

## **Technical Data Sheet**

Thermo Scientific<sup>™</sup> Ultra-Low Temperature Freezer

Upright Model Release - 84 5ID

Thermo Fisher Scientific, Asheville, North Carolina

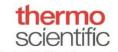
Electronic     2307, 50 PL: I Private       Instrument Read Current     6.5 AMS       Hadding Supph Raing     Type C drardt proteined or sinhar registed, Envoire complexes with Eccil educat, code       Power Plug / Power Cod     Commy Deparation (20, 1987 - 50°)       Appleadon Environment     Instrument Read (20, 10, 10, 10, 30°)       Appleadon Environment     Instrument Read (20, 10, 10, 10, 30°)       Appleadon Environment     Instrument Read (20, 10, 10, 10, 30°)       Instrument Read (10, 10, 10, 10, 10, 10, 10, 10, 10, 10,			lel Number
Application   Stronge of General (non-farmable) Laboratory Meteries     Biology Vours   113.4 to: It: (He lines), 400 Standard 7 Blows     Timperatures Relating   550°C 64°C     Electrical Power   2000, 501 to: 1 Power     Dukting Supply Raing   Title Activity (He lines), 400 Standard 7 Blows     Timperature Relation (Common Common Common Code)   6.5.4.40°C     Application Environment   Non-Collopies, Non-Flarmable, Non-Epistree     Model Laboratory   Non-Collopies, Non-Flarmable, Non-Epistree     Index Use Status   Non-Collopies, Non-Flarmable, Non-Epistree     Index Use Status   Standard 2011 to 150° 270 Status     Index Use Status   111.1 (150° 270 Status)     Index Use Status   111.1 (150° 270 Status)     Index Use Status   111.1 (150° 270 Status)     Index Use Status   Non-Collopies, Non-Flarmable, Non-Status)     Index Use Status   Non-Collopies, Non-Flarmable, Non-Status)     Index Use Status   Status     Index Use Status   Status     Index Use Status   Status     Index Use Status   Non-Collopies, Non-Flarmable, Non-Status)     Index Use Status   Status     Index Use Status   Adjustatus Status on Tito			
Biorge Volami     10.4 ro. h. (144 line). 400 Smidurl 27 Bioss       Tremprative Rang     6.0% to 480°C       Ibernical Power     2001/20 First       Baching Steph Rang     TSA decland grounded focul, Ensare conjunce with Conduct Coul, Ensare Conjunce with Conduct Coul, Ensate Conjunce Coul, Control Biol Storen Bacel High Performance Stat Could with Ensare Control Ensore Stat Could with Locate Balance Ensare Conjunct Could Ensore Warm Up Time (2000 Statular Version Stat Could with Ensare District Count Could Could Warm Count In Example Topologies with USB Data Reviewsi With USB Data Reviewsi Reviewsi With USB Data Reviewsi Reviewsi With USB Data Reviewsi Review	Appli	cation, Rating and Electrical Data	Typical Performance Characteristics in 20 °C Ambient
Temporture Raing     -50°C to 48°C       Electrical Power     2201, 05 Pr., Phone       Ibarbane Raind Current     6.5 AMP       Building Supply Raing     114A dedication guided coal, Type C circuit protection or similar required, Building Supply Raing     The Addication of the Context on the Context on the Context on the Context on the Context protection or Similar required, Building Supply Raing     Non-Context protection of Similar required, Building Supply Raing     Sound (68)     50.       Power Plug / Power Cord     Common Power Plug (100 Cord)     Sound (68)     50.       Approx Lamage     Non-Context protection     Sound (68)     50.       Instruct Demonstom and Construction     Sound (68)     50.     Antergo Linkows and 40°C (10)     52.       Instruct Demonstom Ad Construction     Sound (68)     50.     Antergo Linkows and 40°C (10)     52.       Statute Demonstom Ad Construction     Statute Based Halp Performance See Gaster with Teatricit Control Fuel Number 100     Statute Based Halp Performance See Gaster with Teatricit Control Fuel Number 100     Statute Based Halp Performance See Gaster with Teatricit Control Fuel Number 100     Statute Based Halp Performance See Gaster with Teatricit Control Fuel Number 100     Statute Based Halp Performance See Gaster with Teatricit Control Fuel Number 100     Statute Based Halp Performance See Gaster with Teatricit Control Fuel Number 100		<b>.</b>	
Electrical Prover     230V, 50 Hz, 1 Prese       Iearment Rank Cormit     6.5 AMP       Iearment Rank Cormit     164 Adorband grounded forcul, Endea computative with Code electro. archite: request, Endea computative with Code electro. 2005 (597 F- 597 F)       Maphication Environment Application Environment Indeor Use Christ, Vice Code Vice Code Vice Code Vice Code Docemation (1970)     500       Dimensions and Construction Indeor Use Christ, Vice Code Vice Code Vice Code Vice Code Vice Code Docemation (1970)     500       Dimensions and Construction Indeor Use Christ, Vice Code Vice Code Vice Code Vice Code Doce Seal     500 (1981): 407 x 203 x 203 fn. (1981): 407 x 200 mn.) Stepport Uncendator Paritime High-Code Vide Water-Bison Doce Seal     Silence Based (2001 Vice Vide Vider Store Doce Seal     Silence Based (2001 Vice Vider Vider Store Doce Seal     Silence Based (2001 Vice Vider Vider Store Doce Seal     Silence Based (2001 Vice Vider Store Doce Seal     Silence Store Doce Seal     Silence Store Seal Store Doce Seal		· · · · · · · · · · · · · · · · · · ·	
Instrument Rand Current     6.6 AMP       Building Supply Rating     The discidual grounded gro			
Image: Suppy Realing     Image: Suppy Realing     Image: Suppy Realing     Image: Suppy Realing     Support Cardity Decoder Information Support Sup			· · · · · ·
Building Supply Raining Free Trans complements which had electric code Free Trans complements which cold editions of Supplementary Build (EC Cass, 10 B (3.65 m) Application Environment indional Supplements and Construction Mino-Contrades, Non-Frammable, Non-Explosive indional Construction Dimensions and Construction Dimensions and Construction Simplements (F & D X V) Starter Dimensions and Construction Simplements (F & D X V) Simplements (F & D X V) Simp	Instrument Rated Current		Peak Variation from Setpoint (°C) +5.7 / -3.
Agency Listings UL, QLL, CE   Application Environment MonCortable, MonC-Explosive Indoor Use Only, Ventilated 15° C - 32° C (58° F - 90° F)   Application Environment Indoor Use Only, Ventilated 15° C - 32° C (58° F - 90° F)   Thermanisms and Construction Status C - 198 - 1	Building Supply Rating	Type C circuit protection or similar required,	
Application     Non-Correspondence     Non-Correspondence       Application     Indoor Use Only, Ventiliand 15° C . 32° C (58° F - 90° F)     Severage Uniformity at 80° C (°)     Statument of the Severage Uniformity at 80° C (°)     Statument of the Severage Uniformity at 80° C (°)     Statument of the Severage Uniformity at 80° C (°)     Statument of the Severage Uniformity at 80° C (°)     Statument of the Severage Uniformity at 80° C (°)     Statument of the Severage Uniformity at 80° C (°)     Statument of the Severage Uniformity at 80° C (°)     Statument of the Severage Uniformity Name	Power Plug / Power Cord	Country Dependant plug / IEC Cords, 10 ft (3.05 m)	
Application   Indoor Use Only, Ventilated 197 C - 327 C (50° F - 90° F)     Indoor Use Only, Ventilated 197 C - 327 C (50° F - 90° F)   Average Statistivity at 90° C (50) S3.     Dimensions and Construction   F1 2 A 201 S 22 B 3 2 2 B 1 (211 X 108 S 20 m)     Briefor Dimensions (1 x D X V)   51 2 A 28 3 x 23 in (211 X 108 S 20 m)     Speping Weight / Net Weight   687 Bs (121 X 105 Bs 20 C (20 bg)     Insulation   Vacuum Insulation Previous Statistic (270 bg)     Door Seal   Silcone-Based High Performance Sau Gasket with Electrical Cabient Previous Statistic (270 bg)     Shefves   Adjustable Sheft Statistic (270 bg)     Materian Cabient Condition Cabient Previous (517 k kg)   Controller Level     Theory Cabestor Coables Streen (1 Materian Coables) Streen (1 Materian Coables) Streen (1 Materian Coables) Streen (1 Materian Coable)   F1 (1 Materian Coable) Streen (1 Materian Coable)     Other Options   WIC Coables Environ (1 Materian Coable)   National Objektivy with USB Data Retrieval     Electrical System Configuration Controller Level   Top Under the Materian Display with Capacitive Touch Streen (1 Materian Coable)     Statistic Control Streen (1 Materian Coable)   Fully Adjustable Materian Coable)   Factographic Coable Coalling (Coable)     Controller Level   Top Under the Materian Display with Capacitive Touch Streen (1 Materian Coable)   Factographic Coable Streen (1 Materian Coa	Agency Listings	UL, cUL, CE	Sound (dBa) 50.8
Index Use Unity Vertilated 15° C: 32° C (15° F - 30° F)     Average Statility at dOC (C)     Dimensions and Construction     Interior Dimensions (H x D x W)     Of 22.83 x 23 in (1300 x 710 x 867 mm)     Digping Weight (X D x W)     Byping Weight (X D x W)     Bornerstons (H x D x W)     Byping Weight (X D x W)     Bornerstons (H x D x W)     Control (F x D x W)     Bornerstons (H x D x W)     Steare-Based High Performance Seal Gaster wth Electrical Calcine Decord (F x D x W)     Maintens Steart (D x H x D x W)     Controler Lovel   Tom     Power Swatch   (Rear) Man Crucit Breaker     Controler Lovel   Tom     Power Swatch   High Tem Cuctor Swith, Current, Logic protecton	Application Environment	Non-Corrosive, Non-Flammable, Non-Explosive	1-min Door Opening Recovery to -75°C (min) 15
Pull Down Time (6:80°C) (min) 5.7   Pull Down Time (6:80°C) (min) 5.7   The start of the start	Application Environment	Indoor Use Only, Ventilated 15° C - 32° C (59° F - 90° F)	Average Uniformity at -80°C (°C) 5.1
Warm Up Time (-80°C to -50°C) (min)     27       Warm Up Time (-80°C to -50°C) (min)     20       Operative Signed Signe Theoremous Seal Gasket with Electrical Signe Theoremous Seal Gasket with Electrical Signe Theoremous Seal Gasket with Electrical Sig			÷ · · · ·
atterior Dimensions (H & D X W)   78 x 38 5 x 32 - 51 (191 x 978 x 826 m n) (191 polyanetanes (H > D X W)   78 x 32 x (21 x 1 x 108 y 200 m) (191 x 12 x 427 x 23 x (21 x 1 x 108 y 200 m)) (191 x 12 x 427 x 23 x (21 x 1 x 108 y 200 m)) (191 x 12 x 427 x 23 x (21 x 1 x 108 y 200 m)) (191 x 12 x 12 x 12 x 23 x (21 x 1 x 108 y 200 m)) (191 x 12 x	C	Dimensions and Construction	
Statistic Dimensions (H t D X W)   78:38.5 x 32.5 in: (1911 y 101 s 828 nm.)     Shipping Weight (Net Weight   83:12 x 42.7 x 32.6 y 23.1 (211 y 10.1968 y 820 nm.)     Shipping Weight (Net Weight   83:12 x 42.7 x 32.8 (231 x 10.1968 y 820 nm.)     Door Seal   Silcone-Based High Portomance Seal Gasket with Electrical Cabinet Heator     Door Seal   Silcone-Based High Portomance Seal Gasket with Electrical Cabinet Locatione Devineer Heator     Shelves   4 Statiless Steel     Adjustate Shares in 11 (25mm) Increments   Adjustate Shares Steel Option 1/ Painted Steel     All-Drive Location to Exceed 1140 b (517.1 kg)   Pull Down and Warm Up     Other Options   UN2 or CO2 Backup System, Charl Recorder, ViC Capacity crock Screen holds     Other Options   UN2 or CO2 Backup System, Charl Recorder, ViC Capacity crock Screen holds     Stepont Security   Top     Power Switch   (Reingeration Configuration top) with USB Data Retrieval     Stepont Security   Kerigeration Configuration top) Weight Step Contact     Compressor Sale Gaard   High Temp Cutout Switch, Current, Logic protection     Stepont Security   Refrigeration Configuration top) Step Contact     Compressor Capacity   Tob Step Capacity System     Compressor Capacity   Stage (Lapot Temp Finiter) Head Temore High Refrigeration Configuration top) Step			
httpspp://weight/NetWeight   83.12 x 42.75 x 38.23 in (2111 x 1086 x 202 kg)     Sheping Weight/NetWeight   867 lbs.(270 kg)     Insulation   Vacuum Insulation Panels with High-Density Water-Blown Polyauethane Foarn     Door Seal   Silcone-Based High Performance Seal Gasket with Electrical Cabient Perimeter Heater     Shelves   Adjustable Stelves in 1/ (25mm) Increments     Maximum Cognophy per Shelt Tis bls. (73.4 kg)     Cabient Cabient Seal Gasket with Disk (13.1 kg)     Interior / Exterior Material     Al-Direction Casters     LN2 or CO2 Backup System, Charl Recorder, ViC Capacity With Cuck Screen hypit and Display with USB Data Retrieval     Electrical System Configuration Controller Lavel   Top     Electrical System Configuration Controller Type   HIC Interface: 7-segment Display with Capacitive Touch Screen Buttons     Steppint Security Compressor Sande Gaund   Fuly Adjustable     Refrigeration System   Two Slage Cascade System Controls Sensor   Single RTD (1000 with Minitum RTD)     Compressor Sande Gaund   Fuly Adjustable   Fuly Adjustable     Refrigeration System   Two Slage Cascade System Condenser Type   Enhanced Tube and Fin with Frozet-Air Cooling Expansion Netwich     Controls Sensor   Capality Tube   Enhanced Tube and Fin with Frozet-Air Cooling Expansion Netwich   GR(1870) <td></td> <td></td> <td></td>			
Shipping Weight / Net Weight   687 bs. (312 kg) (595 bs. (270 kg)     Insulation   Vacuum Insulation Pendes WH, Hgh, Density Mater-Blow     Door Seal   Silicone-Based High Performanos Seal Gasket with Electrical Cabinet Parmiest Fleater     Shelves   4 Stainlises Steel     Maximum Capacity per Shelf: 165 bs. (73 4 kg)     Cabnet Look to 16 Excoent 110 bs (§171 1 kg)     Interfor / Exterior Material   Painted Steel (Stainless Steel Option) / Painted Steel     All-Direction Casters   Standard with Locks     UN2 or C2 Backup System, Chart Recorder, VIC Capacitive Touch. Screen Input and Display with USB Data Retrieval   -00     Electrical System Configuration   -00     Controller Lavel   Top     Controller Lavel   Fully Adjustable     Adjustable   Fully Adjustable     Conden	· · · ·		
Insulation Vacuum Insulation Panels with High-Density Water-Blown Polyurethane Feam   Door Seal Sillcone-Based High Performance Seal Gasket with Electrical Cabriest Perimeter Heater   Shelves A 4 Stainless Stell Capacity Adjustable Shelves in 1 (25mm) Increments Adjustable Shelves in 1 (25mm) Increments Shelf Capacity Cabrient Load not to Exceed 1140 bis (517.1 kg) Cabrient Cabrient Material   Interior / Externor Material AH-Direction Casters Standard with Locks   AH-Direction Casters Standard with Locks   Other Options LN2 or CO2 Backup System, Chart Recorder, vith USB Data Retrieval   Electrical System Configuration Controller Type HiC Interface: 7-segment Display with Capacitive Touch Screen Buttons   Shelpoint Security Yes   Compressont Sate Guard High Temp Charton Switch, Current, Logic protection Controller Type   Retrigeration System Fully Adjustable   Retrigeration System Too Stage Cascade System Condenser Type   Condenser Type Enhanced Tube and Fin with Foreet-Air Cooling Expansion Device   Condenser Type Enhanced			
Door Seal Silicone-Based High Performance Seal Casket with Electrical Cabinet Perimet Heater   Shelves 4 Stainless Streit Adjustable Shelves in tr (25mm) Increments   Maximum Capacity en Shelf: 165 lbs. (73.4 kg) Cabinet Load not to Exceed 1140 lbs (51.7 kg)   Interior / Exercine Material   All-Direction Casters   Shelf Capacity Interior / Exercine Material   All-Direction Casters   Statute Topic   Other Options   LN2 or CO2 Backup System. Chart Recorder. VIC Capacity with USB Data Retrieval   Electrical System Configuration Controller Level   Top Power Switch   Controller Type   HIC Interface: 7-segment Display with Capacitive Touch Screen Buttons   Setpoint Security   Controller Type   Hich Interface: 7-segment Display with Capacitive Touch Screen Buttons   Setpoint Security   Controller Type   Hich Interface: 7-segment Display with Capacitive Touch Screen Buttons   Setpoint Security   Controller Level   Thermo Fisher Cloud   InstrumentConnect <sup>TM</sup> Remote Monitoring (compatible) Adjustable   Retrigeration Configuration Controller Type   Retrigeration Configuration Controller Type   Retrigeration System   Conpressor/Runder   Retrigeration System   Conpressor/Capacity   Stoppe		Vacuum Insulation Panels with High-Density Water-Blown	
Shelves 4 Stahless Steel   Adjustable Shelves in '1 (26mm) increments   Maximum Capacity per Shelf: 166 ibs. (73.4 kg)   Cabinet Load not to Exceed 1140 bs (517.1 kg)   Interior / Exterior Material   Al-Direction Casters   Stable Steel (Stainles Steel Option) / Painted Steel   Al-Direction Casters   Al-Direction Casters   Stable Steel (Stainles Steel Option) / Painted Steel   Other Options   ULR2 or C20 Backup System, Chart Recorder, VIC Capacitive Touch Screen Input and Display with USB Data Retrieval   Electrical System Configuration   Controller Level   Top   Power Switch   (Ren) Main Circuit Breaker   HIC Interface: 7-segment Display with Capacitive Touch Screen Buttons   Setpoint Security   Yes   Controller Type   HIC Interface: 7-segment Display with Capacitive Touch Screen Buttons   Setpoint Security   Controller Type   Hick Interface: Could   InstrumentConnect <sup>TW</sup> Remote Monitoring (compatible)   Adjustable   Marriageration System   Compressor Capacity'   Solad Guad   Hight Temp Could Marms   Fully Adjustable   Refrigeration System   Compressor Capacity'   Solad Method   Refrigerat	Door Seal		Pull Down Warm Up
Shell Capacity   Cabine Load not to Exceed 1140 lbs (517.1 kg)     Interior / Exterior Material   Painted Steel (Stainless Steel Option) / Painted Steel     All-Direction Casters   Standard with Locks     Other Options   LN2 or CO2 Backup System, Chart Recorder, ViC Capacitive Touch Screen Input and Display with USB Data Retrieval     Electrical System Configuration   Electrical System Configuration     Controller Level   Top     Power Switch   (Rear) Main Circuit Breaker     Controller Type   HIC Interface: 7-segment Display with Capacitive Touch Screen Buttons     Setpoint Security   Yes     Compressor Safe Guard   High Temp Cudud Switch, Current, Logic protection     Controller Type   Entertrade: X-20mA output/DY Contacts     Thermor Fisher Cloud   InstrumentCondet <sup>TM</sup> Remote Monitoring (compatible)     Adjustable Warm/Cold Alarms   Fully Adjustable     Compressor Capacity'   S59 W     Condressor Type   Enhanced Tube and Fin with Forced-Air Cooling     Expansion Device   Capillary Tube     Expansion Device   Capillary Tube     Evaporator Type   Enhanced Cold Wall Design     Defrost Method   Manual Defrost     Refrigerant (1st22nd Stage)   R200 (170.70-R200 Mk	Shelves		10
Other Options   LN2 or CO2 Backup System, Chart Recorder, VIC Capacitive Touch Screen Input and Display with USB Data Retrieval     Electrical System Configuration     Controller Level   Top     Power Switch   (Rear) Main Circuit Breaker     Controller Type   HIC Interface: 7-segment Display with Capacitive Touch Screen Buttons     Setpoint Security   Yes     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     Connectivity / Remote Outputs   R5485/4-20mA output/Dry Contacts     Thermo Fisher Cloud   InstrumetiConnect™ Remote Monitoring (compatible)     Adjustable Warm/Cold Alarms   Fully Adjustable     Retrigeration System   Two Stage Cascade System     Compressor/Number   Industrial Rated, Hermetically Sealed / 2     Compressor/Surburber   Codd Wall Design     Defrost Method   Manual Defrost     Retrigerant (1st2nd Stage)   R280/ R170-R280 Mix     Compressor/Surburber   GWR: 3 (R280), 6 (R170)	Shelf Capacity		<b>v</b> <sub>-10</sub>
Other Options   LN2 or CO2 Backup System, Chart Recorder, VIC Capacitive Touch Screen Input and Display with USB Data Retrieval     Electrical System Configuration     Controller Level   Top     Power Switch   (Rear) Main Circuit Breaker     Controller Type   HIC Interface: 7-segment Display with Capacitive Touch Screen Buttons     Setpoint Security   Yes     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     Connectivity / Remote Outputs   R5485/4-20mA output/Dry Contacts     Thermo Fisher Cloud   InstrumetiConnect™ Remote Monitoring (compatible)     Adjustable Warm/Cold Alarms   Fully Adjustable     Retrigeration System   Two Stage Cascade System     Compressor/Number   Industrial Rated, Hermetically Sealed / 2     Compressor/Surburber   Codd Wall Design     Defrost Method   Manual Defrost     Retrigerant (1st2nd Stage)   R280/ R170-R280 Mix     Compressor/Surburber   GWR: 3 (R280), 6 (R170)	Interior / Exterior Material	Painted Steel (Stainless Steel Option) / Painted Steel	<b>2</b> -20
Other Options   LN2 or CO2 Backup System, Chart Recorder, VIC Capacitive Touch Screen Input and Display with USB Data Retrieval     Electrical System Configuration     Controller Level   Top     Power Switch   (Rear) Main Circuit Breaker     Controller Type   HIC Interface: 7-segment Display with Capacitive Touch Screen Buttons     Setpoint Security   Yes     Controller Security   Yes     Compressor Safe Guard   High Temp Cutout Switch, Current, Logic protection     Connectivity / Remote Outputs   RS485(4-20mA output/Dry Contacts     Thermo Fisher Cloud   InstrumentConnet <sup>TW</sup> Remote Monitoring (compatible)     Adjustable   Fully Adjustable     Refrigeration System   Two Stage Cascade System     Compressor/Number   Industrial Rated, Hermetically Sealed / 2     Compressor/Surburber   Capillary Tube     Evapansion Device   Capillary Tube     Evapansion Device   Capillary Tube     Evapansion Device   Capillary Tube     Evapansion Device   Grading   GR(70)     Defrost Method   Manual Defrost     Refrigerant (1st/2nd Stage)   R280/ R170-R280 Mix	All-Direction Casters	Standard with Locks	
Electrical System ConfigurationController LevelTopPower Switch(Rear) Main Circuit BreakerController TypeHIC Interface: 7-segment Display with Capacitive Touch Screen ButtonsSetpoint SecurityYesCompressor Safe GuardHigh Temp Cutout Switch, Current, Logic protection Control SensorControl SensorSingle RTD (1000 ohm Platinum RTD)Connectivity / Remote OutputsR5485/4-20mA output/Dry ContactsThermo Fisher CloudInstrumentConnect <sup>TM</sup> Remote Monitoring (compatible) AdjustableAdjustable Warm/Cold AlarmsFully AdjustableRefrigeration Configuration Compressor/NumberIndustrial Rated, Hermetically Sealed / 2Compressor/Sor Capacity'559 WCondenser TypeEnhanced Tube and Fin with Forced-Air Cooling Expansion DeviceExpansion DeviceCapillary TubeEvaporator TypeEnhanced Cold Wall Design Berfost MethodDefrost MethodManual Defrost R280/ R170/ R290 MixRefrigerant (1st/2nd Stage)R280/ R170/ R290 Mix GWP: 3 (R290), 6 (R170)	Other Options	VIC Capacitive Touch Screen Input and Display	8 -40 E -50
Controller Level   Top     Power Switch   (Rear) 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     Controller Type   Stelpier To (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 System   Two Stage Cascade System     Compressor/Number   Industrial Rated, Hermetically Sealed / 2     Compressor/Submit Micro Code and Fin with Forced-Air Cooling   -77     Expansion Device   Capallary Tube     Evaporator Type   Enhanced Cold Wall Design     Defrost Method   Manual Defrost     Refrigerant (1st/2nd Stage)   R290 / R170+R290 Mix     Evaporator Type   GWP: 3 (R290), 6 (R170)	FI	ectrical System Configuration	
Power Switch   (Rear) 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)     Compressor/Number   InstrumentConnect <sup>TM</sup> Remote Monitoring (compatible)     Adjustable   MIN     Compressor/Number   Industrial Rated, Hermetically Sealed / 2     Condenser Type   Enhanced Cold Wall Design     Defrost Method   Manual Defrost     Refrigerant (1st/2nd Stage)   R230 / R170+R230 Mix     Refrigerant (1st/2nd Stage)   R230 / R170+R230 Mix     Envicrowotal Efforth   GWP: 3 (R230			-80
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 System   Two Stage Cascade System     Compressor/Number   Industrial Rated, Hermetically Sealed / 2     Compressor/Capacity*   559 W     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 (1st/2nd Stage)   R290 / R170/ne280 Mix     Environment Effort   GWP: 3 (R290), 6 (R170)		•	
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 <sup>TM</sup> Remote Monitoring (compatible)     Adjustable Warm/Cold Alarms   Fully Adjustable     400V Upright ULT at -80C Cycle     MAX   MIN     Avg   MIN     Arringeration System   Two Stage Cascade System     Compressor/Number   Industrial Rated, Hermetically Sealed / 2     Compressor Capacity*   559 W     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 (1stv2/nd Stage)   R290 / R170+R290 Mix     Favigrometral Effort   GWP: 3 (R290), 6 (R170)		HIC Interface: 7-segment Display with Capacitive Touch Screen	
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     400V Upright ULT at -80C Cycle     MAX   MIN     Avg   MIN     Arringeration System   Two Stage Cascade System     Compressor/Number   Industrial Rated, Hermetically Sealed / 2     Compressor Capacity*   559 W     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 (1st/Znd Stage)   R290 / R170+R290 Mix     Favigneneth Effort   GWP: 3 (R290), 6 (R170)	Setpoint Security	Yes	
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     Adjustable Warm/Cold Alarms     Refrigeration Configuration     Compressor/Number   Industrial Rated, Hermetically Sealed / 2     Compressor/Number   Industrial Rated, Hermetically Sealed / 2     Compressor Capacity*   559 W     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 (1st/2nd Stage)   R290 / R170+R290 Mix     Favigreant (1st/2nd Stage)   R290 / R170+R290 Mix			
Connectivity / Remote Outputs   RS485/4-20mA output/Dry Contacts     Thermo Fisher Cloud   InstrumentConnect™ Remote Monitoring (compatible)     Adjustable Warm/Cold Alarms   Fully Adjustable     Adjustable Warm/Cold Alarms     Adjustable     Adjustable     MAX     MAX     MAX     MAX     MAX     MIN     AVG     Compressor/Number     Industrial Rated, Hermetically Sealed / 2     Compressor Capacity*   559 W     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 (1st/2nd Stage)   R290 / R170+R290 Mix     Fervicemental Effective   GWP: 3 (R290), 6 (R170)			
Thermo Fisher Cloud   InstrumentConnect™ Remote Monitoring (compatible)     Adjustable Warm/Cold Alarms   Fully Adjustable     Refrigeration System   Two Stage Cascade System     Compressor/Number   Industrial Rated, Hermetically Sealed / 2     Compressor/Sumber   Industrial Rated, Hermetically Sealed / 2     Compressor Support Ype   Enhanced Tube and Fin with Forced-Air Cooling     Expansion Device   Capillary Tube     Evaporator Type   Enhanced Cold Wall Design     Defrost Method   Manual Defrost     Refrigerant (1st/2nd Stage)   R290 / R170+R290 Mix     Environmental Effecter   GWP: 3 (R290), 6 (R170)		- · · ·	400V Unright ULT at -800 Cycle
Adjustable Warm/Cold Alarms Fully Adjustable   Adjustable Warm/Cold Alarms Fully Adjustable   Refrigeration Configuration -73   Refrigeration System Two Stage Cascade System   Compressor/Number Industrial Rated, Hermetically Sealed / 2   Compressor Capacity* 559 W   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 (1st/2nd Stage) R290 / R170+R290 Mix   Fauvinemental Effort GWP: 3 (R290), 6 (R170)			
Refrigeration Configuration     Refrigeration System   Two Stage Cascade System     Compressor/Number   Industrial Rated, Hermetically Sealed / 2     Compressor Capacity*   559 W     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 (1st/2nd Stage)   R290 / R170+R290 Mix     Evaporator Istication   GWP: 3 (R290), 6 (R170)			
Refrigeration System Two Stage Cascade System   Compressor/Number Industrial Rated, Hermetically Sealed / 2   Compressor Capacity* 559 W   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 (1st/2nd Stage) R290 / R170+R290 Mix   Environmental Effort GWP: 3 (R290), 6 (R170)			
Evaporator Type     Enhanced Cold Wall Design       Defrost Method     Manual Defrost       Refrigerant (1st/2nd Stage)     R290 / R170+R290 Mix       Environmental Effects     GWP: 3 (R290) , 6 (R170)		Refrigeration Configuration	<sup>-75</sup> \ <u>^ ^ ^ ↓ ^ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓</u>
Evaporator Type     Enhanced Cold Wall Design       Defrost Method     Manual Defrost       Refrigerant (1st/2nd Stage)     R290 / R170+R290 Mix       Environmental Effects     GWP: 3 (R290) , 6 (R170)	Refrigeration System	Two Stage Cascade System	$\vec{s}_{77}$ $  \Lambda $
Evaporator Type     Enhanced Cold Wall Design       Defrost Method     Manual Defrost       Refrigerant (1st/2nd Stage)     R290 / R170+R290 Mix       Environmental Effects     GWP: 3 (R290) , 6 (R170)	Compressor/Number	Industrial Rated, Hermetically Sealed / 2	
Evaporator Type     Enhanced Cold Wall Design       Defrost Method     Manual Defrost       Refrigerant (1st/2nd Stage)     R290 / R170+R290 Mix       Environmental Effect     GWP: 3 (R290), 6 (R170)	Compressor Capacity*	559 W	
Evaporator Type     Enhanced Cold Wall Design       Defrost Method     Manual Defrost       Refrigerant (1st/2nd Stage)     R290 / R170+R290 Mix       Environmental Effects     GWP: 3 (R290) , 6 (R170)	Condenser Type	Enhanced Tube and Fin with Forced-Air Cooling	
Evaporator Type     Enhanced Cold Wall Design       Defrost Method     Manual Defrost       Refrigerant (1st/2nd Stage)     R290 / R170+R290 Mix       Fewigromental Effects     GWP: 3 (R290) , 6 (R170)		Capillary Tube	<u>8</u> -81 <b>AAAAAAAAAAAAAAAAAAAAAAAAAAA</b>
Defrost Method     Manual Defrost     -83       Refrigerant (1st/2nd Stage)     R290 / R170+R290 Mix     -83       Environmental Effects     GWP: 3 (R290) , 6 (R170)     -85			
Refrigerant (1st/2nd Stage)     R290 / R170+R290 Mix     -85       Equipmental Effect     GWP: 3 (R290) , 6 (R170)     -85			-83   <del>                                   </del>
-85			
			-85 0 120 240 360 480 600 720
Flammable Yes Time, minutes	Flammable		

Freezer performance is nonimal and individual on a may vary.
Freezer performance will differ due to product amount, product size and operating conditions.
Continuous product enhancements may, without notice, result in amendments or omissions to this specification. Thermo Scientific

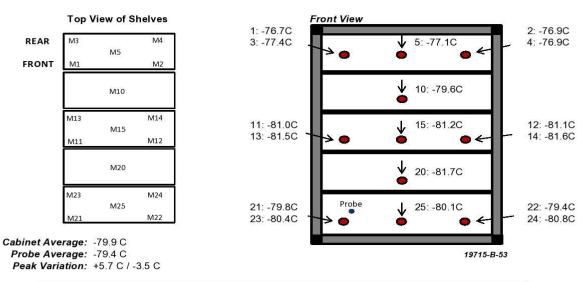
cannot accept responsibility for damage, injury, loss or expenses resulting from misapplication of the information herein.

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

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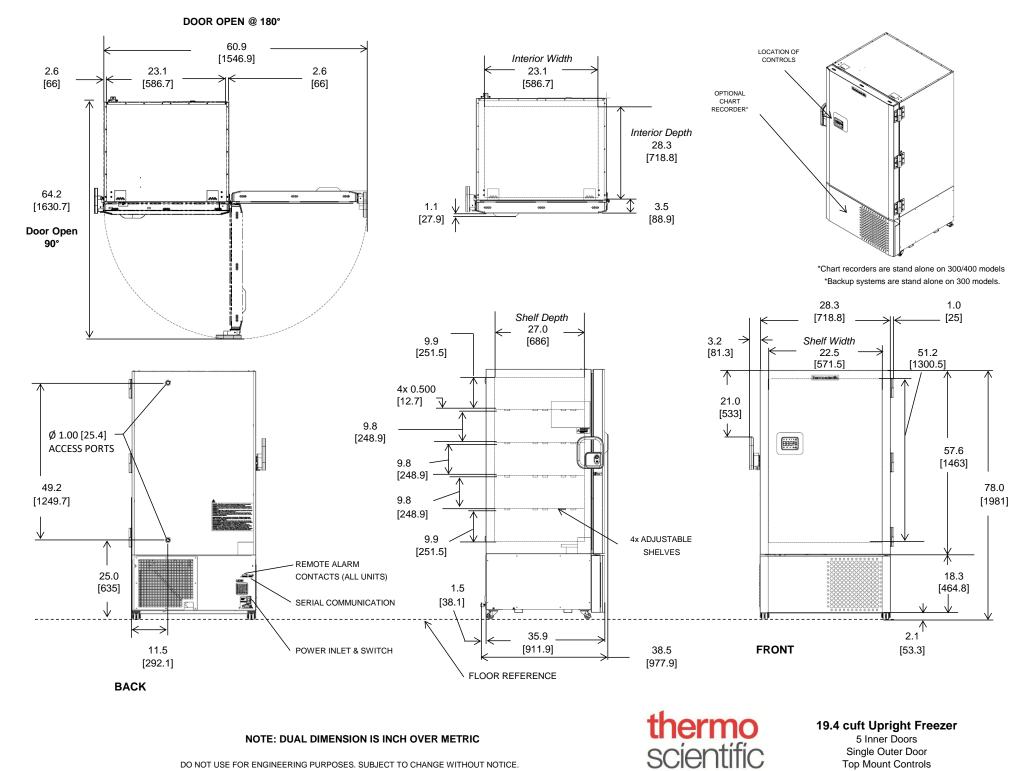
Typical Cabinet Temperature Map ULT 400, 4 Inner-Shelves + Base, Single Outer Door Temperatures are averages during > 12 cycles after reaching a setpoint of -80C



	M1	M2	M3	M4	M5	M10	M11	M12	M13
Avg	-76.7	-76.9	-77.4	-76.9	-77.1	-79.6	-81	-81.1	-81.5
Max	-74.3	-74.5	-75	-74.5	-74.7	-77.4	-79.3	-79.2	-79.5
Min	-78.8	-79.1	-79.3	-79.1	-79.3	-81.5	-82.6	-82.8	-83.3

	M14	M15	M20	M21	M22	M23	M24	M25
Avg	-81.6	-81.2	-81.7	-79.8	-79.4	-80.4	-80.8	-80.1
Max	-79.6	-79.4	-80.1	-78.2	-77.8	-78.3	-78.7	-78.4
Min	-83.5	-83	-83.4	-81.5	-80.8	-82.2	-82.7	-81.7

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NOTE: DUAL DIMENSION IS INCH OVER METRIC

DO NOT USE FOR ENGINEERING PURPOSES. SUBJECT TO CHANGE WITHOUT NOTICE.

19.4 cuft Upright Freezer 5 Inner Doors Single Outer Door **Top Mount Controls**