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## **Technical Data Sheet High Performance Plasma Freezer**



Revision-2

Thermo Fisher Scientific, Asheville, North Carolina

	Thermo Fisher Scientific, Asheville, North Carolina				
	Catalog number				
	TSX2330LV				
Specifications	Model Number				
	TSX2330LV				
A 11 12	Application, Rating and Electrical Data				
Application	Plasma Freezer				
Storage Volume	659 Liters / 23.3 Cubic Feet				
Factory Set Point	-30℃				
Set Point Range/Adjustable Increment	-35 °C to -15 °C / 0.1 °C				
Electrical Power / Rated Current	208-230V 50/60 Hz 1 Phase / 3.0A				
Building Supply Rating	15A dedicated grounded non-GFCI circuit. Protected by circuit breaker rated for inductive loads				
Power Plug/Power Cord Length	16 Amp (CEE 7/7) / 3.048 Meters (10 feet)				
Agency Listings	CE,UL, cUL, FDA				
Indoor/Outdoor Usage	Indoor Use Only				
Application Environment	Non-Corrosive, Non-Flammable, Non-Explosive, Good Air Ventilation				
Ambient Operating Temperature	15°C - 32°C (60°F - 90°F)				
	Refrigeration Configuration				
Refrigeration System	Vapor compression system				
Compressor / Number / Capacity	Hermetic Variable Capacity Compressor / 1 / 525W				
Condenser Type/Number	Microchannel and Forced-Air Cooled / 1				
Expansion Device	Capillary Tube				
Evaporator Type / Defrost Method	Forced Air Evaporator Coil / Automatic Defrost				
Refrigerant Charge / Flammability	Environmentally Safe R290 / Flammable				
	Controller/Electrical System Configuration and Features				
Controller Level	Eye Level				
Power Switch	Keyed Off-On - Alarm				
Controller Type	IntrLogic Control System: Digital display, Graphic thermometer, Automatic defrost system				
Setpoint Security / Programmable	Yes / Yes				
Compressor Safe Guard	Current protection				
Control Sensor	Single RTD (1000 ohm shielded Platinum RTD)				
Remote Alarm Terminals	Standard				
Adjustable Warm / Cold Alarms	Fully Adjustable				
Power Failure Alarm	Standard				
Electronic Chart Recorder	Optional				
	Dimensions and Construction				
Interior Dimensions (H x D x W)	1473 mm x 723 mm x 610 mm (58.0" x 28.5" x 24.0")				
Exterior Dimensions (H x D x W)	1994 mm x 962 mm x 711 mm (78.5" x 37.9" x 28.0")				
Insulation	5.08 cm (2.0") High-Density Water-Blown Polyurethane Foam				
Door Perimeter heater	Yes				
Shelves / Load Limit	(7) Drawers Adjustable In 1" Increments. Max. Cap. per Drawer: 27 kg (60 lbs.)				
All-Direction Casters	Locking Casters				
Shipping Weight	229 kg / 505 lb				
	Typical Performance Characteristics				
23 cuft Upright Freezer, Pull Down and Warm Up Pull Down ——Warm Up	Jp 23 cuft Upright Freezer at -30C Cycle Test Unit Series Number or MSO Number: 19585-B-11				
20 Warm op	Cabinet Load: Unloaded				
15	-22 Average Cabinet Temp at -30C Cycle (C): -30.2				
U 5	Peak Variation from Setpoint (C): +6.8 / -2.4				
tra -5	Stability (C): 4.8  1-min Door Opening Recovery to -30C (mi) 27				
Duty Cycle at -30C (%):					
Syste (of wall) rate at 300 (min).					
-20 -25 Energy Consumption (kw-hr/day): Heat Rejection Rate (btu/hr):					
-30	Heat Rejection Rate (btu/hr): 1227  -34  Pull Down Time (to -30C) (min): 152				
0 50 100 150	200 0 120 240 360 480 600 720 Warm Up Time (-30C to -10C) (min): 174				
Time, minutes	Time, minutes Sound (dBA): 52				

- 1) Performance is nominal and individual units may vary.
- 2) Product performance will differ due to product amount, product size and operating conditions.
- 3) Continuous product enhancements may, without notice, result in amendments or ommisions to this specification. Thermo Scientific cannot accept responsibility for damage, injury, loss or expenses resulting from misapplication of the information herein.



Typical Cabinet Temperature Map Freezer 23cuft , 7 Drawers, Single Outer Door Temperatures are averages during > 20 cycles after reaching a setpoint of -30C

## **Top View of Shelves**

M3	M5	M4
M1		M2

REAR FRONT



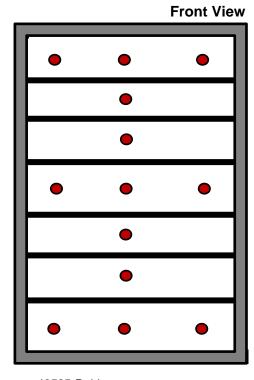
M15



M25

M30

	M35	
M31		M32



19585-B-11

	M1	M2	M3	M4	M5
Avg	-30.6	-30.7	-31.1	-31	-30.8
Max	-27.1	-24.7	-23.7	-23.2	-23.7
Min	-31.2	-31.9	-32.4	-32.3	-32
	M10	M15			
Avg	-30.8	-31			
Max	-26.8	-23.9			
Min	-31.5	-32.2			
	M16	M17	M18	M19	M20
Avg	-29.9	-30.1	-30.4	-30.7	-30.4
Max	-27.6	-27.8	-27.6	-27.7	-27.7
Min	-30.3	-30.5	-30.9	-31.4	-30.9
	M25	M30			
Avg	-30.4	-30.4			
Max	-27.8	-27.1			
Min	-31	-31			
	M31	M32	M33	M34	M35
Avg	-29.5	-29.8	-29.8	-30.2	-29.8
Max	-26.9	-27.1	-26.7	-26.9	-27.2
Min	-30	-30.4	-30.5	-30.9	-30.3

Cabinet Average: -30.2 C Probe Average: -29.5 C Peak Variation: +6.8 C / -2.4 C

