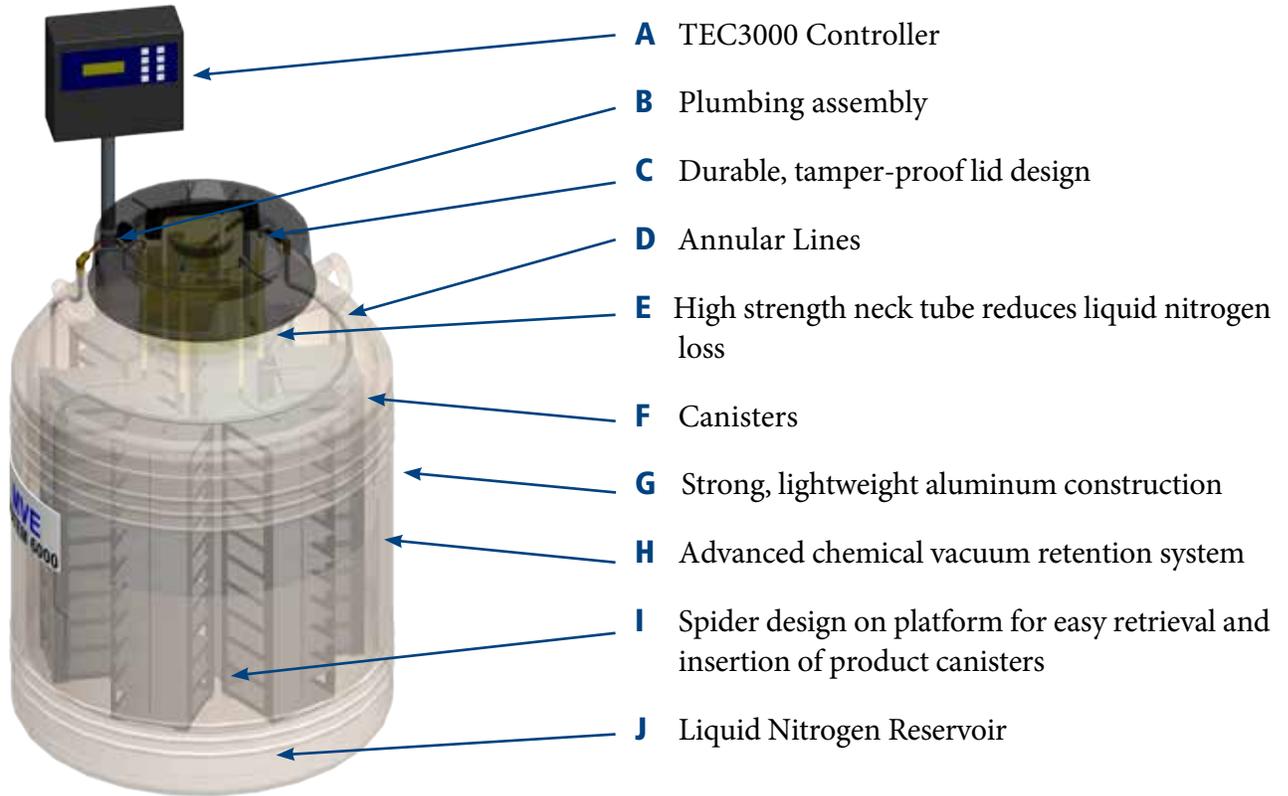
The CryoSystem 6000 Full Auto provides the convenience and security of high capacity stainless steel freezers for your average sized sample collection at a fraction of the price.

Features Include:

- Fully automatic LN2 level control and temperature monitoring
- Single temperature monitoring
- Can be used for liquid or vapor storage
- Tracks and displays LN2 consumption
- 17 user-defined audio / visual alarms including High Temperature, Low Level, Liquid Usage, Fill Timeout, and more
- Remote monitoring and communication capabilities
- Electronically stores up to 10 years of unalterable, time-stamped data events for traceability and troubleshooting
- Transportable in emergencies or in the event of natural disasters



Tank Features



CryoSystem 6000 Full Auto

Maximum Storage Capacity	
Number of Canisters	6
Number of 1.2 & 2.0 ml vials 100/box	6,000
Boxes per Rack	10
Performance	
LN2 Capacity L	175.0
Static Evaporation Rate* L/day	4.0
Unit Dimensions	
Neck Opening in. (mm)	8.5 (216)
Overall Height in. (mm)	37.9 (963)
Outer Diameter in. (mm)	26.5 (673)
Weight Empty lb. (kg)	156 (70.7)
Weight Full lb. (kg)	478 (216.8)

* 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 Parts Warranty](#) • [THREE Year Vacuum Warranty](#)

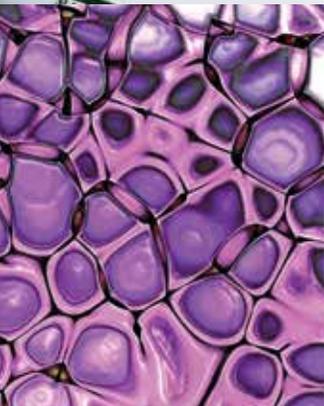
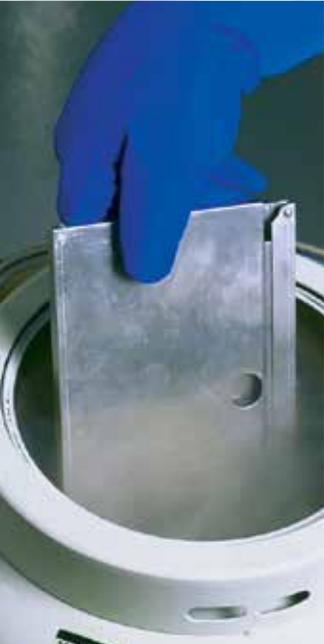
Conforms to MDD 93/42/EEC, the Medical Device Directive for the EU.

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.

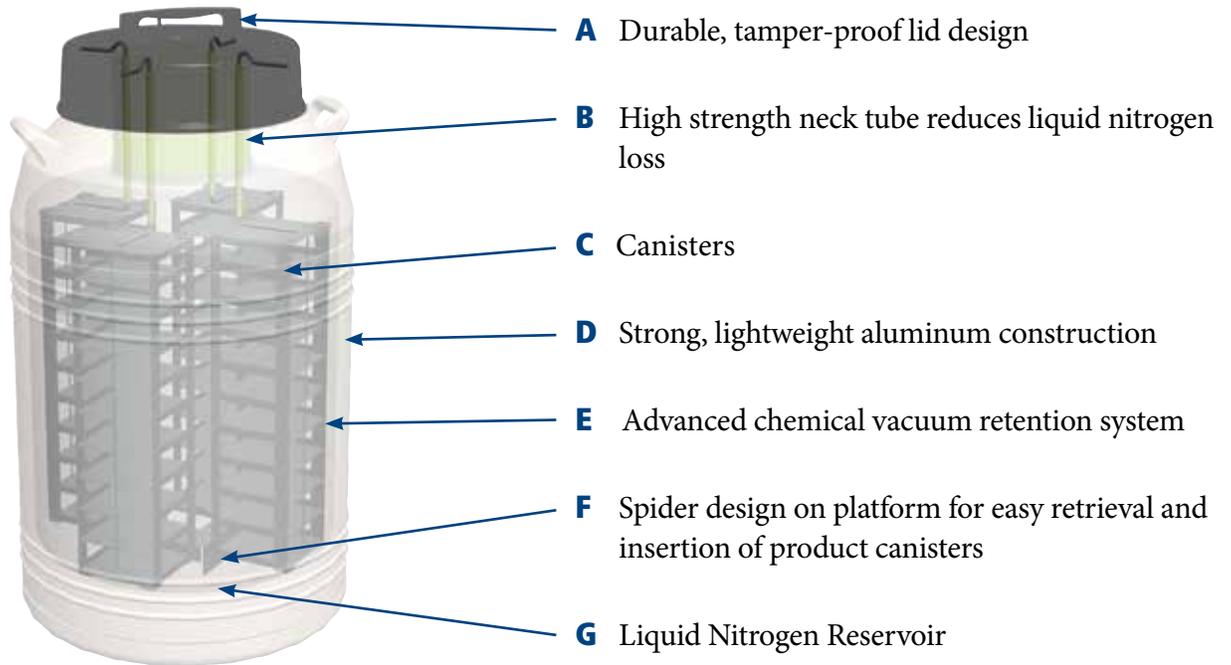
Features Include:

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



Visit www.chartbiomed.com for more information.

Tank Features



	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 & 2.0 ml vials 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 Parts Warranty](#) • [THREE Year Vacuum Warranty](#)

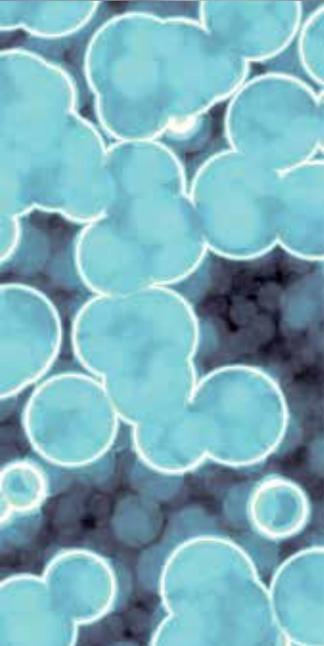
Conforms to MDD 93/42/EEC, the Medical Device Directive for the EU.

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.

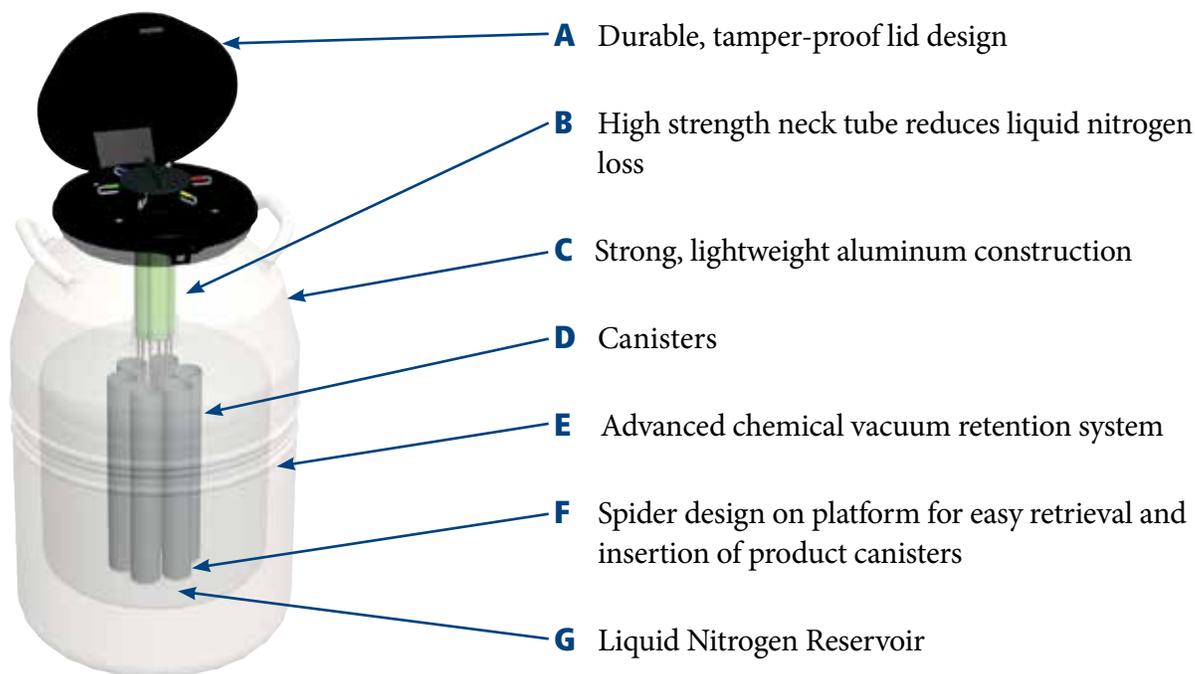
Features Include:

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



Visit www.chartbiomed.com for more information.

Tank Features



	SC 3/3	SC 8/5	SC 11/7	SC 20/20 Signature	SC 33/26	SC 36/32	Super 2
Maximum Storage Capacity							
Number of Canisters	6	6	6	6	6	6	6
Number of 1/2 cc Straws 10/ cane	-	-	660	540	540	540	660
Number of 1/2 cc Straws 1 Level Bulk	1122	1122	879	780	780	780	1122
Number of 1.2 & 2.0 ml vials 5/cane	-	-	150	-	150	150	210
Performance							
LN2 Capacity L	3.6	8.4	11.0	20.5	33.0	36.5	24.5
Static Evaporation Rate* L/ day	0.13	0.15	0.16	0.09	0.13	0.10	0.085
Normal Working Duration**, Full Days	17	35	43	142	182	224	180
Unit Dimensions							
Neck Opening in. (mm)	2.18 (55)	2.18 (55)	2.18 (55)	2.16 (55)	2.18 (55)	2.18 (55)	2.18 (55.4)
Overall Height in. (mm)	16.0 (406)	18.5 (470)	21.6 (549)	26.0 (660)	25.9 (657)	27.2 (690)	28.2 (716)
Outer Diameter in. (mm)	8.7 (222)	10.2 (260)	10.2 (260)	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)	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)	1.65 (41.9)	1.50 (38)	1.50 (38)	1.65 (41.9)
Weight Empty lb. (kg)	8 (3.6)	12 (5.3)	17 (7.7)	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)	62.4 (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.

** 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 Parts Warranty](#) • [THREE Year Vacuum Warranty](#)

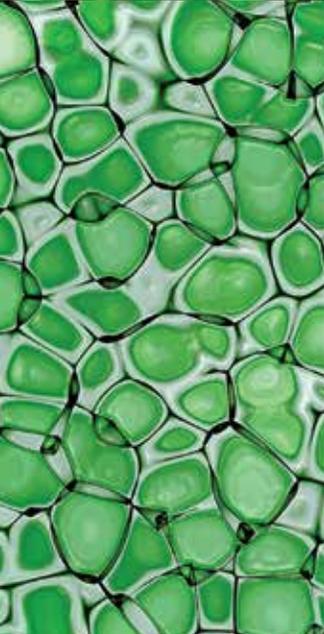
Conforms to MDD 93/42/EEC, the Medical Device Directive for the EU.

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.

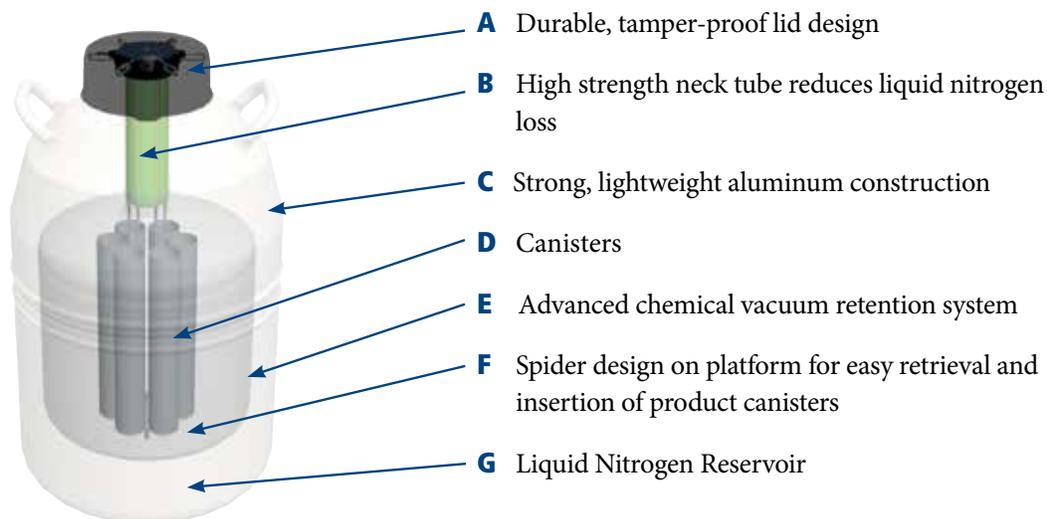
Features Include:

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



Visit www.chartbiomed.com for more information.

Tank Features



	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- 65Q	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	660	N/A	2,400	2,520	1,260	2,100	2,100	1,260	-	3,900+	3200
Number of 1/2 cc Straws 1 Level Bulk	879	3,870	3,666	3,960	1,764	3,300	3,300	1,764	-	6,200	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	34.8	67.5	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	0.18	0.31	0.14	0.39	0.39	0.39
Normal Working Duration**, Full Days	135	38	40	57	154	123	136	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)	3.50 (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)	26.6 (675)	37.5 (952)	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 (464)	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)	11 (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)	24 (10.9)	26 (11.8)	30 (13.6)	34 (15.4)	34 (15.4)	45.9 (20.8)	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)	61.4 (27.9)	66.0 (30)	87.0 (39.5)	94.0 (42.5)	96.0 (43.5)	104.4 (47.3)	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.

TWO Year Parts Warranty • THREE Year Vacuum Warranty

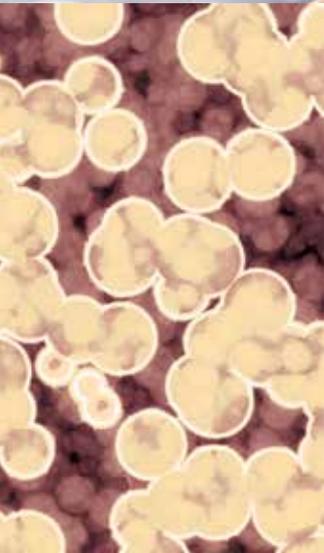
Conforms to MDD 93/42/EEC, the Medical Device Directive for the EU.

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.

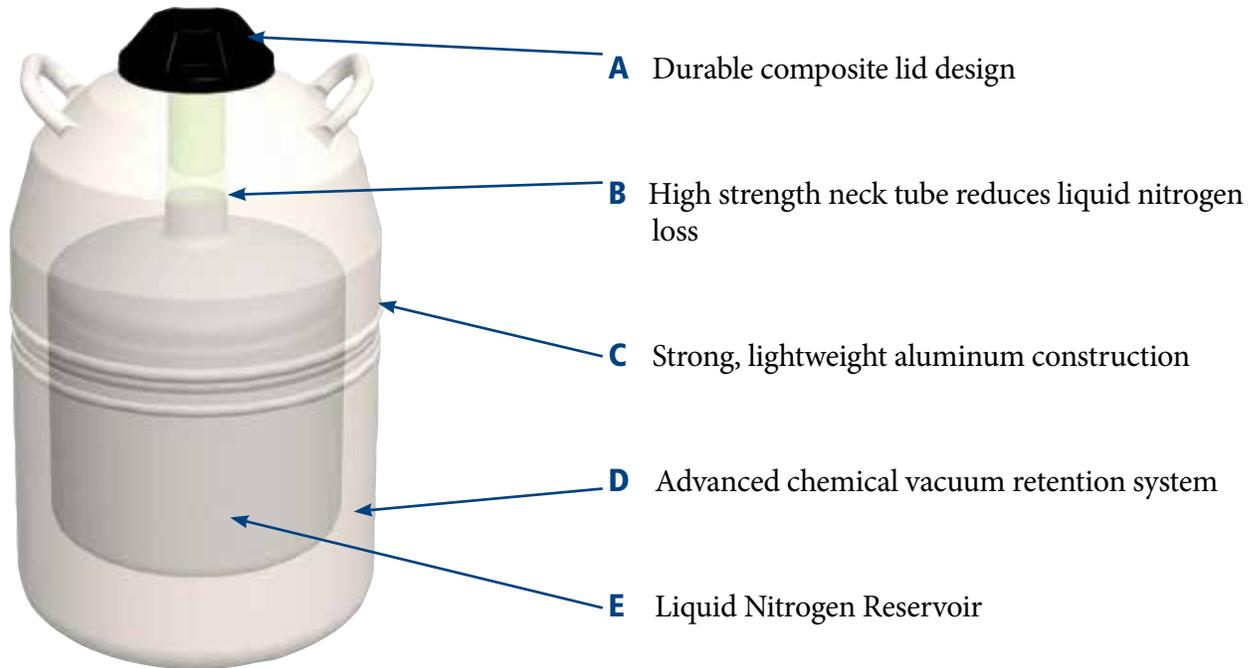
Features Include:

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



Visit www.chartbiomed.com for more information.

Tank Features



	LAB 4	LAB 5	LAB 10	LAB 20	LAB 30	LAB 47	LAB 50
Performance							
LN2 Capacity L	4	5	10	20	32	47	50
Static Evaporation Rate* L/day	0.19	0.15	0.18	0.18	0.22	0.39	0.49
Unit Dimensions							
Neck Opening in. (mm)	1.40 (35)	2.18 (56)	2.18 (56)	2.18 (56)	2.50 (64)	5.00 (127)	2.50 (64)
Overall Height in. (mm)	16.8 (426)	18.2 (462)	21.5 (546)	24.5 (622)	24.0 (610)	26.5 (673)	30.5 (775)
Useable Height in. (mm)	7.8 (198)	10.5 (266)	13.5 (343)	13.7 (348)	14.9 (378)	16.8 (427)	22.0 (559)
Outer Diameter in. (mm)	7.3 (185)	8.8 (222)	10.3 (260)	14.5 (368)	17.0 (432)	20.0 (508)	17.0 (432)
Internal Diameter in. (mm)	5.5 (139)	6.5 (165)	8.3 (210)	11.4 (289)	14.0 (356)	16.5 (419)	14.0 (356)
Weight Empty lb. (kg)	6 (2.7)	8 (4)	12 (5.4)	19 (9)	25 (11.4)	42 (19)	31 (14)
Weight Full lb. (kg)	13 (6)	17 (8)	31 (14)	55 (25)	82 (37.2)	120.4 (54.6)	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 Parts Warranty](#) • [THREE Year Vacuum Warranty](#)

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



MVE CryShipper Series

Featuring Advanced QWick™ Charge Technology

MVE CryShippers are designed for the safe transportation of biological samples at cryogenic (-150°C or colder) temperatures. MVE CryShipper Series utilizes an advanced QWick Charge 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
- **CHARGES IN LESS THAN TWO HOURS**



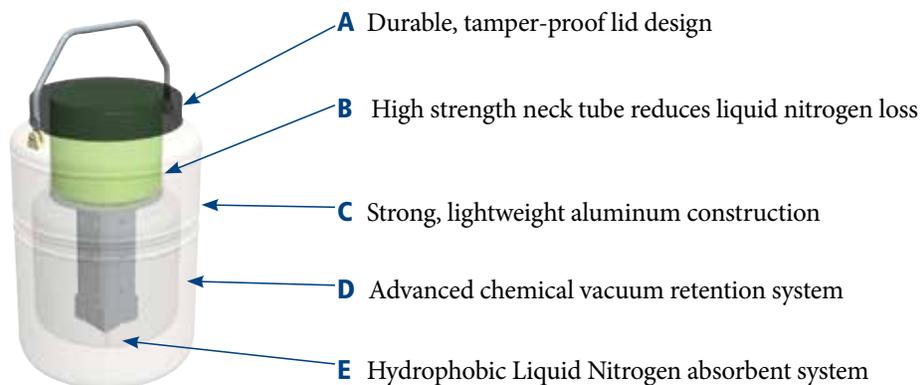
ADVANCED
QWick Charge Technology

Charges in under 2 hours

Ref 2088994 Rev A

Visit www.chartbiomed.com for more information.

Tank Features



	SC 2/1V	SC 4/2V	SC 4/3V	SC 20/12V	XC 20/3V**	Mini Moover	Cryo-Moover	Cryo Shipper Mini	Cryo Shipper	Cryo-Shipper XC	IATA
Static Holding Time Days	8	13	21	85	16	14	12	7	10	14	14
Weight Empty lb. (kg)	6.0 (2.7)	10.0 (4.5)	11.0 (5.0)	25.0 (11.3)	25.0 (11.3)	9.0 (4.1)	30.5 (13.8)	23 (10.4)	26.2 (11.9)	33.0 (15.0)	33.0 (15.0)
Weight Charged vapor lb. (kg)	8.0 (3.6)	15.5 (7.0)	17.0 (7.7)	43.0 (19.5)	43.0 (19.5)	12.5 (5.7)	37 (16.8)	32 (14.5)	41.3 (18.7)	50.5 (22.9)	50.5 (22.9)
Weight Full liquid lb. (kg)	9.0 (4.1)	20.0 (9.1)	21.0 (9.5)	56.5 (25.6)	38.4 (17.4)	15.5 (7.0)	87 (39.5)	45 (20.4)	54.5 (24.7)	73.0 (33.1)	73.0 (33.1)
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											
Liquid Nitrogen Capacity L	1.5	3.6	4.3	12.3	6.8	2.9	4.2	5.9	8.5	10.0	11.8
Static Evaporation Rate* L/day	0.19	0.26	0.20	0.09	0.35	0.20	0.35	0.84	0.85	0.85	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)	3.80 (97.0)	8.50 (216.0)	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)	22.0 (558)	20.0 (508)	21.5 (546)	23.0 (584)	24.0 (610)
Outside Diameter in (mm)	7.25 (184)	8.70 (222)	8.70 (222)	14.50 (368)	14.50 (368)	7.20 (184)	18.30 (464)	11.60 (295)	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)

* Without inventory

‡Usable Height

THREE Year Vacuum Warranty

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

MVE Doble Series

Featuring Advanced QWick™ Charge Technology

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
- **CHARGES IN LESS THAN TWO HOURS**

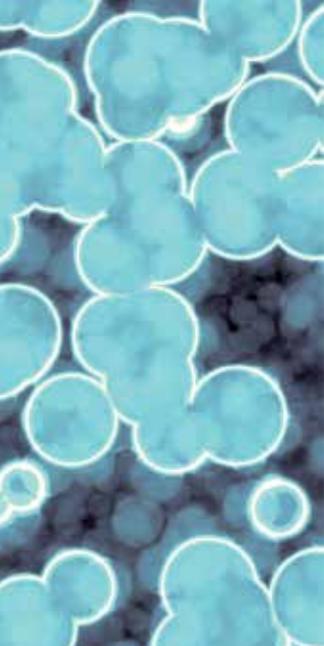


ADVANCED
QWick Charge Technology

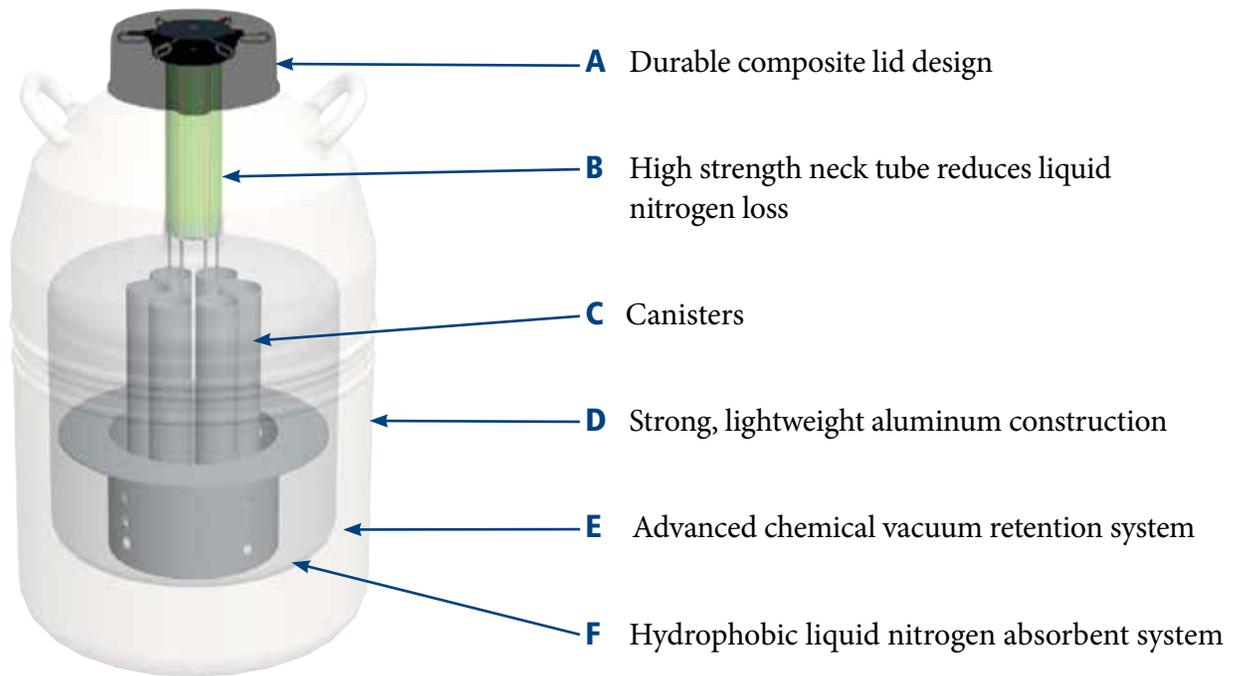
Charges in under 2 hours

Ref 2088994 Rev A

Visit www.chartbiomed.com for more information.



Tank Features



Doble Series	Doble 11	Doble 20	Doble 28	Doble 34	Doble 47	Doble 47-10
Normal Working Duration <i>days for liquid</i>	37	116	50	100	74	72
Normal Working Duration <i>days for vapor</i>	17	21	24	20	21	21
Weight Empty <i>lb. (kg)</i>	14.5 (6.6)	22.0 (10.0)	33.0 (15.0)	34.0 (15.4)	41.0 (18.6)	41.0 (18.6)
Weight Charged <i>vapor lb. (kg)</i>	18.5 (8.4)	26.0 (11.8)	47.0 (21.3)	45.5 (20.6)	55.0 (24.9)	55.0 (24.9)
Weight Full <i>liquid lb. (kg)</i>	32 (14.5)	56 (25.4)	89 (40.4)	92 (41.7)	117 (53.1)	117 (53.1)
Cabosil <i>lb. (kg)</i>	1.0 (0.45)	1.0 (0.45)	3.5 (1.58)	2.0 (0.9)	3.4 (1.5)	3.4 (1.5)
Maximum Storage Capacity						
Number of Canisters	6	6	6	6	6	10
No. of 1/2 cc Straws <i>10/cane</i>	660	660	2,400	2,100	4,500	3,500
Vial Capacity	210	210	810	630	1,320	1,050
Performance						
Liquid Nitrogen Capacity <i>L</i>	10.0	18.5	28.0	32.0	46.0	46.0
Vapor Capacity <i>L</i>	3.1	2.8	8.4	6.7	8.4	9.6
Static Evaporation Rate <i>L/day</i>	0.17	0.10	0.35	0.20	0.40	0.40
Unit Dimensions						
Neck Opening <i>in (mm)</i>	2.18 (55)	2.18 (55)	3.81 (97)	3.50 (89)	5.00 (127)	5.00 (127)
Overall Height <i>in (mm)</i>	21.6 (549)	25.7 (652)	22 (559)	26.6 (676)	26.5 (673)	26.5 (673)
Outside Diameter <i>in (mm)</i>	10.2 (260)	14.5 (368)	18.2 (462)	18.2 (462)	20.0 (508)	20.0 (508)
Canister Height <i>in (mm)</i>	11 (279)	11 (279)	11 (279)	11 (279)	11 (279)	11 (279)
Canister Diameter <i>in (mm)</i>	1.65 (41)	1.65 (42)	3.09 (78)	2.81 (72)	4.00 (101)	2.81 (72)

THREE Year Warranty

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

MVE CryoCube™

The newly improved 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



MVE CryoCube™

Maximum Storage Capacity

Number of Canisters	1
Number of 1/2 cc Straws 10/cane	88
Number of 1/2 cc Straws 1 Level Bulk	182
Number of 1.2 & 2.0 ml vials 5/cane	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)
Overall Width in. (mm)	12 (305)
Inner Canister Height in. (mm)	5.25 (127)
Inner Canister Diameter in. (mm)	1 (25)
Weight Empty lb. (kg)	5.25(1.8)
Weight Full lb. (kg)	9 (4)

90 Day Standard Warranty

Visit www.chartbiomed.com for more information.



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!

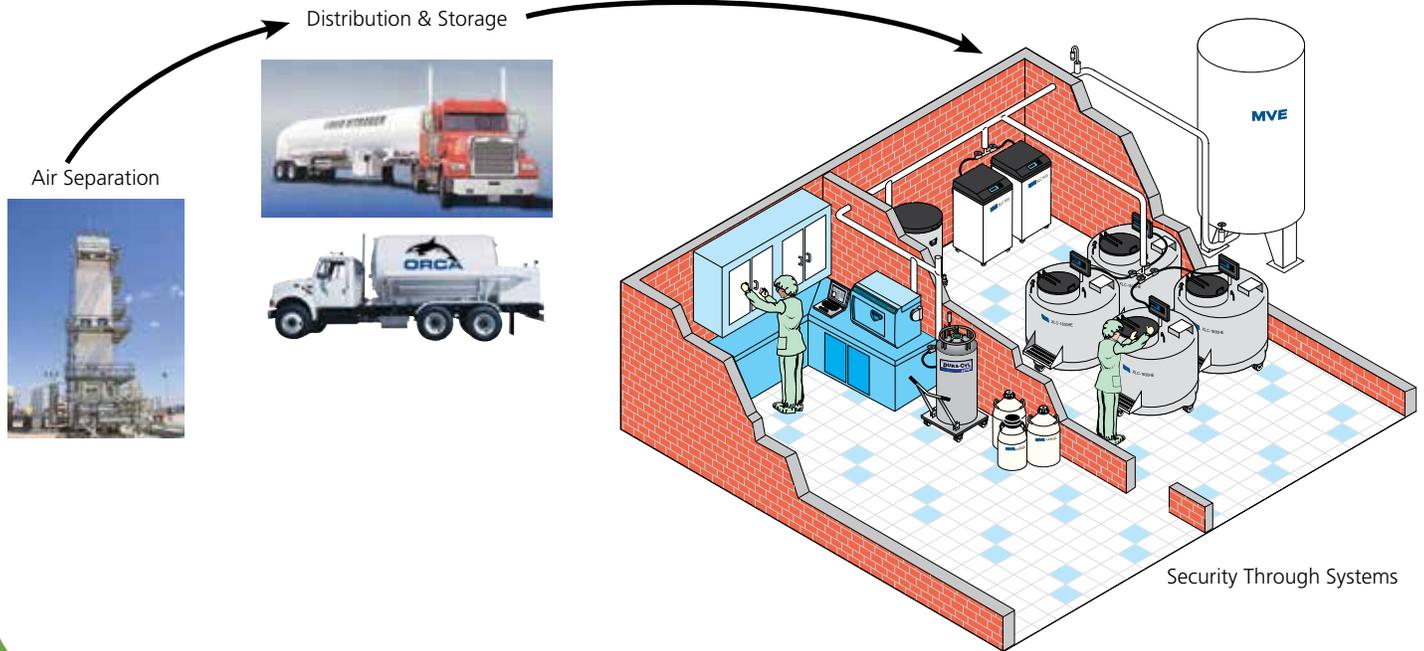


PDF Logger®	
Specifications	
Dimensions L, W, H in (mm)	3.7 x 1.6 x 0.5 (95 x 40 x 12)
Weight oz (g)	1.4 (40)
Temperature Range	-200°C to +200°C
Accuracy	± 0.5°C [-200°C, -10.1°C]
Resolution	0.1°C
Display	Multifunction LCD, 23.5 x 23.5 mm
Case	ABS plastic
Battery	3.6V
Battery Life	400 days
Sensor	Pt100 3-wire class 0.5
Memory	16,000 data points
Interface	USB – PC Universal Serial Bus
Software Compatibility	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 
- ISO 19005-1
- Compliant: FDA 21 CFR Part 11, GMP, GLP

Chart: Total Cryogenic Solutions



Our Global Presence



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