thermo scientific

Thermo Scientific Forma Ultra-Low Temperature Freezers

Your samples, our obsession

ThermoFisher SCIENTIFIC

Your samples, our obsession

To the rest of the world these are samples. To us they are a scientist's life's work. A lab's mission. A company's breakthrough. We are obsessed with sample integrity. Each one of our cold storage solutions is optimized for the best protection of critical samples. **Thermo Scientific™ Forma™ Ultra-Low Temperature Freezers** offer a complete range of upright and chest configurations designed for maximum sample protection.

Forma 900 and Forma 7000 Series Ultra-Low Temperature Freezers

Daily dependability

Thermo Scientific™ Forma™ 900 and 7000 Upright Ultra-Low Temperature 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.
- Advanced refrigeration system improves temperature control, increases reserve capacity, for more stable temperature sample.
- One 1” (2.5cm) access port enables use of independent 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 and Forma 7000 Series Ultra-Low Temperature Freezers

Daily dependability

Forma 900 Series -86°C freezer

Forma 900 Series -86°C freezers
Available in three sizes: 13, 17, 23 cu. ft. (368, 490, 651L) 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 freezer

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.

Forma 900 and Forma 7000 Series Ultra-Low Temperature Freezers

Specifications and ordering information

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

Model No.	Capacity		Electrical		Max. Shelf Weight	Interior Dimensions	Exterior Dimensions	Shipping Weight
	cu. ft. (liters)	2 in. cryobox	Voltage/Frequency	Amps/Breaker (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)				

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

Model No.	Capacity		Electrical		Max. Shelf Weight	Interior Dimensions	Exterior Dimensions	Shipping Weight
	cu. ft. (liters)	2 in. cryobox	Voltage/Frequency	Amps/Breaker (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	1960447
	Field Installed	1960448
CO_2 Backup System Maintains temperature down to -70°C with CO_2	Factory Installed	1960445
	Field Installed	1960446
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 shealth. 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

*Not for sale in the EU.

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

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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

Forma 8600 Series Ultra-Low Temperature Freezers

Thermo Scientific™ Forma™ 8600 Ultra-Low Temperature 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.
- Advanced refrigeration system improves temperature control and increases reserve capacity, resulting in a more stable temperature sample.
- 1” (2.5cm) access port allow for the use of independent probes or instrumentation.
- Stainless steel interior

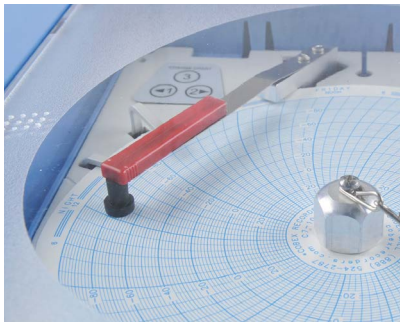
RS-485 and 4-20 milliamp analog outputs
- For independent monitoring

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

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.

Forma 8600 Series Ultra-Low Temperature Freezers

Specifications and ordering information

Forma 8600 Series Chest Freezers (Temperature Range: -50°C to -86°C)

Model No.	Capacity		Electrical		Interior Dimensions	Exterior Dimensions	Shipping Weight
	cu. ft. (liters)	2" cryobox	Voltage/Frequency	Amps/Breaker (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)			

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

Model No.	Capacity		Electrical		Interior Dimensions	Exterior Dimensions	Shipping Weight
	cu. ft. (liters)	2" cryobox	Voltage/Frequency	Amps/Breaker (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 qualaified professional)

Description	For use with ▶	803C/703C	813C/713C	817C/717C	820C/720C
LN_2 Backup System Maintains temperature down to -80°C with liquid nitrogen.	Factory Installed	1960447			
	Field Installed	1960448			
CO_2 Backup System Maintains temperature down to -70°C with CO_2	Factory Installed	1960445			
	Field Installed	1960446			
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 6 for details)	Factory Installed	N/A	195967		

Accessories

Description	For use with ▶	803C/703C	813C/713C	817C/717C	820C/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		
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 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 x.

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

*Not for sale in the EU.

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

* Basket rail set is required.

398184

398186

398185

398187

398188

114048

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

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This wireless solution features audit trail traceability to assist with conformance to 21 CFR part 11 and other regulatory requirements while safeguarding critical samples.

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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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