



MVE Cryopreservation Equipment

Storage and Transport Systems for Biological Materials



Table of Contents

| | |
|--|----|
| Temperature Chart & Product Selector Guide..... | 3 |
| MVE 800 Series -190°C High Efficiency Freezer | 4 |
| MVE 1500 Series -190°C High Efficiency Freezer | 6 |
| MVE 1800 Series -190°C High Efficiency Freezer | 8 |
| MVE Series..... | 10 |
| MVE Stock Series | 12 |
| MVE Cabinet Series..... | 14 |
| MVE CryoCart | 16 |
| MVE TEC 3000 | 17 |
| MVE CryoSystem Series..... | 18 |
| MVE SC Series..... | 20 |
| MVE XC Series | 22 |
| MVE Lab Series | 24 |
| MVE CryoShipper QWick™ & Vapor Series | 26 |
| MVE Doble QWick™ & Doble Series..... | 28 |
| MVE CryoCube™ | 30 |
| PDF Logger® | 31 |
| MVE Research Dewars | 32 |
| LN2 Tx..... | 33 |
| Accessories | 34 |
| Inventory..... | 35 |



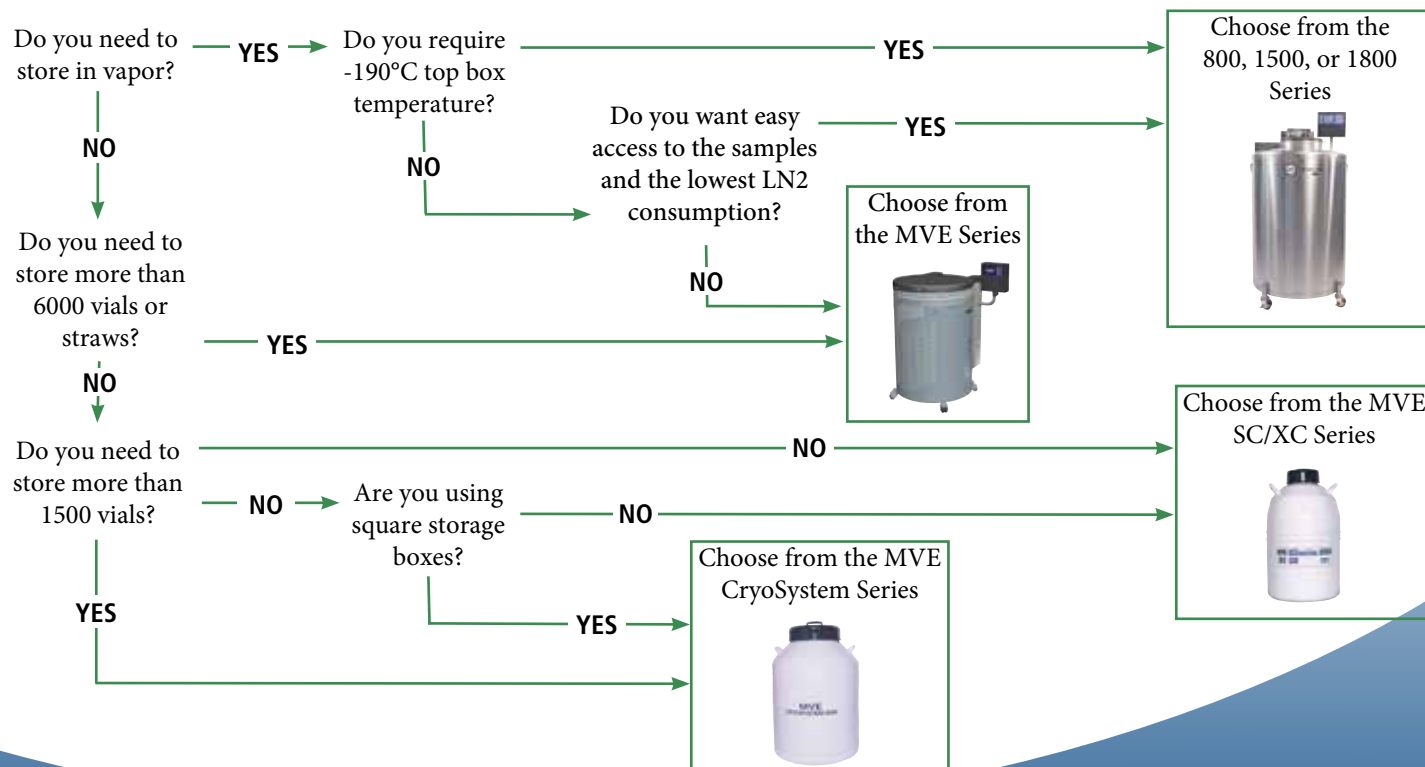
Temperature Chart & Product Selector Guide

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:

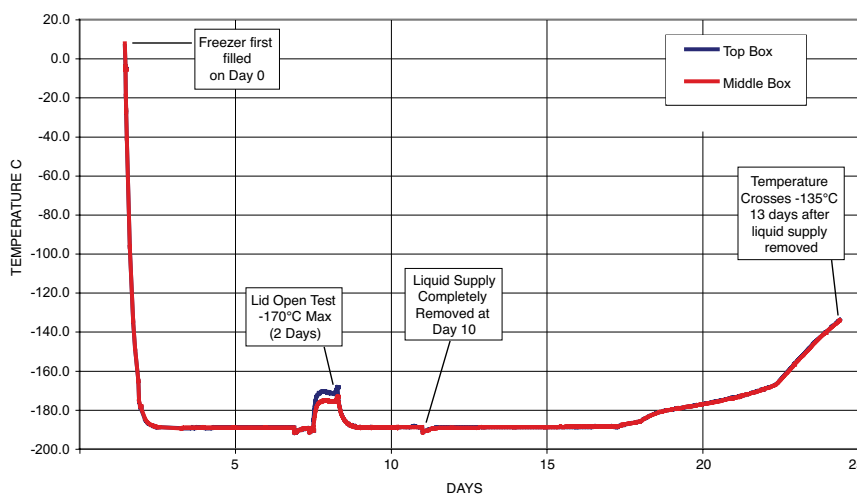
- Dry sample storage
- -190°C top box temperature
- Lowest liftover height
- Largest LN2 capacity below turn tray



Optional Step
(recommended for 818 and 819)

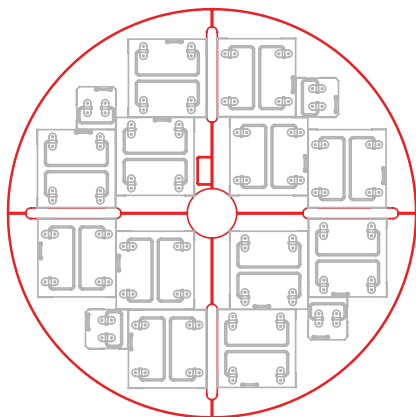
Temperature Test Graph

* 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.

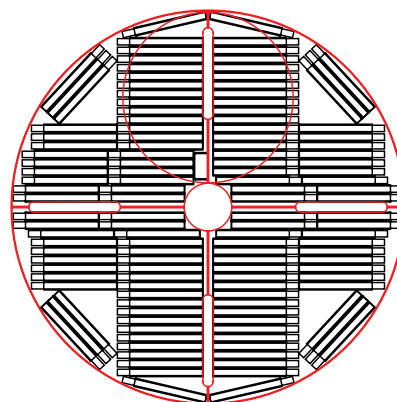


Rack Layouts (P)

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 (25 ml) | 1,806 | 7 | 258 | 2,064 | 8 | 258 | 2,322 | 9 | 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.

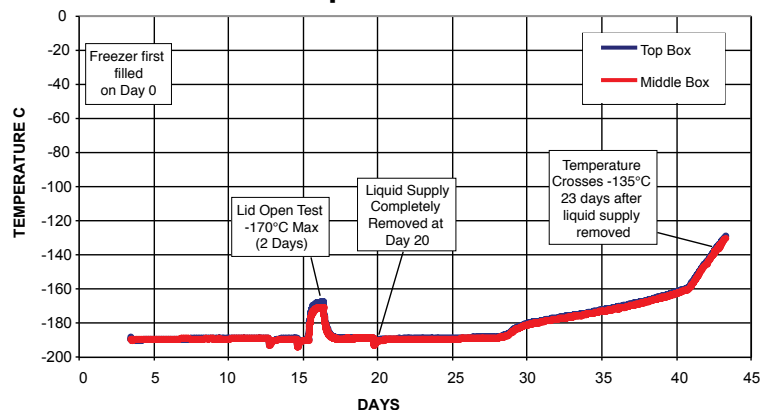
Also available in -150°C versions

Features include:

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



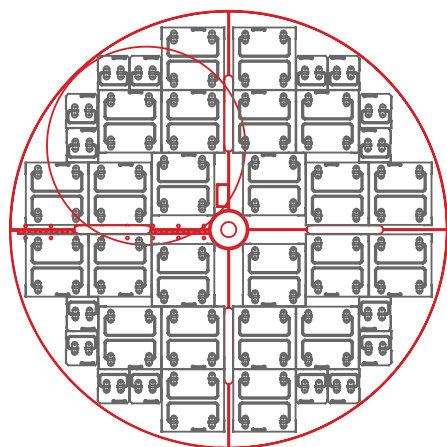
Temperature Test*



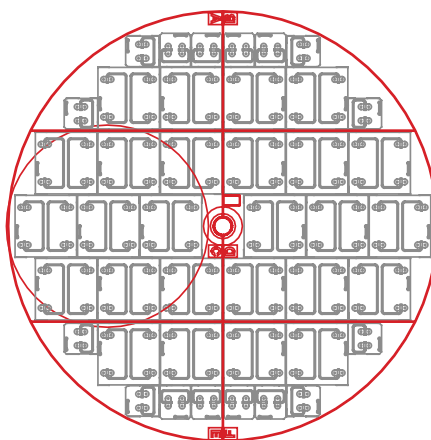
Temperature Test Graph

* 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.

Square Rack Layout (P)

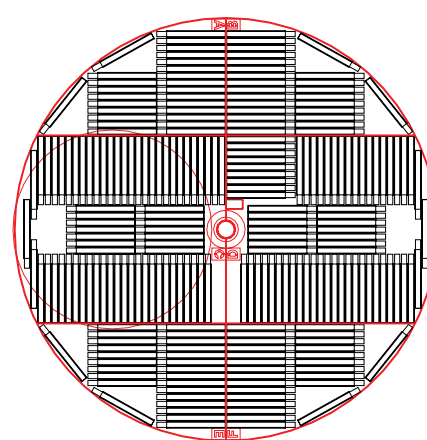


MVE 1536P-190

Rack Layouts
Square Rack Layout (R)


MVE 1539P-190

4R9551 Layout (R)



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) | 2905 | 7 | 415 | 3320 | 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 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

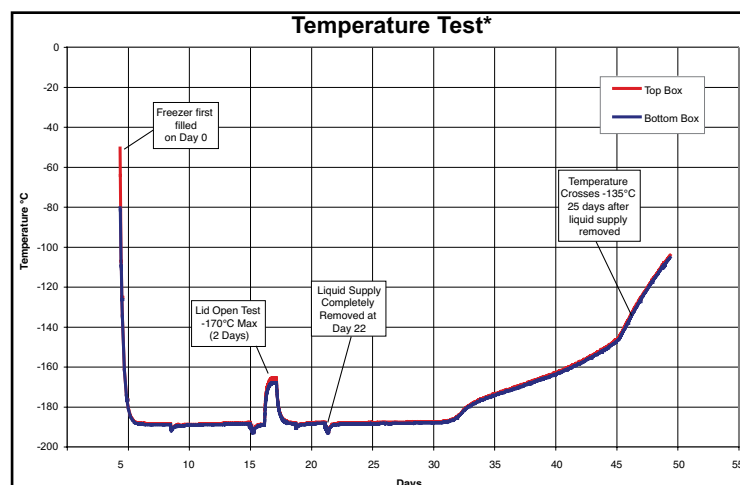
Features include:

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



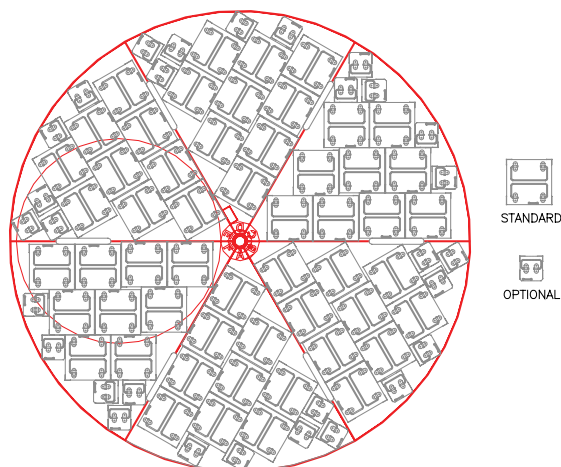
Temperature Test Graph

* 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.

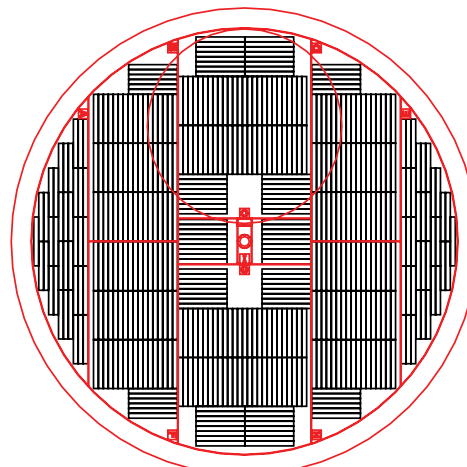


Rack Layouts

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 | 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 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.

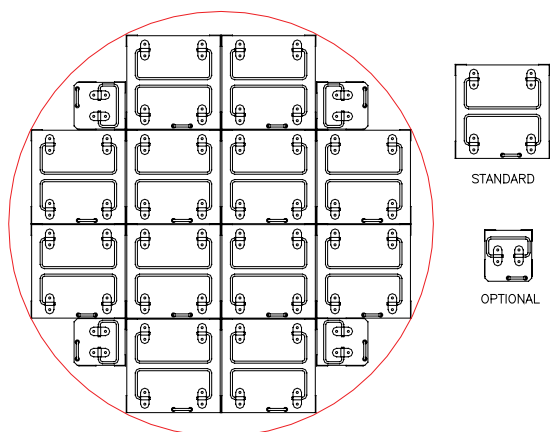
Features include:

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

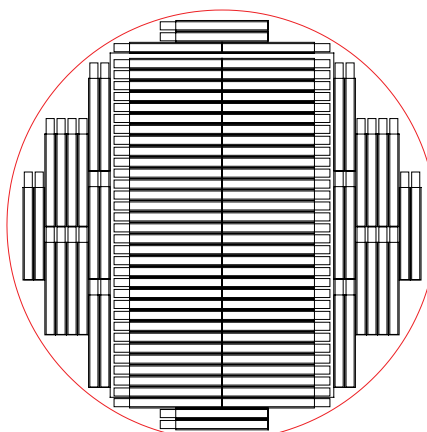


Rack Layouts

Square Rack Layout

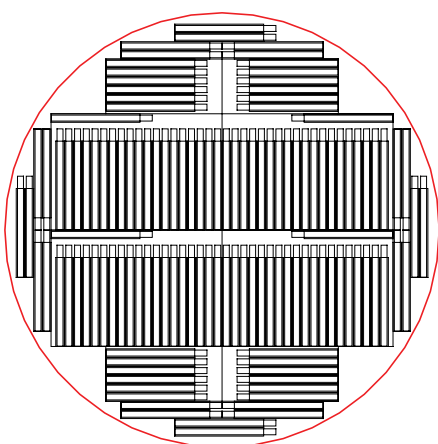


4R9951 Layout

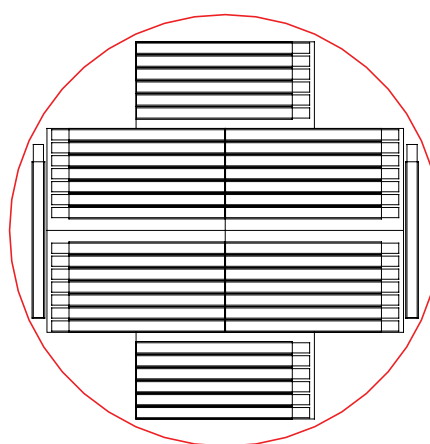


Rack Layouts

4R9953 Layout



DF700 Layout

MVE
204*MVE
205MVE
510MVE
616MVE
1426MVE
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 | No. Frame | No. Frames | Total Bags/ Bags | No. Frame | No. Frames | Total Bags/ Bags | No. Frame | No. Frames | Total Bags/ Bags | No. Frame | No. Frames | Total Bags/ Bags | No. Frame | No. Frames | Total Bags/ Bags | No. 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.

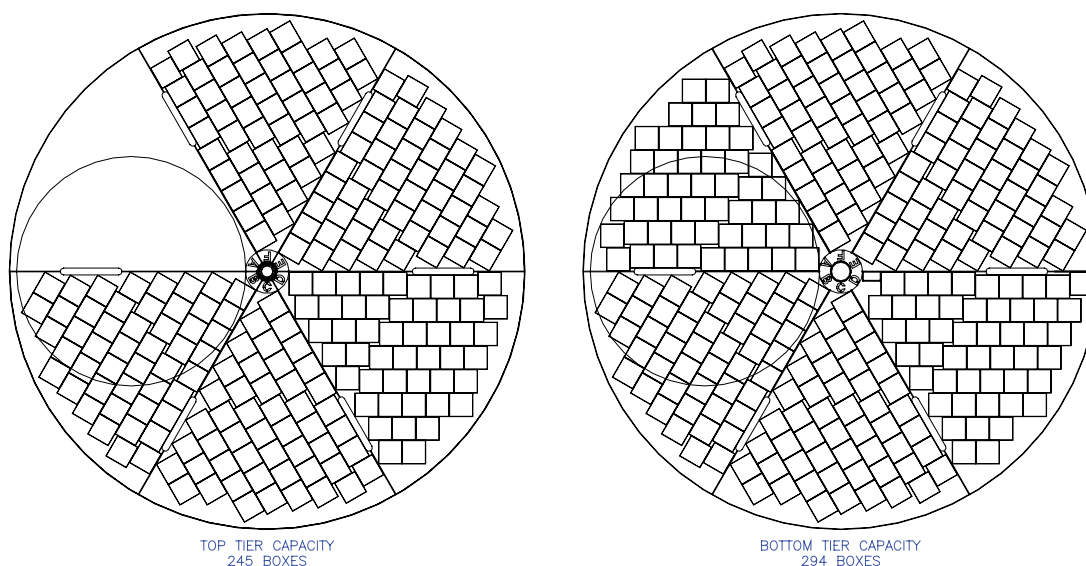
Features include:

- 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 2.0 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 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.

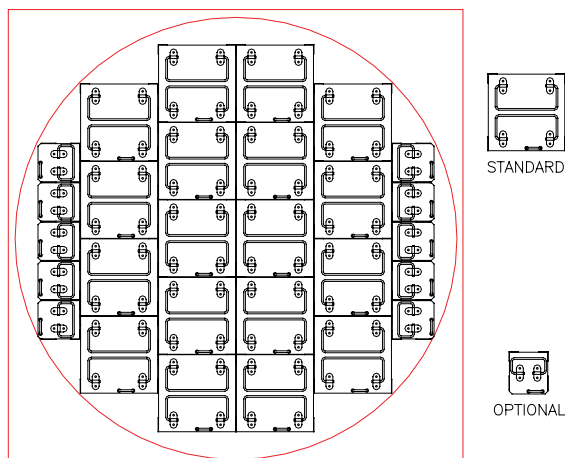
Features include:

- Liquid sample storage
- Ergonomic design
- Largest LN2 capacity

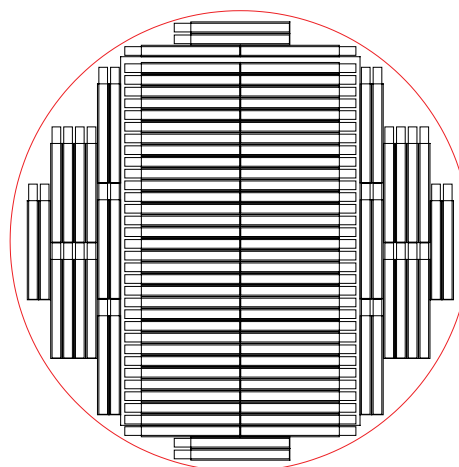


Rack Layouts

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 <i>100 cell boxes</i> | 12 | 18 |
| Number of Racks <i>25 cell boxes</i> | 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 <i>L</i> | 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 Diameter <i>in. (mm)</i> | 35.1x28 (892x711) | 41.1x34.8 (1044x883) |
| 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 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 <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 <i>hrs</i> | 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 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 Series

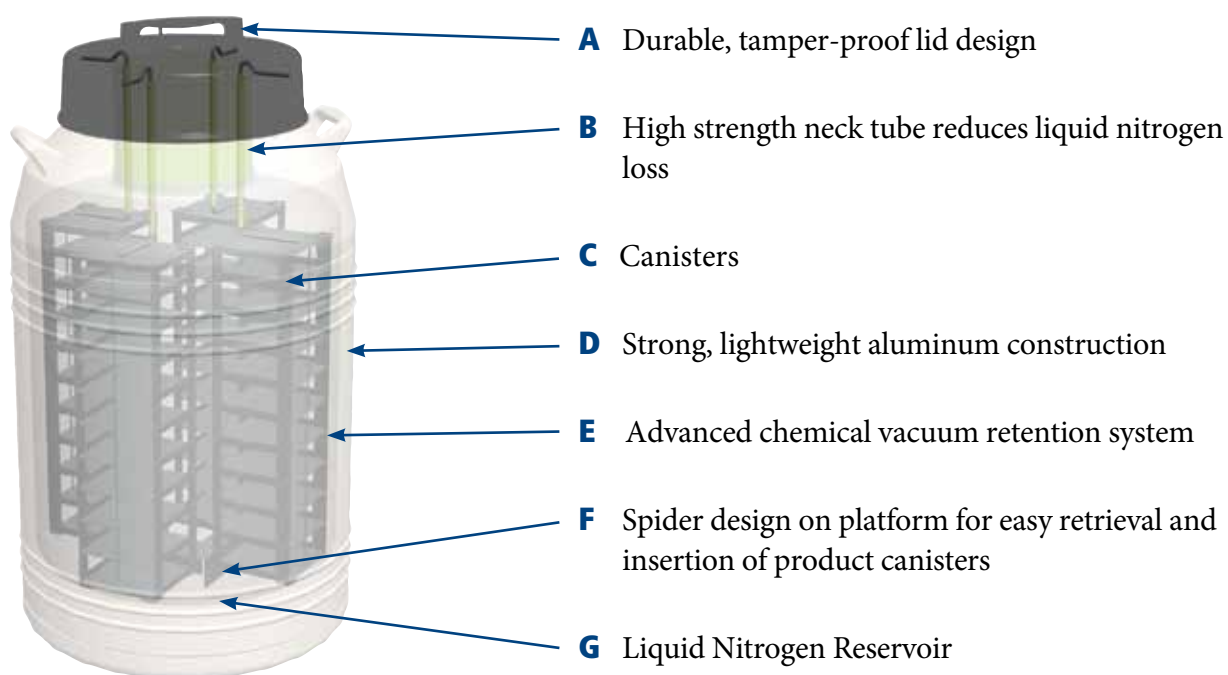


The MVE CryoSystem Series combines the benefits of low nitrogen consumption with mid-range vial capacity to meet the diverse needs of today's professionals worldwide. The lightweight and low-space demands of these containers make them the most economical units in their class.

Features Include:

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

Tank Features



| | 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

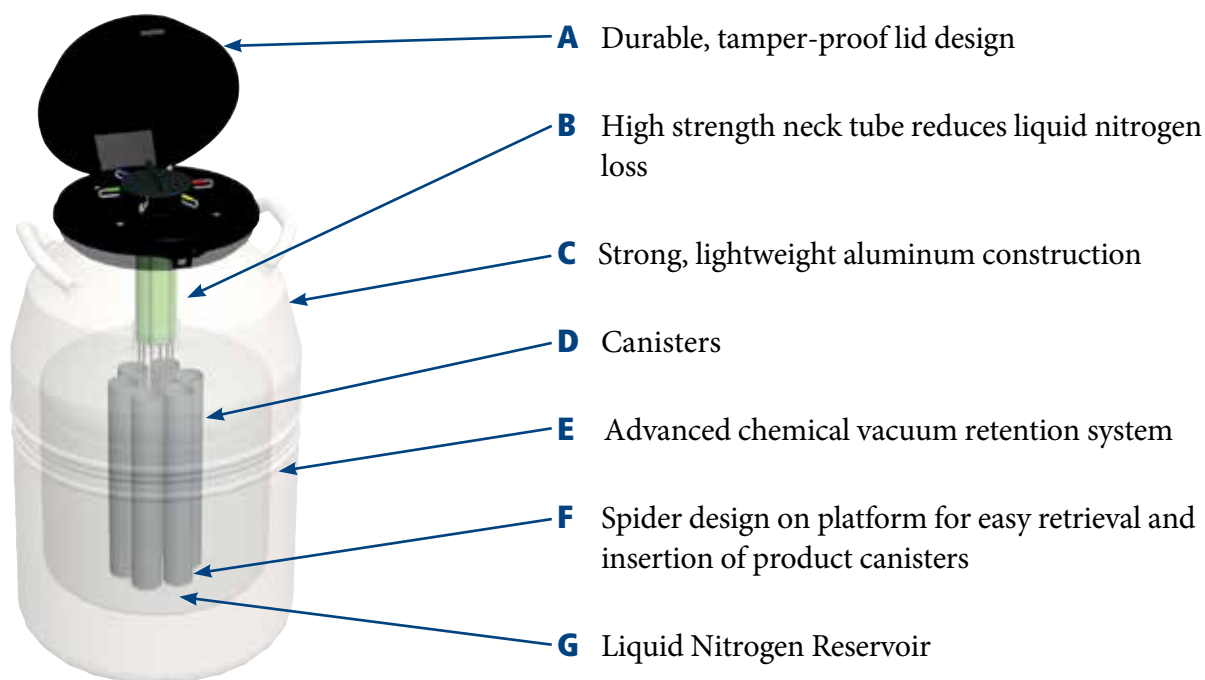


MVE offers the widest range of compact aluminum storage tanks available on the market today. Over the past 50 years, our product designs have improved through end-user input and evolved into a unique selection of units. The SC Series is designed for the user who has small capacity needs, but requires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



| | SC 3/3 | SC 8/5 | SC 11/7 | SC 20/20 | 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 | 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) | 2.18 (55) | 2.18 (55) | 2.18 (55) | 2.18 (55.4) |
| Overall Height in. (mm) | 16.0 (406) | 18.5 (470) | 21.6 (549) | 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) | 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) | 1.50 (38) | 1.50 (38) | 1.50 (38) | 1.65 (41.9) |
| Weight Empty lb. (kg) | 8 (3.6) | 12 (5.3) | 17 (7.7) | 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) | 62.5 (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.

** 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 • FIVE Year Vacuum Warranty
Conforms to MDD 93/42/EEC, the Medical Device Directive for the EU.

MVE XC Series

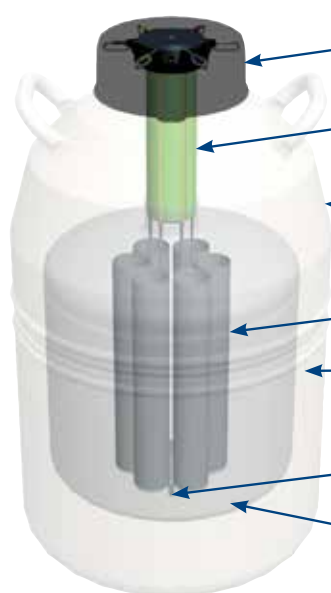


MVE XC Series tanks have capacities ranging from 700–5000 straws and 150 to over 1000 vials. Manufactured to a world class level of excellence and backed by an industry-leading 5 year vacuum warranty, these durable, lightweight units can be relied on to perform in the most demanding of environments.

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 | 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) | 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) | 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.

*** 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

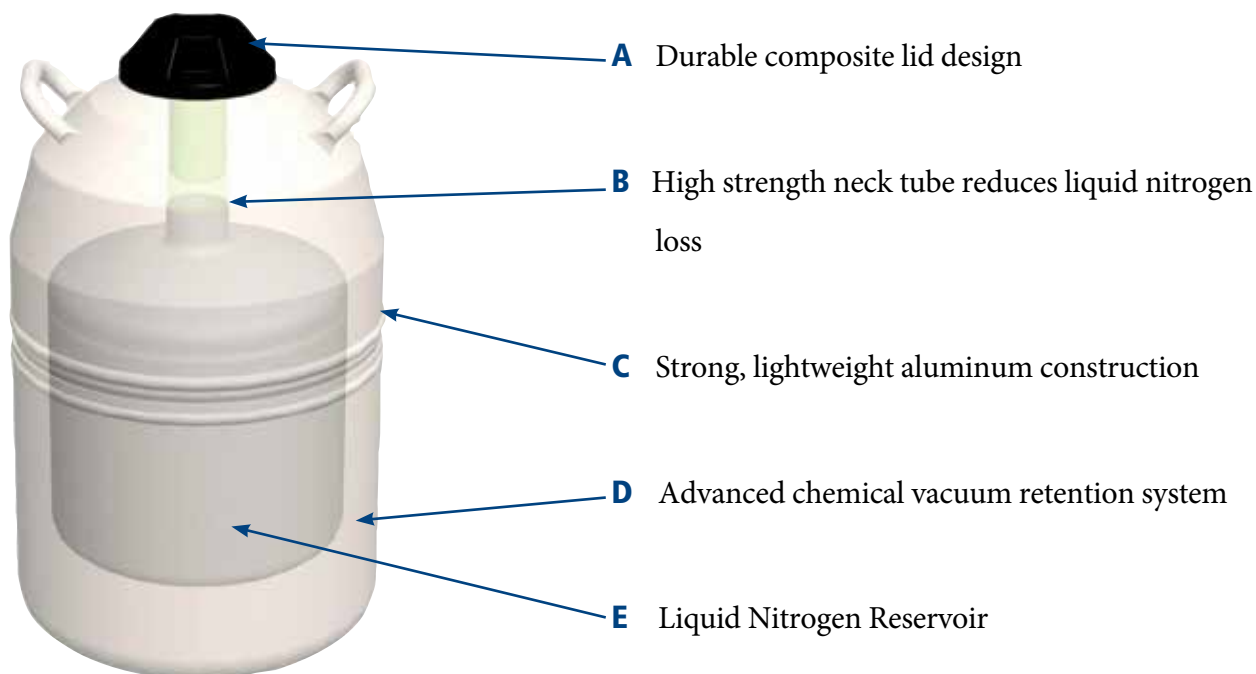


The Lab Series cryogenic liquid dewars are named for their acceptance in laboratories and medical facilities worldwide. These high-efficiency, super insulated dewars are the most convenient, economical way to store and dispense liquid nitrogen. Many lab units can be fitted with pouring spouts, pressurized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



| | 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 (56) | 2.50 (64) | 2.50 (64) |
| Usable 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.



TWO Year Standard Warranty • FIVE Year Vacuum Warranty

0029 Conforms to MDD 93/42/EEC, the Medical Device Directive for the EU.

MVE CryShipper 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



- A** Durable, tamper-proof lid design
- B** High strength neck tube reduces liquid nitrogen loss
- C** Strong, lightweight aluminum construction
- D** Advanced chemical vacuum retention system
- E** Hydrophobic Liquid Nitrogen absorbent system

| 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 | 12 | 7 | 14 | 10 | 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 | - | 260 | 130 | 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 | 880 | 420 | 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 | - | 966 (Bulk) | 500 | - |
| No. of blood bags stored 4R9953 | - | - | - | - | - | - | - | - | 10 | 10 | - |
| Performance | | | | | | | | | | | |
| LN2 Capacity L | 1.5 | 3.6 | 4.3 | 12.3 | 6.8 | 2.9 | 4.2 | 5.9 | 10.0 | 8.5 | 11.8 |
| Static Evaporation Rate* L/day | 0.19 | 0.26 | 0.20 | 0.09 | 0.35 | 0.20 | 0.35 | 0.84 | 0.80 | 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) | 23.0 (584) | 21.5 (546) | 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) | 18.30 (464) | 11.60 (295) | 15.00 (381) | 14.50 (369) | 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) | 30.5 (13.8) | 16.5 (7.5) | 31.0 (14.1) | 26.2 (11.9) | 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) | 38.0 (17.2) | 34.3 (15.5) | 48.0 (21.8) | 41.3 (18.7) | 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)

† Usable Height

THREE Year Vacuum Warranty

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

MVE Doble QWick™ & Doble Series

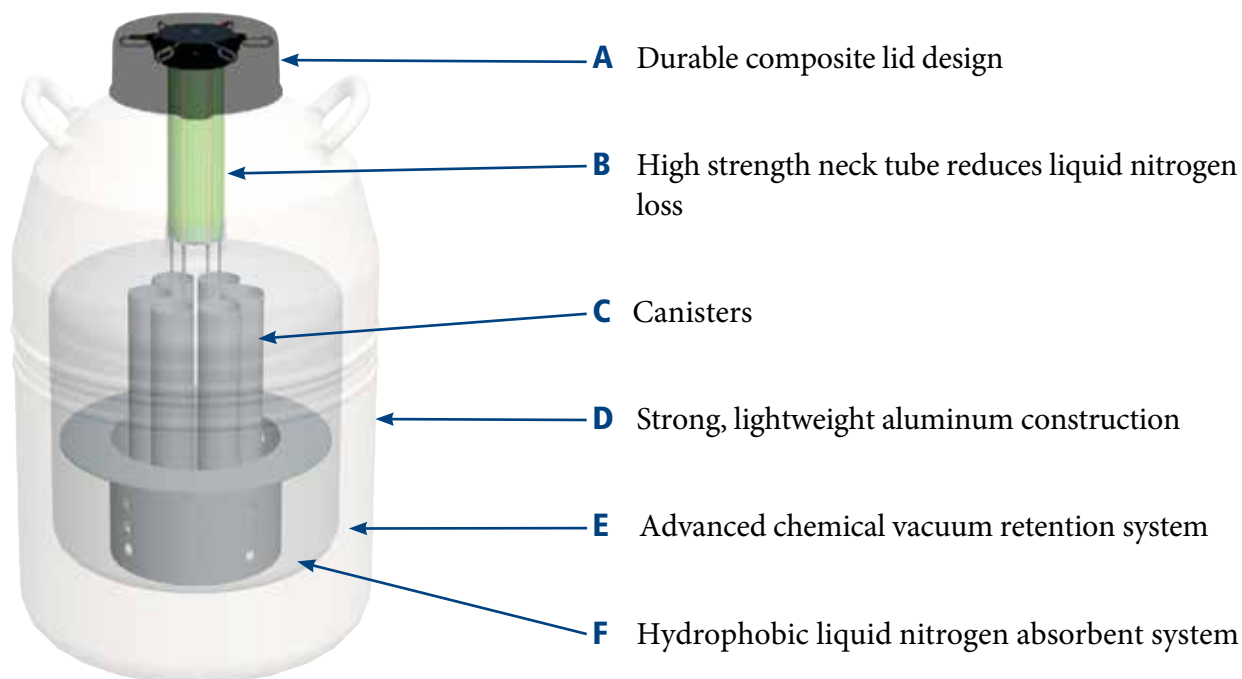


The Doble Series cryogenic liquid dewars are the first units to be designed for both vapor shipment and liquid storage. The Doble QWick Series utilizes an absorbent wicking material that charges with liquid nitrogen in fewer than two hours, providing the capacity for same-day vapor shipping. A unique 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



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

| 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 | 30 | 21 | 21 |

Maximum Storage Capacity

| | | | | | | |
|-------------------------------------|-----|-----|------|------|------|------|
| Number of Canisters | 6 | 6 | 6 | 6 | 6 | 10 |
| No. of 1/2 cc Straws <i>10/cane</i> | 660 | 660 | 2400 | 2100 | 4500 | 3500 |
| Vial Capacity | 210 | 210 | 810 | 630 | 1320 | 1050 |

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) |
| Weight Empty <i>lb. (kg)</i> | 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 <i>vapor lb. (kg)</i> | 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 <i>liquid lb. (kg)</i> | 36 (16) | 60 (27) | 84 (38) | 95 (43) | 125 (57) | 120 (54.5) |
| Cabosil <i>lb. (kg)</i> | 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




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 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 II, GMP, GLP**

1 Year Warranty

By 

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 <i>L</i> | 6 | 3 | 2 | 1 | 1 | 0.5 |
| Handle | yes | yes | yes | yes | yes | no |

Unit Dimensions

| | | | | | | |
|--|------------|-----------|------------|-----------|-----------|-----------|
| Neck Opening <i>in. (mm)</i> | 7.3 (185) | 7.3 (185) | 3.9 (99) | 3.3 (84) | 3.9 (99) | 2.6 (66) |
| Inner Diameter <i>in. (mm)</i> | 7.3 (185) | 7.3 (185) | 3.9 (99) | 3.3 (84) | 3.9 (99) | 2.6 (66) |
| Outer Diameter <i>in. (mm)</i> | 7.8 (198) | 7.8 (198) | 4.8 (122) | 4.3 (109) | 4.8 (122) | 3.4 (86) |
| Usable Internal Height <i>in. (mm)</i> | 10.6 (269) | 6.3 (160) | 7.1 (180) | 6.2 (157) | 6.1 (155) | 7.1 (180) |
| Overall Height <i>in. (mm)</i> | 11.8 (300) | 7.5 (191) | 12.3 (312) | 9.1 (231) | 7.0 (178) | 8.0 (203) |
| NER without cover <i>L/hr</i> | 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

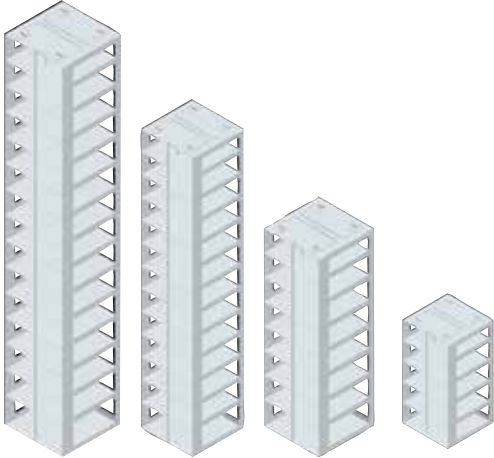



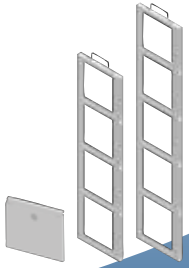
| | |
|-----------------------------------|-----------|
| Rigid Aluminum Tube Length ft (m) | 4 (1.2) |
| Flex Hose Length ft (m) | 8 (2.4) |
| Overall Weight lbs (kg) | 8.5 (3.9) |
| Minimum Neck Opening in (mm) | 3.5 (89) |

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 |  |

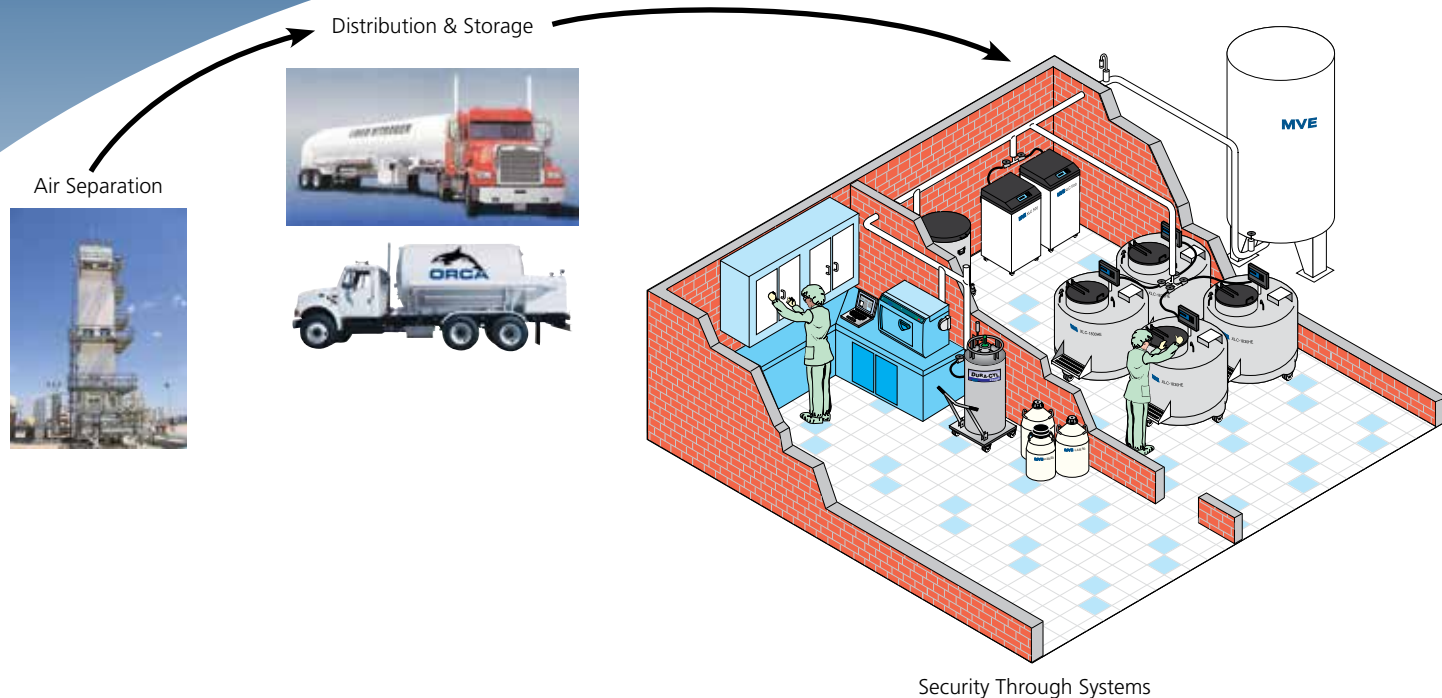
| Item | Image |
|---|---|
| Pouring Spouts |  |
| Vapor Inserts |  |
| Cryo Block 2" Cryo Block 3" Cryo Block 4" |  |
| Cryo Gloves |  |
| Cryo Apron |  |

Inventory

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

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

Chart: Total Cryogenic Solutions



Our Global Presence



Chart BioMedical
 2200 Airport Industrial Dr., Ste. 500
 Ball Ground, GA 30107
 Ph 770-721-7759 • Toll Free 1-800-482-2473
 Fax 770-721-7758
customerservice.usa@chartindustries.com



www.chartbiomed.com

Chart BioMedical Ltd.
 Ph +44(0) 1344 403100 • Fax +44(0) 1344 429224
customerservice.europe@chartindustries.com
Chart Japan Co., Ltd.
 Ph + (03) 5776 2670 • Fax + (03) 5776 2676
customerservice.japan@chartindustries.com
Chart Australia Pty Ltd.
 Ph + 61 2 974 94 333 • Fax +61 2 974 94 666
customerservice.australia@chartindustries.com

Chart Inc. reserves the right to discontinue its products, or change the prices, materials, equipment, quality, descriptions, specifications and/or processes to its products at any time without prior notice and with no further obligation or consequence. All rights not expressly stated herein are reserved by us, as applicable.

Copyright © 2013 Chart Industries ML-CRYO0009 Rev F