

Think GAIA
For Life and the Earth

SANYO

Biomedical Freezers



Biomedical freezers

SANYO's MDF Series Biomedical Freezers offer the outstanding reliability and performance required in a wide variety of storage and research applications. In the medical field, they provide effective storage of life-saving fresh and frozen blood supplies and vaccines, as well as samples for diagnosis. In the biotechnology field, they provide effective storage of enzymes for genetic research, as well as culture media, reagents and samples for testing. In the industrial field, they are ideal for aging and temperature tests on electronic components, precision devices, and compound resins. As a storage environment, with excellent safety features, easy operability, and a host of other features, these freezers offer unsurpassed reliability and functionality. If you are looking for precision temperature controlled storage equipment, look to SANYO.

Enhanced Operation

- Front-mounted display/control panel (with new microprocessor) located at convenient waist height



Photo is MDF-U537D

- Memory backup
- Temperature display
- Front access calibration for 7-day temperature recorder
- The control panel, alarm system and non-volatile memory are the same for all three models in the series.
- Single electrical box makes servicing simpler.
- The chamber temperature is displayed for five seconds if BUZZER key is depressed during power failure alarm.
- After a power outage, operation resumes at pre-outage settings (non-volatile memory for temperature and alarm temperature settings)
- Control panel can be reset to zero for validation.
- Two access ports (right-hand side and bottom left)
- Four casters and two adjustable feet

Recording Features (Optional)

- Recorder can be fitted in convenient position that will not interfere with installation. Choice of optional recorders
- 7-day circular recorder (MTR-G85)
 - 7-day temperature recorder with auto recharging battery
 - Removable Pt100 sensor for recorder
 - Front access calibration for 7-day temperature recorder
 - Chart recorder (MTR-4014LH) is also available.

Environment-Friendly

- HFC refrigerant R-404A (non-CFC, non-HCFC refrigerant) is environment-friendly but offers superb performance.
- Pre-coated metal body causes less environmental damage than conventional paint coating.

Safety Features

- Alarm & Recording System
- High/low temperature alarm ($\pm 5^{\circ}\text{C}$ to $\pm 15^{\circ}\text{C}$, adjustable)
- Power failure
- Remote alarm contact
- Self diagnostics ("E" messages shown in red figures)
- Breaker switch turns power off in event of over current abnormality.
- Balance hinge door stops at any angle from 35° to 90° for convenience and safety.

Chest type *Power to cope with frequent door openings*

Data transmission Balance hinge Temperature alarm Power failure alarm



Effective capacity:

MDF-136 **138** liters (4.9 cu. ft.)

Small size suitable for personal use

- Digital temperature display as standard feature
- Compact, personal size



Effective capacity:

MDF-236 **221** liters (7.8 cu. ft.)

Versatile mid-size model

- Digital temperature display as standard feature
- Easy-to-use 200-liter mid-size model



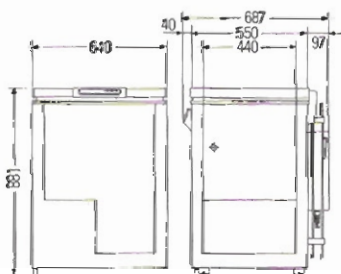
Effective capacity:

MDF-436 **426** liters (15.0 cu. ft.)

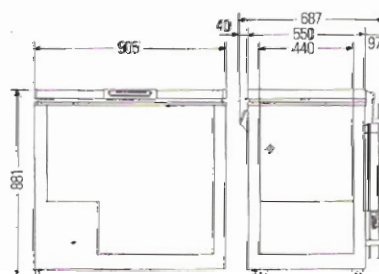
Jumbo-size 400-liter class

- Digital temperature display as standard feature
- Large-capacity, economical size

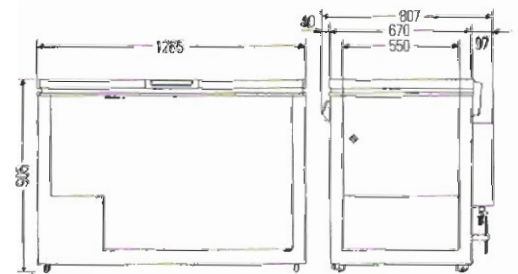
Dimensions Unit: mm



MDF-136



MDF-236



MDF-436



Balance hinge allows a free choice of opening angle (Chest type)

To make this chest freezer easier to use, the balance hinge keeps the door open at whatever angle you choose. That means you have both hands free for work.



Lockable door latch for extra security (Upright type)

By adding a commercially available lock, you can safeguard the contents of the freezer and keep hazardous items out of harm's way.

Temperature Monitoring Features

- Unified remote monitoring system for SANYO Biomedical products (optional)

SANYO Data Acquisition Software MTR-2000 (except MDF-U442)



Interface board MTR-480

Exclusive Option for SANYO Biomedical Products RS232C & RS485 Selectable Easy installation

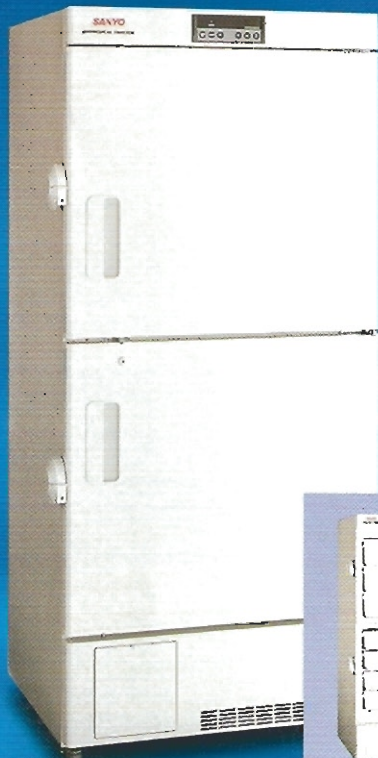


(except MDF-U442)

Powerful fan ensures temperature uniformity throughout the freezer cabinet.

Upright type Maximum capacity in minimum installation space

- Door latch Data transmission Temperature alarm Power failure alarm



Effective capacity:

MDF-U537 482 liters (17.0 cu. ft.)

Large-capacity, economical, space-saving model

- Top/bottom twin door design prevents cold air escaping
- Individual freezer circuits for each of the five drawers



Effective capacity:

MDF-U537D 452 liters (16.0 cu. ft.)

Independent top/bottom control meets differing freezer needs simultaneously

- Two independent freezer cabinets in one body, with separate defrost and operation
- Individual freezer circuits for each of the five drawers

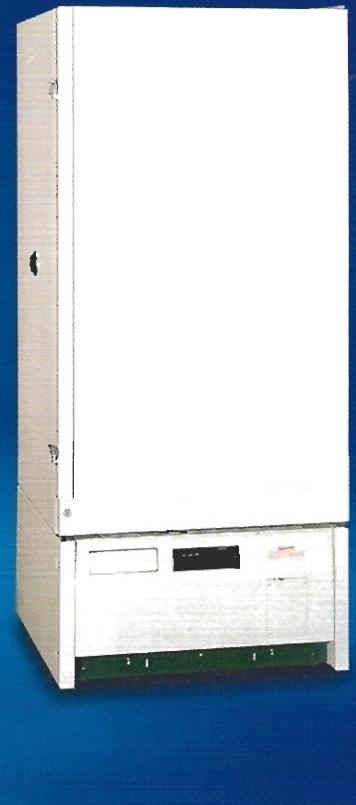


Effective capacity:

MDF-U333 274 liters (9.7 cu. ft.)

Easy-to-use, compact upright model

- Microprocessor digital temperature display
- Convenient storage drawers

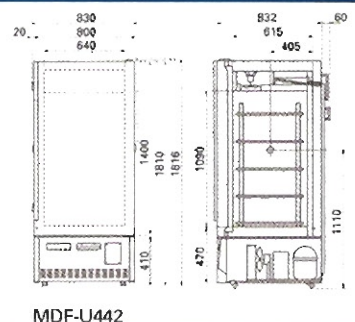
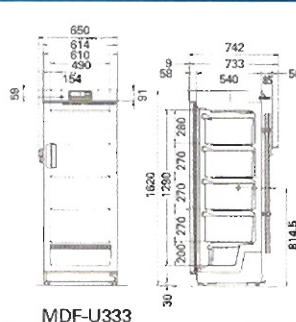
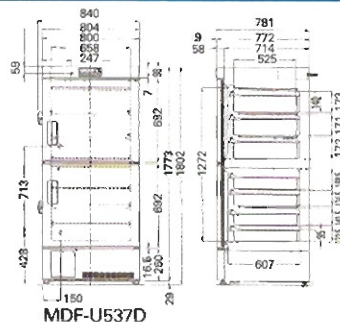
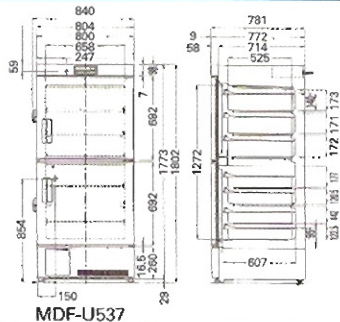


Effective capacity:

MDF-U442 426 liters (15.0 cu. ft.)

Forced air circulation & auto defrost

- High freezing power increases temperature uniformity
- Auto defrost for easy maintenance



Specifications

Model	MDF-136	MDF-236	MDF-436	MDF-U537	MDF-U537D
Exterior dimensions (W x D x H)	640 x 687 x 881 (mm) 25.2 x 27.0 x 34.7 (inch)	905 x 687 x 881 (mm) 35.6 x 27.0 x 34.7 (inch)	1265 x 807 x 905 (mm) 49.8 x 31.8 x 35.6 (inch)	800 x 772 x 1802 (mm) (31.5" x 30.4" x 70.9")	804 x 772 x 1802 (mm) (31.7" x 30.4" x 70.9")
Interior dimensions (W x D x H)	525 x 440 x 715 (mm) 20.7 x 17.3 x 28.1 (inch)	790 x 440 x 715 (mm) 31.1 x 17.3 x 28.1 (inch)	1140 x 550 x 735 (mm) 44.9 x 21.7 x 28.9 (inch)	658 x 607 x 1272 (mm) (25.9" x 23.9" x 50.1")	658 x 607 x 589/Top (mm) 658 x 607 x 603/Bottom (mm) (25.9" x 23.9" x 23.2") (25.9" x 23.9" x 23.7")
Capacity	138L (4.9 cu. ft.)	221L (7.8 cu. ft.)	426L (15.0 cu. ft.)	482L (17.0 cu. ft.)	452L (16.0 cu. ft.)
Cooling performance	-35°C (1/2h chamber air temp. Ambient temp.: 35°C, no load)			-30°C (1/2h chamber air temp. Ambient temp.: 35°C, no load)	
Control range	-20°C to -35°C			-20°C to -30°C	
Baskets	2 (MDF-13B)	3 (MDF-13B)	4 (MDF-43B)	Top: 6 medium. Bottom: 8 small	
Access ports	17mm diameter, right-hand side and bottom left			30mm diameter, rear	Two 30mm diameter, rear
Cooling system	Hermetic rotary compressor				
Refrigerant	R-404A (HFC)			R-407D (HFC)	
Alarm system	• High/low temperature alarm (SV ±5°C to ±15°C adjustable) • Power failure • Remote alarm contact				
Calibration	Zero adjustment via control panel				
Options	7-days recorder (MTR-G85), Recorder mounting kit (MDF-S740), Baskets (MDF-13B2/13B3/43B2/43B3)			7-days recorder (MTR-G85), Recorder mounting kit (MPR-S7)	

Model	MDF-U333	MDF-U442
Exterior dimensions (W x D x H)	614 x 733 x 1620 (mm) 24.2 x 28.9 x 63.8 (inch)	800 x 832 x 1810 (mm) 31.5 x 32.8 x 71.3 (inch)
Interior dimensions (W x D x H)	490 x 485 x 1290 (mm) 19.3 x 19.1 x 50.8 (inch)	640 x 615 x 1090 (mm) 25.2 x 24.2 x 42.9 (inch)
Capacity	274L (9.7 cu. ft.)	426L (15.0 cu. ft.)
Cooling performance	-30°C	-40°C (AT: 35°C)
Control range	-20°C to -30°C	-15°C to -40°C
Baskets	4 large, 1 small	—
Access ports	30mm diameter, left-hand side	40mm diameter, left-hand side
Cooling system	Hermetic rotary compressor	
Refrigerant	R134a (HFC)	R134a/R404A (HFC)
Alarm system	• High/low temperature alarm (SV ±5°C to ±15°C adjustable) • Power failure • Remote alarm contact	• High temperature alarm • Power failure
Calibration	Zero adjustment via control panel	
Options	7-day recorder, Recorder mounting kit (MDF-S740T)	Chart recorder (MTR-85H)

*Appearance and specifications are subject to change without notice.

Options



Storage Baskets
For: MDF-136/236
MDF-13B2 (set of two)
MDF-13B3 (set of three)

Outer dimensions: 255(W) x 420(D) x 205(H)mm
Inner dimensions: 210(W) x 370(D) x 200(H)mm



Storage Baskets
For: MDF-436
MDF-43B2 (set of two)
MDF-43B3 (set of three)

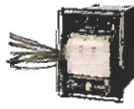
Outer dimensions: 275(W) x 530(D) x 205(H)mm
Inner dimensions: 230(W) x 480(D) x 200(H)mm



Temperature Recorder:
MTR-G85 (except MDF-U442)
-10°C to +40°C
• Mounting kit for chest: MDF-S740
• Mounting kit for upright: MPR-S7 (for MDF-U333, MDF-S740T)
• Recording paper: RP-885
• Recording pen: PG-R



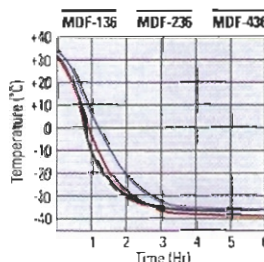
Temperature Recorder:
MTR-4014LH (except MDF-U442)
-40°C to +14°C
• Mounting kit for chest: MDF-S3040
• Mounting kit for upright: MPR-S30 (No kit required MDF-U333)
• Recording paper: RP-40



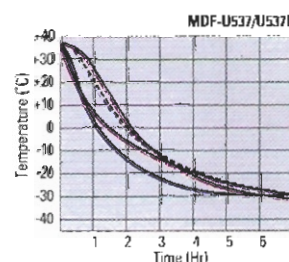
Temperature Recorder:
MTR-85H (for MDF-U442 only)
-100°C to +50°C
• Recording paper: RP-85
• Recording pen: DF-38FP

Performance Data

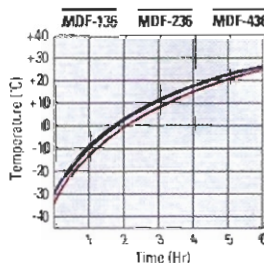
Pull-down characteristics under no-load condition



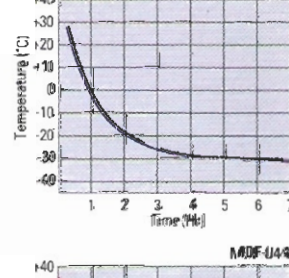
Pull-down characteristics under no-load condition



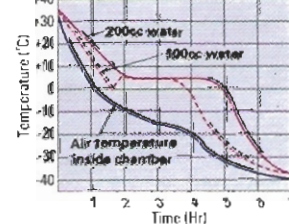
Pull-up characteristics under no-load condition



MDF-U333



MDF-U442



Further details regarding our products can be accessed at <http://www.sanyo.co.jp/cmg/biomedical>

We design and manufacture products in accordance with ISO9001 & 14001 requirements.

RoHS (European Restriction of Hazardous Substances directives) compliant

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Biomedical Division

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