



**Technical Data Sheet**  
**Thermo Scientific™ Ultra-Low Temperature Freezer**  
 Chest Model Release - 22  
 Thermo Fisher Scientific, Marietta, Ohio

**Model Number**

TDEC06386FV

**Application, Rating and Electrical Data**

**Typical Performance Characteristics in 20 °C Ambient**

Application	Storage of General (non-flammable) Laboratory Materials
Storage Volume	3.0 cu. ft. (84.9 Liters), 63 Standard 2" Boxes
Temperature Rating	-50°C to -86°C
Electrical Power	230V, 50 Hz, 1 Phase
Instrument Rated Current	5.6 AMP
Building Supply Rating	16A dedicated grounded circuit, Type C circuit protection or similar required, Ensure compliance with local electric code
Power Plug / Power Cord	Country Dependant plug / IEC Cords, 10 ft (3 m)
Agency Listings	CE, UKCA
Application Environment	Non-Corrosive, Non-Flammable, Non-Explosive Indoor Use Only, Ventilated 15° C - 32° C (59° F - 90° F)

Energy Consumption (kW-hr/day)	4.9
Heat Rejection Rate (Btu/hr)	698
Peak Variation from Setpoint (°C)	+4.5/-2.1
Sound (dBa)	50.2
1-min Door Opening Recovery to -75°C (min)	2
Average Uniformity at -80°C (°C)	2.8
Average Stability at -80°C (°C)	3.1
Pull Down Time (to -80°C) (hrs)	129
Warm Up Time (-80°C to -50°C) (min)	156

**Dimensions and Construction**

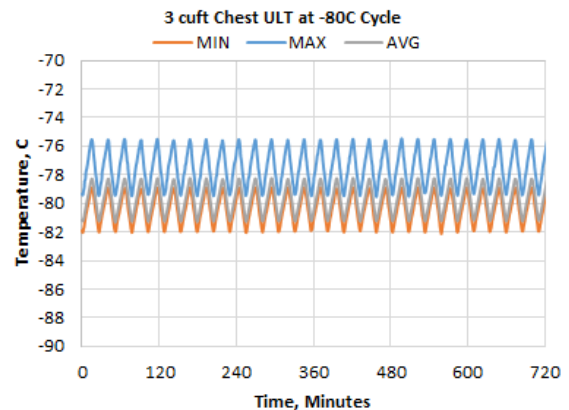
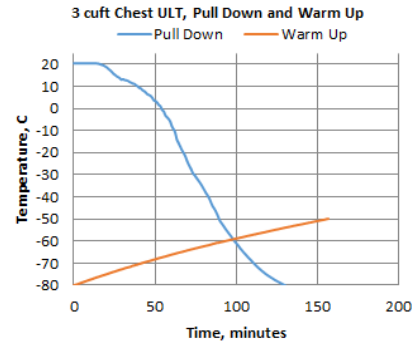
Interior Dimensions (H x D x W)	16.4 x 18.4 x 18.4 in. (417 x 467 x 467 mm)
Exterior Dimensions (H x D x W)	43.7 x 32.7 x 28.8 in. (1110 x 831 x 732 mm)
Shipping Dimensions (H x D x W)	47.5 x 37.5 x 37.5 in. (1207 x 953 x 953 mm)
Shipping Weight / Net Weight	380 lbs. (172 kg) / 290 lbs. (132 kg)
Insulation	Polyurethane foam with non-HFC blowing agent having zero GWP
Door Seal	PVC-Based Gasket
Interior / Exterior Material	Stainless Steel / Painted Steel
All-Direction Casters	Standard with Locks
Other Options	LN2 or CO2 Backup System, Chart Recorder

**Electrical System Configuration**

Controller Level	Front
Power Switch	(Front) Main Circuit Breaker
Controller Type	HIC Interface: 7-segment Display with Capacitive Touch Screen Buttons
Setpoint Security	Yes
Compressor Safe Guard	High Temp Cutout Switch, Current, Logic protection
Control Sensor	Single RTD (1000 ohm Platinum RTD)
Connectivity / Remote Outputs	RS485/4-20mA output/Dry Contacts
Thermo Fisher Cloud	InstrumentConnect™ Remote Monitoring (compatible)
Adjustable Warm/Cold Alarms	Fully Adjustable

**Refrigeration Configuration**

Refrigeration System	Two stage Cascade system
Compressor/Number	Industrial Rated, Hermetically Sealed / 2
Compressor Capacity*	293W
Condenser Type	Enhanced Tube and Fin with Forced-Air Cooling
Expansion Device	Capillary Tube
Evaporator Type	Enhanced Cold Wall Design
Defrost Method	Manual Defrost
Refrigerant	R290 / R170+R290 Mix
Environmental Effects	GWP: 3 (R290) , 6 (R170) ODP: 0 (R290); 0 (R170)
Flammable	Yes



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

\* Manufacturer measured compressor capacity taken at standard -35°C/45°C (Evap/Cond) condition.

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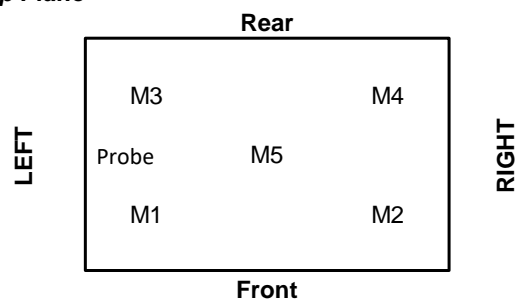


**Typical Cabinet Temperature Map  
ULT 3 cuft Chest, Single Outer Lid**

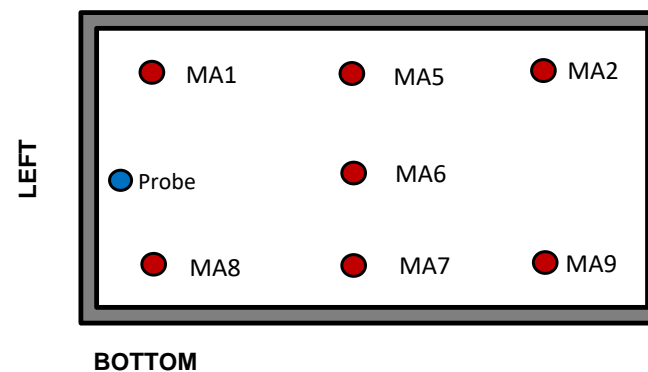
Temperatures are averages during > 20 cycles after reaching a setpoint of -80C

Side View of Interior Planes

Top Plane



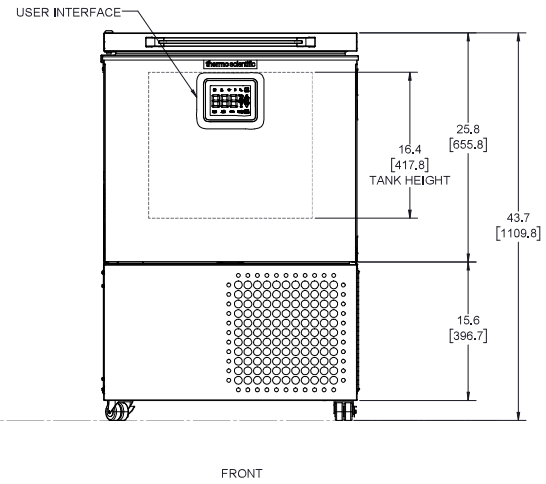
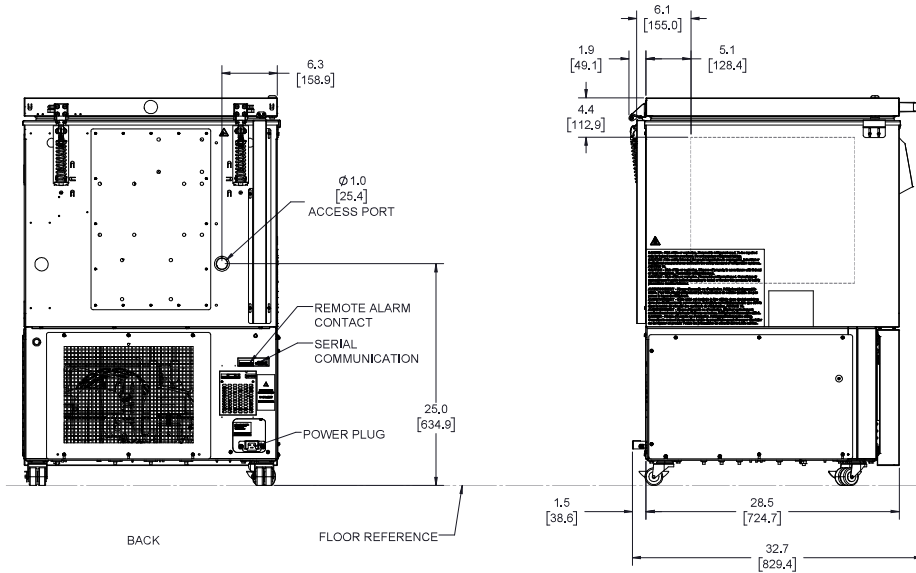
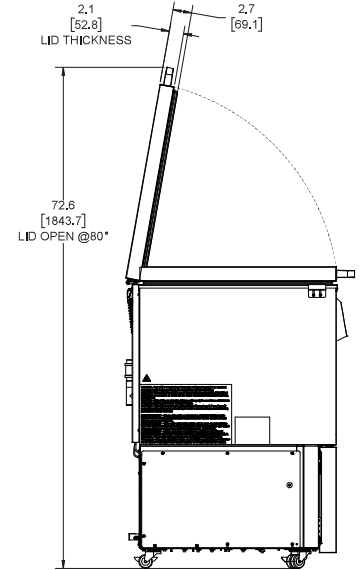
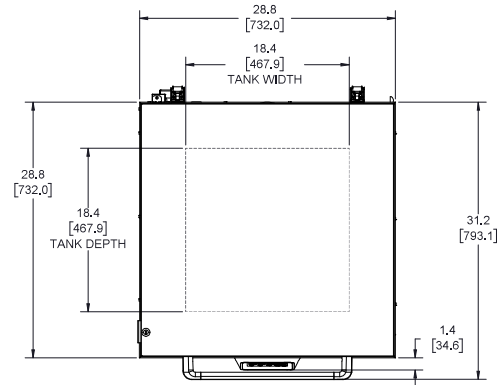
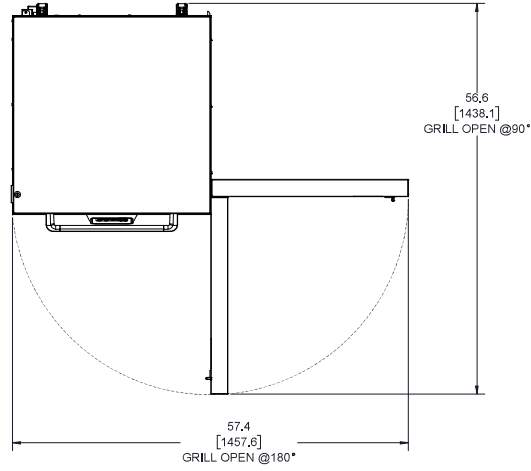
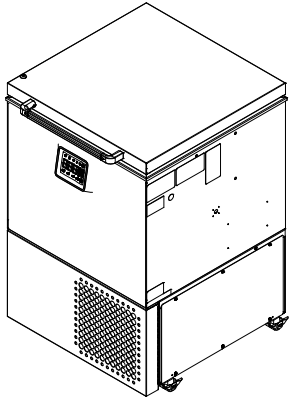
Front Cross Sectional View



3cuft ULT

**Cabinet Average:** -79.8 C  
**Probe Average:** -82.5 C  
**Peak Variation:** +4.5 C / -2.1 C

	Top Plane					Mid Plane	Bottom Plane				
	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11
Avg	-80.2	-79.8	-80.2	-79.9	-77.5	-79.8	-79.7	-80	-80.1	-80	-80.4
Max	-78.6	-78.2	-78.6	-78.3	-75.5	-78.2	-78.4	-78.7	-78.7	-78.6	-78.9
Min	-81.8	-81.3	-81.8	-81.5	-79.6	-81.3	-81.1	-81.3	-81.5	-81.5	-82.1



NOTE: DUAL DIMENSIONS IS INCH OVER METRIC.  
DO NOT USE FOR ENGINEERING PURPOSES SUBJECT TO CHANGE WITHOUT NOTICE

**thermo**  
scientific

UNIT DIMENSIONAL DRAWING  
3 cu.ft.