

Technical Data Sheet

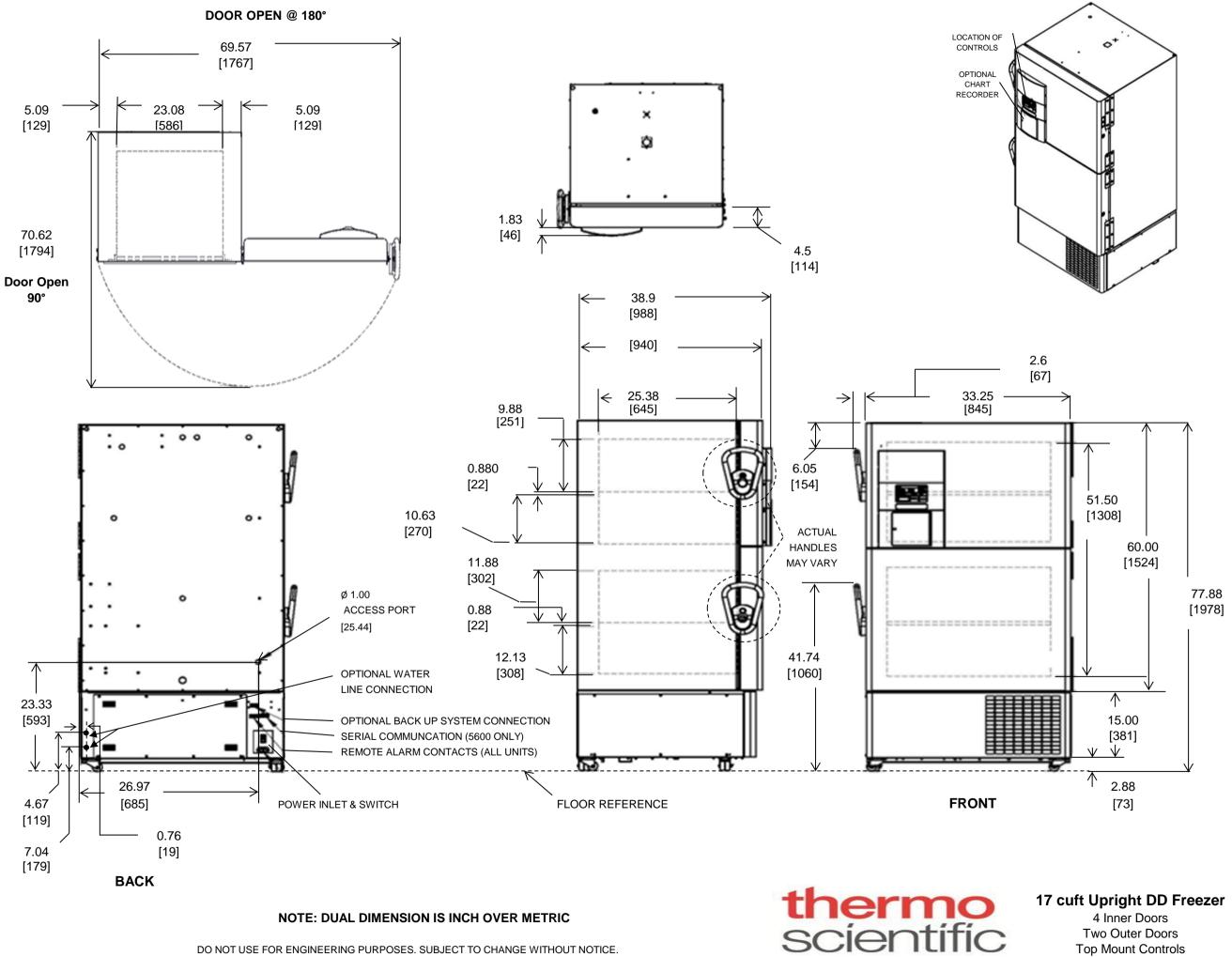
Forma Ultra-Low Temperature Upright DD Freezer

MODEL RELEASE - 20

Thermo Fisher Scientific, Marietta, Ohio

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Application Storage of General (non-flammable) Laboratory Materials Storage Volume 489.9 Liters / 17.3 Cubic Feet Temperature Rating -50°C to -86°C Electrical Power 206-230% GHLz, 1 Phase Instrument Rated Current 12.0 AMP Building Supply Rating 15.0A (min) dedicated grounded circuit. Protected by circuit breaker rated for inductive loads Power PlugFower Cord Length NEMA 6-15P for D / IEC Cords. 3.048 Meters (10 Feet) Apgenzy Listings U.c. QL, C. F. FDA IndoxrOuddor Usage IndoxrOuddor Usage Non-Corrosive, Non-Flammable, Non-Explosive, Good Air Ventillation, 18° C - 32° C (64.4° F - 89.6° F Compressor JNumber Hermetic Compressor for Low Temperature Application / 2 Compressor Lowner Hermetic Compressor JNumber Condenser Type/Number Echanced Fined-Tube and Forced-Air Cooled / 1 Exagerian Device Cold Wall With Enhanced Heat Transfer Treatment Defrost Method Marua Defrost Refigerant Charge Flammability R404A in 1st Stage / R0088-R220 Mix in 2nd Stage / Non-Flammable Controller Level Top Power Switch On-Off with Circuit Breaker Controller Level Top </th <th>Onesifientions</th> <th></th> <th></th> <th></th>	Onesifientions			
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Power PlugPower Cord Length NEMA 6-15P for D / IEC Cords, 3048 Meters (10 Feet) Agency Listings UL, cUL, CE, FDA Indoor/Ouddor Usage Non-Corrosive, Non-Fianmable, Non-Explosive, Good Air Ventilation, 18° C - 32° C (64.4° F - 89.6° F Refrigeration Environment Non-Corrosive, Non-Fianmable, Non-Explosive, Good Air Ventilation, 18° C - 32° C (64.4° F - 89.6° F Refrigeration System Industrial-Rated Two Stage Cascade System Compressor Capacity 1200 W Compressor Capacity 1200 W Comdenser TypeNumber Enhanced Finned-Tube and Forced-Air Cooled / 1 Expansion Device Capillary Tube Evaporator Type Cold Wall With Enhanced Heat Transfer Treatment Defrost Method Manual Defrost Refrigeration System Top Controller/Level Top Prower Switch On-Off with Circuit Breaker Controller Level Top Power Switch On-Off with Circuit Steaker Controller Security NO Compressor Safe Guard High Pressure Cutout Switch/High Temp Cutout Switch/Current protection/Logic protection Controller Security NO Controller Security NO<				
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Indoor/Outdoor Usage Indoor/Outdoor Indoor/Outdoor Indoor/Outdoor Application Environment Non-Corrosive, Non-Flammable, Non-Explosive, Good Air Ventilation, 18° C - 32° C (64.4° F - 89.6° F Refrigeration System Industrial-Rated Two Stage Cascade System Compressor Capacity' 1200 W Compressor Capacity' 1200 W Condenser Type/Number Enhanced Finned-Tube and Forced-Air Cooled / 1 Expansion Device Capillary Tube Evanorator Type Cold Wall With Enhanced Heart Transfer Treatment Defrost Method Manual Defrost Refrigerant Charge/Fiammability R404A in 1st Stage / R5008+R230 Mix in 2nd Stage / Non-Flammable Controller Level Top Power Switch On-Off with Circuit Breaker Controller Type Microprocess Control Setpoint Security NO Compressor Safe Guard High Pressure Cutout Switch/High Temp Cutout Switch/Current protection/Logic protection Controller Separations (H x D x W) 1308 H x 645 D x 566 W mm (51.5 H x 25.4 D x 23.1 W in.) Auto-Voltage Safeguard Dimensions and Construction Auto-Voltage Safeguard Stainless Steel Shelves 4 W mm (77.9 H x 38.5 D x 32.9 W in.) </td <td></td> <td></td> <td></td> <td></td>				
Application Environment Non-Corrosive, Non-Flammable, Non-Explosive, Good Air Ventilation, 18° C - 32° C (64.4° F - 89.6° F Refrigeration System Industrial-Rated Two Stage Cascade System Compressor / Number Industrial-Rated Two Stage Cascade System Compressor / System 1200 W Compressor / System 1200 W Compressor / System Enhanced Finned-Tube and Forced-Air Cooled / 1 Expansion Device Capillary Tube Evaporator Type Cold Wall With Enhanced Heat Transfer Treatment Defrost Method R404A in 1st Stage / R5088+R230 Mix in 2nd Stage / Non-Flammable Controller Level Top Power Switch On-Off with Circuit Breaker Controller Type Microprocess Control Setpoint Security NO Compressor Safe Guard High Pressure Cutout Switch/High Temp Cutout Switch/Current protection/Logic protection Controllar Setse Single RTD (1000 ohm Platinum RTD) Reformations R445 b 2 x368 W xm (51.5 H x 45.5 D x 23.1 W in.) Auto-Voltage Safeguard Dimensions and Construction Dimensions (H X D x W) 1308 H x 645 D x 568 W mm (51.5 H x 45.5 D x 23.1 W in.) Interior Dimensions (H X D x W) <t< td=""><td></td><td></td><td>· · · · · · · · · · · · · · · · · · ·</td><td></td></t<>			· · · · · · · · · · · · · · · · · · ·	
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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 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 Level Top Power Switch On-Off with Circuit Breaker Controller Security NO Compressor Safe Guard High Pressure Cutout Switch/High Temp Cutout Switch/Current protection/Logic protection Control Sensor Single RTD (1000 nm Plainum RTD) Remote Alarm Terminals R5445, 4-20mA, Dry Contacts Adjustable Warm/Cold Alarms Full Adjustable Auto-Voltage Saleguard Buck/Boost System Dimensions (H x D x W) 1308 H x 645 D x 586 W mm (51.5 H x 25.4 D x 23.1 W in.) Shipping Dimensions 2096 H x 1156 D x 1062 W mm (72.5 H x 45.5 D x 41.8 W in.) Insulation High Density Polyurethane Foam, R-30 (ft2.*F-hr/Btu)	Refrigeration System			
Compressor Capacity* 1200 W Condenser Type/Number Enhanced Finned-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/Fiammability R404A in 1st Stage / R508B+R290 Mix in 2nd Stage / Non-Flammable Controller Level Top On-Off with Circuit Breaker Top Controller Level NO 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 R5485, 4-20mA, Dry Contacts Adjustable Warm/Cold Alarms Fully Adjustable Auto-Voltage Safeguard Dimensions and Construction Dimensions (H x D x W) 1308 H x 645 D x 586 W mm (51.5 H x 25.4 D x 23.1 W in.) Shipping Dimensions 2096 H x 1156 D x 1062 W mm (82.5 H x 45.5 D x 41.8 W in.) Insulation High Density Polyurethane Foam, R-30 (ft2-Fhr/Btu) Door Seal Silicone-Based High Performance Seal Gasket Shelves / Capacity 3 Stainless Steel Shelves Adjustable In 25 mm (1 in) Increment; Maximum Capacity/Shelf: 45.4 kg (100 Lt <				
Condenser Type/Number Enhanced Finned-Tube and Forced-Air Cooled / 1 Expansion Device Capillary Tube Evaporator Type Cold Wall With Enhanced Heat Transfer Treatment Defrost Method Manual Defrost Retrigerant Charge/Flammability R404A in 1st Stage / R508E-R4290 Mix in 2nd Stage / Non-Flammable Controller/Level Top Power Switch On-Off with Circuit Breaker Controller Type Microprocess Control Setpoint Security NO Compressor Safe Guard High Pressure Cutout Switch/High Temp Cutout Switch/Current protection/Logic protection Controller Type Single RTD (1000 ohm Platinum RTD) Remote Alarm Terminals R5485, 4-20mA, Dry Contacts Adjustable Warm/Cold Alarms Fully Adjustable Auto-Voltage Safeguard Dimensions and Construction Dimensions (H x D x W) 1308 H x 645 D x 586 W mm (51.5 H x 25.4 D x 23.1 W in.) Shipping Dimensions 2164 x 1156 D to 25 mt (1 in) Increment; Maximum Capacity/Shelf: 45.4 kg (100 Lt All-Direction Casters Sitanderds With Locks Unit Weight Approximately 338 kg / 745 lbs. Other Options Electronic Recorder and CO2 or LN2 Back-Up Syste	•			
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Controller/Electrical System Configuration and Features Controller Level Top Power Switch On-Off with Circuit Breaker Controller Type Microprocess Control Setpoint Security NO Compressor Safe Guard High Pressure Cutout Switch//Ligh Temp Cutout Switch/Current protection/Logic protection 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, Dry Contacts Adjustable Warm/Cold Alarms Fully Adjustable Auto-Voltage Safeguard Buck/Boost System Dimensions (H x D x W) 1308 H x 645 D x 586 W mm (51.5 H x 25.4 D x 23.1 W in.) xterior Dimensions (H x D x W) 1978 H x 988 D x 912 W mm (77.9 H x 38.9 D x 35.9 W in.) Shipping Dimensions 2096 H x 1156 D x 1062 W mm (82.5 H x 45.5 D x 41.8 W in.) Insulation High Density Polyuethane Foam, R-30 (ft2 - Fh/Rtu) Door Seal Silicone-Based High Performance Seal Gasket Shelves / Capacity 3 Stainless Steel Shelves Adjustable In 25 mm (1 in) Increment; Maximum Capacity/Shelf: 45.4 kg (100 Lt All-Direction Casters Standard with Locks <				
Controller Level Top Power Switch On-Off with Circuit Breaker Controller Type Microprocess Control Setpoint Security NO 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 RS455, 4-20mA, Dry Contacts Adjustable Warm/Cold Alarms Fully Adjustable Auto-Voltage Safeguard Buck/Boost System Dimensions (H x D x W) 1308 H x 645 D x 586 W mm (51.5 H x 25.4 D x 23.1 W in.) xterior Dimensions (H x D x W) 1978 H x 988 D x 912 W mm (77.9 H x 38.9 D x 35.9 W in.) Shipping Dimensions 2096 H x 1156 D x 1062 W mm (82.5 H x 45.5 D x 41.8 W in.) Insulation High Density Polyurethane Foam, R-30 (ft2-°F-hr/Btu) Door Seal Silicone-Based High Performance Seal Gasket Shelves / Capacity 3 Stainless Steel Shelves Adjustable In 25 mm (1 in) Increment; Maximum Capacity/Shelf: 45.4 kg (100 Lt All-Direction Casters Standard with Locks Unit Weight Approximately 338 kg / 745 lbs. Other Options Electronic Recorder and CO2 or LN2 Back-Up System Typical Performance Characteristics in 20 ° C Ambient 785	Reingerant Charge/Flammability			
Power Switch On-Off with Circuit Breaker Controller Type Microprocess Control Setpoint Security NO 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, Dry Contacts Adjustable Warm/Cold Alarms Fully Adjustable Auto-Voltage Safeguard Buck/Boost System Dimensions and Construction Buck/Boost System nterior Dimensions (H x D x W) 1308 H x 645 D x 586 W rmm (51.5 H x 25.4 D x 23.1 W in.) xterior Dimensions (H x D x W) Shipping Dimensions 2096 H x 1156 D x 1062 W rmm (82.5 H x 45.5 D x 41.8 W in.) Insulation High Density Polyurethane Foam, R-30 (tt2.°F-hr/Btu) Door Seal Silicone-Based High Performance Seal Gasket Shelves / Capacity 3 Stainless Steel Shelves Adjustable In 25 mm (1 in) Increment; Maximum Capacity/Shelf: 45.4 kg (100 Lt2 All-Direction Casters Unit Weight Approximately 338 kg / 745 lbs. Other Options Electronic Recorder and CO2 or LN2 Back-Up System Typical Performance Characteristics in 20 ° C Ambient 17 out Upright ULT, Full Down and Wam Up				
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Setpoint Security NO 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, Dry Contacts Adjustable Warm/Cold Alarms Fully Adjustable Auto-Voltage Safeguard Buck/Boost System Dimensions and Construction nterior Dimensions (H x D x W) 1308 H x 645 D x 586 W mm (51.5 H x 25.4 D x 23.1 W in.) xterior Dimensions (H x D x W) 1978 H x 988 D x 912 W mm (77.9 H x 38.9 D x 35.9 W in.) Shipping Dimensions 2096 H x 1156 D x 1062 W mm (82.5 H x 45.5 D x 41.8 W in.) Insulation High Density Polyurethane Foam, R-30 (ft2.°F.hr/Btu) Door Seal Silicone-Based High Performance Seal Gasket Shelves / Capacity 3 Stainless Steel Shelves Adjustable In 25 mm (1 in) Increment; Maximum Capacity/Shelf: 45.4 kg (100 Lt) All-Direction Casters Standard with Locks Unit Weight Approximately 338 kg / 745 lbs. Other Options Electronic Recorder and CO2 or LN2 Back-Up System Typical Performance Characteristics in 20 ° C Ambient Stortf Upright ULT at-80C cycle in 20C Pul Down Warm Up <td></td> <td></td> <td></td> <td></td>				
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Thermo Fisher Scientific



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

4 Inner Doors Two Outer Doors **Top Mount Controls**