



## Thermo Scientific Forma -86°C Chest and Upright Freezers

Sample Storage Products You Can Trust



# Everyday sample storage protection.

State-of-the-art, patented refrigerated system improves temperature control for more consistent temperature cycling and increases reserve BTUH capacity, resulting in a more stable temperature sample.

Sturdy, solid, stainless steel shelving to support a full product load.

Easy-to-clean interior: 8600 and 900 Series freezers feature a stainless steel interior.

Four interior compartment doors in uprights and polystyrene sub-lid(s) in chests reduce cold air loss, improving temperature recovery after door closings. Five inner-door option is available for uprights.

Convenient, hinged, air filter grill allows easy access for inspection, cleaning and/or changing.

Optional built-in chart recorder or digital datalogger can be installed at eye level on our 8600 and 900 Series Freezers for continuous monitoring.

Ergonomically designed handle is cam-actuated to ensure a proper compression ratio around the door seal, while minimizing the effort required during freezer openings and closings.

## Rugged Cabinet Construction for Everyday Use

Heavy gauge, cold-rolled steel cabinets have a powder coat paint finish for a uniform exterior surface that resists chipping and rust.

Maximum product protection is provided by approximately 5.0" (127mm) of foamed-in-place polyurethane insulation in the cabinet that:

- reduces the amount of power consumed
- allows the cabinet to reach and maintain the temperature setpoint
- combined with triple-point door gasket provides longer holding times in the event of a power failure

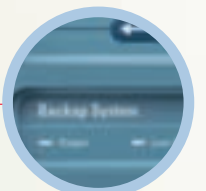
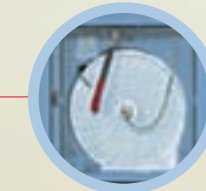
Optional CO<sub>2</sub> and LN<sub>2</sub> safety back-up systems are available to provide additional sample protection in the event of a power or mechanical failure.

Storage pocket on 8600 Series uprights tilts forward, serving as a handy, centralized location for daily logs, IQ/OQ procedures, inventory control records, or the freezer's operating and maintenance manual.



### ENERGY-EFFICIENT, DOUBLE DOOR DESIGN

It's a unique design! Store frequently used specimens and samples in the top chamber, while long-term storage items remain undisturbed in the bottom.



**8600 Series**  
Advanced Performance, Controls and Monitoring

Page

**4**

**900 Series**  
High Performance and Controls

Page

**6**

**700 Series**  
Simplified Performance and Controls

Page

**8**

**Rack Systems for Upright Freezers**

Page

**10**

**Rack Systems for Chest Freezers**

Page

**14**

**Thermo Scientific Accessories**

Page

**15**

Thermo Scientific Nalgene and Nunc cryogenic storage give you everything you need to safely store precious specimens, organize freezer space and simplify sample retrieval.

Nalgene and Nunc combine to provide one-stop shopping for the widest variety and highest quality of externally and internally threaded cryovials, storage boxes, lab top coolers and "Mr. Frosty" controlled rate freezing containers.



# Thermo Scientific Forma 8600 Series

## Upright and Chest Freezers for Ultimate Sample Protection

Our 8600 Series freezers are designed for pharmaceutical, biotech, blood bank applications, and any other industry that requires validation for critical sample storage.



## Additional Sample Protection Features:

RS-232 and 4-20 milliamp analog outputs are standard. The 4-20 milliamp output is a common analog output used to provide temperature data to independent monitoring devices and recorders. Output configurations other than the RS-232, 4-20 milliamp default are available (i.e., RS-485 or RS-232, and 0-1V, 4-20 milliamp, or 0-5V).

Optional sample probe in the top chamber of 8600 Series uprights measures sample temperature or top chamber temperature, assuring you of the sample temperature or uniformity between the top and bottom freezer.

## Enviro-Scan for Easy Setup, Programming and Monitoring

The centralized information center, which includes the Enviro-Scan Microprocessor Control/Monitoring System (shown below left) and an optional chart recorder or datalogger, ensures that all controls and displays are easy to reach and read.

- Highly visible display, intuitive controls and simplified programming make it easy to set up, program, check, and monitor parameters and conditions.
- Personal access code ensures setpoint security.
- Numerous audible/visual alarms (e.g., power failure, high/low temp, door ajar, condenser hot, probe failure, etc.) as well as high/low alarm test offer peace-of-mind monitoring of your samples.

## 8600 Series, Double Door Uprights

### Temperature Range -50°C to -86°C

Model No	Capacity cu. ft. (L)	Electrical	Amps/Breaker (Plug)	Interior Dimensions H x W x D inches (mm)	Exterior Dimensions H x W x D inches (mm)	Shipping Weight lbs (kg)
8692	13.0 (368.1)	120V, 50/60 Hz	16/20 (P2)	51.5 x 23.0 x 19.3 (1308 x 584 x 490)	77.8 x 33.3 x 31.0 (1976 x 846 x 787)	712 (323)
8691		230V, 50/60 Hz	12/15 (P4)			
8693	17.3 (489.9)	120V, 50/60 Hz	16/20 (P2)	51.5 x 23.0 x 25.3 (1308 x 584 x 643)	77.8 x 33.3 x 37.0 (1976 x 846 x 940)	795 (360.6)
8694		230V, 50/60 Hz	12/15 (P4)			
8690	23.0 (651.3)	120V, 50/60 Hz	16/20 (P2)	51.5 x 30.6 x 25.3 (1308 x 777 x 643)	77.8 x 40.8 x 37.0 (1976 x 1036 x 940)	900 (408.2)
8695		230V, 50/60 Hz	12/15 (P4)			

## 8600 Series, Single Door Uprights

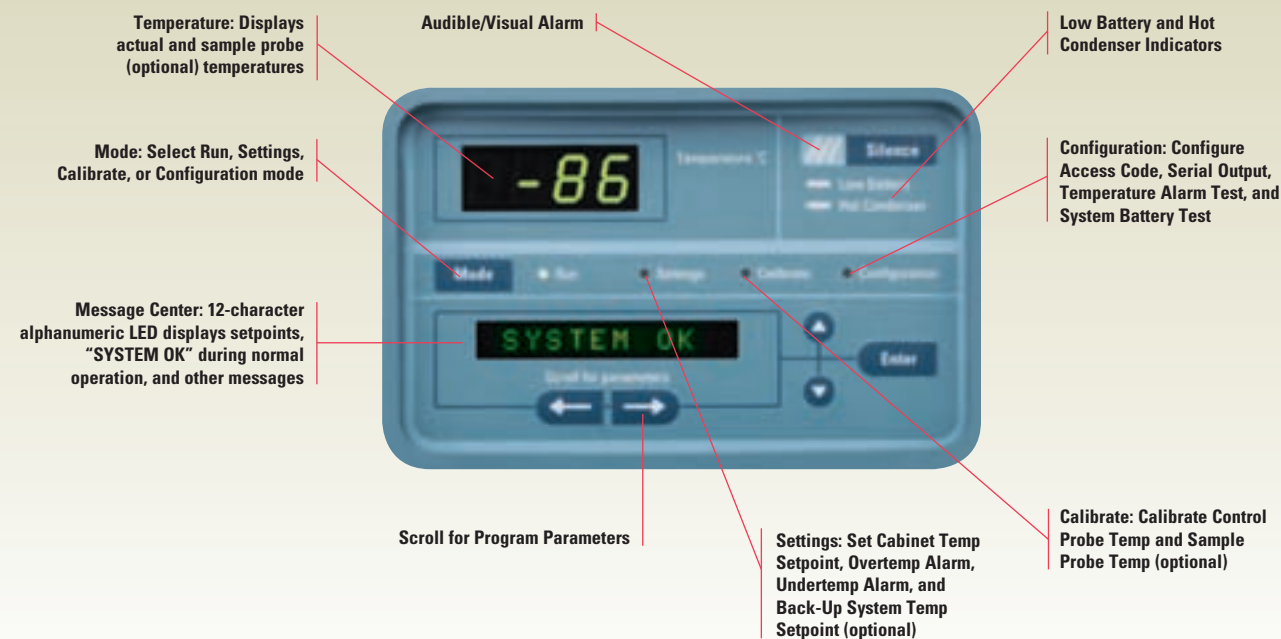
### Temperature Range -50°C to -86°C

Model No	Capacity cu. ft. (L)	Electrical	Amps/Breaker (Plug)	Interior Dimensions H x W x D inches (mm)	Exterior Dimensions H x W x D inches (mm)	Shipping Weight lbs (kg)
8603	13.0 (368.1)	120V, 50/60 Hz	16/20 (P2)	51.5 x 23.0 x 19.3 (1308 x 584 x 490)	77.8 x 33.3 x 31.0 (1976 x 846 x 787)	712 (323)
8602		230V, 50/60 Hz	12/15 (P4)			
8604	17.3 (489.9)	120V, 50/60 Hz	16/20 (P2)	51.5 x 23.0 x 25.3 (1308 x 584 x 643)	77.8 x 33.3 x 37.0 (1976 x 846 x 940)	795 (360.6)
8605		230V, 50/60 Hz	12/15 (P4)			
8656	23.0 (651.3)	120V, 50/60 Hz	16/20 (P2)	51.5 x 30.6 x 25.3 (1308 x 777 x 643)	77.8 x 40.8 x 37.0 (1976 x 1036 x 940)	900 (408.2)
8606		230V, 50/60 Hz	12/15 (P4)			
8607	28.0 (792.8)	230V, 50/60 Hz	12/15 (P4)	51.5 x 36.6 x 27.0 (1308 x 930 x 686)	77.8 x 46.8 x 37.0 (1976 x 1189 x 940)	980 (444.5)

## 8600 Series, Chests

### Temperature Range -50°C to -86°C

Model	Capacity cu. ft. (L)	Electrical	Amps/Breaker (Plug)	Interior Dimensions H x W x D inches (mm)	Exterior Dimensions H x W x D inches (mm)	Shipping Weight lbs (kg)
8615	12.7 (359.6)	120V, 50/60 Hz	16/20 (P2)	28.0 x 42.5 x 18.5 (711 x 1080 x 470)	40.5 x 72.0 x 28.8 (1029 x 1829 x 732)	716 (324.8)
8612		230V, 50/60 Hz	12/15 (P4)			
8621	20.0 (566.3)	120V, 50/60 Hz	16/20 (P2)	28.0 x 66.5 x 18.5 (711 x 1689 x 470)	40.5 x 96.0 x 28.8 (1029 x 2438 x 732)	833 (377.8)
8620		230V, 50/60 Hz	12/15 (P4)			



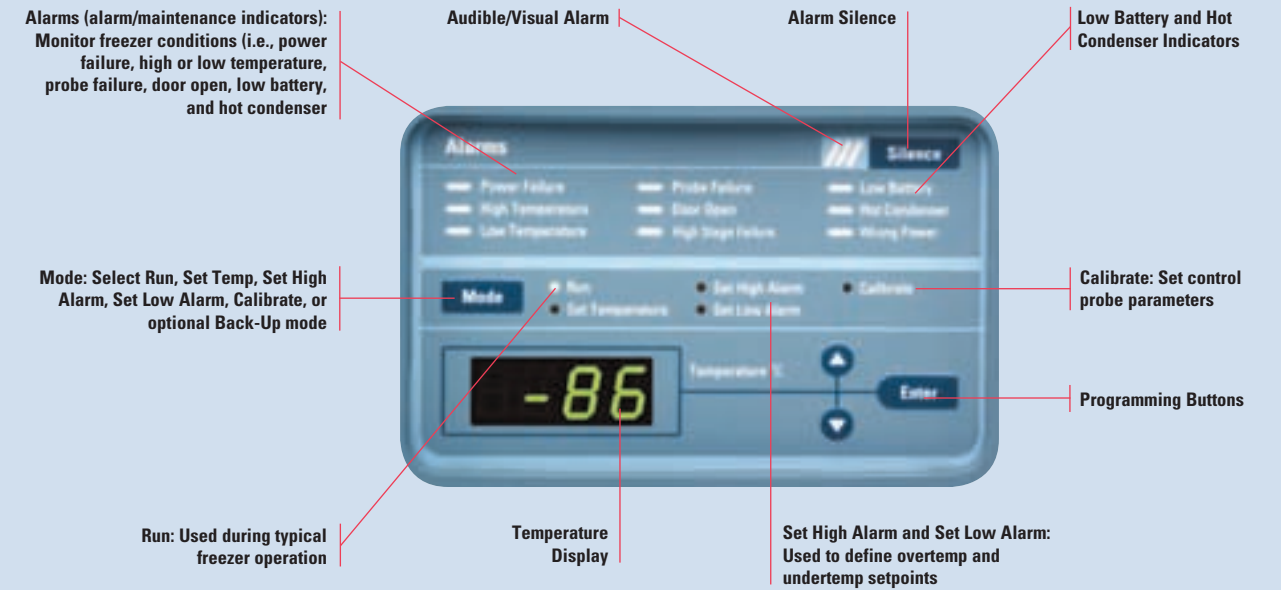
\* Upright freezers pass through a 34.0" (86.4cm) wide doorway with door and front panel opened 180 degrees, and rolling the freezer from side-to-side.

# Thermo Scientific Forma 900 Series

## Upright Freezers for Daily Sample Protection and Dependability

Our 900 Series freezers are designed for universities, research facilities and industrial institutions where easily adjustable shelves, easy-to-access controls and convenient at-a-glance monitoring are preferred.

The centralized information center, which includes a microprocessor control and monitoring system and an optional chart recorder or datalogger, ensures that all controls and displays are easy-to-reach and read.



## 900 Series, Double Door Uprights

Temperature Range -50°C to -86°C						
Model No	Capacity cu. ft. (L)	Electrical	Amps/Breaker (Plug)	Interior Dimensions H x W x D inches (mm)	Exterior Dimensions H x W x D inches (mm)	Shipping Weight lbs (kg)
992	13.0 (368.1)	120V, 50/60 Hz	16/20 (P2)	51.5 x 23.0 x 19.3 (1308 x 584 x 490)	77.8 x 33.3 x 31.0 (1976 x 846 x 787)	712 (323)
991		230V, 50/60 Hz	12/15 (P4)			
993	17.3 (489.9)	120V, 50/60 Hz	16/20 (P2)	51.5 x 23.0 x 25.3 (1308 x 584 x 643)	77.8 x 33.3 x 37.0 (1976 x 846 x 940)	795 (360.6)
994		230V, 50/60 Hz	12/15 (P4)			
990	23.0 (651.3)	120V, 50/60 Hz	16/20 (P2)	51.5 x 30.6 x 25.3 (1308 x 777 x 643)	77.8 x 40.8 x 37.0 (1976 x 1036 x 940)	900 (408.2)
995		230V, 50/60 Hz	12/15 (P4)			

## 900 Series, Single Door Uprights

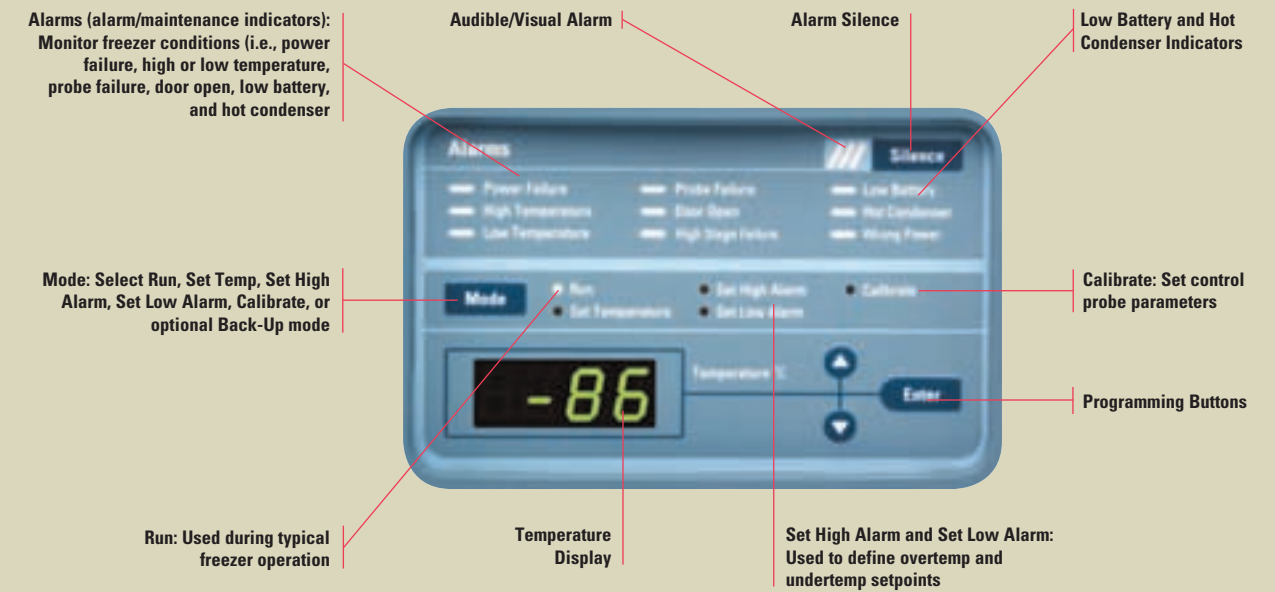
Temperature Range -50°C to -86°C						
Model No	Capacity cu. ft. (L)	Electrical	Amps/Breaker (Plug)	Interior Dimensions H x W x D inches (mm)	Exterior Dimensions H x W x D inches (mm)	Shipping Weight lbs (kg)
903	13.0 (368.1)	120V, 50/60 Hz	16/20 (P2)	51.5 x 23.0 x 19.3 (1308 x 584 x 490)	77.8 x 33.3 x 31.0 (1976 x 846 x 787)	712 (323)
902		230V, 50/60 Hz	12/15 (P4)			
904	17.3 (489.9)	120V, 50/60 Hz	16/20 (P2)	51.5 x 23.0 x 25.3 (1308 x 584 x 643)	77.8 x 33.3 x 37.0 (1976 x 846 x 940)	795 (360.6)
905		230V, 50/60 Hz	12/15 (P4)			
906	23.0 (651.3)	230V, 50/60 Hz	12/15 (P4)	51.5 x 30.6 x 25.3 (1308 x 777 x 643)	77.8 x 40.8 x 37.0 (1976 x 1036 x 940)	900 (408.2)
956		120V, 50/60Hz	16/20 (P2)			
907	28.0 (792.8)	230V, 50/60 Hz	12/15 (P4)	51.5 x 36.6 x 27.0 (1308 x 930 x 686)	77.8 x 46.8 x 37.0 (1976 x 1189 x 940)	980 (444.5)

\* Upright freezers pass through a 34.0" (86.4cm) wide doorway with door and front panel opened 180 degrees, and rolling the freezer from side-to-side.

# Thermo Scientific Forma 700 Freezers



Our 700 freezers are designed for clinical and academic institutions that require no-frills functionality without compromising sample protection. The information features simplified programmable controls, a temperature display and an optional chart recorder or datalogger for continuous monitoring.



## 700 Series, Chests

### Temperature Range -50°C to -86°C

Model No	Capacity cu. ft. (L)	Electrical	Amps/Breaker (Plug)	Interior Dimensions H x W x D inches (mm)	Exterior Dimensions H x W x D inches (mm)	Shipping Weight lbs (kg)
708	3.0 (84.9)	115V, 60 Hz	10.5/15 (P1)	16.5 x 18.5 x 18.5 (419 x 470 x 470)	43.8 x 28.5 x 28.8 (1113 x 724 x 732)	432 (196)
709		230V, 50 Hz	5.4/15 (P4)			
715	12.7 (359.6)	120V, 50/60 Hz	16/20 (P2)	28.0 x 42.5 x 18.5 (711 x 1080 x 470)	40.5 x 72.0 x 28.8 (1029 x 1829 x 732)	716 (324.8)
712		230V, 50/60 Hz	12/15 (P4)			
719	17.0 (481.4)	230V, 50/60 Hz	12/15 (P4)	28.0 x 58.8 x 18.5 (711 x 1494 x 470)	40.5 x 87.6 x 28.8 (1029 x 2225 x 732)	821 (372.4)
721	20.0 (566.3)	120V, 50/60 Hz	16/20 (P2)	28.0 x 66.5 x 18.5 (711 x 1689 x 470)	40.5 x 96.0 x 28.8 (1029 x 2438 x 732)	833 (377.8)
720		230V, 50/60 Hz	12/15 (P4)			

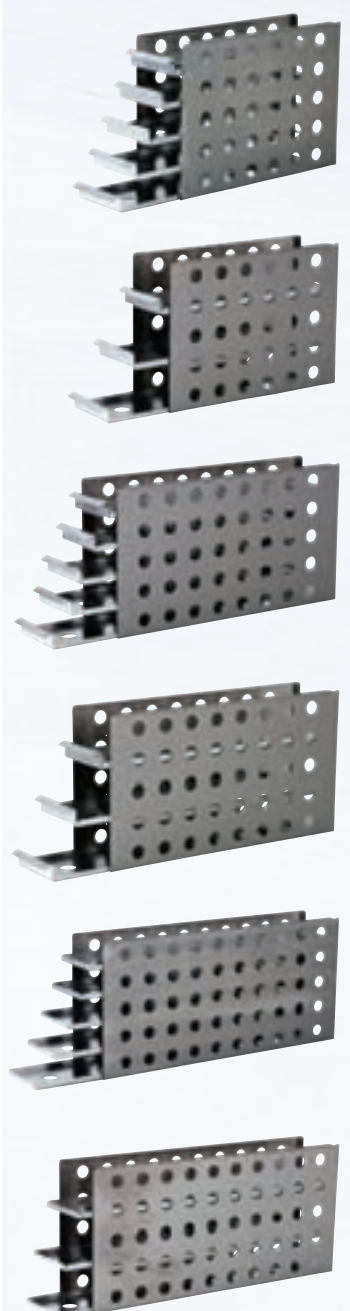
## 700 Series, Uprights

### Temperature Range -50°C to -86°C

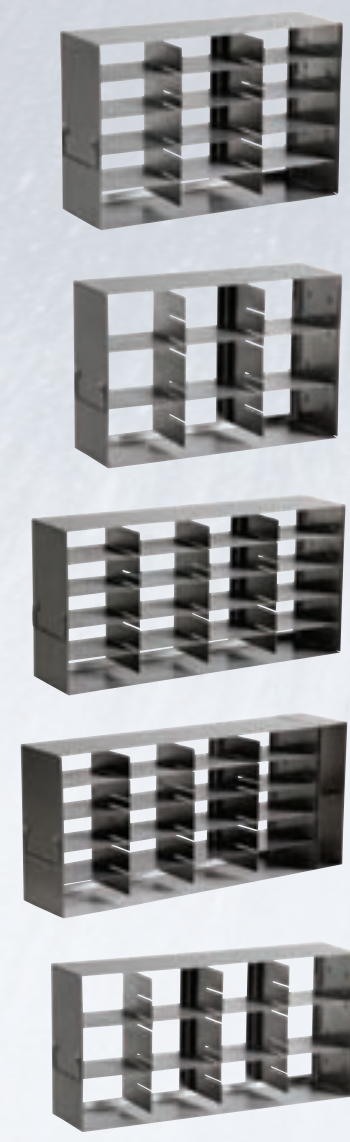
Model No	Capacity cu. ft. (L)	Electrical	Amps/Breaker (Plug)	Interior Dimensions H x W x D inches (mm)	Exterior Dimensions H x W x D inches (mm)	Shipping Weight lbs (kg)
702	13.0 (368.1)	230V, 50/60 Hz	12/15 (P4)	51.5 x 23.0 x 19.3 (1308 x 584 x 490)	77.8 x 33.3 x 31.0 (1976 x 846 x 787)	603.7 (274.4)
703		120V, 50/60 Hz	16/20 (P2)			
704	17.3 (489.9)	120V, 50/60 Hz	16/20 (P2)	51.5 x 23.0 x 25.3 (1308 x 584 x 643)	77.8 x 33.3 x 37.0 (1976 x 846 x 940)	795 (360.6)
705		230V, 50/60 Hz	12/15 (P4)			
706	23.0 (651.3)	230V, 50/60 Hz	12/15 (P4)	51.5 x 30.6 x 25.3 (1308 x 777 x 643)	77.8 x 40.8 x 37.0 (1976 x 1036 x 940)	900 (408.2)
756		120V, 50/60Hz	16/20 (P2)			

\* Upright freezers pass through a 34.0" (86.4cm) wide doorway with door and front panel opened 180 degrees, and rolling the freezer from side-to-side.

# Thermo Scientific Rack Systems for Upright Freezers



Cat. No.	Description W x H x D inches (W x H x D mm)	Freezer Volume cu ft (L)	Quantity of 2" Boxes	Quantity of 3" Boxes	Racks/ Shelf	Total Racks/ Freezer
<b>Sliding Drawer for Single Door Freezers and Bottom Half of Double Door*</b>						
820094 920094	With 2" boxes Without boxes 5.5 x 11.9 x 16.6 (140 x 302 x 422)	13 (368)	15		4	16/8*
820095 920095	With 3" boxes Without boxes 5.5 x 11.9 x 16.6 (140 x 302 x 422)	13 (368)		9	4	16/8*
820096 920096	With 2" boxes Without boxes 5.5 x 11.9 x 22.0 (140 x 302 x 559)	17.3 (490) 23 (651)	20 20		4 5	16/8* 20/10*
820097 920097	With 3" boxes Without boxes 5.5 x 11.9 x 22.0 (140 x 302 x 559)	17.3 (490) 23 (651)		12 12	4 5	16/8* 20/10*
820090 920090	With 2" boxes Without boxes 5.6 x 11.8 x 26.3 (142 x 300 x 668)	28 (793)	25		6	24
820091 920091	With 3" boxes Without boxes 5.6 x 11.8 x 26.3 (142 x 300 x 668)	28 (793)		15	6	24

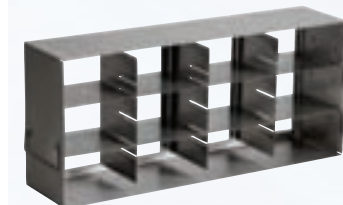
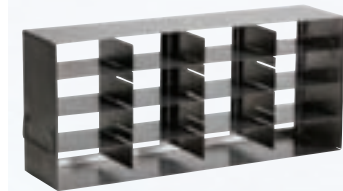
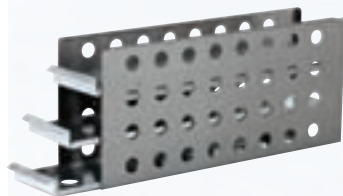
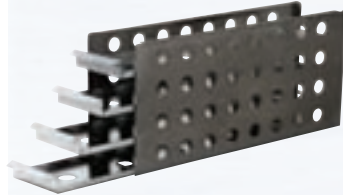
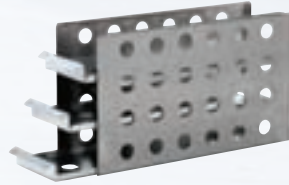
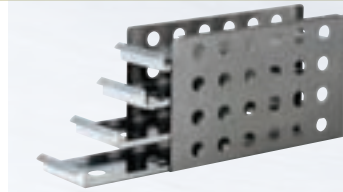


Cat. No.	Description W x H x D inches (W x H x D mm)	Freezer Volume cu ft (L)	Quantity of 2" Boxes	Quantity of 3" Boxes	Racks/ Shelf	Total Racks/ Freezer
<b>Side Access for Single Door Freezers and Bottom Half of Double Door* with adjustable shelves</b>						
820015 920015	With 2" boxes Without boxes 5.5 x 10.9 x 16.5 (140 x 277 x 419)	13 (368)	15		4	16/8*
820009 920009	With 3" boxes Without boxes 5.5 x 10.9 x 16.5 (140 x 277 x 419)	13 (368)		9	4	16/8*
820018 920018	With 2" boxes Without boxes 5.5 x 10.9 x 22 (140 x 277 x 559)	17.3 (490) 23 (651)	20 20		4 5	16/8* 20/10*
820022 920022	With 2" boxes Without boxes 5.5 x 10.9 x 24.6 (140 x 277 x 625)	17.3 (490) 23 (651)	22 22		4 5	16/8* 20/10*
820017 920017	With 3" boxes Without boxes 5.5 x 10.9 x 22 (140 x 277 x 559)	17.3 (490) 23 (651)		12 12	4 5	16/8* 20/10*

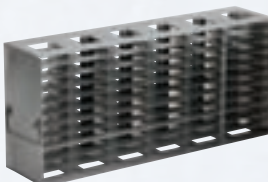
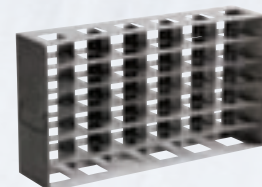
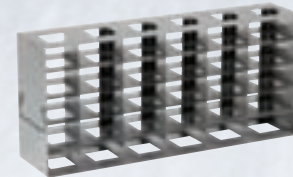
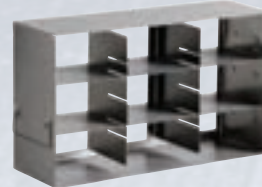
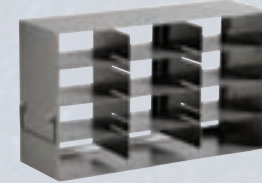
\* Total racks/freezer capacity in the bottom half of double door models

\* Total racks/freezer capacity in the bottom half of double door models

Cat. No.	Description W x H x D inches (W x H x D mm)	Freezer Volume cu ft (L)	Quantity of 2" Boxes	Quantity of 3" Boxes	Racks/ Shelf	Total Racks/ Freezer
<b>Sliding Drawer for Single Door Freezers with 5 Inner Door Option Top Half of Double Door Freezers*</b>						
820098	With 2" boxes					
920098	Without boxes					
	5.5 x 9.5 x 16.6 (140 x 241 x 422)	13 (368)	12		4	20/8*
820099	With 3" boxes					
920099	Without boxes					
	5.5 x 9.5 x 16.6 (140 x 241 x 422)	13 (368)		9	4	20/8*
820101	With 2" boxes					
920101	Without boxes					
	5.5 x 9.5 x 22 (140 x 241 x 559)	17.3 (490)	16		4	20/8*
		23 (651)	16		5	25/10*
820102	With 3" boxes					
920102	Without boxes					
	5.5 x 9.5 x 22 (140 x 241 x 559)	17.3 (490)		12	4	20/8*
		23 (651)		12	5	25/10*
820105	With 2" boxes					
920105	Without boxes					
	5.5 x 9.4 x 26.3 (140 x 238 x 668)	28 (792.8)	20		6	30/8*
820106	With 3" boxes					
920106	Without boxes					
	5.5 x 9.4 x 26.3 (140 x 238 x 668)	28 (792.8)		15	6	30/8*
<b>Side Access for Single Door Freezers with 5 Inner Door Option Top Half of Double Door Freezers*</b>						
189495	With 2" boxes					
989495	Without boxes					
	5.5 x 9.4 x 22 (140 x 239 x 559)	17.3 (490)	16		4	20/8*
		23 (651)	16		5	25/10*
189471	With 3" boxes					
989471	Without boxes					
	5.5 x 9.4 x 22 (140 x 239 x 559)	17.3 (490)		12	4	20/8*
		23 (651)		12	5	25/10*



Cat. No.	Description W x H x D inches (W x H x D mm)	Freezer Volume cu ft (L)	Quantity of 2" Boxes	Quantity of 3" Boxes	Racks/ Shelf	Total Racks/ Freezer
<b>Side Access for Single Door Freezers with 5 Inner Door Option Top Half of Double Door Freezers*</b>						
189795	With 2" boxes					
989795	Without boxes					
	5.5 x 9.5 x 16.6 (140 x 241 x 422)	13 (368)	12		4	20/8*
189771	With 3" boxes					
989771	Without boxes					
	5.5 x 9.5 x 16.6 (140 x 241 x 422)	13 (368)		9	4	20/8*
<b>Deepwell Microplate Racks with Handle for Single Door Freezer with 4 Inner Shelves</b> (for other configurations, please contact your sales representative)						
820030	30 position 5.5 x 9.4 x 16.6 (140 x 239 x 422)	17.3 (490)			4	16
		23.0 (651)			5	20
820036	36 position 5.5 x 12 x 22 (140 x 305 x 559)	17.3 (490)			4	16
		23.0 (651)			5	20
820066	66 position 5.5 x 9.4 x 16.6 (140 x 239 x 422)	17.3 (490)			4	16
<b>Miscellaneous Racks</b>						
830012	Multi-Drawer Rack 11.2 x 11.5 x 11.1 (284 x 292 x 282)	13 (368)			1	4
		17.3 (490)			2	8
		23 (651)			4	16
830030	Storage Container (8 compartments) 7 x 5.3 x 18.1 (178 x 135 x 460)	13 (368)			6	24
830032	Storage Container (10 compartments) 7 x 5.3 x 22.6 (178 x 135 x 574)	17.3 (490)			6	24
		23 (651)			8	32

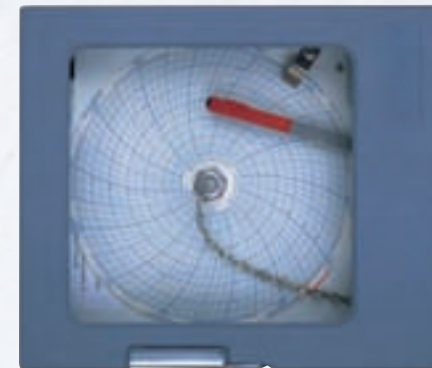


\* Total racks/freezer capacity in the bottom half of double door models

\* Total racks/freezer capacity in the bottom half of double door models



Cat. No.	Description W x H x D inches (W x H x D mm)	Freezer Volume cu ft (L)	Quantity of 2" Boxes	Quantity of 3" Boxes	Total Racks/ Freezer
<b>Rack with Handle</b>					
820007	With 2" boxes				
920007	Without boxes				
	5.5 x 16 x 5.5				
	(140 x 406 x 140)	3 (85)	7		9
		6.7 (190)	7		18
<b>Microplate Rack with Handle</b>					
820005	With 3" boxes				
920005	Without boxes				
	5.5 x 16 x 5.5				
	(140 x 406 x 140)	3 (85)		5	9
		6.7 (190)		5	18
<b>Miscellaneous Racks</b>					
114048	Wire basket with rollers				
	11.8 x 12.3 x 16.5				
	(248 x 311 x 419)	12.7 (360) *			5
		17 (481)			48
		20 (566) **			9
	*Requires one rail set # 189001 **Requires one rail set # 189000				



\* Must be installed by qualified personnel



Cat. No.	Description
<b>Storage Boxes</b>	
	5.3" x 5.3" (13.5cm x 13.5cm)
820002	2.0" (5.1cm) high box (water repellent cardboard box with 81 cell dividers)
820003	3.0" (7.6cm) high box (water repellent cardboard box with 81 cell dividers)
820010	2.0" (5.1cm) high polycarbonate box, includes 100-cell divider with 0.5" (1.3cm) openings, 5.3" x 5.3" x 2.0"H (13.5cm x 13.5cm x 5.1cm), Holds 1.0, 1.5, and 2.0ml vials and features a numerical grid system printed on the cover for inventory purposes
820011	2.0" (5.1cm) high polycarbonate box, includes 81-cell divider with 0.5" (1.3cm) openings, 5.3" x 5.3" x 2.0"H (13.5cm x 13.5cm x 5.1cm), Holds 1.0, 1.5, and 2.0ml vials and features a numerical grid system printed on the cover for inventory purposes
820013	3.0" (7.62cm) high polycarbonate box, includes 81-cell divider with 0.5" (1.3cm) openings, 5.3" x 5.3" x 3.3"H (13.5cm x 13.5cm x 8.4cm), Holds 3.0, and 4.0ml cryotubes and features a numerical grid system printed on the cover for inventory purposes
<b>Cell Dividers</b>	
820016	16-cell, 1.22" (3.0cm) nominal opening
820025	25-cell, 0.98" (2.5cm) nominal opening
820049	49-cell, -0.70" (1.7cm) nominal opening
820064	64-cell, 0.61" (1.5cm) nominal opening
820081	81-cell, 0.54" (1.3cm) nominal opening
820100	100-cell, 0.49" (1.1cm) nominal opening
4000221	Cryo Marker Pens, four fine tip pens (black, blue, green and red) with fast-drying, non-smearing, permanent ink
<b>6", 7 Day Temperature Recorders -100°C to +38°C (-148°F to +100°F)</b>	
Chart recorders are installed within easy view (e.g., eye level on uprights) and reach on our 8600 and 900 Series Freezers for easy monitoring and paper changes, and in the base of the 700 Series. These chart recorders are for current 120V and 230V Forma freezer models. Recorders for discontinued models are also available. Contact us for details.	
201240	Recorder, customer installed* Includes single felt-tip pen and box of chart paper.
201241	Recorder, factory installed Includes single felt-tip pen and box of chart paper.
17020	Chart paper, 50 charts per box
245231	Red felt-tip replacement pen
245232	Blue felt-tip replacement pen
<b>6", 7 Day Inkless Circular Chart Recorders +50°C to -115°C (-175°F to +122°F)</b>	
(-175°F to 122°F), single pressure-sensitive pen, includes inkless pen and box of chart paper	
201248	Inkless recorder, customer installed* (includes single pressure-sensitive inkless pen and box of chart paper)
201249	Inkless recorder, factory installed (includes single pressure-sensitive inkless pen and box of chart paper)
180000	Chart paper, 50 charts per box
<b>Built-in Dataloggers, -90°C to +140°C (-130°F to +284°F)</b>	
Dataloggers are located within easy view (e.g., eye level on uprights) and reach on our 8600 and 900 -86°C Series Freezers for easy monitoring, and in the base of the 700 Series.	
Dataloggers are designed to meet U.S. FDA guidelines cGLP 21 CFR Part 58, Software Validation 21 CFR Part 820, and Electronic Records 21 CFR Part 11. Full compliance requires user training. Contact your sales representative for an implementation quotation.	
201246	Datalogger, customer installed* (includes evaluation software and PC data cable)
201247	Datalogger, factory installed (includes evaluation software and PC data cable)



Cat. No.	Description
----------	-------------

### Safety Back-Up Systems, Wall Clamp, and Hoses

Back-up systems provide the convenience, reassurance, and reliability you need in the event of a power or mechanical failure. A CO<sub>2</sub> or LN<sub>2</sub> safety back-up system is a must for your critical storage applications.

#### Back-up systems for uprights and chests

195875	Deluxe CO <sub>2</sub> back-up, factory installed
195876	Deluxe CO <sub>2</sub> back-up, customer installed*
195877	LN <sub>2</sub> back-up, factory installed
195878	LN <sub>2</sub> back-up, customer installed
950316	Wall clamp, CO <sub>2</sub> cylinder holder for securing tank to wall in accordance with OSHA regulations
991505	High pressure liquid CO <sub>2</sub> hose, kink resistant with stainless steel liner covered with double-braided stainless steel sheath, NPT Type 316 stainless steel female fitting, maximum working pressure 2500 psig in 6 ft. (1.8m) lengths
4000401	LN <sub>2</sub> transfer hose, flexible 6 ft. (1.8m) metal hose, 0.5" (1.3cm) diameter 45 degree flare with swivel ends

### Sensaphone® Telephone Dialing Systems (not available for sales requiring CE)

The system interfaces with any standard touch tone phone to notify you of alarm conditions.

You are also able to call the lab or office from anywhere, and the system will state the status of every monitored condition.

Battery back-up is standard (six D-size alkaline batteries are required). Battery life is up to 15 hours after the AC power has failed, and up to 18 months with AC power on.

The Sensaphone can be used with our Model 1535 Monitor/Alarm System that features programmable audible/visual alarms and updates/displays equipment conditions on an LCD readout.

400047	Monitors up to four inputs (channels) and dials up to four numbers 120V/60Hz
400134	Monitors up to eight inputs (channels) and dials up to eight numbers 120V/60Hz
400182	Monitors up to four inputs (channels) and dials up to four numbers except 220V/50 Hz, not CE marked
400183	Monitors up to eight inputs (channels) and dials up to eight numbers except 220V/50 Hz, not CE marked

### Temperature/Power Monitors

Digital and audible/visual alarms are ideal for monitoring the temperature and power supply of freezers, lab refrigerators, and incubators, or other equipment within the specified temperature ranges.

The Digital Temperature/Power Monitor with alarm silence, which can be mounted to your equipment, includes one temperature probe encased in a stainless steel sheath with a 20 ft. (6.1m) lead wire. Monitoring range is -135°C to 99°C (-211°F to 210.2°F).

Digital temperature readout is easy to view.

Indicator lights exist for power, normal operation and alarm. Audible alarm also sounds if a power failure or alarm condition occurs.

Adjustable high/low alarms can be set digitally. Alarm silence is momentary-timed. Key switch allows standby mode until temperature is fully recovered and then rings back to remind you to switch to normal operation. Alarm test system (high alarm only) is standard.

The unit also features a recharging nickel cadmium battery back-up system, remote alarm contacts, millivolt output signal (for use with our Model 1535 Monitor/Alarm System), and an 8 ft. (2.4m) electrical line cord.

#### Digital Temp/Power Monitors, 10.0"W x 10.0"H x 4.0"F-B (25.4cm x 25.4cm x 10.2cm)

400048	120V, 60 Hz
400049	230V, 50 Hz



\* Must be installed by qualified personnel



Cat. No.	Description
----------	-------------

### Audible/Visual Temperature/Power Monitor

Compact Temperature/Power Monitor, which operates on a 120V power source, attaches to a wall or equipment for convenient single unit monitoring. The monitoring range is -90°C to 40°C (-130°F to 104°F).

Audible/visual alarms alert you of over and undertemperature conditions and power loss (alarm can be reset when cabinet temperature returns to normal). Battery back-up power keeps the monitor operational, even during a power failure.

Ringback system provides additional protection. The self-contained probe avoids reliance on equipment remote alarm contacts, providing an additional level of safety. Unit includes remote alarm contacts for connection to a remote alarm.

290003	Temp/Power Monitor, 120V, 60 Hz; 4.3"W x 6.3"H x 2.0"F-B (10.9cm x 16.0cm x 5.1cm)
--------	---

### Remote Alarms

Our Remote Alarms are designed for areas where an alarm may not be readily heard. These alarms extend your existing alarm system to a remote location in the facility.

The lightweight units attach to a wall or cabinet for convenience. The alarms operate on line voltage and switch to battery back-up if a power failure occurs. The remote alarms can be connected easily to a temperature/power monitor and remote alarm contacts on our products.

Units come complete with an audible alarm silence switch and alarm ringback feature. You can temporarily defeat any alarm, but the system rings back as a reminder to reset when normal conditions are restored.

No. 400040 and No. 400011 include audible and/or visual alarms to indicate an alarm condition on monitored equipment.

#### Remote Alarms 4.3" x 6.3"H (10.9cm x 16.0cm)

400011	120V, 60 Hz; audible signal; 2.0" (5.1 cm) F-B
400040	120V, 60 Hz; audible and visual signal; 1.5" (3.8 cm) F-B
400041	230V, 50 Hz; audible and visual signal; 1.5" (3.8 cm) F-B

### Data Outputs

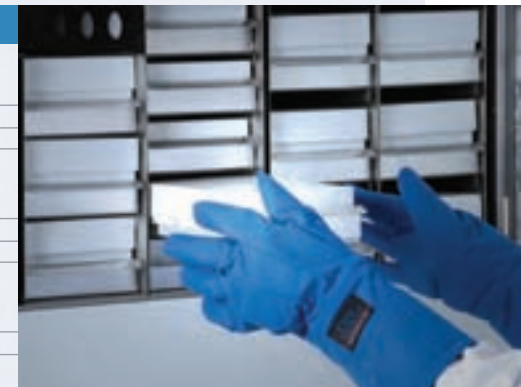
Although RS-232 and 4-20 milliamp analog outputs are standard on the 8600 Series, we offer the following options to meet your specific needs.

195895	Optional Data Outputs, factory installed (available on 8600 series only)
195896	RS-232, 0-1V
195897	RS-232, 0-5V
195897	RS-485, 4-20 milliamp
195898	RS-485, 0-1V
195899	RS-485, 0-5V

RS-232 allows connection to a computer, recorder, or independent monitoring device. (RS-232 is not compatible with our Model 1535 Monitor/Alarm System). RS-485 allows direct connection to the Model 1535 Monitor/Alarm System

### Cryo Gloves

189573	<b>Wrist-Length, 12.0" (30.5cm), one pair</b> Small
189574	Medium
189575	Large
189561	<b>Mid-Arm Length, 14.0" to 15.0" (35.6cm to 38.1cm), one pair</b> Medium
189562	Large
189563	Extra Large
189564	<b>Elbow-Length, 18.0" to 30.0" (45.7cm to 50.8cm), one pair</b> Medium
189565	Large



Cat. No.	Description
<b>Inner Door Kits for Uprights</b>	
	Interior compartment doors reduce cold air loss and improve temperature recovery after door closings. (Four interior doors are already included on our -86°C uprights).
195240	Interior Door Kit for Forma -40°C Lab Freezers (uprights). Includes four interior doors with latches, factory installed
	Five Inner Door Option for 8600 and 900 Series, includes five powder Coated inner doors and one additional shelf, factory installed
189405	For 13.0 cu.ft. uprights
189406	For 17.3 cu.ft. uprights
189407	For 23.0 cu.ft. uprights
195652	For 28.0 cu.ft. uprights
<b>Water-Cooled Condenser Option</b>	
	The water-cooled condenser option is available for our -86°C uprights and -86°C 12.7, 17.0 and 20.0 cu.ft. chests.
	Your work environment stays cooler because 50% less heat is emitted to your surroundings (i.e., less BTU rejection). A water regulating valve automatically controls the water flow needed to maintain the compressor discharge pressure. Cooler compressor temperatures enhance compressor stability and reliability.
	<b>Water-Cooled Condensers</b>
195964	For 13.0 cu.ft. uprights
195965	For 17.3, 23.0, and 28.0 cu.ft. uprights
195967	For 12.7, 17.0, and 20.0 cu.ft. chests
	Like our standard freezers, those with the water-cooled condenser options are also UL Listed to Canadian and United States requirements and bear the CE Mark.
<b>Condenser Specifications</b>	
	These specifications apply to tower and city water sources.
	<b>Water Pressure and Temperature</b>
Maximum Pressure	150 psig
Maximum Temperature	29.4°C (85°F)
	<b>Connections</b>
Inlet	0.5" compression
Outlet	.5" compression
	<b>Water Flow Rate Required</b>
Tower Water	3.0 gallons (11.4 liters) per minute
City Water	1.0 gallons (3.8 liters) per minute
	<b>Drain Required?</b>
Tower Water	No (return line is required)
City Water	Yes
	Installation requires a qualified technician and should include proper adjustment of the regulating valve, which controls the discharge pressure.
	Condenser options for discontinued freezer models are also available. Contact your sales representative for details.
<b>Shelving for Uprights</b>	
	<b>Stainless Steel Shelf Kits for 8600 and 900 Series, include mounting hardware</b>
224134	For 13.0 cu.ft. uprights
224135	For 17.3 cu.ft. uprights
224158	For 23.0 cu.ft. uprights
224180	For 28.0 cu.ft. uprights
	<b>Behind-the-Mullion Shelf for 8600 and 900 Series</b>
195338	For 13.0 cu.ft. double door uprights
195339	For 17.3 cu.ft. double door uprights
195340	For 23.0 cu.ft. double door uprights

Cat. No.	Description
<b>Air Filter Replacement Kits</b>	
	<b>Air Filter Replacement Kits, value pack of five filters</b>
195890	For 8600, 900, and 700 Series uprights
195947	For 3.0 cu.ft. chests
195948	For 12.7, 17.0, and 20.0 cu.ft. chests
	Air filters for discontinued freezer models are also available. Contact your sales representative for details.
<b>Sample Probe Kits for 8600 Series Uprights</b>	
	Probe kits are useful to measure sample temperature or top chamber temperature, assuring you of the sample temperature or uniformity between the top and bottom of the freezer.
195892	Kit, customer installed* (includes probe clip and probe)
195893	Kit, factory installed (includes probe clip and probe)
<b>Miscellaneous Accessories</b>	
189620	Access Port, 1.3" inside diameter, factory installed
195915	Unique key lock, factory installed
430266	120V/20A Twist lock plug, NEMA L5-20P
430267	230V/15A Twist lock plug, NEMA L6-15P
* Must be installed by qualified professional	



## Achieve secure, efficient tracking of laboratory samples with Thermo Scientific 2D Barcoded storage tubes.

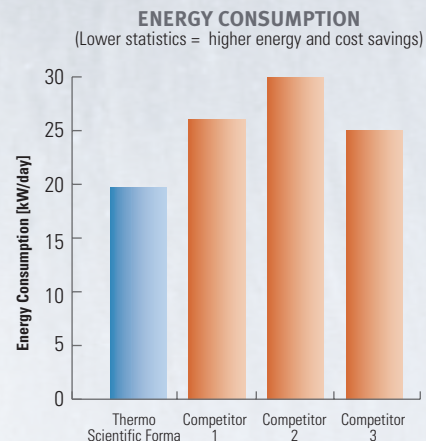
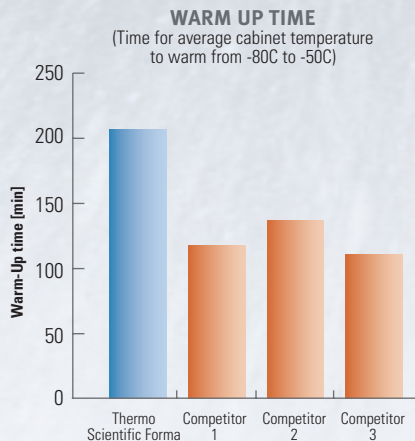
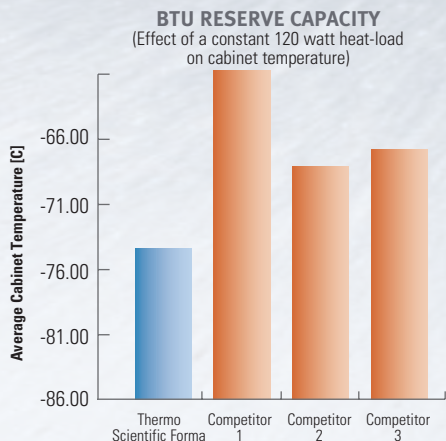
Unlike traditional storage tubes, a permanently bonded 2D barcode is laser-etched on the base of every tube for individual identification and traceability. Available in volumes from 0.3 ml to 12.0 ml, stringent quality control ensures flawless barcodes and all tubes are leak-tested to ensure the integrity of every sample. The microplate footprint tube racks, with a locking lid to secure samples, are stackable to provide space efficiencies for storage.

Complementary Thermo Scientific 2D barcode readers allow instant decoding of each barcode and sample entry into virtually any file or database application, permanently linking the tube contents to the unique 2D code.

For more information, please visit [www.thermoscientific.com/matrix](http://www.thermoscientific.com/matrix)

# Designed with your samples in mind

The BTU Reserve Capacity test illustrates our Forma freezers' ability to accept a heat load (warm samples placed inside a freezer), yet maintain a very cold average cabinet temperature. This is accomplished through a robust refrigeration system and superior insulation. The Warm Up Time chart illustrates our superior insulation and door seals by showing the time it takes for an empty unit to warm from -80C to -50C in a simulated power outage. Finally, we accomplish this with optimized Energy Consumption during normal cycling at a -80C set point. The graphs below are based on a Thermo Scientific Forma 906 at 60Hz versus similar competitive units.



## ADDITIONAL FEATURES

Our fully-tested refrigeration system improves temperature control for more consistent temperature cycling and increases reserve BTUH capacity, resulting in a more stable temperature for safer product storage.

Triple-point silicone gasket and latch/handle on uprights and flexible gasket on chests ensure a snug seal that:

- Minimizes ambient temperature and humidity migration to the interior, reducing maintenance because less frost builds up on the inner doors and chest sub-lid(s)
- Provides an energy-efficient thermal barrier to keep cold air in and room temperature air out, contributing to safe product storage and reducing wear and tear on the compressors because they don't have to operate as often

Uprights include acoustical mufflers designed into the base and sound-absorbing foam that work together to reduce noise level, ensuring quiet operation for more comfortable working conditions.

Automatic Voltage Compensator for Longer Compressor Life

- Ensures that a more consistent electrical current flows to the freezer, reducing wear and tear on the compressor(s)
- Increases compressor life by maintaining reliability over a wide voltage range
- Prevents incorrect voltage from being applied to the freezer's fan(s) and compressors (e.g., ensures use of the correct electrical outlet) All freezers include a battery back-up system that provides power to the monitoring and alarm system in the event of a power failure.

Freezers include remote alarm contacts for connection to an in-house security system, optional remote alarm system or Sensaphone® Telephone Dialing System.

Heated vacuum relief port on uprights equalizes the pressure quickly, allowing easy re-entry after closing.

Key lock prevents unwanted access to your valuable samples.

For added security, an audible/visual alarm occurs if the door or lid is not closed properly.

**Contact your sales representative for warranty information.**

© 2010 Thermo Fisher Scientific Inc. All rights reserved. Sensaphone is a registered trademark of Phonetics Incorporated. All other trademarks are the property of Thermo Fisher Scientific Inc. and its subsidiaries. Specifications, terms and pricing are subject to change. Not all products are available in all countries. Please consult your local sales representative for details.

**North America:** USA/Canada +1 866 984 3766 (866-9-THERMO)

**Europe:** Austria +43 1 801 40 0, Belgium +32 2 482 30 30, France +33 2 2803 2180, Germany national toll free 08001-536 376, Germany international +49 6184 90 6940, Italy +39 02 02 95059 434-254-375, Netherlands +31 76 571 4440, Nordic countries +358 9 329 100, Russia/CIS +7 (812) 703 42 15, Spain/Portugal +34 93 223 09 18, Switzerland +41 44 454 12 12, UK/Ireland +44 870 609 9203

**Asia:** China +86 21 6865 4588 or +86 10 8419 3588, India toll free 1800 22 8374, India +91 22 6716 2200, Japan +81 45 453 9220,

Other Asian countries +852 2885 4613, **Countries not listed:** +49 6184 90 6940 or +33 2 2803 2000

[www.thermoscientific.com/cold](http://www.thermoscientific.com/cold)

BRCSFUL0110

**Thermo**  
SCIENTIFIC