Thermo Scientifc 900 and 8600 Series Forma Ultra-Low Temperature Freezers

your samples
our obsession

Thermo
SCIENTIFIC

daily dependability

Thermo Scientific Forma 900 and Forma 7000 Series

Our **Forma 900 and Forma 7000 Series upright freezers** are designed for daily sample protection and dependability. Choose our 900 Series for applications requiring -50ºC to -86ºC or our 7000 Series when your storage requirements call for -10ºC to -40ºC.

Rugged construction for everyday use

- Heavy gauge, cold-rolled steel cabinets with a powder coat paint finish for a uniform exterior that resists chipping and rust.
- 5" (12.7cm) foamed-in-place, polyurethane insulation.
- State-of-the-art, refrigeration system improves temperature control, increases reserve capacity, for more stable temperature sample.
- Two 1" (2.5cm) access ports enable use of inexpedient probes.
- Painted glaveneel interiors with sturdy stainless steel shelving.
- Vacuum relief port permits easy access after door openings.
- Easy-to-remove washable filter provides protection from dust on the condenser, increasing refrigeration performance.
- Single-hand operation with an easy-to-use, padlock-compatible, ergonomic door handle with integrated key lock.
- Simplified installation with our new easy-roll 2" (5cm) locking casters.

Secure inner doors

- Four inner doors reduce cold air loss and improve temperature recovery after door openings.

Centralized information center

- Microprocessor control and monitoring system ensure that all controls and displays are easy to reach and read.
- Power management system with low voltage surge protection and buck/boost.
- Optional choice of CO_2 or LN_2 safety back-up systems for additional sample protection in the event of a power or mechanical failure.

Energy-efficient, double door option: Available within our 900 Series is a unique double door option. Store frequently used samples in the top chamber while long-term storage remain undisturbed in the bottom.

Forma 900 Series
-86°C freezer

900

Forma 7000 Series
-40°C freezer

7000

Forma 900 Series -86°C freezers
Available in four sizes: 13, 17, 23 and 28 cu. ft. (368, 490, 651, 793L) to accommodate your specific lab space and capacity requirements.

Centralized information system ensures that all controls and displays are easy to reach and read.*

Forma 7000 Series -40°C freezers
Available in three sizes 13, 17 and 23 cu. ft. (368, 490, 651L) to accommodate your specific lab space requirements. Features eye level, easy-to-use microprocessor control panel.

*Pictured with optional chart recorder

Thermo Scientific Forma 900 and Forma 7000 Series
specifications and ordering information

Thermo Scientific Forma 900 Series Upright Freezers (Temperature Range: -50°C to -86°C)

Model No.	Capacity		Electrical	Amps/Breaker	Max. Shelf Weight	Interior Dimensions	Exterior Dimensions	Shipping Weight
	cu. ft. (liters)	2 in. cryobox	Electrical	(Plug)	lbs. (kg)	H x W x D in. (cm)	H x W x D in. (cm)	lbs. (kg)
903	13.0 (368)	240	115V / 60 Hz	16/20 (NEMA 5-20)	125 (57)	51.5 x 23.0 x 19.3 (130.8 x 58.4 x 49.0)	77.9 x 33.3 x 32.9 (197.9 x 84.6 x 83.6)	711 (323)
909			208-230V / 60 Hz	12/16 (NEMA 6-15)				
902			230V / 50 Hz	12/16 (European)				
904	17.3 (490)	320	115V / 60 Hz	16/20 (NEMA 5-20)	125 (57)	51.5 x 23.0 x 25.3 (130.8 x 58.4 x 64.3)	77.9 x 33.3 x 38.9 (197.9 x 84.6 x 98.9)	830 (376)
910			208-230V / 60 Hz	12/16 (NEMA 6-15)				
905			230V / 50 Hz	12/16 (European)				
956	23.0 (651)	400	115V / 60 Hz	16/20 (NEMA 5-20)	125 (57)	51.5 x 30.6 x 25.3 (130.8 x 77.7 x 64.3)	77.9 x 40.8 x 38.9 (197.9 x 103.6 x 98.9)	879 (399)
957			208-230V / 60 Hz	12/16 (NEMA 6-15)				
906			230V / 50 Hz	12/16 (European)				
908	28.0 (793)	600	208-230V / 60 Hz	16/20 (NEMA 6-15)	125 (57)	51.5 x 36.6 x 27.0 (130.8 x 93.0 x 68.6)	77.9 x 46.8 x 38.9 (197.9 x 118.9 x 98.9)	1090 (494)
907			230V / 50 Hz	12/16 (European)				

Thermo Scientific Forma 900 Series Double-Door Upright Freezers (Temperature Range: -50°C to -86°C)

Model No.	Capacity		Electrical	Amps/Breaker	Max. Shelf Weight	Interior Dimensions	Exterior Dimensions	Shipping Weight
	cu. ft. (liters)	2 in. cryobox	Electrical	(Plug)	lbs. (kg)	H x W x D in. (cm)	H x W x D in. (cm)	lbs. (kg)
992	13.0 (368)	216	115V / 60 Hz	16/20 (NEMA 5-20)	125 (57)	51.5 x 23.0 x 19.3 (130.8 x 58.4 x 49.0)	77.9 x 33.3 x 32.9 (197.9 x 84.6 x 83.6)	711 (323)
986			208-230V / 60 Hz	12/16 (NEMA 6-15)				
991			230V / 50 Hz	12/16 (European)				
993	17.3 (490)	288	115V / 60 Hz	16/20 (NEMA 5-20)	125 (57)	51.5 x 23.0 x 25.3 (130.8 x 58.4 x 64.3)	77.9 x 33.3 x 38.9 (197.9 x 84.6 x 98.9)	830 (376)
988			208-230V / 60 Hz	12/16 (NEMA 6-15)				
994			230V / 50 Hz	12/16 (European)				
990	23.0 (651)	360	115V / 60 Hz	16/20 (NEMA 5-20)	125 (57)	51.5 x 30.6 x 25.3 (130.8 x 77.7 x 64.3)	77.9 x 40.8 x 38.9 (197.9 x 103.6 x 98.9)	940 (426)
989			208-230V / 60 Hz	12/16 (NEMA 6-15)				
995			230V / 50 Hz	12/16 (European)				

Thermo Scientific Forma 7000 Series Upright Freezers (Temperature Range: -10°C to -40°C)

Model No.	Capacity		Electrical	Amps/Breaker	Max. Shelf Weight	Interior Dimensions	Exterior Dimensions	Shipping Weight
	cu. ft. (liters)	2 in. cryobox	Electrical	(Plug)	lbs. (kg)	H x W x D in. (cm)	H x W x D in. (cm)	lbs. (kg)
7240A	13.0 (368)	240	115V / 60 Hz	16/20 (NEMA 5-20)	125 (57)	51.5 x 23.0 x 19.3 (130.8 x 58.4 x 49.0)	77.9 x 33.3 x 32.9 (197.9 x 84.6 x 83.6)	711 (323)
7240D			208-230V / 60 Hz	12/15 (NEMA 6-15)				
7240V			230V / 50 Hz	12/16 (European)				
7320A	17.3 (490)	320	115V / 60 Hz	16/20 (NEMA 5-20)	125 (57)	51.5 x 23.0 x 25.3 (130.8 x 58.4 x 64.3)	77.9 x 33.3 x 38.9 (197.9 x 84.6 x 98.9)	830 (376)
7320D			208-230V / 60 Hz	12/15 (NEMA 6-15)				
7320V			230V / 50 Hz	12/16 (European)				
7400A	23.0 (651)	400	115V / 60 Hz	16/20 (NEMA 5-20)	125 (57)	51.5 x 30.6 x 25.3 (130.8 x 77.7 x 64.3)	77.9 x 40.8 x 38.9 (197.9 x 103.6 x 98.9)	879 (399)
7400D			208-230V / 60 Hz	12/15 (NEMA 6-15)				
7400V			230V / 50 Hz	12/16 (European)				

Options (Field-installed must be installed by a qualified professional)

Description		Model No.
LN$_2$ Backup System Maintains temperature down to -80°C with liquid nitrogen	Factory Installed	**1950447**
	Field Installed	**1950448**
CO$_2$ Backup System Maintains temperature down to -70°C with CO$_2$	Factory Installed	**1950445**
	Field Installed	**1950446**
Ink Chart Recorder 6" (150mm), seven day ink recorder, to -150°C. Includes one red felt tip pen and box of chart paper (qty. 50)	Factory Installed	**201241**
	Field Installed	**201240**
Inkless Chart Recorder 6" (150mm), seven day inkless recorder, to -150°C. Includes box of chart paper (qty. 50)	Factory Installed	**201249**
	Field Installed	**201248**
Unique Key Lock	Factory Installed	**195915**
PT100 Sensor – Optional PT100 sensor for connection to building automation systems	Factory Installed	**290199**
	Field Installed	**290211**
Stainless steel interior (-86°C models only)	Factory Installed	**SSPERFORMANCE**

Accessories

Description	Model No.
Replacement Air Filter – Pack of five filters	**195890**
Ink Chart Paper (pack of 50)	**17020**
Inkless Chart Paper (pack of 50)	**180000**
Replacement Back-Up Battery	**400159**
Red Felt Tip Chart Pen	**245231**
Blue Felt Tip Chart Pen	**245232**
Cryo Gloves Medium	**4425**
Cryo Gloves Large	**4426**
Shelf Kit for 240 box capacity freezer (one shelf and clips)	**224134**
Shelf Kit for 320 box capacity freezer (one shelf and clips)	**224135**
Shelf Kit for 400 box capacity freezer (one shelf and clips)	**224158**
Shelf Kit for 600 box capacity freezer (one shelf and clips)	**224180**
LN$_2$ Transfer Hose Flexible 6' metal hose. 0.5" diameter, 45° flare with swivel ends	**4000401**
Wall Clamp CO$_2$ cylinder holder for securing tank to the wall in accordance with OSHA guidelines	**950316**
High-Pressure Liquid CO$_2$ Hose Kink-resistant, stainless steel lined, double-braided sheath. 316 stainless steel NPTF fitting. Max. working pressure 25,000 psig. 6' long	**991505**
Seismic restraint kit for 13 cu. ft. (368L)	**TF-ULT13**
Seismic restraint kit for 17.3 cu. ft. (490L)	**TF-ULT17**
Seismic restraint kit for 23 cu. ft. (651L)	**TF-ULT23**
Seismic restraint kit for 28 cu. ft. (600L)	**TF-ULT28**

Monitoring and Remote Alarms

Description	Voltage	Model No.
Remote Alarm with Audible Signal Extend the freezers on-board alarms systems to remote locations in the facility.	120V / 60 Hz	**5612-1A**
	230 V / 50 Hz	**5612-3V**
Sensaphone™ Telephone Dialing System Monitors up to four channels; Dials up to four numbers (not CE). Dedicated phone line is required	120V / 60 Hz	**400047**
	220V / 50Hz	**400182**
Sensaphone Telephone Dialing System Monitors up to eight channels; Dials up to eight numbers (not CE). Dedicated phone line is required	120V / 60 Hz	**400134**
	220V / 50Hz	**400183**
Temperature / Power Monitor External Digital and audible / visual alarms monitor temperature and power supply of the freezer. Includes temperature probe	120V / 60 Hz	**400048**
	220V / 50Hz	**400049**

Sensaphone Telephone Dialing System

Temperature / Power Monitor

Water-Cooled Condenser Option

Model No.	For Use With
195964	13 cu. ft./368L
195965	17.3, 23, 28 cu. ft./ 490, 651, 793L

The water-cooled condenser option is available on our -86ºC freezers.

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.

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.

The following specifications apply to tower and city water sources:*

Water Pressure and Temperature
Maximum Pressure: 150 psig
Maximum Temperature: 29.4ºC

Connections
Inlet: 0.5" compression
Outlet: 0.5" compression

Water Flow Rate Required (per minute)
Tower Water: 3.0 gal. (11.4L)
City Water: 1.0 gal. (3.8L)

Drain Required?
Tower Water: No (return line)
City Water: Yes

Installation requires a qualified technician and should include proper adjustment of the regulating valve which controls the discharge pressure.

*Actual requirements may vary due to specific water pressure conditions.

Alternate Cord and Plug Options

Model No.	Plug Description
430266	115V/20A Twist Lock Plug (NEMA L5-20P)
430267	230V/15A Twist Lock Plug (NEMA L6-15P)

Racks (single door freezers; bottom half of double door freezers)

2" Box Racks	Model No. Description	Dimensions H x W x D in. (cm)	Storage	13 cu. ft. (368L)	17.3 cu. ft. (490L)	23 cu. ft. (651L)	28 cu. ft. (793L)
	920094 Sliding drawer rack	11.9 x 5.5 x 16.6 (30.2 x 14 x 44.2)	Boxes Per Rack	15			
			Racks Per Shelf	4			
			Racks/Boxes Per Freezer	16/240			
	920096 Sliding drawer rack	11.9 x 5.5 x 22 (30.2 x 14 x 55.9)	Boxes Per Rack		20	20	
			Racks Per Shelf		4	5	
			Racks/Boxes Per Freezer		16/320	20/400	
	1950726 Sliding drawer rack	11.9 x 5.5 x 26.3 (30 x 14 x 66.5)	Boxes Per Rack				25
			Racks Per Shelf				6
			Racks/Boxes Per Freezer				24/600
	920015 Adjustable side access rack	11.6 x 5.4 x 16.5 (29.5 x 13.7 x 41.9)	Boxes Per Rack	15			
			Racks Per Shelf	4			
			Racks/Boxes Per Freezer	16/240			
	920018 Adjustable side access rack	11.6 x 5.4 x 22 (29.5 x 13.7 x 55.9)	Boxes Per Rack		20	20	
			Racks Per Shelf		4	5	
			Racks/Boxes Per Freezer		16/320	20/400	
	920022 Side access rack	11.6 x 5.4 x 24.6 (29.5 x 13.7 x 62.5)	Boxes Per Rack		22	22	
			Racks Per Shelf		4	5	
			Racks/Boxes Per Freezer		16/352	20/440	
3" Box Racks							
	920095 Sliding drawer rack	11.9 x 5.5 x 16.6 (30.2 x 14 x 44.2)	Boxes Per Rack	9			
			Racks Per Shelf	4			
			Racks/Boxes Per Freezer	16/144			
	920097 Sliding drawer rack	11.9 x 5.5 x 22 (30 x 14 x 55.9)	Boxes Per Rack		12	12	
			Racks Per Shelf		4	5	
			Racks/Boxes Per Freezer		16/192	20/240	
	1950727 Sliding drawer rack	11.9 x 5.5 x 26.3 (30 x 14 x 66.5)	Boxes Per Rack				15
			Racks Per Shelf				6
			Racks/Boxes Per Freezer				24/360
	920009 Adjustable side access rack	11.6 x 5.4 x 16.5 (29.5 x 13.7 x 41.9)	Boxes Per Rack	9			
			Racks Per Shelf	4			
			Racks/Boxes Per Freezer	16/144			
	920017 Adjustable side access rack	11.6 x 5.4 x 22 (29.5 x 13.7 x 55.9)	Boxes Per Rack		12	12	
			Racks Per Shelf		4	5	
			Racks/Boxes Per Freezer		16/192	20/240	
Microplate Racks							
	1950640 Sliding drawer rack	11.9 x 5.5 x 16.6 (30.2 x 14 x 44.2)	Plates Per Rack	20			
			Racks Per Shelf	4			
			Racks/Plates Per Freezer	16/320			
	1950641 Sliding drawer rack	11.9 x 5.5 x 22 (30.2 x 14 x 55.9)	Plates Per Rack		30	30	
			Racks Per Shelf		4	5	
			Racks/Plates Per Freezer		16/480	20/600	
	1950731 Sliding drawer rack	11.9 x 5.5 x 26.3 (30.2 x 14 x 66.8)	Plates Per Rack				35
			Racks Per Shelf				6
			Racks/Plates Per Freezer				24/840
	1950651 Side access rack, standard plates	11.9 x 5.3 x 14.7 (30.2 x 13.5 x 37.3)	Plates Per Rack	56			
			Racks Per Shelf	4			
			Racks/Plates Per Freezer	16/896			
	1950652 Side access rack, standard plates	11.9 x 5.3 x 22 (30.2 x 13.5 x 55.9)	Plates Per Rack		84	84	
			Racks Per Shelf		4	5	
			Racks/Plates Per Freezer		16/1344	20/1680	
	820036 Side access rack, deep-well plates	12 x 5.5 x 22 (30.5 x 14 x 55.9)	Plates Per Rack		36	36	
			Racks Per Shelf		4	5	
			Racks/Plates Per Freezer		16/0	20/0	
Specialty Racks							
	830012 Multi-drawer rack	11.5 x 11 x 11 (29.2 x 28 x 28)	Racks Per Shelf/Freezer	1/4	2/8	4/16	
	830030 8 compartment container	5.3 x 7 x 18 (13.5 x 17.8 x 45.7)	Racks Per Shelf/Freezer	6/24			
	830032 10 compartment container	5.3 x 7 x 22.6 (13.5 x 18 x 57.4)	Plates Per Rack		6/8	24/32	

Racking Shelf Kits Includes Sliding Drawer Racks and 2" Boxes with 100 count cell dividers

Model Number	Freezer Volume cu. ft. (liters)	Racks Included	Boxes Included
RSK13SD4	13.0 (368)	4	60
RSK17SD4	17.3 (490)	4	80
RSK23SD4	23.0 (651)	5	100
RSK28CFSD4	28.0 (793)	6	150

Racks (upper half of double door freezers)

2" Box Racks	Model No. Description	Dimensions H x W x D in. (cm)	Storage	13 cu. ft. (368L)	17.3 cu. ft. (490L)	23 cu. ft. (651L)	28 cu. ft. (793L)
	398332 Sliding drawer rack	9.4 x 5.5. x 16.6 (23.9 x 14 x 42.2)	Boxes Per Rack	12			
			Racks Per Shelf	4			
			Racks/Boxes Per Freezer	16/192			
	398331 Sliding drawer rack	9.4 x 5.5. x 22 (23.9 x 14 x 55.9)	Boxes Per Rack		16	16	
			Racks Per Shelf		4	5	
			Racks/Boxes Per Freezer		16/256	20/320	
	1950728 Sliding drawer rack	9.4 x 5.5. x 26.3 (23.9 x 14 x 66.8)	Boxes Per Rack				20
			Racks Per Shelf				6
			Racks/Boxes Per Freezer				24/480
	398324 Adjustable side access rack	9.4 x 5.5. x 16.5 (23.9 x 14 x 41.9)	Boxes Per Rack	12			
			Racks Per Shelf	4			
			Racks/Boxes Per Freezer	16/192			
	398326 Adjustable side access rack	9.4 x 5.5. x 22 (23.9 x 14 x 55.9)	Boxes Per Rack		16	16	
			Racks Per Shelf		4	5	
			Racks/Boxes Per Freezer		16/256	20/320	
3" Box Racks							
	920099 Sliding drawer rack	9.5 x 5.5 x 16.5 (24 x 14 x 41.9)	Boxes Per Rack	9			
			Racks Per Shelf	4			
			Racks/Boxes Per Freezer	16/144			
	398330 Sliding drawer rack	9.5 x 5.5 x 22 (24 x 14 x 55.9)	Boxes Per Rack		12	12	
			Racks Per Shelf		4	5	
			Racks/Boxes Per Freezer		16/192	20/240	
	1950729 Sliding drawer rack	9.5 x 5.5 x 26.3 (24 x 14 x 66.8)	Boxes Per Rack				15
			Racks Per Shelf				6
			Racks/Boxes Per Freezer				24/360
	398325 Adjustable side access rack	9.4 x 5.4 x 16.1 (23.9 x 13.7 x 40.9)	Boxes Per Rack	9			
			Racks Per Shelf	4			
			Racks/Boxes Per Freezer	16/144			
	398327 Adjustable side access rack	9.4 x 5.4 x 22.1 (23.9 x 13.7 x 56.1)	Boxes Per Rack		12	12	
			Racks Per Shelf		4	5	
			Racks/Boxes Per Freezer		16/192	20/240	
Microplate Racks							
	1950637 Sliding drawer rack	9.5 x 5.5 x 16.6 (24 x 14 x 42.2)	Plates Per Rack	16			
			Racks Per Shelf	4			
			Racks/Plates Per Freezer	16/256			
	1950638 Sliding drawer rack	9.5 x 5.5 x 22 (24 x 14 x 55.9)	Plates Per Rack		24	24	
			Racks Per Shelf		4	5	
			Racks/Plates Per Freezer		16/384	20/480	
	1950730 Sliding drawer rack	9.5 x 5.5 x 26.3 (24 x 14 x 66.8)	Plates Per Rack				28
			Racks Per Shelf				6
			Racks/Plates Per Freezer				24/672
	398334 Side access rack	9.4 x 5.3 x 14.7 (23.9 x 13.5 x 37.3)	Plates Per Rack	44			
			Racks Per Shelf	4			
			Racks/Plates Per Freezer	16/704			
	398333 Side access rack	9.4 x 5.3 x 22 (23.9 x 13.5 x 55.9)	Plates Per Rack		66	66	
			Racks Per Shelf		4	5	
			Racks/Plates Per Freezer		16/1056	20/1320	
	398335 Side access rack for deepwell microplates	9.4 x 5.3 x 22 (23.9 x 13.5 x 55.9)	Plates Per Rack		30	30	
			Racks Per Shelf		4	5	
			Racks/Plates Per Freezer		16/480	20/600	
	398321 Side access rack with locking rod	9.4 x 5.5 x 18.4 (23.9 x 14 x 46.7)	Plates Per Rack		84	84	
			Racks Per Shelf		4	5	
			Racks/Plates Per Freezer		16/0	20/0	
	398323 Side access rack with locking rod	9.4 x 5.5 x 22 (23.9 x 14 x 55.9)	Plates Per Rack		36	36	
			Racks Per Shelf		4	5	
			Racks/Plates Per Freezer		16/0	20/0	

Racking Shelf Kits Includes Sliding Drawer Racks and 2" Boxes with 100 count cell dividers

Model Number	Freezer Volume cu. ft. (liters)	Racks Included	Boxes Included
RSK13SD5	13.0 (368)	4	48
RSK17SD5	17.3 (490)	4	64
RSK23SD5	23.0 (651)	5	80

versatile
and reliable

Thermo Scientific Forma 8600 Series

Our **Forma 8600 Series chest freezers** feature all the sample protection features of our 900 and 7000 Series upright freezers. Choose a -86ºC or -40ºC cabinet in four convenient sizes as well as a full range of racking solutions.

Rugged construction for everyday use

- **Heavy gauge, cold-rolled steel cabinets** with a powder coat paint finish for a uniform exterior that resists chipping and rust.
- **5" (12.7cm) foamed-in-place, polyurethane insulation** reduces power consumption, maintains temperature setpoint and combined with triple-point door gasket, provides longer holding time in the event of a power failure.

- **State-of-the-art, refrigeration system** improves temperature control and increases reserve capacity, resulting in a more stable temperature sample.
- **1" (2.5cm) access ports** allow for the use of independent probes or instrumentation.
- **Stainless steel interior**

Microprocessor control

Easy-to-read centralized information center features microprocessor control and monitoring system with a 12-character, alphanumeric LED display showing setpoints and other messages. Knee level on the 3 cu. ft. (85L) models.

Optional chart recorder

Optional built-in chart recorder can be installed at waist level; knee level on our 3 cu. ft. (85L) models.

Easy-to-remove washable filter

Provides protection from dust on the condenser, increasing refrigeration performance and decrease risk to samples.

RS-485 and 4-20 milliamp analog outputs

For independent monitoring.

Polystyrene interior sub-lids

Reduce cold air loss and improve temperature recovery after door openings.

Single-hand operation

Easy-to-use, ergonomic door handle.

Simplified installation

With our new easy-roll 2" (5.1cm) locking casters.

Thermo Scientific Forma 8600 Series
specifications and ordering information

Thermo Scientific Forma 8600 Series Chest Freezers

Model No.	Capacity		Electrical	Amps / Breaker	Interior Dimensions	Exterior Dimensions	Shipping Weight
	cu. ft. (liters)	2" cryobox		(Plug)	H x W x D in. (cm)	H x W x D in. (cm)	lbs. (kg)
803CA	3.0 (84.9)	63	120V / 60 Hz	10.5/20 (NEMA 5-20)	16.5 x 18.5 x 18.5 (41.9 x 47.0 x 47.0)	43.8 x 28.5 x 29.9 (111.3 x 72.4 x 75.9)	432 (196)
803CV			230V / 50 Hz	5.4/15 (European)			
813CA	12.7 (359.6)	252	115V / 60 Hz	16/20 (NEMA 5-20)	28.0 x 42.5 x 18.5 (71.1 x 108.0 x 47.0)	40.5 x 72.0 x 33.4 (102.9 x 182.9 x 84.8)	716 (325)
813CD			208-230V / 60 Hz	12/15 (NEMA 6-15)			
813CV			230V / 50 Hz	12/15 (European)			
817CA	17.0 (481.4)	348	115V / 60 Hz	16/20 (NEMA 5-20)	28.0 x 58.8 x 18.5 (71.1 x 149.4 x 47.0)	40.5 x 87.6 x 33.8 (102.9 x 222.5 x 85.9)	821 (372)
817CD			208-230V / 60 Hz	12/15 (NEMA 6-15)			
817CV			230V / 50 Hz	12/15 (European)			
820CA	20.0 (566.3)	396	115V / 60 Hz	16/20 (NEMA 5-20)	28.0 x 66.5 x 18.5 (71.1 x 168.9 x 47.0)	40.5 x 96.0 x 33.4 (102.9 x 243.8 x 84.8)	833 (378)
820CD			208-230V / 60 Hz	12/15 (NEMA 6-15)			
820CV			230V / 50 Hz	12/15 (European)			

Thermo Scientific Forma 8600 Series Chest Freezers (Temperature Range: -10°C to -40°C)

Model No.	Capacity		Electrical	Amps / Breaker	Interior Dimensions	Exterior Dimensions	Shipping Weight
	cu. ft. (liters)	2" cryobox		(Plug)	H x W x D in. (cm)	H x W x D in. (cm)	lbs. (kg)
703CA	3.0 (84.9)	63	120V / 60 Hz	10.5/20 (NEMA 5-20)	16.5 x 18.5 x 18.5 (41.9 x 47.0 x 47.0)	43.8 x 28.5 x 29.9 (111.3 x 72.4 x 75.9)	395 (179)
703CV			230V / 50 Hz	5.4/15 (European)			
713CA	12.7 (359.6)	252	115V / 60 Hz	16/20 (NEMA 5-20)	28.0 x 42.5 x 18.5 (71.1 x 108.0 x 47.0)	40.5 x 72.0 x 33.4 (102.9 x 182.9 x 84.8)	659 (299)
713CD			208-230V / 60 Hz	12/15 (NEMA 6-15)			
713CV			230V / 50 Hz	12/15 (European)			
717CA	17.0 (481.4)	348	115V / 60 Hz	16/20 (NEMA 5-20)	28.0 x 58.8 x 18.5 (71.1 x 149.4 x 47.0)	40.5 x 87.6 x 33.8 (102.9 x 222.5 x 85.9)	764 (347)
717CD			208-230V / 60 Hz	12/15 (NEMA 6-15)			
717CV			230V / 50 Hz	12/15 (European)			
720CA	20.0 (566.3)	396	115V / 60 Hz	16/20 (NEMA 5-20)	28.0 x 66.5 x 18.5 (71.1 x 168.9 x 47.0)	40.5 x 96.0 x 33.4 (102.9 x 243.8 x84.8)	776 (352)
720CD			208-230V / 60 Hz	12/15 (NEMA 6-15)			
720CV			230V / 50 Hz	12/15 (European)			

Options (Field-installed must be installed by a qualified professional)

Description	For use with ▶	703C	713C	717C	720C
LN$_2$ Backup System Maintains temperature down to -80°C with liquid nitrogen.	Factory Installed		1950447		
	Field Installed		1950448		
CO$_2$ Backup System Maintains temperature down to -70°C with CO$_2$	Factory Installed		1950445		
	Field Installed		1950446		
Chart Recorder 6" (150mm), seven day ink recorder, to -150°C includes 50 chart papers	Factory Installed		201241		
	Field Installed		201240		
Data Outputs (Factory Installed Only)	RS-232, (0-1V)		398213		
	RS-485, (0-1V)		398214		
	RS-485, (0-5V)		398215		
Water-Cooled Condenser Option (See page 19 for details)	Factory Installed	N/A	195967		

Accessories

Description For use with ▶	703C	713C	717C	720C
Replacement Air Filter (pack of five)	195947		195948	
Ink Chart Paper (pack of 50)		17020		
Inkless Chart Paper (pack of 50)		180000		
Replacement Back-Up Battery		400159		
Red Felt Tip Chart Pen		245231		
Blue Felt Tip Chart Pen		245232		
LN₂ Transfer Hose Flexible 6' metal hose. 0.5" diameter, 45° flare with swivel ends		4000401		
Wall Clamp CO₂ cylinder holder for securing tank to the wall in accordance with OSHA guidelines		950316		
High-Pressure Liquid CO₂ Hose Kink-resistant, stainless steel lined, double-braided shealth. 316 stainless steel NPTF fitting. Max. working pressure 25,000 psig. 6' long		991505		
Cryo Gloves Medium		4425		
Cryo Gloves Large		4426		

For Cryoboxes and Dividers please refer to page 15.

Monitoring and Remote Alarms

Description	Voltage	Model No.
Remote Alarm with Audible Signal Extend the freezer's on-board alarms systems to remote locations in the facility.	120V / 60 Hz	5612-1A
	230 V / 50Hz	5612-3V
Sensaphone Telephone Dialing System Monitors up to four channels; Dials up to four numbers (not CE). Dedicated phone line is required	120V / 60 Hz	400047
	220V / 50Hz	400182
Sensaphone Telephone Dialing System Monitors up to eight channels; Dials up to eight numbers (not CE). Dedicated phone line is required	120V / 60 Hz	400134
	220V / 50Hz	400183
Temperature / Power Monitor External digital and audible/visual alarms monitor temperature and power supply of the freezer. Includes temperature probe	120V / 60 Hz	400048
	220V / 50Hz	400049

Visit **thermoscientific.com/smart-vue** for wireless monitoring options

Thermo Scientific Forma 8600 Series Chest Freezer Racks

Model No. Description	Dimensions W x H x D in. (cm)	Freezer Vol. cu. ft. (liters)	Boxes Per Rack	Racks / Freezer	Boxes / Freezer
398184 2" Box Rack with locking rod	5.5 x 15.2 x 5.5 (14 x 38.6 x 14)	3 (85)	7.0	9.0	63
398186 2" Box Rack with locking rod	5.5 x 26.5 x 5.6 (14 x 67.2 x 14.2)	12.7 (360)	12.0	21.0	252
		17.0 (481)	12.0	29.0	348
		20.0 (566)	12.0	33.0	396
398185 3" Box Rack	5.5 x 16 x 5.5 (14 x 40.6 x 14)	3 (85)	5.0	9.0	45
398187 3" Box Rack	5.5 x 26.5 x 5.5 (14 x 67.3 x 14)	12.7 (360)	8.0	21.0	168
		17.0 (481)	8.0	29.0	232
		20.0 (566)	8.0	33.0	264
398188 27 Position Microplate Rack	5.3 x 25.8 x 3.5 (13.5 x 65.5 x 8.9)	12.7 (360)	27.0	33.0	891
		17.0 (481)	27.0	48.0	1,296
		20.0 (566)	27.0	51.0	1,377
114048* Wire Basket with Rollers	11.8 x 12.3 x 16.5 (30 x 31.2 x 42)	12.7 (360)	NA	5.0	NA
		20.0 (566)	NA	9.0	NA
189001 Wire Basket Rail Set	NA	12.7 (360)	NA	NA	NA
189000 Wire Basket Rail Set	NA	20.0 (566)	NA	NA	NA

398184
398186
398185

398187
398188

114048

* Basket rail set is required.