

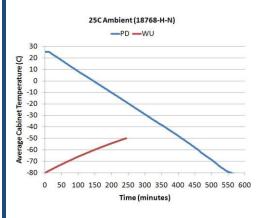
## **Technical Data Sheet**

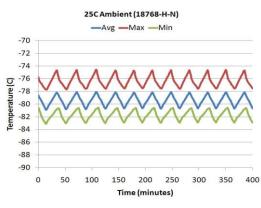
## **Revco Ultra-Low Temperature Upright Freezer**

**MODEL RELEASE - 65** 

Thermo Fisher Scientific, Asheville, North Carolina

Application Application Application Application Storage of General (non-flammable) Laboratory Materials Storage Volume 682 liters / 24.1 cu. ft., 500 Standard 2° Boxes Temperature Rating Electrical Power Instrument Rated Current Building Supply Rating Power Plug/Power Cord Length Agency Listings Indoor/Outdoor Usage Application Environment Refrigeration System Compressor / Number Compressor / Sapacity' Expansion Device Evaporator Type Defrost Method Refrigerant Charge/Flammability Refrigerant Charge/Flammability Refrigeration System Controller Level Defrost Sede Guard Controller Type Application Five Compressor Capacity' Controller Level Defrost Method Refrigeration Configuration Refrigeration System Controller Type Controller Level Defrost Method Refrigeration Configuration Refrigeration System Controller Fixe Controller Level Defrost Method Refrigeration Configuration Refrigeration System Controller Fixe Support System Controller Fixe Controller Fixe Support System Support System Support System Data Retrieval Fixe Support System Data Retrieval Fixe Support System Data Retrieval Fixe Support System Support System Data Retrieval Fixe Support System Data Retrieval Fixe Support System Support S								
Application Storage of General (non-flammable) Laboratory Materials Storage Volume 682 liters / 24.1 cu. ft., 500 Standard 2" Boxes Temperature Rating -50°C to -86°C Electrical Power 120V, 60 Hz, 1 Phase Instrument Rated Current 15.0 AMP Building Supply Rating 20.0A dedicated grounded circuit. Protected by circuit breaker rated for inductive loads Power Plug/Power Cord Length NEMA 5-20P / IEC Cords, 3.048 Meters (10 Feet) Agency Listings UL, cUL Indoor/Outdoor Usage Non-Explosive, Good Air Ventilation, 15° C - 32° C (59° F - 90° F)  Refrigeration System Industrial-Rated Two Stage Cascade System Compressor / Number Hermetic Compressor for Low Temperature Application / 2 Compressor Capacity* 1200 W Condenser Type/Number Enhanced Finned-Tube and Forced-Air Cooled / 1 Expansion Device Capillary Tube Defrost Method Ratio Hanced Heat Transfer Treatment Defrost Method Manual Defrost Refrigerant Charge/Flammability R404A in 1st Stage / R508B+R290 Mix in 2nd Stage / Non-Flammable Controller Level Top Power Switch On-Off with Circuit Breaker Controller Type Microprocessor Control with Touch Screen Input and Display, Includes USB System Data Retrieval Setpoint Security Yes Compressor Safe Guard High Pressure Cutout Switch/High Temp Cutout Switch/Current protection/Logic protection Control Sensor Single RTD (1000 ohn Platinum RTD) Remote Alarm Terminals R5485/4-20mA output Adjustable Warm/Cold Alarms Fully Adjustable Buck/Boost System Dimensions and Construction								
Application Storage Volume 682 liters / 24.1 cu. ft., 500 Standard 2" Boxes  Temperature Rating -50°C to -86°C  Electrical Power 120V, 60 Hz, 1 Phase Instrument Rated Current 16.0 AMP  Building Supply Rating 20.0A dedicated grounded circuit. Protected by circuit breaker rated for inductive loads  Power Plug/Power Cord Length NEMA 5-20P / IEC Cords, 3.048 Meters (10 Feet)  Agency Listings 10L., cUL.  Indoor/Outdoor Usage Application Environment Non-Corrosive, Non-Flammable, Non-Explosive, Good Air Ventilation, 15° C - 32° C (59° F - 90° F)  Refrigeration System Industrial-Rated Two Stage Cascade System  Compressor / Number Hermetic Compressor for Low Temperature Application / 2  Compressor Capacity 1200 W  Condenser Type/Number Enhanced Finnac-Tube and Forced-Air Cooled / 1  Expansion Device Capillary Tube  Evaporator Type Cold Wall With Enhanced Heat Transfer Treatment  Defrost Method Manual Defrost  Refrigerant Charge/Flammability R404A in 1st Stage / R508B+R290 Mix in 2nd Stage / Non-Flammable  Controller Level Top  Power Switch On-Off with Circuit Breaker  Controller Type Microprocessor Control with Touch Screen Input and Display. Includes USB System Data Retrieval Seption Scruttly  Compressor Safe Guard High Pressure Cutout Switch/High Temp Cutout Switch/Current protection/Logic protection  Control Sensor Safe Guard High Pressure Cutout Switch/High Temp Cutout Switch/Current protection/Logic protection  Reduction Research Policy Adjustable  Fully Adjustable Warm/Cold Alarms  Fully Adjustable  Dimensions and Construction	Specifications							
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Condenser Type/Number Expansion Device Capillary Tube Evaporator Type Cold Wall With Enhanced Heat Transfer Treatment Defrost Method Refrigerant Charge/Flammability R404A in 1st Stage / R508B+R290 Mix in 2nd Stage / Non-Flammable Controller/Electrical System Configuration and Features  Controller Level Top Power Switch Controller Type Microprocessor Control with Touch Screen Input and Display. Includes USB System Data Retrieval Setpoint Security Yes Compressor Safe Guard High Pressure Cutout Switch/High Temp Cutout Switch/Current protection/Logic protection Control Sensor Remote Alarm Terminals Adjustable Warm/Cold Alarms Auto-Voltage Safeguard Dimensions and Construction	Compressor / Number	Hermetic Compressor for Low Temperature Application / 2						
Expansion Device  Evaporator Type  Cold Wall With Enhanced Heat Transfer Treatment  Defrost Method  Refrigerant Charge/Flammability  R404A in 1st Stage / R508B+R290 Mix in 2nd Stage / Non-Flammable  Controller/Electrical System Configuration and Features  Controller Level  Top  Power Switch  Controller Type  Microprocessor Control with Touch Screen Input and Display. Includes USB System Data Retrieval  Setpoint Security  Yes  Compressor Safe Guard  High Pressure Cutout Switch/High Temp Cutout Switch/Current protection/Logic protection  Control Sensor  Single RTD (1000 ohm Platinum RTD)  Remote Alarm Terminals  Adjustable Warm/Cold Alarms  Auto-Voltage Safeguard  Dimensions and Construction	Compressor Capacity*	1200 W						
Evaporator Type Cold Wall With Enhanced Heat Transfer Treatment  Defrost Method Manual Defrost  Refrigerant Charge/Flammability R404A in 1st Stage / R508B+R290 Mix in 2nd Stage / Non-Flammable  Controller Level Top  Power Switch On-Off with Circuit Breaker  Controller Type Microprocessor Control with Touch Screen Input and Display. Includes USB System Data Retrieval Setpoint Security Yes  Compressor Safe Guard High Pressure Cutout Switch/High Temp Cutout Switch/Current protection/Logic protection  Control Sensor Single RTD (1000 ohm Platinum RTD)  Remote Alarm Terminals RS485/4-20mA output  Adjustable Warm/Cold Alarms  Auto-Voltage Safeguard Buck/Boost System  Dimensions and Construction	Condenser Type/Number	Enhanced Finned-Tube and Forced-Air Cooled / 1						
Evaporator Type Cold Wall With Enhanced Heat Transfer Treatment  Defrost Method Manual Defrost  Refrigerant Charge/Flammability R404A in 1st Stage / R508B+R290 Mix in 2nd Stage / Non-Flammable  Controller Level Top  Power Switch On-Off with Circuit Breaker  Controller Type Microprocessor Control with Touch Screen Input and Display. Includes USB System Data Retrieval Setpoint Security Yes  Compressor Safe Guard High Pressure Cutout Switch/High Temp Cutout Switch/Current protection/Logic protection  Control Sensor Single RTD (1000 ohm Platinum RTD)  Remote Alarm Terminals RS485/4-20mA output  Adjustable Warm/Cold Alarms  Auto-Voltage Safeguard Buck/Boost System  Dimensions and Construction	Expansion Device	Capillary Tube						
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Controller Level Top Power Switch Controller Type Microprocessor Control with Touch Screen Input and Display. Includes USB System Data Retrieval Setpoint Security Yes Compressor Safe Guard High Pressure Cutout Switch/High Temp Cutout Switch/Current protection/Logic protection Control Sensor Single RTD (1000 ohm Platinum RTD) Remote Alarm Terminals RS485/4-20mA output Adjustable Warm/Cold Alarms Auto-Voltage Safeguard Buck/Boost System  Dimensions and Construction	Refrigerant Charge/Flammability	R404A in 1st Stage / R508B+R290 Mix in 2nd Stage / Non-Flammable						
Power Switch Controller Type Microprocessor Control with Touch Screen Input and Display. Includes USB System Data Retrieval Setpoint Security Yes  Compressor Safe Guard High Pressure Cutout Switch/High Temp Cutout Switch/Current protection/Logic protection Control Sensor Single RTD (1000 ohm Platinum RTD)  Remote Alarm Terminals RS485/4-20mA output  Adjustable Warm/Cold Alarms Fully Adjustable Auto-Voltage Safeguard Buck/Boost System  Dimensions and Construction		Controller/Electrical System Configuration and Features						
Controller Type Microprocessor Control with Touch Screen Input and Display. Includes USB System Data Retrieval  Setpoint Security Yes  Compressor Safe Guard High Pressure Cutout Switch/High Temp Cutout Switch/Current protection/Logic protection  Control Sensor Single RTD (1000 ohm Platinum RTD)  Remote Alarm Terminals RS485/4-20mA output  Adjustable Warm/Cold Alarms  Auto-Voltage Safeguard Buck/Boost System  Dimensions and Construction	Controller Level	Тор						
Setpoint Security  Compressor Safe Guard  High Pressure Cutout Switch/High Temp Cutout Switch/Current protection/Logic protection  Control Sensor  Single RTD (1000 ohm Platinum RTD)  Remote Alarm Terminals  RS485/4-20mA output  Adjustable Warm/Cold Alarms  Fully Adjustable  Auto-Voltage Safeguard  Buck/Boost System  Dimensions and Construction	Power Switch	On-Off with Circuit Breaker						
Setpoint Security  Compressor Safe Guard  High Pressure Cutout Switch/High Temp Cutout Switch/Current protection/Logic protection  Control Sensor  Single RTD (1000 ohm Platinum RTD)  Remote Alarm Terminals  RS485/4-20mA output  Adjustable Warm/Cold Alarms  Fully Adjustable  Auto-Voltage Safeguard  Buck/Boost System  Dimensions and Construction	Controller Type	Microprocessor Control with Touch Screen Input and Display. Includes USB System Data Retrieval						
Control Sensor Single RTD (1000 ohm Platinum RTD) Remote Alarm Terminals RS485/4-20mA output Adjustable Warm/Cold Alarms Fully Adjustable Auto-Voltage Safeguard Buck/Boost System Dimensions and Construction	Setpoint Security	Yes						
Remote Alarm Terminals Adjustable Warm/Cold Alarms Fully Adjustable Auto-Voltage Safeguard Buck/Boost System Dimensions and Construction	Compressor Safe Guard	High Pressure Cutout Switch/High Temp Cutout Switch/Current protection/Logic protection						
Adjustable Warm/Cold Alarms Fully Adjustable  Auto-Voltage Safeguard Buck/Boost System  Dimensions and Construction	Control Sensor	Single RTD (1000 ohm Platinum RTD)						
Auto-Voltage Safeguard  Buck/Boost System  Dimensions and Construction	Remote Alarm Terminals	RS485/4-20mA output						
Dimensions and Construction	Adjustable Warm/Cold Alarms	Fully Adjustable						
	Auto-Voltage Safeguard	Buck/Boost System						
		Dimensions and Construction						
Interior Dimensions (H x D x W) 1300 H x 686 D x 732 W mm (51.2 H x 27 D x 28.8 W in.)	Interior Dimensions (H x D x W)	1300 H x 686 D x 732 W mm (51.2 H x 27 D x 28.8 W in.)						
Exterior Dimensions (H x D x W) 1981 H x 955 D x 965 W mm (78 H x 37.6 D x 38 W in.)								
Shipping Dimensions 2111 H x 1086 D x 1064 W mm (83.12 H x 42.75 D x 41.88 W in)	, ,							
Insulation High R-value Vacuum Insulation Panels and High Density Water-Blown Polyurethane Foam								
Door Seal Silicone-Based High Performance Seal Gasket with Electrical Door Perimeter Heater								
ÿ		4 Stainless Steel Shelves Adjustable In 25mm (1in) Increments. Max. Cap. per Shelf: 91.7 kg (205 lbs.)						
All-Direction Casters Standard with Locks								
Shipping Weight Approximately 355 kg / 782 lbs.								
Other Options LN2 or CO2 Back Up System, HID Controlled Access, SMS Text, Chart Recorder, 4 or 5 Inner Doors								
	Canal Optionio	Typical Performance Characteristics in 25 ° C Ambient						





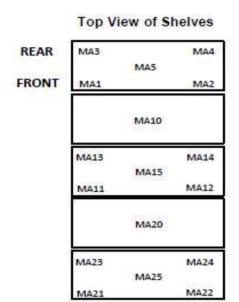
## Performance Data Summary (Typical Average Values)

Avg. Cabinet Temp. at -80C Setpoint, High Performance (C):	-79.6
Peak Variation From -80C Setpoint, High Performance (C):	+5.6 / -3.8
Peak Variation From -80C Setpoint, Energy Saving (C):	+8.8 / -5.6
Stability, -80C Setpoint, High Performance (C):	3.8
Uniformity, -80C Setpoint, High Performance (C):	5.2
1 Min. Door Open Recovery to -75C Avg. Cabinet Temp. (min):	28
Cycle Rate, -80C Setpoint, High Performance (on/off, min/min):	26/20
Duty Cycle, -80C Setpoint, High Performance (%):	57
Energy Consumption, -80C Setpoint, High Performance (kWh/day):	19.0
Heat Rejection, -80C Setpoint, High Performance (BTU/hr):	2701
Energy Consumption, -80C Setpoint, Energy Saving (kWh/day):	17.6
Heat Rejection, -80C Setpoint, Energy Saving (BTU/hr):	2502
Pulldown Time to -80C Average Cabinet Temp. (hours)	9.0
Warmup Time, From Average Cabinet Temp. of -80C to -50C (min):	237

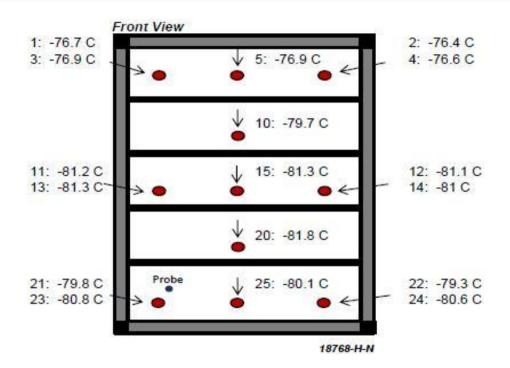
- Performance is nominal and individual units may vary.
- 2) Freezer performance will differ due to product amount, product size and operating conditions.
- 3) Continuous product enhancements may, without notice, result in amendments or ommisions to this specification. Thermo Scientific cannot accept responsibility for damage, injury, loss or expenses resulting from misapplication of the information herein.
- \* Manufacturer measured compressor capacity taken at standard -23°C/49°C (Evap/Cond) condition.
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Typical Cabinet Temperature Map 500A ULT, 4 Inner-Shelves + Base, Single Outer Door Temperatures are averages during > 12 hours of cycle after reaching setpoint of -80 C

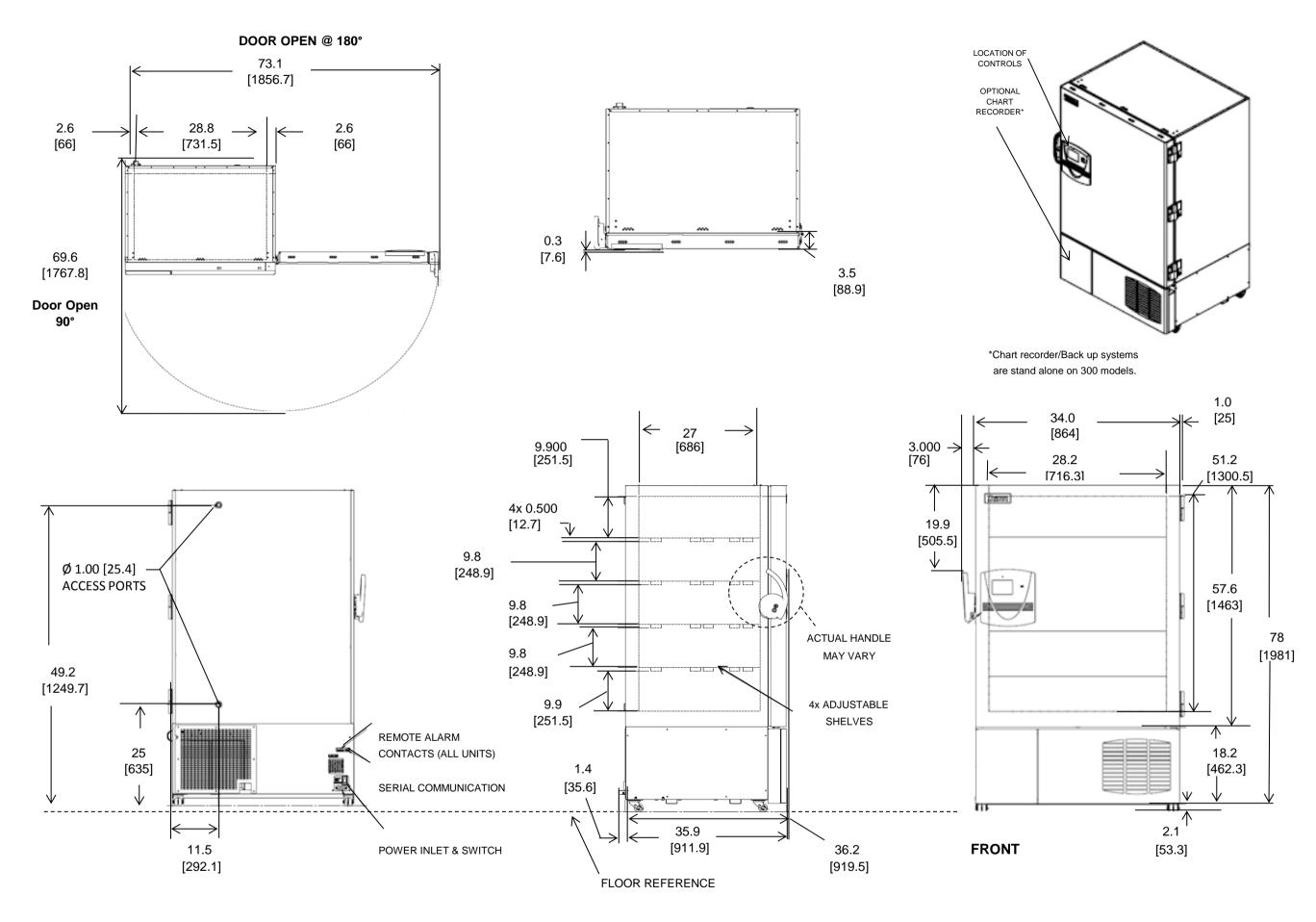


Cabinet Average: -79.5 C Probe Average: -79.7 C Peak Variation: +5.4 C / -3.6 C



	MA1	MA2	MA3	MA4	MA5	MA10	MA11	MA12	MA13
Avg	-76.7	-76.4	-76.9	-76.6	-76.9	-79.7	-81.2	-81.1	-81.3
Max	-74.9	-74.6	-74.7	-75.0	-75.0	-78.0	-79.6	-79.5	-79.5
Min	-78.4	-78.3	-78.9	-78.2	-78.6	-81.4	-83.1	-83.0	-83.3

	MA14	MA15	MA20	MA21	MA22	MA23	MA24	MA25
Avg	-81.0	-81.3	-81.8	-79.8	-79.3	-80.8	-80.6	-80.1
Max	-79.2	-79.6	-80.6	-78.7	-78.0	-79.4	-79.2	-78.8
Min	-82.9	-83.2	-83.6	-81.0	-81.4	-82.7	-82.9	-82.0



**BACK** 



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



## 24 cuft Upright Freezer 5 Inner Doors

Single Outer Door
Top Mount Controls