

Technical Data Sheet

Thermo Scientific Ultra-Low Temperature Freezer

Upright Model Release - 90

Thermo Fisher Scientific, Asheville, North Carolina

ENERGY STAR® (Daily Energy Consumption)

0.31 kW-hr/day/cuft



Model Number

Model Number												
	Thermo Sc	eientific TSX50086FA										
	Application and Rating	Dimensions in inch [metric in: mm]										
Application	Storage of General (non-flammable) Laboratory Materials											
Storage Volume	24.09 cu. ft. (682 liters), 500 Standard 2" Boxes	(972.6)										
Temperature Rating	-40°C to -86°C	28.1										
Electrical Power	100V - 230V 50/60Hz											
Instrument Rated Current	8.9A - 4.9A											
Recommended Building Supply Rating	Type C circuit protection or similar required, Ensure compliance with local electric code											
Power Plug / Power Cord	Country Dependent Plug / IEC Cords, 10 ft (3.05 m)											
Agency Listings	UL, cUL, CE, ACT, Energy Star											
Application Environment	Non-Corrosive, Non-Flammable, Non-Explosive Indoor Use Only, Ventilated 15 - 32°C (59 - 90°F)	[] [] [] [] [] [] [] [] [] []										
Sound Pressure Level	43.6 dBA @ -80C Setpoint	USER INTERFACE USER INTERFACE										
Dir	mensions and Construction	USER INTERFACE										
Interior Dimensions (H x D x W)	51.2 x 28.3 x 28.8 in. (1300 x 719 x 732 mm)											
Exterior Dimensions (H x D x W)	78 x 37.4 x 34 in. (1981 x 950 x 864 mm)											
Shipping Dimensions	83 x 45 x 47 in. (2108 x 1143 x 1194 mm)	POWER SWITCH POWER SWITCH										
Shipping Weight / Net Weight	749 / 655 lbs (340 / 297 kg)											
Insulation	Vacuum Insulation Panels with High-Density Water-Blown Polyurethane Foam, Electric Heater at Breaker Area	FLOOR REFERNECE										
Devis	Single Outer: Silicone-Based Gasket Seal	2x_11.5										
Door	Number of Inner: 2x Stainless Steel (5x Optional)	27.0 [86.8] ACCESS PORT										
Shelves	3x Stainless Steel (4x Optional) Adjustable Shelves in 1" (25 mm) Increments	1.5 [3:5] [5:3] [7:6]										
Shelf Capacity	Shelf: 150 / 205 lbs (68 / 93 kg) General / Rack Storage Cabinet Load not to Exceed: 1140 lbs (517 kg)											
Interior / Exterior Wall Material	Painted Steel (Stainless Steel Optional) / Painted Steel											
Casters	4x Standard All-Direction with Locks	<u></u>										
Locking mechanism	Handle Key Lock and Pad Lock Loop Standard, HID Controlled Access Optional	12.4 pis d										
Back Up Systems	LN2 or CO2 Optional	125										
Elec	ctrical System Configuration	[317.5]										
Power Switch	Soft-touch UI / Main Circuit Breaker (Behind Grill Door)	SHELVES SHELVE										
Controller Type	Capacitive Touch Screen Input and Display with USB Data Retrieval at Eye Level	25.0 [ess.6] serial communication										
Control Security	Setpoint Setting, User Log In Access	POWER PLUG										
Compressor Safe Guard	High Temp Cutout Switch, Current, Logic protection											
Control Sensor	Single RTD (1000 ohm Platinum RTD, class B, -196°C)	FLOOR REFERENCE ————										
Remote Outputs	RS485, 4-20 mA Output, Remote Alarm Dry Contacts											
Thermo Fisher Cloud	InstrumentConnect™ Compatible with Accessory	[864.4]										
Adjustable Warm/Cold Alarms	Adjustable in 1°C Increments	S.S. [90.1] DOOR THICKNESS NITERIOR										
Acessory Power	5V, POE	69.8 1777-91										
	efrigeration Configuration	[772:9] DOOR OPEN @50*										
Refrigeration System	Two Stage Cascade System	31.7 [506.3] 26.3 37.4 [718.8] [696.0]										
Compressor/Number	Variable Speed Industrial Rated, Hermetically Sealed / 2	[718.8] [900.0] [718.8] [900.0] [718.8										
Compressor Capacity*	938 W (max. speed)											
Condenser Type	Enhanced Micro-Channel and Forced-Air Cooled	┃										
Expansion Device	Capillary Tube											
Evaporator Type Defrost Method	Enhanced Cold Wall Design Manual Defrost											
Refrigerant (1st/2nd Stage)	R290 / R170 + R290 Mix	[12.7] 										
Tremgerani (18t/2nd Stage)		72.2 [essy]										
Environmental Effects	GWP: 3 (R290) / 6 (R170) ODP: 0 (R290); 0 (R170)) Look oren grav										

1) Data is representative of performance and not published product specifications. Technical data sheet test results should not be referenced in developing any regulatory parameters for specific customer usage.
2) Freezer performance will vary based on customer product volume, storage format, options selected, operating conditions, test methodology and performing recommended maintenance.

3) Continuous product enhancements may, without notice, result in amendments or omissions to this technical data sheet. Thermo Scientific cannot accept responsibility for damage, injury, loss or expenses resulting from misapplication of the information herein.

* Manufacturer measured compressor capacity taken at LBP: ASHRAE condition.

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Yes

Not all products are available in all countries. Please consult your local sales representative for details.

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Performance Data Sheet -80C Setpoint Thermo Scientific Ultra-Low Temperature Freezer

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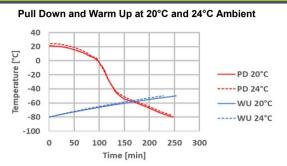
0.31 kW-hr/day/cuft



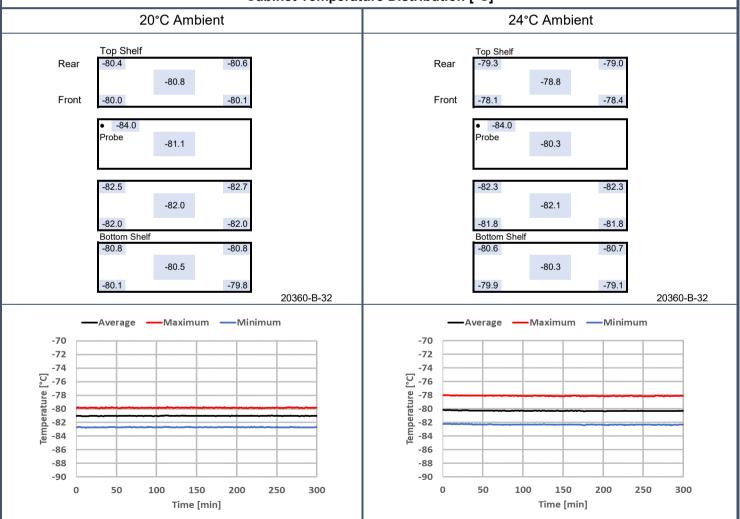
Model Number

Thermo Scientific TSX50086FA

Performance Ambient °C 20 24 **Energy Consumption** kWh/dav 7.8 8.8 Heat Rejection Rate Btu/h 1110 1252 Peak Variation from Setpoint °C -2.8/0.5 -2.9/1.3 °C Average Uniformity 3.1 4.0 Average Stability °C 0.2 0.2 Average Cabinet Temperature °C -81.1 -81.0 1-min Door Opening Recovery to -75°C 15.3 20.7 Pull Down Time to -80°C 250 261 min Warm Up Time -80°C to -50°C min 269 247



Cabinet Temperature Distribution [°C]



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) Actual temperature measurement will vary based on type and location of the probe used.

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Performance Data Sheet Warm Setpoints Thermo Scientific Ultra-Low Temperature Freezer

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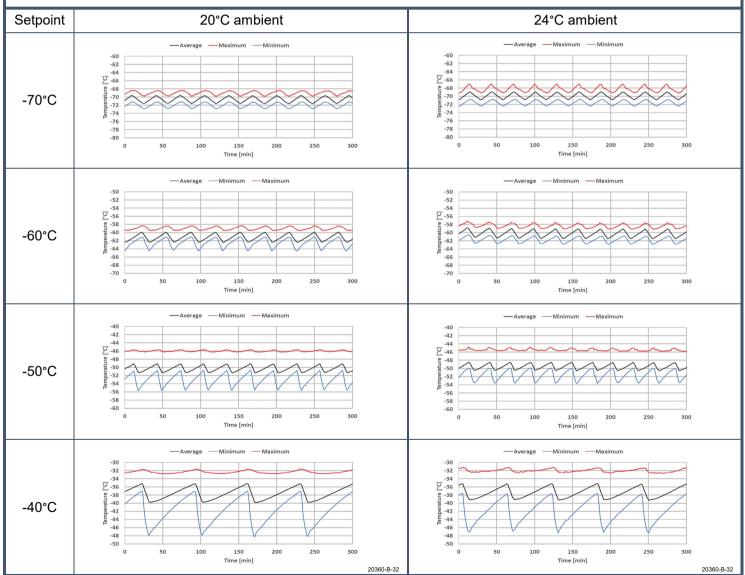
0.31 kW-hr/day/cuft



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Thermo Scientific TSX50086FA

Performance											
Ambient	°C	°C 20			24						
Setpoint	°C	-70	-60	-50	-40	-70	-60	-50	-40		
Energy Consumption	kWh/day	5.0	4.1	3.5	3.0	5.7	4.5	3.9	3.3		
Heat Rejection Rate	Btu/h	710	577	498	426	816	643	551	472		
Peak Variation from Setpoint	°C	-3/2	-3.7/1.9	-4.3/4.1	-6.4/8.3	-2.8/2.6	-3.3/2.4	-3.6/4.3	-6.2/9		
Average Uniformity	°C	3.0	3.4	6.0	9.0	3.2	3.4	5.7	9.5		
Average Stability	°C	1.7	2.1	1.7	3.5	1.4	1.7	1.4	2.9		
Average Cabinet Temperature	°C	-70.7	-61.0	-50.3	-37.4	-70.5	-60.8	-50.2	-37.0		



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