Thermo Scientific Forma High-Performance Laboratory Refrigerators and Freezers

Laboratory

Blood Bank

Chromatography

Pharmacy

Plasma

Enzyme

your samples
our obsession

Thermo
S C I E N T I F I C

Thermo Scientific Forma High-Performance
Laboratory Refrigerators and Freezers

It's a cold hard fact:

Temperature variation can have an impact on the
viability of samples and the efficacy of reagents.
These variations can shorten product shelf life,
degrade enzymes and reduce vaccine effectiveness.
Therefore, it's important to choose a high-performance
refrigerator or freezer that has been designed for the
demanding standards of your laboratory.

**Our Thermo Scientific™ Forma™ high-performance
lab refrigerators and freezers are designed from the ground up
for your most demanding applications, with features not found
in domestic units, including:**

Advanced microprocessor-controlled setpoints for precise temperature regulation

Directional airflow for uniform temperature at all shelf levels

Key-operated alarms and setpoint security

Easy-to-read digital displays

Multi-pane, glass doors

Optional temperature recording charts to confirm storage parameters

Standard 1-inch access ports

We continually search for ways to enhance our products and processes responsibly:

- Reduce the use of refrigerants in our cold storage equipment

- Use solvent-free, paint technology

- We recycle scrap metal, copper and aluminum in our production facilities

- Fluorescent lighting in our refrigerators replaced with mercury-free, LED lights

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Advanced design. Quality construction.

Sample protection that fits your application.

Like a vault protecting your valuables, protection starts with a solid foundation:

- Powerful industrial compressors provide fast recovery from door openings and the addition of new samples
- Heavy walled, CFC-free insulation ensure temperature stability and minimize energy use
- Microprocessor control provides flexibility in setpoints and alarms, plus accurate temperature control

Our high-performance refrigerators and freezers are designed to meet UL and CE criteria for safety and performance. See ordering charts for certifications per specific voltages.

45.8 cu. ft. sliding door, chromatography refrigerator

Clockwise from L to R: 4.9 cu. ft. undercounter lab freezer,
23.3 cu. ft. blood bank refrigerator, 51.1 cu. ft. lab refrigerator,
23.3 cu. ft. enzyme freezer

SELECTOR GUIDE	4°C	-20°C	-30°C
Feature Selections			
UL/CE compliant	•	•	•
Keyed door security	•	•	•
Adjustable setpoint/alarm	•	•	•
Remote alarm contact	•	•	•
Electronic alarm/probe test	•	•	•
Available chart recorder	•	•	•
Standard access ports	•	•	•
Choice of shelves/drawers	•	•	•
Self-closing 90° stop door	•	•	•
Door type	solid or glass	solid	solid
Forced air cooling	•		•
Automatic defrost	•		•
Convection cooling		•	
Manual defrost		•	
Interior lighting	•		
Applications			
General storage	•	•	•
Reagents and kits	•		
Whole blood	•		
Plasma			•
Enzymes and temperature sensitive materials		•	
Chromatography apparatus and instrumentation	•		
Test samples	•	•	•
Biologicals	•	•	•
Culture media	•		
Patient medication	•	•	
Vaccines	•	•	•
Shelf life testing	•		
PCR reagents and primers	•	•	

Microprocessor-Based Controller
simplifies operation,
improves reliability

Setpoint Security
Key-operated triple position switch for main power and alarm; locks in temperature and alarm setpoints to minimize setpoint error and prevent tampering

Graphic Thermometer
Easy to view, shows normal, high or low temperature condition; steady green for normal, flashing top bar for overtemperature, flashing bulb for undertemperature

Power Failure
Illuminated when main power is interrupted

Service Required
Illuminated when controller is in programming mode, or if simulated warm or cold conditions fail to occur during alarm test function

Touchpad Data Entry
Increases or decreases setpoint values in programming mode

Interior Light Switch
Enables interior lighting system (on glass door cabinets)

Automatic Defrost System
Defrost sensor manages automatic defrost cycle (except manual defrost models)

Door Ajar
Illuminated when door is left open (not available on sliding glass door cabinet)

Battery Backup
Continuous charge provides full alarm function in case of power failure

Low Battery Alarm
Illuminated when the alarm system battery backup charge is low

Audible Alarm
Simulates in the event of warm, cold or power loss conditions. Mute will silence audible alarm with 6 minute ring back interval; display remains flashing

TempTest™ Alarm Test
Creates simulated overtemperature and undertemperature condition and activates audible and visual alarms; display flashes momentarily when test is complete

Bright, Easy-to-Read Display

Lets you know at-a-glance if your unit is running within range. Visual and audio alarms are designed to alert you in the event of a problem. Immediate access to high and low temperature parameters with the press of a button.

Touchpad Scan

Changes main display; also used to access various programming and service functions (alarm mute, recall 6 minutes).

Digital Display

Indicates cabinet temperature during normal operation, flashes during alarm condition or setpoint adjustment. Displays other values with touchpad sequence.

Service Parameters

Touchpad sequence allows override access to control function defaults for troubleshooting functions.

Automatic and Manual Defrost
Selection Guide

Cu. Ft. (L)	4.7 (133)	11.5 (326)	23.3 (659)	29.2 (826)	45.8 (1297)	51.1 (1447)	78.8 (2231)
Automatic Defrost Models							
Chromatography Refrigerators			•	•	•	•	•
High-Performance Lab Refrigerators	•	•	•	•	•	•	•
Blood Bank Refrigerators	•	•	•	•		•	
Pharmacy Refrigerators		•	•	•		•	
High-Performance Lab Freezers, -30°C	•	•	•	•		•	
Plasma Freezers, -30°C	•	•	•	•		•	
Manual Defrost Models							
Enzyme Freezer, -20°C			•	•			
High-Performance Lab Freezers, -20°C			•	•			

Remote alarm contacts are included on all models.

Laboratory Refrigerators

Our Forma **high-performance, laboratory refrigerators** are available in a wide range of cabinet sizes to fit virtually any application need. Each refrigerator combines advanced microprocessor temperature control with the highest quality cabinet construction and alarm systems. Positive-forced air circulation maintains temperature uniformity to protect your valuable samples and inventory.

- Forced air circulation for uniform temperature and fast door opening recovery
- Heat-free defrost for maximum uniformity
- Choice of glass or solid doors
- Four casters, front two are lockable
- 1" (2.5cm) insulated access port
- Bright, LED interior lighting
- Adjustable, epoxy-coated wire shelves are standard (optional drawers)
- TempTest electronic probe/alarm test
- Keyed on/off switch with setpoint security
- Self-closing door with 90° stop (except REL4504 model)
- Built-in remote alarm contacts
- Optional 4-20 milliamp output
- **NEW!** Optional +5°C setpoint can be customized for users validating lab refrigerators in the +2 to +8°C setpoint (not available on 45 cu. ft. sliding door or 78 cu. ft. trip door models; order option 7508TA with your lab refrigerator)

Thermo Scientific Forma High-Performance Laboratory Refrigerators With Glass Doors

Temperature Range: +1°C to +8°C, factory preset to +4°C (auto defrost) Optional +5°C setpoint available (order option 7508TA)

Model No.	Cu. Ft. (L)	Voltage (Hz)	Certification	Amps/ Breaker (Plug)	Cabinet	Door	Adjustable Shelves	Int. Dimensions* H x D x W inches (mm)	Ext. Dimensions* H x D x W inches (mm)	Ship Weight lb (kg)
FRGG404A FRGG404D FRGG404V FRGG404W‡	4.9 (133)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	8.0/15 (P1) 6.0/15 (P4) 6.0/15 (P7) 2.5/15 (P8)	undercounter	single	3	20.0 x 20.5 x 20.0 (508 x 521 x 508) Exterior height before caster installation.	33.4 x 26.0 x 24.0 (850 x 660 x 610)	220 (100)
FRGG1204A FRGG1204D FRGG1204V FRGG1204W‡	11.5 (326)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	9.4/15 (P1) 6.0/15 (P4) 6.0/15 (P7) 6.0/15 (P8)	space saver	single	4	52.4 x 21.75 x 20.0 (1331 x 553 x 508)	73.6 x 29.4 x 24.0 (1869 x 748 x 610)	280 (127)
FRGG2304A FRGG2304D FRGG2304V FRGG2304W‡	23.3 (659)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	9.4/15 (P1) 6.0/15 (P4) 6.0/15 (P7) 6.0/15 (P8)	upright	single	4	58.0 x 29.0 x 24.0 (1473 x 737 x 610)	79.2 x 37.2 x 28.0 (2012 x 945 x 711)	370 (168)
FRGG3004A FRGG3004D FRGG3004V FRGG3004W‡	29.2 (826)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	9.4/15 (P1) 6.0/15 (P4) 6.0/15 (P7) 6.0/15 (P8)	upright	single	4	58.0 x 29.0 x 30.0 (1473 x 737 x 762)	79.2 x 37.2 x 34.0 (2012 x 945 x 864)	435 (197)
FRGL4504A FRGL4504D FRGL4504V FRGL4504W‡	45.8 (1297)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	15.0/20 (P2) 8.5/15 (P4) 8.5/15 (P7) 8.5/15 (P8)	upright	double sliding	8	58.0 x 26.0 x 52.5 (1473 x 660 x 1334	79.1 x 34.5 x 56.5 (2010 x 876 x 1435)	670 (304)
FRGG5004A FRGG5004D FRGG5004V FRGG5004W‡	51.1 (1447)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	15.0/20 (P2) 8.5/15 (P4) 8.5/15 (P7) 8.5/15 (P8)	upright	double	8	58.0 x 29.0 x 52.5 (1473 x 737 x 1334)	79.2 x 37.2 x 56.5 (2012 x 945 x 1435)	585 (265)
FRGG7504A FRGG7504D FRGG7504V FRGG7504W	78.8 (2231)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	16.0/20 (P2) 10.5/15 (P4) 10.5/15 (P7) 10.5/15 (P8)	upright	triple	12	58.0 x 29.0 x 81.0 (1473 x 737 x 2057)	79.2 x 37.2 x 85.0 (2012 x 945 x 2159)	805 (365)

* Published interior volumes are nominal; useable cu.ft. (L) capacities may be offset by shelves, drawers, blower coils, or cabinet protrusions. For specific cabinet dimensions and allowances, or for verification of clearance tolerances, contact our sales representative. Product performance may be affected by ambient temperature conditions, humidity conditions, sample loading preferences, and frequency of door openings. Contact our sales representative for specific inquiries regarding your application. 4.7 cu. ft. exterior dimensions are without casters.

‡ Due to differences in building wiring regulations in Australia and New Zealand, the current draw for the W-voltage units rated less than 10A may utilize a 10A circuit breaker. This rating only applies to Australia and New Zealand. Confirm the amperage rating on the data plate. Contact your local sales representative for more information.

Optional, inkless, seven day, graphic, chart recorder

Control Panel:
Keyed on/off switch with set point security

Microprocessor control system with audio and visual alarms

Bright, digital temperature display

Doors:
Spring-loaded, self closing doors with 90° stay-open feature

Lockable doors for added sample security

Cabinets shown: 23.3 cu. ft. single door (FRGG2304) lab refrigerator with glass door and 51.1 cu. ft. double door (FRGL5004) lab refrigerator with solid doors

Thermo Scientific Forma Laboratory Refrigerators With Solid Doors

Temperature Range: +1°C to +8°C, factory preset to +4°C (auto defrost) Optional +5°C setpoint available (order option 7508TA)

Model No.	Cu. Ft. (L)	Voltage (Hz)	Certification	Amps/ Breaker (Plug)	Cabinet	Door	Adjustable Shelves	Int. Dimensions* H x D x W inches (mm)	Ext. Dimensions* H x D x W inches (mm)	Ship Weight lb (kg)
FRGL404A FRGL404D FRGL404V FRGL404W‡	4.9 (133)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	8.0/15 (P1) 6.0/15 (P4) 6.0/15 (P7) 2.5/15 (P8)	undercounter	single	3	20.0 x 20.5 x 20.0 (508 x 521 x 508) Exterior height before caster installation.	33.4 x 26.0 x 24.0 (850 x 660 x 610)	220 (100)
FRGL1204A FRGL1204D FRGL1204V FRGL1204W‡	11.5 (326)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	9.4/15 (P1) 6.0/15 (P4) 6.0/15 (P7) 6.0/15 (P8)	space saver	single	4	52.4 x 21.75 x 20.0 (1331 x 553 x 508)	73.6 x 29.4 x 24.0 (1869 x 748 x 610)	280 (127)
FRGL2304A FRGL2304D FRGL2304V FRGL2304W‡	23.3 (659)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	9.4/15 (P1) 6.0/15 (P4) 6.0/15 (P7) 6.0/15 (P8)	upright	single	4	58.0 x 29.0 x 24.0 (1473 x 737 x 610)	79.2 x 37.2 x 28.0 (2012 x 945 x 711)	370 (168)
FRGL3004A FRGL3004D FRGL3004V FRGL3004W‡	29.2 (826)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	9.4/15 (P1) 6.0/15 (P4) 6.0/15 (P7) 6.0/15 (P8)	upright	single	4	58.0 x 29.0 x 30.0 (1473 x 737 x 762)	79.2 x 37.2 x 34.0 (2012 x 945 x 864)	435 (197)
FRGL5004A FRGL5004D FRGL5004V FRGL5004W‡	51.1 (1447)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	15.0/20 (P2) 8.5/15 (P4) 8.5/15 (P7) 8.5/15 (P8)	upright	double	8	58.0 x 29.0 x 52.5 (1473 x 737 x 1334)	79.2 x 37.2 x 56.5 (2012 x 945 x 1435)	585 (265)
FRGL7504A FRGL7504D FRGL7504V FRGL7504W	78.8 (2231)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	16.0/20 (P2) 10.5/15 (P4) 10.5/15 (P7) 10.5/15 (P8)	upright	triple	12	58.0 x 29.0 x 81.0 (1473 x 737 x 2057)	79.2 x 37.2 x 85.0 (2012 x 945 x 2159)	805 (365)

* Published interior volumes are nominal; useable cu.ft. (L) capacities may be offset by shelves, drawers, blower coils, or cabinet protrusions. For specific cabinet dimensions and allowances, or for verification of clearance tolerances, contact our sales representative. Product performance may be affected by ambient temperature conditions, humidity conditions, sample loading preferences, and frequency of door openings. Contact our sales representative for specific inquiries regarding your application. 4.7 cu. ft. exterior dimensions are without casters.

‡ Due to differences in building wiring regulations in Australia and New Zealand, the current draw for the W-voltage units rated less than 10A may utilize a 10A circuit breaker. This rating only applies to Australia and New Zealand. Confirm the amperage rating on the data plate. Contact your local sales representative for more information.

▶ **See pages 22-24 for** Options and Accessories

Chromatography Refrigerators

Our **Forma high-performance chromatography refrigerators** are designed for a variety of applications requiring close temperature control, full access to chromatography instrumentation, and easy set-up of instrumentation and apparatus within the chamber.

- Forced air circulation for uniform temperature and fast door opening recovery
- Heat-free defrost for maximum uniformity
- Two 2" (5 cm) access ports with insulated hinged covers
- 4 Amp duplex interior plug
- Four casters, front two are lockable
- Bright, LED interior lighting
- Adjustable, epoxy-coated wire shelves are standard (optional drawers)
- TempTest electronic probe/alarm test
- Keyed on/off switch with setpoint security
- Self-closing door with 90° stop (except REC4504 model)
- Built-in remote alarm contacts
- Optional 4-20 milliamp output

Thermo Scientific Forma High-Performance Chromatography Refrigerators

Temperature Range: +1°C to +8°C, factory preset to +4°C (auto defrost)

Model No.	Cu. Ft. (L)	Voltage (Hz)	Certification	Amps†/ Breaker (Plug)	Door	Full Adjustable Shelves	Half Adjustable Shelves	Int. Dimensions* H x D x W inches (mm)	Ext. Dimensions* H x D x W inches (mm)	Ship Weight lb (kg)
FRCR2304A FRCR2304D FRCR2304V FRCR2304W‡	23.3 (659)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	9.4/15 (P1) 6.0/15 (P4) 6.0/15 (P7) 6.0/15 (P8)	single, glass	0	2	58.0 x 29.0 x 24.0 (1473 x 737 x 610)	79.2 x 36.4 x 28.0 (2012 x 925 x 711)	425 (193)
FRCR3004A FRCR3004D FRCR3004V FRCR3004W‡	29.2 (826)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	9.4/15 (P1) 6.0/15 (P4) 6.0/15 (P7) 6.0/15 (P8)	single, glass	0	2	58.0 x 29.0 x 30.0 (1473 x 737 x 762)	79.2 x 36.4 x 34.0 (2012 x 925 x 864)	435 (197)
FRCR4504A FRCR4504D FRCR4504V FRCR4504W‡	45.8 (1297)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	15.0/20 (P2) 8.5/15 (P4) 8.5/15 (P7) 8.5/15 (P8)	double, sliding glass	4	2	58.0 x 26.0 x 52.5 (1473 x 660 x 1334)	79.1 x 34.5 x 56.5 (2010 x 838 x 1435)	670 (304)
FRCR5004A FRCR5004D FRCR5004V FRCR5004W‡	51.1 (1447)	115 (60) 208/230 (60) 230 (50) 230 (W)	UL UL CE CE	15.0/20 (P2) 8.5/15 (P4) 8.5/15 (P7) 8.5/15 (P8)	double, glass	4	2	58.0 x 29.0 x 52.5 (1473 x 737 x 1334)	79.2 x 36.4 x 56.5 (2012 x 925 x 1435)	580 (263)
FRCR7504A FRCR7504D FRCR7504V FRCR7504W	78.8 (2231)	115 (60) 208/230 (60) 230 (50) 230 (W)	UL UL CE CE	16.0/20 (P2) 10.5/15 (P4) 10.5/15 (P7) 10.5/15 (P8)	triple, glass	8	2	58.0 x 29.0 x 81.0 (1473 x 737 x 2057)	79.2 x 36.4 x 85.0 (2012 x 925 x 2159)	965 (438)

*Published interior volumes are nominal; useable cu.ft. (L) capacities may be offset by shelves, drawers, blower coils, or cabinet protrusions. For specific cabinet dimensions and allowances, or for verification of clearance tolerances, contact our sales representative. Product performance may be affected by ambient temperature conditions, humidity conditions, sample loading preferences, and frequency of door openings. Contact our sales representative for specific inquiries regarding your application.

† Amp rating represents the amperage draw of the unit and does not include 4 Amp internal power receptacle. Data plate reflects combined amperage.

‡ Note for Australia and New Zealand: Due to the units having two power cords (one for unit, one for internal receptacle), units are supplied with 15A power cords.

Optional inkless, seven day, graphic, chart recorder

Control Panel:

Keyed on/off switch with set point security

Microprocessor control system with audio and visual alarms

Bright, digital temperature display

Bright, LED interior lighting illuminates the entire cabinet

Epoxy-coated, wire open shelves, adjustable in 1 in. increments for flexibility, available in both full and half shelf

Doors:

Robust, spring-loaded, self closing doors with 90° stay-open feature (sliding glass on 45 cu. ft. model)

Safety glass, double-pane doors

Lockable doors for added sample security

Cabinets shown: 78.8 cu. ft. triple-door (FRCR7504) and 45.8 cu. ft. sliding door (FRCR4504) chromatography refrigerators

▶ **See pages 22-24 for** Options and Accessories

Blood Bank Refrigerators

Our **Forma high-performance blood bank refrigerators** are designed to meet strict requirements established by the AABB and FDA for storage of whole blood and blood components. DIN 58371 compliant for our 326, 659 and 826 liter capacity units (230V/50Hz only).

The complete selection of +4°C refrigerators feature simplified push-button alarm test functions and reliable, field-proven refrigeration systems.

- Forced air circulation for uniform temperature and fast door opening recovery
- Heat-free defrost for maximum uniformity
- Standard, stainless steel interior
- Built-in chart recorder (freestanding on 4.9 cu. ft. undercounter model)
- Second cabinet temperature probe
- Four casters, front two are lockable
- 1" (2.5cm) insulated access port
- Bright, LED interior lighting
- Stainless steel, full extendable and adjustable drawers (optional shelves)
- TempTest electronic probe/alarm test
- Keyed on/off switch with setpoint security
- Self-closing door with 90° stop
- Built-in remote alarm contacts
- Optional 4-20 milliamp output

Thermo Scientific Forma High-Performance Blood Bank Refrigerators

Temperature Range: +1°C to +8°C, factory preset to +4°C (auto defrost)

Model No.	Cu. Ft./L (Blood Bag Capacity)**	Voltage (Hz)	Certification	Amps/ Breaker (Plug)	Cabinet	Door	Drawers	Int. Dimensions* H x D x W inches (mm)	Ext. Dimensions* H x D x W inches (mm)	Ship Weight lb (kg)
FRBB404A FRBB404D FRBB404V FRBB404W‡	4.9/133 (64)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	8.0/15 (P1) 6.0/15 (P4) 6.0/15 (P7) 2.5/15 (P8)	undercounter	single, solid	2	20.0 x 20.5 x 20.0 (508 x 520 x 508)	33.4 x 26.0 x 24.0 (850 x 660 x 610) An additional 2" is added when standard casters are installed.	220 (100)
FRBB1204A FRBB1204D FRBB1204V FRBB1204W‡	11.5/326 (192)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	9.4/15 (P1) 6.0/15 (P4) 6.0/15 (P7) 6.0/15 (P8)	space saver	single, glass	6	52.4 x 21.75 x 20.0 (1331 x 552 x 508)	73.6 x 29.4 x 24.0 (1869 x 762 x 610)	320 (145)
FRBB2304A FRBB2304D FRBB2304V FRBB2304W‡	23.3/659 (385)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	9.4/15 (P1) 6.0/15 (P4) 6.0/15 (P7) 6.0/15 (P8)	upright	single, glass	7	58.0 x 29.0 x 24.0 (1473 x 737 x 610)	79.2 x 36.4 x 28.0 (2012 x 925 x 711)	470 (213)
FRBB3004A FRBB3004D FRBB3004V FRBB3004W‡	29.2/826 (426)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	9.4/15 (P1) 6.0/15 (P4) 6.0/15 (P7) 6.0/15 (P8)	upright	single, glass	6	58.0 x 29.0 x 30.0 (1473 x 737 x 762)	79.2 x 36.4 x 34.0 (2012 x 925 x 864)	505 (229)
FRBB5004A FRBB5004D FRBB5004V FRBB5004W‡	51.1/1447 (770)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	15.0/20 (P2) 8.5/15 (P4) 8.5/15 (P7) 8.5/15 (P8)	upright	double, glass	14	58.0 x 29.0 x 52.5 (1473 x 737 x 1334)	79.2 x 36.4 x 56.5 (2012 x 925 x 1435)	640 (290)

* Published interior volumes are nominal; useable cu.ft. (L) capacities may be offset by shelves, drawers, blower coils, or cabinet protrusions. For specific cabinet dimensions and allowances, or for verification of clearance tolerances, contact our sales representative. Product performance may be affected by ambient temperature conditions, humidity conditions, sample loading preferences, and frequency of door openings. Contact our sales representative for specific inquiries regarding your application. 4.9 cu. ft. exterior dimensions are without casters.

** Nominal capacity based on 450 mL whole blood bags.
   Independent automated monitoring is required such as a chart recorder. Note: this medical application is considered Class II for FDA but is currently Class I for MDD.

‡ Due to differences in building wiring regulations in Australia and New Zealand, the current draw for the W-voltage units rated less than 10A may utilize a 10A circuit breaker. This rating only applies to Australia and New Zealand. Confirm the amperage rating on the data plate. Contact your local sales representative for more information.

Standard, built-in, inkless, seven day, graphic, chart recorder (freestanding on undercounter model)

Control Panel:
Keyed on/off switch with set point security

Microprocessor control system with audio and visual alarms

Bright, digital temperature display

Bright, LED interior lighting illuminates the entire cabinet

Doors:
Spring-loaded, self closing doors with 90° stay-open feature

Lockable doors for added sample security

Safety glass, double-pane doors

Full extension, adjustable stainless steel drawers

Cabinets shown: 23.3 cu. ft. (FRBB2304)

▶ **See pages 22-24 for**
Options and Accessories

Pharmacy Refrigerators

Available in four sizes, **our Forma high-performance pharmacy refrigerators** deliver stable temperature control over a range of +1°C to +8°C. They can be configured easily for accurate storage and retrieval of pharmacy products, and feature full extension stainless steel roll-out drawers.

- Forced air circulation for uniform temperature and fast door opening recovery
- Heat-free defrost for maximum uniformity
- Four casters, front two are lockable
- 1" (2.5cm) insulated access port
- Bright, LED interior lighting
- Stainless steel, full extendable and adjustable drawers
- TempTest electronic probe/alarm test
- Keyed on/off switch with setpoint security
- Self-closing door with 90° stop
- Built-in remote alarm contacts
- Optional 4-20 milliamp output
- Optional shelves

Thermo Scientific Forma High-Performance Pharmacy Refrigerators

Temperature Range: +1°C to +8°C, factory preset to +4°C (auto defrost)

Model No.	Cu. Ft. (L)	Voltage (Hz)	Certification	Amps/ Breaker (Plug)	Cabinet	Door	Drawers	Int. Dimensions* H x D x W inches (mm)	Ext. Dimensions* H x D x W inches (mm)	Ship Weight lb (kg)
FRPH1204A FRPH1204D FRPH1204V FRPH1204W‡	11.5 (326)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	9.4/15 (P1) 6.0/15 (P4) 6.0/15 (P7) 6.0/15 (P8)	upright	single, glass	5	52.4 x 21.8 x 20.0 (1320 x 552 x 500)	73.6 x 29.4 x 24.0 (1869 x 762 x 610)	320 (145)
FRPH2304A FRPH2304D FRPH2304V FRPH2304W‡	23.3 (659)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	9.4/15 (P1) 6.0/15 (P4) 6.0/15 (P7) 6.0/15 (P8)	upright	single, glass	6	58.0 x 29.0 x 24.0 (1473 x 737 x 610)	79.2 x 36.4 x 28.0 (2012 x 925 x 711)	470 (213)
FRPH3004A FRPH3004D FRPH3004V FRPH3004W‡	29.2 (826)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	9.4/15 (P1) 6.0/15 (P4) 6.0/15 (P7) 6.0/15 (P8)	upright	single, glass	6	58.0 x 29.0 x 30.0 (1473 x 737 x 762)	79.2 x 36.4 x 34.0 (2012 x 925 x 864)	505 (227)
FRPH5004A FRPH5004D FRPH5004V FRPH5004W‡	51.1 (1447)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	15.0/20 (P2) 8.5/15 (P4) 8.5/15 (P7) 8.5/15 (P8)	upright	double, glass	12	58.0 x 29.0 x 52.5 (1473 x 737 x 1334)	79.2 x 36.4 x 56.5 (2012 x 925 x 1435)	640 (290)

* Published interior volumes are nominal; useable cu.ft. (L) capacities may be offset by shelves, drawers, blower coils, or cabinet protrusions. For specific cabinet dimensions and allowances, or for verification of clearance tolerances, contact our sales representative. Product performance may be affected by ambient temperature conditions, humidity conditions, sample loading preferences, and frequency of door openings. Contact our sales representative for specific inquiries regarding your application.

‡ Due to differences in building wiring regulations in Australia and New Zealand, the current draw for the W-voltage units rated less than 10A may utilize a 10A circuit breaker. This rating only applies to Australia and New Zealand. Confirm the amperage rating on the data plate. Contact your local sales representative for more information.

Optional, inkless, seven day, graphic, chart recorder

Control Panel:
Keyed on/off switch with set point security

Microprocessor control system with audio and visual alarms

Bright, digital temperature display

Doors:
Spring-loaded, self closing doors with 90° stay-open feature

Lockable doors for added sample security

Safety glass, double-panel doors

Cabinets shown: and 11.5 cu. ft. single door (FRPH1204) and 51.1 cu. ft. double door (FRPH5004) pharmacy refrigerators

Bright, LED interior lighting illuminates the entire cabinet

Adjustable, full extension, stainless steel drawers

▶ **See pages 22-25 for** Options and Accessories

Automatic and Manual Defrost Laboratory Freezers

Our **Forma high-performance, laboratory freezers** are designed for medical and scientific applications requiring storage of reagents, pharmaceuticals, biologicals, and other commonly used laboratory materials such as primers, siRNA molecules and FBS. A range of models offers cabinet sizes to fit your specific space needs and storage volume requirements, from undercounter units to full size models. Available in both automatic and manual defrost options (manual defrost only available on 23.3 cu. ft./659L and 29.2 cu. ft. (826L.)

Automatic Defrost Models:
- Forced air circulation for uniform temperature and fast door opening recovery
- Non-invasive defrost with time and temperature guided cycle

Manual Defrost Models:
- Cold wall convection cooling for temperature uniformity
- Manual defrost for optimum control

All Models:
- Four casters, front two are lockable
- 1" (2.5cm) insulated access port
- Adjustable, epoxy-coated wire shelves are standard (optional drawers)
- TempTest electronic probe/alarm test
- Keyed on/off switch with setpoint security
- Self-closing door with 90° stop
- Built-in remote alarm contacts
- Optional 4-20 milliamp output

Thermo Scientific Forma High-Performance Freezers with Automatic Defrost

Temperature Range: -30°C (auto defrost)

Model No.	Cu.Ft. (L)	Voltage (Hz)	Certification	Amps/ Breaker (Plug)	Cabinet	Door	Adjustable Shelves	Int. Dimensions* H x D x W inches (mm)	Ext. Dimensions* H x D x W inches (mm)	Ship Weight lb (kg)
FFGL430A FFGL430D FFGL430V FFGL430W‡	4.9 (133)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	8.0/15 (P1) 6.0/15 (P4) 6.0/15 (P7) 5.0/15 (P8)	undercounter	single	3	20.0 x 20.5 x 20.0 (508 x 521 x 508) Exterior height before caster installation.	33.4 x 26.0 x 24.0 (850 x 660 x 610)	220 (100)
FFGL1230A FFGL1230V FFGL1230W‡	11.5 (326)	115 (60) 230 (50) 230 (50)	UL UL CE	8.0/15 (P1) 8.0/15 (P7) 6.5/15 (P8)	space saver	single	4	52.4 x 21.0 x 20.0 (1331 x 553 x 508)	73.6 x 30.0 x 24.0 (1869 x 748 x 610)	280 (127)
FFGL2330A FFGL2330D FFGL2330V FFGL2330W‡	23.3 (659)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	16.0/20 (P1) 12.0/15 (P4) 12.0/15 (P7) 6.5/15 (P8)	upright	single	4	58.0 x 29.0 x 24.0 (1473 x 737 x 610)	79.2 x 37.2 x 28.0 (2012 x 945 x 711)	425 (193)
FFGL3030A FFGL3030D FFGL3030V FFGL3030W‡	29.2 (826)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	16.0/20 (P1) 12.0/15 (P4) 12.0/15 (P7) 6.5/15 (P8)	upright	single	4	58.0 x 29.0 x 30.0 (1473 x 737 x 762)	79.2 x 37.2 x 34.0 (2012 x 945 x 864)	445 (197)
FFGL5030A FFGL5030D FFGL5030V FFGL5030W‡	51.1 (1447)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	16.0/20 (P2) 12.0/15 (P4) 12.0/15 (P7) 6.5/15 (P8)	upright	double	8	58.0 x 29.0 x 52.5 (1473 x 737 x 1334)	79.2 x 37.2 x 56.5 (2012 x 945 x 1435)	600 (272)

* Published interior volumes are nominal; useable cu.ft. (L) capacities may be offset by shelves, drawers, blower coils, or cabinet protrusions. For specific cabinet dimensions and allowances, or for verification of clearance tolerances, contact our sales representative. Product performance may be affected by ambient temperature conditions, humidity conditions, sample loading preferences, and frequency of door openings. Contact our sales representative for specific inquiries regarding your application. 4.7 cu. ft. exterior dimensions are without casters.

‡ Due to differences in building wiring regulations in Australia and New Zealand, the current draw for the W-voltage units rated less than 10A may utilize a 10A circuit breaker. This rating only applies to Australia and New Zealand. Confirm the amperage rating on the data plate. Contact your local sales representative for more information.

Optional, inkless, seven day, graphic, chart recorder

Control Panel:
Keyed on/off switch with set point security

Microprocessor control system with audio and visual alarms

Bright, digital temperature display

Doors:
Spring-loaded, self closing doors with 90° stay-open feature

Lockable doors for added sample security

Cabinets shown: 11.5 cu. ft. single door (FFGL1230) lab freezer and 51.1 cu. ft. double door (FFGL5030) lab freezer

Thermo Scientific Forma High-Performance Freezers with Manual Defrost

Temperature Range: -20°C (manual defrost)

Model No.	Cu.Ft. (L)	Voltage (Hz)	Certification	Amps/ Breaker (Plug)	Cabinet	Door	Adjustable Shelves	Int. Dimensions* H x D x W inches (mm)	Ext. Dimensions* H x D x W inches (mm)	Ship Weight lb (kg)
FFGL2320A	23.3	115 (60)	UL	16.0/20 (P2)	upright	single, solid	4	58.0 x 29.0 x 24.0 (1473 x 737 x 610)	79.2 x 37.2 x 28.0 (2012 x 945 x 711)	425 (193)
FFGL2320D	(659)	208/230 (60)	UL	12.0/15 (P4)						
FFGL2320V		230 (50)	CE	12.0/15 (P7)						
FFGL2320W‡		230 (50)	CE	6.5/15 (P8)						
FFGL3020A	29.2	115 (60)	UL	16.0/20 (P1)	upright	single	4	58.0 x 29.0 x 30.0 (1473 x 737 x 762)	79.2 x 37.2 x 34.0 (2012 x 945 x 864)	445 (197)
FFGL3020D	(826)	208/230 (60)	UL	12.0/15 (P4)						
FFGL3020V		230 (50)	CE	12.0/15 (P7)						
FFGL3020W‡		230 (50)	CE	6.5/15 (P8						

* Published interior volumes are nominal; useable cu.ft. (L) capacities may be offset by shelves, drawers, blower coils, or cabinet protrusions. For specific cabinet dimensions and allowances, or for verification of clearance tolerances, contact our sales representative. Product performance may be affected by ambient temperature conditions, humidity conditions, sample loading preferences, and frequency of door openings. Contact our sales representative for specific inquiries regarding your application.

‡ Due to differences in building wiring regulations in Australia and New Zealand, the current draw for the W-voltage units rated less than 10A may utilize a 10A circuit breaker. This rating only applies to Australia and New Zealand. Confirm the amperage rating on the data plate. Contact your local sales representative for more information.

Plasma Freezers

Our **pre-set Forma high-performance -30°C plasma freezers with automatic defrost** are designed to meet AABB and FDA standards for safety and performance in plasma storage. Sample security and protection are especially critical when storing plasma.

Our units feature setpoint security with master switch control, plus a clearly visible temperature display and audio/visual alarm systems to assure proper operating conditions.

Five different models are available to meet your particular storage volume and lab space requirements.

- Forced air circulation for uniform temperature and fast door opening recovery
- Smart defrost with temperature guided cycle
- Standard, stainless steel interior
- Built-in chart recorder (4.9 cu. ft. model freestanding)
- Four casters, front two are lockable
- 1" (2.5cm) insulated access port
- TempTest electronic probe/alarm test
- Keyed on/off switch with setpoint security
- Self-closing door with 90° stop
- Built-in remote alarm contacts
- Optional 4-20 milliamp output

Thermo Scientific Forma High-Performance Plasma Freezers with Automatic Defrost

Temperature Range: -30°C (auto defrost)

Model No.	Cu.Ft./L (Plasma Box Capacity)**	Voltage (Hz)	Certification	Amps/ Breaker (Plug)	Cabinet	Door	Drawers	Int. Dimensions* H x D x W inches (mm)	Ext. Dimensions* H x D x W inches (mm)	Ship Weight lb (kg)
FFPF430A FFPF430D FFPF430V FFPF430W‡	4.9/133 (78)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	8.0/15 (P1) 6.0/15 (P4) 6.0/15 (P7) 5.0/15 (P8)	undercounter	single	2	20.0 x 20.5 x 20.0 (508 x 521 x 508)	33.4 x 26.0 x 24.0 (850 x 660 x 610)	220 (100)
FFPF1230A FFPF1230V FFPF1230W‡	11.5/326 (273)	115 (60) 230 (50) 230 (50)	UL CE CE	8.0/15 (P1) 8.0/15 (P7) 6.5/15 (P8)	space saver	single	7	52.4 x 21.0 x 20.0 (1331 x 533 x 508)	73.6 x 30.0 x 24.0 (1869 x 762 x 610) Exterior height before caster installation	365 (166)
FFPF2330A FFPF2330D FFPF2330V FFPF2330W‡	23.3/659 (532)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	16.0/20 (P2) 12.0/15 (P4) 12.0/15 (P7) 6.5/15 (P8)	upright	single	7	58.0 x 29.0 x 24.0 (1473 x 737 x 610)	79.2 x 37.2 x 28.0 (2012 x 945 x 711)	425 (193)
FFPF3030A FFPF3030D FFPF3030V FFPF3030W‡	29.2/826 (665)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	16.0/20 (P2) 12.0/15 (P4) 12.0/15 (P7) 6.5/15 (P8)	upright	single	7	58.0 x 29.0 x 30.0 (1473 x 737 x 762)	79.2 x 37.2 x 34.0 (2012 x 945 x 864)	580 (263)
FFPF5030A FFPF5030D FFPF5030V FFPF5030W‡	51.1/1447 (1064)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	16.0/20 (P2) 12.0/15 (P4) 12.0/15 (P7) 6.5/15 (P8)	upright	double	14	58.0 x 29.0 x 52.5 (1473 x 737 x 1334)	79.2 x 37.2 x 56.5 (2012 x 945 x 1435)	600 (272)

* Published interior volumes are nominal; useable cu.ft. (L) capacities may be offset by shelves, drawers, blower coils, or cabinet protrusions. For specific cabinet dimensions and allowances, or for verification of clearance tolerances, contact our sales representative. Product performance may be affected by ambient temperature conditions, humidity conditions, sample loading preferences, and frequency of door openings. Contact our sales representative for specific inquiries regarding your application. 4.7 cu. ft. exterior dimensions are without casters.

** Nominal capacity based on 250 mL plasma boxes.

Independent automated monitoring is required such as a chart recorder. Note: this medical application is considered Class II for FDA but is currently Class I for MDD.

‡ Due to differences in building wiring regulations in Australia and New Zealand, the current draw for the W-voltage units rated less than 10A may utilize a 10A circuit breaker. This rating only applies to Australia and New Zealand. Confirm the amperage rating on the data plate. Contact your local sales representative for more information.

Standard, built-in inkless, seven day, graphic, chart recorder (free-standing on undercounter model)

Control Panel:
Keyed on/off switch with set point security

Microprocessor control system with audio and visual alarms

Bright, digital temperature display

Doors:
Spring-loaded, self closing doors with 90° stay-open feature

Lockable doors for added sample security

Adjustable, full extension, stainless steel drawers

Cabinets shown: 51.1 cu. ft. double door (FFPF5030), undercounter (FFPF430) and 23.3 cu. ft. single door (FFPF2330) plasma freezers

▶ **See pages 22-25 for** Options and Accessories

Manual Defrost Enzyme Freezers

Our manual defrost **Forma high-performance, -20°C upright freezers** are designed for storage applications in which even slight intermittent coil warming during auto defrost cycles cannot be tolerated. Models feature gravity convection air systems for maximum temperature stability without blowers or fans.

- Cold wall convection cooling for temperature uniformity
- Manual defrost for optimum control
- Four casters, front two are lockable
- 1" (2.5cm) insulated access port
- Adjustable, epoxy-coated wire shelves are standard (optional drawers)
- TempTest electronic probe/alarm test
- Keyed on/off switch with setpoint security
- Self-closing door with 90° stop
- Built-in remote alarm contacts
- Optional 4-20 milliamp output

Optional, inkless, seven day, graphic, chart recorder

Control Panel: Keyed on/off switch with set point security

Microprocessor control system with audio and visual alarms

Bright, digital temperature display

Easily accessible inventory system

Doors: Spring-loaded, self closing doors with 90° stay-open feature

Lockable doors for added sample security

Smooth, ergonomic handle

▶ **See pages 22-24 for** Options and Accessories

Thermo Scientific Forma High-Performance Enzyme Freezers with Manual Defrost

Temperature Range: -20°C (manual defrost)										
Model No.	Cu.Ft. (L)	Voltage (Hz)	Certification	Amps/ Breaker (Plug)	Cabinet	Door	Shelves	Int. Dimensions* H x D x W inches (mm)	Ext. Dimensions* H x D x W inches (mm)	Ship Weight lb (kg)
FFEN2320A FFEN2320D FFEN2320V FFEN2320W‡	23.3 (659)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	16.0/20 (P1) 12.0/15 (P4) 12.0/15 (P7) 6.5/15 (P8	upright	single	9	58.0 x 29.0 x 24.0 (1473 x 737 x 610)	79.2 x 37.2 x 28.0 (2012 x 945 x 711)	425 (193)
FFEN3020A FFEN3020D FFEN3020V FFEN3020W‡	29.2 (826)	115 (60) 208/230 (60) 230 (50) 230 (50)	UL UL CE CE	16.0/20 (P1) 12.0/15 (P4) 12.0/15 (P7) 6.5/15 (P8)	upright	single	9	58.0 x 29.0 x 30.0 (1473 x 737 x 762)	79.2 x 37.2 x 34.0 (2012 x 945 x 864)	445 (197)

* Published interior volumes are nominal; useable cu.ft. (L) capacities may be offset by shelves, drawers, blower coils, or cabinet protrusions. For specific cabinet dimensions and allowances, or for verification of clearance tolerances, contact our sales representative. Product performance may be affected by ambient temperature conditions, humidity conditions, sample loading preferences, and frequency of door openings. Contact our sales representative for specific inquiries regarding your application.

‡ Due to differences in building wiring regulations in Australia and New Zealand, the current draw for the W-voltage units rated less than 10A may utilize a 10A circuit breaker. This rating only applies to Australia and New Zealand. Confirm the amperage rating on the data plate. Contact your local sales representative for more information.

Services

Electrical Information

Thermo Scientific Forma high-performance refrigerators and freezers are designed to meet UL and CE criteria for safety and performance. See ordering charts for certifications per specific voltages. All connections must comply with local electrical codes.

- Selection charts for each standard model list voltage, rated amperage, recommended circuit breaker size, and NEMA (National Electrical Manufacturers' Association, USA) electrical plug information
- Most refrigerators and freezers are supplied with line cord plugs, which require corresponding receptacles illustrated on the line cord plug reference chart to the right
- Site preparation requires availability of the proper receptacle; a dedicated circuit is required
- Special voltage selections may be available at extra cost and must be specified when ordering
- For questions regarding site preparation, installation and electrical connection, contact your sales representative

Certification of Calibration

Control, alarm and temperature recording systems are systematically calibrated at the factory for accurate performance. An optional Certificate of Calibration to an NIST (National Institute of Standards and Technology, formerly National Bureau of Standards) traceable instrument includes a Model Number and Serial Number Certificate (single point calibration). Multiple point calibration is also available. Calibration certificates must be requested when ordering; for details contact your sales representative.

Validation Testing Program

Validation testing services in advance of shipment can accelerate in-house FDA Installation Qualification (IQ) and Operation Qualification (OQ) programs. Validation services include documentation and performance reports, compressor and subsystem component specifications, microprocessor flow diagrams, software specifications and more. For more details, contact your sales representative.

Standard Plug Option Configurations

Choose one of our specialty plugs to configure your freezer to meet local requirements

Model No.	Plug Description	Male End
Standard Plugs		
US125V20A	NEMA 5-20	
US230V15A	NEMA 6-15	
EU230V16A	Continental EU	
Specialty Plugs		
IT230V16A	Italy	
UK230V13A	Great Britain	
IN230V16A	India	
IS230V16A	Israel	
AU230V16A	Australia	
AU230V10A	Australia	
CH230V16A	China	
DK230V16A	Denmark	
AR230V16A	Argentina	
SW230V16A	Switzerland	
BR230V16A	Brazil	

Refrigerators and freezers supplied with line cord plugs (P) require corresponding receptacles illustrated in the Line Cord Plug Reference. Catalog selection charts list each standard model with voltage, rated amperage, recommended circuit breaker size and NEMA electrical plug information.

Ordering Information

Your sales representative will assist you with choosing the correct refrigerator or freezer for your application.

- Each model number is voltage specific. For clarity, please include the voltage of your selected refrigerator or freezer when ordering
- When ordering your refrigerator or freezer, please consider current or future accessory requirements such as temperature recorders, extra shelves and alarm/monitoring systems
- Many accessories on the following pages are factory installed and must be specified when ordering

Options & Accessories

Productive use of your refrigerator or
freezer can be enhanced with options
and accessories specifically designed to
improve utility and convenience. Many
accessories are factory installed and
must be specified with your original order.
Field installed accessories may require the
services of a factory authorized technician.

**Note that some options and accessories may
affect refrigerator or freezer performance; for more
information contact your sales representative.**

Shelves

Voltages and Serial Numbers

Serial number tags on all of our Revco units provide
model numbers and voltage information needed for
accurate selection of accessories ordered for field
installation.

It is recommended that accessories be ordered
when your refrigerator or freezer is ordered.
Factory-installed accessories allow proper set-up
without power-down or emptying the cabinet.

Glass Doors

Solid doors are standard on most refrigerators
unless otherwise specified. Dual-pane glass doors
are optional and must be specified when ordering.
Contact your sales representative for information on
heated glass doors.

Shelves

Additional epoxy-coated, open-wire shelves are
designed to fit individual cabinets; shelves are
available in full- and half-sizes. Undercounter
models use full-size only.

Rollout Drawers

Optional stainless steel drawers, offered as an
alternative to standard open wire shelving are
adjustable with full extension. Drawers are
factory installed and must be specified when
ordering cabinet.

Rollout Drawers

Enzyme Storage Bins

Alarm Delay Module

Temperature Chart Recorders

Optional 6" (152 mm) chart, 7-day temperature recorders use pressure sensitive chart paper; one box of 50 charts included. Built-in recorders must be specified when ordering. Recorders are standard on all blood bank refrigerators and plasma freezers.

Enzyme Storage Bin

Bins are supplied standard on our enzyme freezers. Additional bins are useful for storage and inventory management. Formed of high impact ABS plastic, off-white. Labels not included.

Digital Temperature Monitor

Simple, accurate and cost-effective, the digital temperature and power monitor provides both alarm/monitoring and digital temperature display in a single, self-contained unit. Standard features include high alarm, alarm mute and chirp, audio delay timer, remote alarm contacts (SPDT), NiCad battery backup, and low voltage AC power supply, 120V, AC.

- The monitor can be installed on or adjacent to any refrigerator or freezer
- Activates an audible and visual warning in case of power failure or overtemperature condition
- Choose from single probe digital models or multiple probe, microprocessor-based models
- Temperature range is -100°C to +25°C
- Probe size 1.25"L x 0.25" diameter (32 mm x 6 mm)

Alarm Delay Module

The alarm delay eliminates nuisance alarms due to intermittent or transitory conditions such as lightning or brief power outages. The adjustable delay requires an alarm condition to exist continuously for a pre-determined time (adjustable) before a signal is released to a central alarm/monitoring system or telephone dialer.

- Adjustable delay from 0.5 to 32 minutes
- Red alarm indicator light remains flashing after transient condition is corrected; requires manual reset
- Signals chronic alarm conditions which may indicate impending component failure; allows time for inspection or corrective maintenance
- Inserts variable time interval between detection of alarm condition and transmission of signal
- Includes accurate digital timing circuit adjustable from 0.5, 1, 2, 4, 8, 18, or 32 minutes
- Operates independent of line power; built-in battery and alarm test function uses customer supplied 9V battery

-20°C Labtop Cooler

- Holds 20 CryoTubes™ (1.0 and 1.8 mL)
- Inserts are included to accommodate 0.2 to 0.5 mL microcentrifuge tubes
- Protects enzymes, cells, reagents and solutions by maintaining freezer temperatures while on the laboratory bench (T°<20°C maintained up to 1 hour)
- Maintains freezer temperature during the frost free cycle, power failure and accidental door opening
- Printed grid on one way keyed lid for proper orientation and sample identification
- Molded of impact resistant polycarbonate; stackable, with locking handle

Options & Accessories Ordering Guide
Laboratory Refrigerators

	4.9 cu. ft. (133 L)	11.5 cu. ft. (326 L)	23.3 cu. ft. (659 L)	29.2 cu. ft. (826 L)	45.8 cu. ft. (1297 L)	51.1 cu. ft. (1447 L)	78.8 cu. ft. (2231 L)
	MODEL NO.	MODEL NO.	MODEL NO.	MODEL NO.	MODEL NO.	MODEL NO.	MODEL NO.
Shelves							
Epoxy-coated, full size	7125	7125	6696	6695	6696	6696	6696
Epoxy-coated, half size	n/a	n/a	6698	6697	6698	6698	6698
Door Options and Accessories							
LH swing, solid	7119	6995	6997	6999	n/a	n/a	n/a
LH swing, glass	7123	6996	6998	7000	n/a	n/a	n/a
LH swing, heated glass	n/a	7073	7075	7087	n/a	n/a	n/a
RH swing, glass	7118	7066	7012	7013	n/a	n/a	n/a
RH swing, heated glass	n/a	7074	7086	7088	n/a	n/a	n/a
LH/LH swing, solid	n/a	n/a	n/a	n/a	n/a	7001	n/a
LH/LH swing, glass	n/a	n/a	n/a	n/a	n/a	7067	n/a
LH/LH swing, heated glass	n/a	n/a	n/a	n/a	n/a	7089	n/a
RH/RH swing, solid	n/a	n/a	n/a	n/a	n/a	7068	n/a
RH/RH swing, glass	n/a	n/a	n/a	n/a	n/a	7069	n/a
RH/RH swing, heated glass	n/a	n/a	n/a	n/a	n/a	7090	n/a
LH/RH swing, glass	n/a	n/a	n/a	n/a	n/a	7014	n/a
LH/RH swing, heated glass	n/a	n/a	n/a	n/a	n/a	7091	n/a
LH/RH swing, solid	n/a	n/a	n/a	n/a	n/a	7019	n/a
Roll-Out Drawers							
Complete Set Cat. No. (qty)	7129 (2)	7445 (5)	6699 (6)	6704 (6)	n/a	6700 (12)	6701 (18)
(Single Drawers)	7122	7122	6702	6725	n/a	6702	6702
Drawers Dividers							
For blood bank refrigerators Cat. No. (qty)	7027 (4)	7027 (4)	6206 (4)	6963 (5)	n/a	6206 (4)	6206 (4)
Casters (2" casters standard)							
3" casters (76 mm), set of 4*	6041-1	6041-1	6041-1	6041-1	6694	6041-1	6041-1
Finishes							
Stainless steel interior (Not available on -20°C units)	7116	6199-3A	6115	6709	6711	6116	6117
Temperature Chart Recorders							
(Standard on blood bank units)							
Built-in, factory installed	n/a	6183-7	6183-7	6183-7	6183-7	6183-7	6183-7
Free-standing, customer installed	6199-3	6199-3	6199-3	6199-3	6199-3	6199-3	6199-3
Replacement chart paper,-40 to +25 box of 50	6184	6184	6184	6184	6184	6184	6184
Surge Suppressor							
Specify voltage with order	6402	6402	6402	6402	6402	6402	6402
Deluxe Electronic Remote Alarm							
Requires dedicated phone line	6224TA	6224TA	6224TA	6224TA	6224TA	6224TA	6224TA
Remote Alarm Module							
Specify voltage with order	5612-1A	5612-1A	5612-1A	5612-1A	5612-1A	5612-1A	5612-1A
Alarm Delay Module							
Specify voltage with order	6903	6903	6903	6903	6903	6903	6903
Digital Temperature Monitor (Specify voltage with order)							
-50°C to +50°C	6899	6899	6899	6899	6899	6899	6899
-100° to +100°C	6900	6900	6900	6900	6900	6900	6900
-100°C to +125°C	6902	6902	6902	6902	6902	6902	6902
4-20 Milliamp Transmitter							
Factory installed	6907-1	6907-1	6907-1	6907-1	6907-1	6907-1	6907-1
Customer Installed	6907-2	6907-2	6907-2	6907-2	6907-2	6907-2	6907-2
+5°C Setpoint							
(Not Available for Blood Bank, Pharmacy or Chromatography Units)	7508TA	7508TA	7508TA	7508TA	n/a	7508TA	n/a
Seismic Restraint Kits							
Seismic restraint kit (basic)	N/A	TFR210	TFR210	TFR210	TFR210	TFR210	TFR210
Seismic restraint kit for OSHPD	N/A	TF-LRF12	TF-LRF23	TF-LRF30	TF-LRF45	TF-LRF50	7TF-LRF75

2" casters are pre-installed on all units, except 4.9 cu. ft. where casters are shipped uninstalled.

Options & Accessories Ordering Guide
Laboratory Freezers

		4.9 cu. ft. (133 L)	11.5 cu. ft. (326 L)	23.3 cu. ft. (659 L)	29.2 cu. ft. (826 L)	51.1 cu. ft. (1447 L)
		CAT. NO.	CAT. NO.	CAT. NO.	CAT. NO.	CAT. NO.
Shelves						
Epoxy-coated, full size		7125	7125	6696	6695	6696
Epoxy-coated, half size		n/a	n/a	6698	6697	6698
Door Options and Accessories						
LH swing, solid		7119	6995	6997	6999	n/a
LH/LH swing, solid		n/a	n/a	n/a	n/a	7001
RH/RH swing, solid		n/a	n/a	n/a	n/a	7068
LH/Rh swing, solid		n/a	n/a	n/a	n/a	7019
Roll-Out Drawers						
Freezer Complete Set	Cat. No. (qty)	7129 (2)	7446 (7)	6699 (7)	6704 (7)	6700 (14)
(Single Drawers)		7122	7122	6702	6725	6702
Drawers Dividers						
For plasma freezers	Cat. No. (qty)	7027 (4)	7027 (4)	6206 (4)	6963 (5)	6206 (4)
Casters (2" casters standard)						
3" casters (76 mm), set of 4*		6041-1	6041-1	6041-1	6041-1	6041-1
Finishes						
Stainless steel interior (Not available on -20°C units)		7116	6199-3A	6115	6709	6116
Temperature Chart Recorders (Standard on plasma units)						
Built-in, factory installed		n/a	6183-7	6183-7	6183-7	6183-7
Free-standing, customer installed		6383-7	6383-7	6383-7	6383-7	6383-7
Replacement chart paper,-40° to +25° box of 50		6184	6184	6184	6184	6184
Surge Suppressor						
Specify voltage with order		6402	6402	6402	6402	6402
Thermo Scientific Lab Cooler Modules						
Lab Cooler II (holds 24 1.5 mL tubes and 8 0.5 mL tubes)		6744	6744	6744	6744	6744
Deluxe Electronic Remote Alarm						
Requires dedicated phone line		6224TA	6224TA	6224TA	6224TA	6224TA
Remote Alarm Module						
Specify voltage with order		5612-1A	5612-1A	5612-1A	5612-1A	5612-1A
Alarm Delay Module						
Specify voltage with order		6903	6903	6903	6903	6903
Digital Temperature Monitor (Specify voltage with order)						
-100°C to +25°C		6899	6899	6899	6899	6899
Enzyme Storage Bin						
Labels not included		n/a	n/a	6736	n/a	6736
4-20 Milliamp Transmitter						
For freezer		4706	4706	4706	4706	4706
Seismic Restraint Kits						
Seismic restraint kit (basic)		N/A	TFR210	TFR210	TFR210	TFR2100
Seismic restraint kit for OSHPD		N/A	TF-LRF12	TF-LRF23	TF-LRF30	TF-LRF50

2" casters are pre-installed on all units, except 4.9 cu. ft. where casters are shipped uninstalled.

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- HPLC and LC/MS columns and accessories

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Thermo Scientific™ Nalgene™ Mr. Frosty™ 5100 Cryo 1°C Freezing Container

Delivers low-cost cell cryopreservation and recovery, and features:
- Polycarbonate construction
- Blue high-density polyethylene closure
- White high-density polyethylene vial holder
- Foam insert

Mr. Frosty offer the critical, repeatable -1°C/minute cooling rate required for successful cell cryopreservation and recovery. Requires only 100% isopropyl alcohol and -70°C mechanical freezer. It is labeled with graphic, step-by-step instructions and holds up to 18 vials. The holder is designed to prevent vials from contacting alcohol so there's no contamination by wicking; no removal of labels or printing on vials. Containers with alcohol can be stored at room temperature, saving valuable freezer space.

Thermo Scientific Smart-Vue

with so much at stake,
obsessive is smart

The Thermo Scientific™ Smart-Vue™ wireless monitoring solution safeguards the integrity of precious samples by continuously monitoring critical parameters of laboratory equipment and securely logging data to give you peace-of-mind. This wireless solution features audit trail traceability to assist with conformance to 21 CFR part 11, and other regulatory requirements.

Smart

Continuous, real-time monitoring of critical parameters – alerting you remotely when sample integrity is threatened

Scalable

Flexibility to grow with your expanding laboratory needs

Simple

Easy to install, use and maintain

For more information, contact your sales representative. Smart-Vue is not available in all Radio Frequency (RF) regions.

Note: Smart-Vue wireless monitoring kits are designed for first time users monitoring critical temperature parameters in ultra-low temperature freezers. Smart-Vue modules and sensors are available for temperature, RH, CO_2 concentration, differential pressure, 4-20mA output, ambient conditions and alarm/relay dry contacts. Solutions vary by RF regions worldwide and are compatible with multiple types of laboratory equipment. Please ask your sales representative to evaluate a Smart-Vue wireless monitoring solution that best meets your specific needs.

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