Unrivalled cold storage protection for valuable samples and materials

Chromatography
General Purpose
Blood Bank
Plasma
Pharmacy
Enzyme
Researchers worldwide protect more than two billion samples inside Thermo Scientific cold storage equipment. With proven solutions including +4°C refrigerators to -196°C cryogenic freezers and Thermo Scientific Nalgene® and Nunc™ consumables, you’re free to concentrate on your work without worrying about your valuable samples.
Reliable, dependable performance

- The Thermo Scientific IntrLogic microprocessor controller, available on all +4°C refrigerators and -20°C or -30°C lab freezers, controls, measures, compares, and reports cabinet operation with digital accuracy.
- All our refrigerator and freezer cabinets, including space-saving undercounter and upright models, share design and technology improvements developed through decades of experience.

<table>
<thead>
<tr>
<th>Operating Range</th>
<th>+1°C to +8°C</th>
<th>to -20°C</th>
<th>to -30°C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Freezer Operating Temperatures</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Purpose Refrigerators</td>
<td></td>
<td></td>
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<tr>
<td>Chromatography Refrigerators</td>
<td>•</td>
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<tr>
<td>Blood Bank Refrigerators</td>
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<tr>
<td>Pharmacy Refrigerators</td>
<td></td>
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<tr>
<td>General Purpose Freezers</td>
<td></td>
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</tr>
<tr>
<td>Plasma Freezers</td>
<td>•</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>Enzyme Freezers</td>
<td>•</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Typical Use and Storage Applications**

- General Storage
- Reagents and Kits
- Whole Blood
- Plasma
- Enzymes and Temperature Sensitive Materials
- Chromatography Apparatus and Instrumentation
- Test Samples
- Biologicals
- Culture Media
- Patient Medication
- BOD Protocols
- Pre-Freezing
- Vaccines
- Shelf Life Testing

For critical storage applications, full alarm models with optional temperature recorders are strongly recommended.
Thermo Scientific IntrLogic Controller Simplifies Operation, Improves Reliability

Intuitive Graphics and Microprocessor Technology

Thermo Scientific Revco lab refrigerators and freezers include enhanced digital electronic technology designed to simplify operation and deliver greater accuracy.

- Icon-based controls and displays include graphic references for universal operation
- Setpoint security with key-operated triple-position master switch controls power to all systems for added safety
- A graphic thermometer confirms proper operation at-a-glance, shows normal, high or low temperature condition; steady green for normal, flashing top bar for overtemperature, flashing bulb for undertemperature
- Unique Service Required alarm alerts users when preventative maintenance is necessary to maintain optimum unit performance

### IntrLogic Control Alarm Sequence

<table>
<thead>
<tr>
<th>Event</th>
<th>Audible Alarm</th>
<th>Visual Alarm</th>
<th>Self Corrected Event</th>
<th>Remote Alarm Contacts Activated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overtemperature</td>
<td>continuous*</td>
<td>slow flash, icon only</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>Undertemperature</td>
<td>continuous*</td>
<td>slow flash, icon only</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>Power Loss</td>
<td>continuous*</td>
<td>slow flash, icon only</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>Door Ajar</td>
<td>delay</td>
<td></td>
<td></td>
<td>no</td>
</tr>
<tr>
<td>Low Battery</td>
<td>no</td>
<td></td>
<td></td>
<td>no</td>
</tr>
<tr>
<td>Service Required</td>
<td>no</td>
<td></td>
<td></td>
<td>no</td>
</tr>
</tbody>
</table>

Audible and visual warnings for door ajar, low alarm battery, system maintenance and power failure provide immediate status of critical functions. A push button alarm test verifies sensor continuity while the battery backup assures system readiness. The enlarged digital display improves visibility, taking the guesswork out of setpoint and performance management.

*Mute will silence audible alarm with 6-minute ring back interval; display remains flashing. Moving triple position key switch to middle position disables alarm and audible and visual warnings.
Graphic Thermometer
Easy to view, shows normal, high or low temperature condition; steady green for normal, flashing top bar for overtemperature, flashing bulb for undertemperature

Service Required
Illuminated when controller is in programming mode, or if simulated warm or cold conditions fail to occur during alarm test function

Touchpad Data Entry
Increases or decreases setpoint values in programming mode

Touchpad Scan
Changes main display, also used to access various programming and service functions (alarm mute, recall 6 minutes)

Alarm Test
Pressing “up” and “scan” buttons creates simulated overtemperature and undertemperature condition and activates audible and visual alarms; display flashes momentarily when test is complete

Digital Display
Indicates cabinet temperature during normal operation, flashes during alarm condition or setpoint adjustment. Displays other values with touchpad sequence

Audible Alarm
Audible and visual indicators are activated in the event of warm, cold or power loss conditions. Mute will silence audible alarm with 6 minute ring back interval; display remains flashing

Interior Light Switch
Enables interior lighting system (on applicable models)

Laboratory Quality
Cabinet Construction
Our refrigerators and freezers are available in seven sizes, from compact 4.9 cu.ft. (133 L) undercounter models to spacious, triple-door 78.8 cu.ft. (2231 L) cabinets. All models are built to meet UL, CUL, CE and TUV standards for safety.

- Hermetically sealed refrigeration compressor, air-cooled condenser and automatic condensate removal for auto defrost models
- An efficient, high-capacity air circulation system optimizes top-to-bottom temperature uniformity, accelerates temperature recovery following door openings, and accommodates insertion of warm product
- CFC-free refrigerants, insulation and product packaging
- Depending on model selection, standard or optional shelves, drawers, temperature recorders, cabinet casters and other accessories are available to meet most laboratory needs

Laboratory Refrigerator and Freezer Selection Guide

<table>
<thead>
<tr>
<th>Automatic Defrost Models</th>
<th>Cu.Ft. (L)</th>
<th>4.9 (133)</th>
<th>11.5 (326)</th>
<th>23.3 (659)</th>
<th>29.2 (826)</th>
<th>45.8 (1297)</th>
<th>51.1 (1447)</th>
<th>78.8 (2231)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chromatography Refrigerators</td>
<td>IntrLogic</td>
<td>IntrLogic</td>
<td>IntrLogic</td>
<td></td>
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</tr>
<tr>
<td>General Purpose Lab Refrigerators</td>
<td>IntrLogic</td>
<td>IntrLogic</td>
<td>IntrLogic</td>
<td>IntrLogic</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Blood Bank Refrigerators</td>
<td>IntrLogic</td>
<td>IntrLogic</td>
<td>IntrLogic</td>
<td>IntrLogic</td>
<td></td>
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</tr>
<tr>
<td>Pharmacy Refrigerators</td>
<td>IntrLogic</td>
<td>IntrLogic</td>
<td>IntrLogic</td>
<td>IntrLogic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Purpose Lab Freezers, -30°C</td>
<td>IntrLogic</td>
<td>IntrLogic</td>
<td>IntrLogic</td>
<td>IntrLogic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plasma Freezers, -30°C</td>
<td>IntrLogic</td>
<td>IntrLogic</td>
<td>IntrLogic</td>
<td>IntrLogic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manual Defrost Models</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enzyme Freezer, -20°C</td>
<td>IntrLogic</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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</tr>
</tbody>
</table>

Remote alarm contacts are included on all models.
Thermo Scientific Revco Chromatography Refrigerators

Featuring IntrLogic Microprocessor Control

Our chromatography refrigerators are designed for a variety of applications requiring close temperature control, full access to chromatography instrumentation and easy set-up of instrumentation and apparatus within the chamber.

IntrLogic Microprocessor Control

Our REC series refrigerators feature enhanced digital electronic technology designed to simplify operation and deliver greater accuracy (see pages 4 and 5).

- Adjustable temperature control, range +1°C to +8°C, factory pre-set to +4°C
- Icon-based controls and displays include graphic references for universal operation
- Setpoint security with key-operated triple-position master switch controls power to all systems for added safety
- Audible/visual warnings for over-temperature, undertemperature and power failure, with visual status reports on critical functions
- Graphic thermometer confirms proper operation at-a-glance, shows normal, high or low temperature condition; steady green for normal, flashing top bar for overtemperature, flashing bulb for undertemperature
- Advanced defrost sensor manages the defrost cycle, minimizing trace amounts of frost build-up to maintain refrigeration coil efficiency
- Enlarged digital display, resolution to within 0.1°C, improves visibility
- Alarm silence, ringback and automatic reset functions
- Push-button alarm test verifies sensor continuity
- Battery backup assures control panel function during power failure
- Remote alarm contacts are included on all models

Our chromatography refrigerators feature the IntrLogic microprocessor control system, positive airflow systems, industrial quality cabinet construction and extra-strength refrigeration compressors selected for industrial, clinical and scientific use.

Our chromatography refrigerators are designed for a variety of applications requiring close temperature control, full access to chromatography instrumentation and easy set-up of instrumentation and apparatus within the chamber.
### Cabinet Construction and Performance
- All refrigeration and control systems are top-mounted (except sliding glass door model REC4504, base mounted)
- Door lock provision on all models
- One duplex vapor-proof interior outlet, continuous on; separate power cord provided
- Door-activated light switch on all models except REC4504
- Model REC4504 has independent switch activated lights only
- Epoxy-coated, open wire shelves, adjustable in 1" (25 mm) increments; no tools required
- Multi-pane glass doors with spring loaded door closures and a 90° stay-open feature (except sliding door model REC4504)
- Positive, forced-air circulation maintains temperature uniformity at all shelf levels
- Peripheral closed-cell door gasket(s) maintain temperature integrity
- Two access ports, 2" (50 mm) diameter, with hinged covers
- Keyed door locks for security (except model REC4504)
- 2" (50 mm) casters, 2 locking, 2 non-locking, factory installed
- Separate power cord for interior outlets on models REC4504 and REC7504
- High-density, CFC-free urethane foam insulation protects cabinet from ambient temperature fluctuations and minimizes operating costs
- Interior and exterior surfaces are finished with a high-impact powder paint coating

### Refrigeration System
- Heavy duty, industrial-grade, hermetically sealed compressors
- Automatic defrost for optimum cooling capacity
- Automatic condensate removal; no drain lines required

### Optional Accessories
- Voltage safeguard, free standing
- Temperature recorder, 6" (152 mm) circular chart, 7-day drive
- Additional access port, 2" (50 mm) diameter, with cover
- Stainless steel interior and exterior surfaces
- Additional shelves, full or half size
- Heated glass doors and door swing variations available on most models

### Ordering Information

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Cu.Ft. (L)</th>
<th>Voltage (Hz)</th>
<th>Amps/Breaker (Plug)</th>
<th>Door</th>
<th>Full Shelves</th>
<th>Half Shelves</th>
<th>Int. Dimensions*</th>
<th>Ext. Dimensions*</th>
<th>Ship Weight lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>REC2304A</td>
<td>23.3 (659)</td>
<td>115 (60)</td>
<td>9.4/15 (P1)</td>
<td>single, glass</td>
<td>0</td>
<td>2</td>
<td>58.0 x 29.0 x 24.0</td>
<td>79.1 x 36.2 x 28.0</td>
<td>425 (193)</td>
</tr>
<tr>
<td>REC2304D</td>
<td>29.2 (826)</td>
<td>115 (60)</td>
<td>9.4/15 (P1)</td>
<td>single, glass</td>
<td>0</td>
<td>2</td>
<td>58.0 x 29.0 x 30.0</td>
<td>79.1 x 36.2 x 34.0</td>
<td>435 (197)</td>
</tr>
<tr>
<td>REC3004A</td>
<td>45.8 (1297)</td>
<td>115 (60)</td>
<td>15.0/20 (P2)</td>
<td>double, sliding, glass</td>
<td>4</td>
<td>2</td>
<td>58.0 x 26.0 x 52.5</td>
<td>79.1 x 33.0 x 56.5</td>
<td>670 (304)</td>
</tr>
<tr>
<td>REC3004D</td>
<td>51.1 (1447)</td>
<td>115 (60)</td>
<td>15.0/20 (P2)</td>
<td>double, glass</td>
<td>4</td>
<td>2</td>
<td>58.0 x 29.0 x 52.5</td>
<td>79.1 x 33.0 x 56.5</td>
<td>580 (263)</td>
</tr>
<tr>
<td>REC4504A</td>
<td>78.8 (2231)</td>
<td>115 (60)</td>
<td>16.0/20 (P2)</td>
<td>triple, glass</td>
<td>8</td>
<td>2</td>
<td>58.0 x 29.0 x 81.0</td>
<td>79.1 x 36.2 x 85.0</td>
<td>965 (438)</td>
</tr>
</tbody>
</table>

* Published interior volumes are nominal; usable cu. ft. (L) capacities may be offset by shelves, drawers, blower coils, or cabinet protrusions. For specific cabinet dimensions and allowances, or for verification of clearance tolerances, contact our sales representative. Product performance may be affected by ambient temperature conditions, humidity conditions, sample loading preferences, and frequency of door openings. Contact our sales representative for specific inquiries regarding your application.

**Chromatography Refrigerators**

Temperature Range: +1°C to +8°C, factory preset to +4°C (auto defrost)
Our REL series refrigerators feature the IntrLogic microprocessor control system, positive airflow systems, industrial quality cabinet construction and extra-strength refrigeration compressors selected for industrial, clinical and scientific use.

**IntrLogic Microprocessor Control**

Our REL series lab refrigerators feature enhanced digital electronic technology designed to simplify operation and deliver greater accuracy (see pages 4 and 5).

- Adjustable temperature control, range +1°C to +8°C, factory pre-set to +4°C
- Icon-based controls and displays include graphic references for universal operation
- Setpoint security with key-operated triple-position master switch controls power to all systems for added safety
- Audible/visual warnings for over-temperature, undetemperature and power failure, with visual status reports on critical functions
- Graphic thermometer confirms proper operation at-a-glance, shows normal, high or low temperature condition; steady green for normal, flashing top bar for overtemperature, flashing bulb for undertemperature
- Advanced defrost sensor manages the defrost cycle, minimizing trace amounts of frost build-up to maintain refrigeration coil efficiency
- Enlarged digital display, resolution to within 0.1°C, improves visibility
- Alarm silence, ringback and automatic reset functions
- Push-button alarm test verifies sensor continuity
- Battery backup assures control panel function during power failure
- Remote alarm contacts are included on all models
General Purpose Laboratory Refrigerators

Temperature Range: +1°C to +8°C, factory preset to +4°C (auto defrost)

Cabinet Construction and Inventory System
- High-density, CFC-free urethane foam insulation protects cabinet from ambient temperature fluctuations and minimizes operating costs
- Positive, forced-air circulation maintains temperature uniformity at all shelf levels
- Directional airflow assures quick recovery after door openings
- Interior cabinet lights with door-activated on/off switch, plus independent switch on control panel for 11.5 cu.ft. (326 L) and larger models
- Model REL4504 features independent switch activated lights only; under-counter model REL404 does not have lights
- Self-closing doors close against closed-cell peripheral gasket
- Door locking provision on all models except REL4504
- Full-length door handle(s) on all models except sliding door model REL4504

Refrigeration System
- Heavy duty, industrial-grade, hermetically sealed compressors
- Automatic defrost maintains optimum cooling capacity
- Automatic condensate removal; no drain lines required

Optional Accessories
- Voltage safeguard, free standing
- Built-in 6” (152 mm), 7-day circular chart recorder (free-standing on REL404)
- Access port, 2” (50 mm) diameter, with cover
- Stainless steel interior and exterior surfaces

ORDERING INFORMATION

* Published interior volumes are nominal; usable cu.ft. (L) capacities may be offset by shelves, drawers, blower coils, or cabinet protrusions. For specific cabinet dimensions and allowances, or for verification of clearance tolerances, contact our sales representatives. Product performance may be affected by ambient temperature conditions, humidity conditions, sample loading preferences, and frequency of door openings. Contact our sales representatives for specific inquiries regarding your application.
Thermo Scientific
Revco
Blood Bank Refrigerators

Featuring IntrLogic Microprocessor Control

Our ReB series refrigerators feature the IntrLogic microprocessor control system, positive airflow systems, industrial quality cabinet construction and extra-strength refrigeration compressors selected for industrial, clinical and scientific use.

IntrLogic Microprocessor Control

Our ReB blood bank refrigerators feature enhanced digital electronic technology designed to simplify operation and deliver greater accuracy (see pages 4 and 5).

- Adjustable temperature control, range +1°C to +8°C, factory pre-set to +4°C
- Icon-based controls and displays include graphic references for universal operation
- Setpoint security with key-operated triple-position master switch controls power to all systems for added safety
- Audible/visual warnings for over-temperature, undertemperature and power failure, with visual status reports on critical functions
- Alarm setpoints pre-set to warn of temperature deviation at +5.5°C overtemperature and +1.5°C undertemperature
- Graphic thermometer confirms proper operation at-a-glance, shows normal, high or low temperature condition; steady green for normal, flashing top bar for overtemperature, flashing bulb for undertemperature
- Advanced defrost sensor manages the defrost cycle, minimizing trace amounts of frost build-up to maintain refrigeration coil efficiency
- Enlarged digital display, resolution to within 0.1°C, improves visibility
- Alarm silence, ringback and automatic reset functions
- Push button alarm test verifies sensor continuity
- Battery backup assures control panel function during power failure
- Extra-long alarm probe lead allows manual testing and verification
- Remote alarm contacts are included on all models
Cabinet Construction and Inventory System

- Full-extension adjustable stainless steel drawers
- Dual-pane glass viewing door(s), insulated to prevent condensation (optional on REB404)
- High-density CFC-free urethane foam insulation protects cabinet from ambient temperature fluctuations and minimizes operating costs
- Positive, forced-air circulation to maintain temperature uniformity at all drawer levels
- Directional air flow assures quick recovery after door openings
- Interior cabinet lights with door activated on/off switch, plus independent switch on control panel (except on 4.9 cu.ft. (133 L models))
- Self-closing doors close against closed-cell peripheral gasket
- Door locking provision on all models
- 1" (25 mm) access port standard on REB404

- Access port, 2" (50 mm) diameter, with cover (standard 1" (25 mm) port for REB404)
- Stainless steel interior and exterior surfaces
- 2" (50 mm) casters
- Additional drawers, stainless steel drawer dividers
- Heated glass doors and door swing variations available on most models
- Finished countertop for REB404

Temperature Recorders

- Built-in 6" (152 mm), 7-day circular chart recorder standard (optional free-standing recorder on REB404)
- Provides permanent record of storage conditions

Refrigeration System

- Heavy duty, industrial-grade, hermetically sealed compressors
- Automatic defrost for optimum cooling capacity
- Automatic condensate removal; no drain lines required

Optional Accessories

- Voltage safeguard, free-standing
- Free-standing temperature recorder for REB404

** Ordering Information **

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Cu.Ft./L (Blood Bag Capacity)**</th>
<th>Voltage (Hz)</th>
<th>Amps/Breaker (Plug)</th>
<th>Cabinet</th>
<th>Door</th>
<th>Drawers</th>
<th>Int. Dimensions* (H x D x W inches (mm))</th>
<th>Ext. Dimensions* (H x D x W inches (mm))</th>
<th>Ship Weight lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>REB404A</td>
<td>4.9/133 (46)</td>
<td>115 (60)</td>
<td>8.0/15 (P1)</td>
<td>undercounter</td>
<td>single, solid</td>
<td>2</td>
<td>20.0 x 20.0 x 20.0 (500 x 500 x 500)</td>
<td>33.4 x 26.0 x 24.0 (850 x 680 x 610)</td>
<td>212 (96)</td>
</tr>
<tr>
<td>REB404D</td>
<td>11.5/326 (120)</td>
<td>208/230 (60)</td>
<td>6.0/15 (P4)</td>
<td>space saver</td>
<td>single, glass</td>
<td>5</td>
<td>52.0 x 21.0 x 20.0 (1320 x 530 x 500)</td>
<td>71.9 x 28.8 x 24.0 (1830 x 740 x 610)</td>
<td>320 (145)</td>
</tr>
<tr>
<td>REB404W</td>
<td>23.3/659 (288)</td>
<td>208/230 (60)</td>
<td>6.0/15 (P7)</td>
<td>upright</td>
<td>single, glass</td>
<td>6</td>
<td>58.0 x 29.0 x 24.0 (1470 x 730 x 610)</td>
<td>77.5 x 35.5 x 28.0 (1970 x 910 x 720)</td>
<td>470 (213)</td>
</tr>
<tr>
<td>REB3004A</td>
<td>51.1/1447 (576)</td>
<td>115 (60)</td>
<td>9.4/15 (P1)</td>
<td>upright</td>
<td>double, glass</td>
<td>12</td>
<td>58.0 x 29.0 x 52.0 (1470 x 730 x 1250)</td>
<td>77.5 x 35.5 x 56.5 (1970 x 910 x 1440)</td>
<td>790 (359)</td>
</tr>
</tbody>
</table>

* Published interior volumes are nominal; usable cu.ft. (L) capacities may be offset by shelves, drawers, blower coils, or cabinet protrusions. For specific cabinet dimensions and allowances, or for verification of clearance tolerances, contact our sales representative. Product performance may be affected by ambient temperature conditions, humidity conditions, sample loading preferences, and frequency of door openings. Contact our sales representative for specific inquiries regarding your application.

** Nominal capacity based on 450 mL whole blood bags.**

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**Blood Bank Refrigerators**

Temperature Range: +1°C to +8°C, factory preset to +4°C (auto defrost)
Configured for accurate storage and easy retrieval of pharmacy products, our RPR pharmacy refrigerators feature full extension stainless steel roll-out drawers. Developed for stable temperature control over a range of +1°C to +8°C, these refrigerators are available in four sizes.

IntrLogic Microprocessor Control

Our RPR series pharmacy refrigerators feature the IntrLogic microprocessor control system, positive airflow systems, industrial quality cabinet construction and extra-strength refrigeration compressors selected for industrial, clinical and scientific use.

Our RPR pharmacy refrigerators feature enhanced digital electronic technology designed to simplify operation and deliver greater accuracy (see pages 4 and 5).

- Adjustable temperature control, range +1°C to +8°C, factory pre-set to +4°C
- Icon-based controls and displays include graphic references for universal operation
- Setpoint security with key-operated triple-position master switch controls power to all systems for added safety
- Audible/visual warnings for over-temperature, undertemperature and power failure, with visual status reports on critical functions
- Graphic thermometer confirms proper operation at-a-glance, shows normal, high or low temperature condition; steady green for normal, flashing top bar for overtemperature, flashing bulb for undertemperature
- Advanced defrost sensor manages the defrost cycle, minimizing trace amounts of frost build-up to maintain refrigeration coil efficiency
- Enlarged digital display, resolution to within 0.1°C, improves visibility
- Alarm silence, ringback and automatic reset functions
- Push button alarm test verifies sensor continuity
- Battery backup assures control panel function during power failure
- Remote alarm contacts are included on all models

Our pharmacy refrigerators are designed to provide stable temperature control and allow efficient inventory management. Model shown: RPR3004 with full extension roll-out drawers and full view glass door.
### Pharmacy Refrigerators

Temperature Range: +1°C to +8°C, factory preset to +4°C (auto defrost)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Cu.Ft. (L)</th>
<th>Voltage (Hz)</th>
<th>Amps/Breaker (Plug)</th>
<th>Cabinet</th>
<th>Door</th>
<th>Drawers</th>
<th>Int. Dimensions*</th>
<th>Ext. Dimensions*</th>
<th>Ship Weight lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RPR1204A</td>
<td>11.5</td>
<td>115 (60)</td>
<td>9.4/15 (P1)</td>
<td>upright</td>
<td>single, glass</td>
<td>5</td>
<td>52.0 x 21.0 x 20.0 (1320 x 530 x 500)</td>
<td>71.9 x 28.8 x 24.0 (1830 x 740 x 610)</td>
<td>320 (145)</td>
</tr>
<tr>
<td>RPR1204D</td>
<td>12.0</td>
<td>208/230 (60)</td>
<td>6.0/15 (P4)</td>
<td>upright</td>
<td>single, glass</td>
<td>6</td>
<td>58.0 x 29.0 x 24.0 (1470 x 730 x 610)</td>
<td>77.5 x 35.5 x 28.0 (1970 x 910 x 720)</td>
<td>470 (213)</td>
</tr>
<tr>
<td>RPR1204W</td>
<td>12.0</td>
<td>230 (50)</td>
<td>6.0/15 (P7)</td>
<td>upright</td>
<td>single, glass</td>
<td>7</td>
<td>58.0 x 29.0 x 30.0 (1470 x 730 x 760)</td>
<td>77.5 x 35.5 x 34.0 (1970 x 910 x 870)</td>
<td>505 (227)</td>
</tr>
<tr>
<td>RPR2304A</td>
<td>29.2</td>
<td>115 (60)</td>
<td>9.4/15 (P1)</td>
<td>upright</td>
<td>single, glass</td>
<td>6</td>
<td>58.0 x 29.0 x 24.0 (1470 x 730 x 610)</td>
<td>77.5 x 35.5 x 28.0 (1970 x 910 x 720)</td>
<td>470 (213)</td>
</tr>
<tr>
<td>RPR2304D</td>
<td>32.6</td>
<td>208/230 (60)</td>
<td>6.0/15 (P4)</td>
<td>upright</td>
<td>single, glass</td>
<td>6</td>
<td>58.0 x 29.0 x 30.0 (1470 x 730 x 760)</td>
<td>77.5 x 35.5 x 34.0 (1970 x 910 x 870)</td>
<td>505 (227)</td>
</tr>
<tr>
<td>RPR2304W</td>
<td>32.6</td>
<td>230 (50)</td>
<td>6.0/15 (P7)</td>
<td>upright</td>
<td>single, glass</td>
<td>7</td>
<td>58.0 x 29.0 x 30.0 (1470 x 730 x 760)</td>
<td>77.5 x 35.5 x 34.0 (1970 x 910 x 870)</td>
<td>505 (227)</td>
</tr>
<tr>
<td>RPR3004A</td>
<td>51.1</td>
<td>115 (60)</td>
<td>15.0/20 (P2)</td>
<td>upright</td>
<td>double, glass</td>
<td>12</td>
<td>58.0 x 29.0 x 52.0 (1470 x 730 x 1320)</td>
<td>77.5 x 35.5 x 56.5 (1970 x 910 x 1440)</td>
<td>790 (359)</td>
</tr>
<tr>
<td>RPR3004D</td>
<td>65.9</td>
<td>208/230 (60)</td>
<td>8.5/15 (P4)</td>
<td>upright</td>
<td>double, glass</td>
<td>12</td>
<td>58.0 x 29.0 x 52.0 (1470 x 730 x 1320)</td>
<td>77.5 x 35.5 x 56.5 (1970 x 910 x 1440)</td>
<td>790 (359)</td>
</tr>
<tr>
<td>RPR3004W</td>
<td>65.9</td>
<td>230 (50)</td>
<td>8.5/15 (P7)</td>
<td>upright</td>
<td>double, glass</td>
<td>12</td>
<td>58.0 x 29.0 x 52.0 (1470 x 730 x 1320)</td>
<td>77.5 x 35.5 x 56.5 (1970 x 910 x 1440)</td>
<td>790 (359)</td>
</tr>
</tbody>
</table>

* *Published interior volumes are nominal; useable cu.ft. (L) capacities may be offset by shelves, drawers, blower coils, or cabinet protrusions. For specific cabinet dimensions and allowances, or for verification of clearance tolerances, contact our sales representative. Product performance may be affected by ambient temperature conditions, humidity conditions, sample loading preferences, and frequency of door openings. Contact our sales representative for specific inquiries regarding your application.*

### Cabinet Construction and Inventory System
- Full extension stainless steel drawers, fully adjustable
- Full view glass door(s), double pane construction eliminates condensation; spring-loaded closures include 90° stay open feature
- High-density, CFC-free urethane foam insulation protects cabinet from ambient temperature fluctuations and minimizes operating costs
- Positive, forced-air circulation maintains temperature uniformity at all shelf levels
- Directional air flow assures quick recovery after door openings
- Interior cabinet lights with door activated on/off switch, plus independent switch on control panel
- Self-closing doors close against closed-cell peripheral gasket

### Refrigeration System
- Heavy duty, industrial-grade, hermetically sealed compressors
- Automatic defrost maintains optimum cooling capacity
- Automatic condensate removal; no drain lines required

### Optional Accessories
- Voltage safeguard, free standing
- Built-in 6" (152 mm), 7-day circular chart recorder
- Access port, 2" (50 mm) diameter, with cover
- Stainless steel interior and exterior surfaces

- 2" (50 mm) casters
- Additional shelves
- Additional drawers
- Heated glass doors and door swing variations available on most models

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* RPR1204 pharmacy refrigerator, shown with optional casters and temperature recorder.
Our general laboratory freezers are designed for medical and scientific applications such as storage of reagents, pharmaceuticals, biologicals, or other commonly used laboratory materials. Models offer cabinet sizes to fit a variety of space needs and storage volume requirements.

Our freezers feature the IntrLogic microprocessor control system, positive airflow systems, industrial quality cabinet construction and extra-strength refrigeration compressors selected for industrial, clinical and scientific use.

IntrLogic Microprocessor Control

Our ULT series lab freezers feature enhanced digital electronic technology designed to simplify operation and deliver greater accuracy (see pages 4 and 5).

- Pre-set -30°C operation
- Icon-based controls and displays include graphic references for universal operation
- Setpoint security with key-operated triple-position master switch controls power to all systems for added safety
- Audible/visual warnings for over-temperature, undertemperature and power failure, with visual status reports on critical functions
- Graphic thermometer confirms proper operation at-a-glance, shows normal, high or low temperature condition; steady green for normal, flashing top bar for overtemperature, flashing bulb for undertemperature
- Advanced defrost sensor manages the defrost cycle, minimizing trace amounts of frost build-up to maintain refrigeration coil efficiency
- Enlarged digital display, resolution to within 0.1°C, improves visibility
- Alarm silence, ringback and automatic reset functions
- Push button alarm test verifies sensor continuity
- Battery backup assures control panel function during power failure
- Remote alarm contacts are included on all models
**General Purpose Laboratory Freezers**

Temperature Range: -30°C (auto defrost)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Cu.Ft. (L)</th>
<th>Voltage/Split Breaker (Hz)</th>
<th>Amps/ Breaker (Plug)</th>
<th>Cabinet</th>
<th>Door</th>
<th>Shelves</th>
<th>Int. Dimensions* H x D x W inches (mm)</th>
<th>Ext. Dimensions* H x D x W inches (mm)</th>
<th>Ship Weight lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ULT430A</td>
<td>4.9 (133)</td>
<td>115 (60)</td>
<td>8.0/15 (P1)</td>
<td>undercounter</td>
<td>single</td>
<td>solid</td>
<td>20.0 x 20.0 x 20.0 (500 x 500 x 500)</td>
<td>23.4 x 26.0 x 24.0 (600 x 660 x 610)</td>
<td>212 (96)</td>
</tr>
<tr>
<td>ULT430D</td>
<td></td>
<td>208/230</td>
<td>6.0/15 (P4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ULT430V</td>
<td></td>
<td>230 (50)</td>
<td>6.0/15 (P7)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ULT430W</td>
<td></td>
<td></td>
<td>6.0/15 (P8)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ULT1230A</td>
<td>11.5 (326)</td>
<td>115 (60)</td>
<td>8.0/15 (P1)</td>
<td>space saver</td>
<td>single</td>
<td>solid</td>
<td>52.0 x 21.0 x 20.0 (1320 x 530 x 500)</td>
<td>71.9 x 28.9 x 24.0 (1830 x 740 x 610)</td>
<td>280 (127)</td>
</tr>
<tr>
<td>ULT1230V</td>
<td></td>
<td>230 (50)</td>
<td>8.0/15 (P7)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ULT1230W</td>
<td></td>
<td></td>
<td>8.0/15 (P8)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ULT2330A</td>
<td>23.3 (669)</td>
<td>115 (60)</td>
<td>16.0/20 (P2)</td>
<td>upright</td>
<td>single</td>
<td>solid</td>
<td>58.0 x 29.0 x 24.0 (1470 x 730 x 610)</td>
<td>77.5 x 35.5 x 28.0 (1970 x 910 x 720)</td>
<td>370 (168)</td>
</tr>
<tr>
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<td>208/230</td>
<td>12.0/15 (P4)</td>
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</tr>
<tr>
<td>ULT2330V</td>
<td></td>
<td>230 (50)</td>
<td>12.0/15 (P7)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>ULT2330W</td>
<td></td>
<td></td>
<td>12.0/15 (P8)</td>
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<td></td>
</tr>
<tr>
<td>ULT3030A</td>
<td>29.2 (826)</td>
<td>115 (60)</td>
<td>16.0/20 (P2)</td>
<td>upright</td>
<td>single</td>
<td>solid</td>
<td>58.0 x 29.0 x 30.0 (1470 x 730 x 780)</td>
<td>77.5 x 35.5 x 34.0 (1970 x 910 x 870)</td>
<td>445 (202)</td>
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<td>208/230</td>
<td>12.0/15 (P4)</td>
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</tr>
<tr>
<td>ULT3030V</td>
<td></td>
<td>230 (50)</td>
<td>12.0/15 (P7)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ULT3030W</td>
<td></td>
<td></td>
<td>12.0/15 (P8)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ULT5030A</td>
<td>51.1 (1447)</td>
<td>115 (60)</td>
<td>16.0/20 (P2)</td>
<td>upright</td>
<td>double</td>
<td>solid</td>
<td>58.0 x 29.0 x 52.0 (1470 x 730 x 1320)</td>
<td>77.5 x 35.5 x 56.5 (1970 x 910 x 1440)</td>
<td>600 (272)</td>
</tr>
<tr>
<td>ULT5030D</td>
<td></td>
<td>208/230</td>
<td>12.0/15 (P4)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>ULT5030V</td>
<td></td>
<td>230 (50)</td>
<td>12.0/15 (P7)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ULT5030W</td>
<td></td>
<td></td>
<td>12.0/15 (P8)</td>
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<td></td>
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</table>

**General Purpose Laboratory Freezers**

Temperature Range: -20°C (manual defrost)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Cu.Ft. (L)</th>
<th>Voltage/Split Breaker (Hz)</th>
<th>Amps/ Breaker (Plug)</th>
<th>Cabinet</th>
<th>Door</th>
<th>Shelves</th>
<th>Int. Dimensions* H x D x W inches (mm)</th>
<th>Ext. Dimensions* H x D x W inches (mm)</th>
<th>Ship Weight lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UGL2320A</td>
<td>23.3 (669)</td>
<td>115 (60)</td>
<td>13.5/20 (P2)</td>
<td>upright</td>
<td>single</td>
<td></td>
<td>58.0 x 29.0 x 24.0 (1470 x 730 x 610)</td>
<td>77.5 x 35.5 x 28.0 (1970 x 910 x 720)</td>
<td>425 (193)</td>
</tr>
<tr>
<td>UGL2320D</td>
<td></td>
<td>208/230</td>
<td>5.6/15 (P4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UGL2320V</td>
<td></td>
<td>230 (50)</td>
<td>5.6/15 (P7)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UGL2320W</td>
<td></td>
<td></td>
<td>5.6/15 (P8)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Published interior volumes are nominal; usable cu. ft. (L) capacities may be offset by shelves, drawers, blower coils, or cabinet protrusions. For specific cabinet dimensions and allowances, or for verification of clearance tolerances, contact our sales representative. Product performance may be affected by ambient temperature conditions, humidity conditions, sample loading preferences, and frequency of door openings. Contact our sales representative for specific inquiries regarding your application.

**Cabinet Construction and Inventory System**
- Cabinet capacities from 4.9 to 51.1 cu. ft. (133 to 1447 L)
- High-density, CFC-free urethane foam insulation protects cabinet from ambient temperature fluctuations and minimizes operating costs
- Positive, forced-air circulation maintains temperature uniformity at all shelf levels
- Directional air flow assures quick recovery after door openings
- Solid door with keyed door lock for added security
- Self-closing doors close against closed-cell peripheral gasket
- Door locking provision on all models
- Full-length door handle(s) on all models
- Epoxy-coated, open wire shelves, adjustable in 1” (25 mm) increments; no tools required
- Adjustable leveling feet standard; optional casters are available
- Scratch resistant painted interior and exterior finish for easy cleaning
- 1” (25 mm) access port on ULT430
- Stainless steel interior and exterior surfaces
- 2” (50 mm) casters
- Additional shelves
- Finished countertop for ULT430

**Refrigeration System**
- Heavy duty, industrial-grade, hermetically sealed compressors
- Automatic defrost maintains optimum cooling capacity
- Automatic condensate removal; no drain lines required

**Optional Accessories**
- Voltage safeguard, free standing
- Built-in 6” (152 mm), 7-day circular chart recorder (free-standing on ULT430)
- Access port 1” (25 mm) diameter, (standard on ULT430)
Our -30°C plasma freezers are designed to meet AABB, ANRC and FDA standards for safety and performance in plasma storage. Five models offer cabinet sizes to meet a variety of space needs and storage volume requirements.

IntrLogic Microprocessor Control

Our plasma freezers feature enhanced digital electronic technology designed to simplify operation and deliver greater accuracy (see pages 4 and 5).

- Pre-set -30°C operation
- Icon-based controls and displays include graphic references for universal operation
- Setpoint security with key-operated triple-position master switch controls power to all systems for added safety
- Audible/visual warnings for over-temperature, undertemperature and power failure, with visual status reports on critical functions
- Graphic thermometer confirms proper operation at-a-glance, shows normal, high or low temperature condition; steady green for normal, flashing top bar for overtemperature, flashing bulb for undertemperature
- Advanced defrost sensor manages the defrost cycle, minimizing trace amounts of frost build-up to maintain refrigeration coil efficiency
- Enlarged digital display, resolution to within 0.1°C, improves visibility
- Alarm silence, ringback and automatic reset functions
- Push button alarm test verifies sensor continuity
- Battery backup assures control panel function during power failure
- Extra-long alarm probe lead allows manual testing and verification
- Remote alarm contacts are standard on all models

Our -30°C plasma freezers feature the IntrLogic microprocessor control system, positive airflow systems, industrial quality cabinet construction, and extra-strength refrigeration compressors selected for demanding blood bank applications.
## ORDERING INFORMATION

### Plasma Freezers

**Temperature Range:** -30°C (auto defrost)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Cu.Ft./L (Plasma Box Capacity)*</th>
<th>Voltage (Hz)</th>
<th>Amps/Breaker (Plug)</th>
<th>Cabinet</th>
<th>Door</th>
<th>Drawers</th>
<th>Int. Dimensions*</th>
<th>Ext. Dimensions*</th>
<th>Ship Weight lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UFP430A</td>
<td>4.9/133 (78)</td>
<td>115 (60)</td>
<td>8.0/15 (P1)</td>
<td>undercounter</td>
<td>single</td>
<td>2</td>
<td>20.0 x 20.0 x 20.0</td>
<td>33.4 x 26.0 x 24.0</td>
<td>212 (96)</td>
</tr>
<tr>
<td>UFP430D</td>
<td>4.9/133 (78)</td>
<td>208/230 (60)</td>
<td>8.0/15 (P4)</td>
<td>single</td>
<td>solid</td>
<td>2</td>
<td>20.0 x 20.0 x 20.0</td>
<td>33.4 x 26.0 x 24.0</td>
<td>212 (96)</td>
</tr>
<tr>
<td>UFP430V</td>
<td>4.9/133 (78)</td>
<td>230 (50)</td>
<td>8.0/15 (P7)</td>
<td>solid</td>
<td></td>
<td></td>
<td>20.0 x 20.0 x 20.0</td>
<td>33.4 x 26.0 x 24.0</td>
<td>212 (96)</td>
</tr>
<tr>
<td>UFP430W</td>
<td>4.9/133 (78)</td>
<td>230 (50)</td>
<td>8.0/15 (P8)</td>
<td>solid</td>
<td></td>
<td></td>
<td>20.0 x 20.0 x 20.0</td>
<td>33.4 x 26.0 x 24.0</td>
<td>212 (96)</td>
</tr>
<tr>
<td>UFP1230A</td>
<td>11.5/326 (273)</td>
<td>115 (60)</td>
<td>8.0/15 (P1)</td>
<td>space</td>
<td>single</td>
<td>2</td>
<td>52.0 x 21.0 x 20.0</td>
<td>71.9 x 28.9 x 24.0</td>
<td>365 (166)</td>
</tr>
<tr>
<td>UFP1230V</td>
<td>11.5/326 (273)</td>
<td>230 (50)</td>
<td>8.0/15 (P7)</td>
<td>space</td>
<td>single</td>
<td>2</td>
<td>52.0 x 21.0 x 20.0</td>
<td>71.9 x 28.9 x 24.0</td>
<td>365 (166)</td>
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<tr>
<td>UFP1230W</td>
<td>11.5/326 (273)</td>
<td>230 (50)</td>
<td>8.0/15 (P8)</td>
<td>space</td>
<td>single</td>
<td>2</td>
<td>52.0 x 21.0 x 20.0</td>
<td>71.9 x 28.9 x 24.0</td>
<td>365 (166)</td>
</tr>
<tr>
<td>UFP2330A</td>
<td>23.3/659 (532)</td>
<td>115 (60)</td>
<td>16.0/20 (P2)</td>
<td>upright</td>
<td>single</td>
<td>7</td>
<td>58.0 x 29.0 x 24.0</td>
<td>77.5 x 35.5 x 28.0</td>
<td>425 (193)</td>
</tr>
<tr>
<td>UFP2330D</td>
<td>23.3/659 (532)</td>
<td>208/230 (60)</td>
<td>16.0/20 (P4)</td>
<td>upright</td>
<td>single</td>
<td>7</td>
<td>58.0 x 29.0 x 24.0</td>
<td>77.5 x 35.5 x 28.0</td>
<td>425 (193)</td>
</tr>
<tr>
<td>UFP2330V</td>
<td>23.3/659 (532)</td>
<td>230 (50)</td>
<td>16.0/20 (P7)</td>
<td>upright</td>
<td>single</td>
<td>7</td>
<td>58.0 x 29.0 x 24.0</td>
<td>77.5 x 35.5 x 28.0</td>
<td>425 (193)</td>
</tr>
<tr>
<td>UFP2330W</td>
<td>23.3/659 (532)</td>
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<td>16.0/20 (P8)</td>
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<td>single</td>
<td>7</td>
<td>58.0 x 29.0 x 24.0</td>
<td>77.5 x 35.5 x 28.0</td>
<td>425 (193)</td>
</tr>
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<td>double</td>
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<td>77.5 x 35.5 x 56.5</td>
<td>650 (295)</td>
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<td>51.1/1447 (1064)</td>
<td>208/230 (60)</td>
<td>16.0/20 (P4)</td>
<td>upright</td>
<td>double</td>
<td>14</td>
<td>58.0 x 29.0 x 52.0</td>
<td>77.5 x 35.5 x 56.5</td>
<td>650 (295)</td>
</tr>
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<td>230 (50)</td>
<td>16.0/20 (P7)</td>
<td>upright</td>
<td>double</td>
<td>14</td>
<td>58.0 x 29.0 x 52.0</td>
<td>77.5 x 35.5 x 56.5</td>
<td>650 (295)</td>
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<td>16.0/20 (P8)</td>
<td>upright</td>
<td>double</td>
<td>14</td>
<td>58.0 x 29.0 x 52.0</td>
<td>77.5 x 35.5 x 56.5</td>
<td>650 (295)</td>
</tr>
</tbody>
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**Cabinet Construction and Inventory System**
- High-density, CFC-free urethane foam insulation protects cabinet from ambient temperature fluctuations and minimizes operating costs
- Positive, forced-air circulation maintains uniformity at all shelf levels
- Directional airflow assures quick recovery after door openings
- Solid door with keyed door lock for added security
- Doors are self-closing against a closed-cell peripheral gasket; doors are spring loaded on all but undercounter models
- Door locking provision on all models
- Full-length door handle on all models
- Full extension stainless steel drawers
- Adjustable leveling feet standard; optional casters are available
- Interior and exterior surfaces are finished with a high-impact powder paint coating
- 1" (25 mm) access port standard on UFP430

**Temperature Recorders**
- Built-in 6" (152 mm), 7-day circular chart recorder, standard (optional free-standing on UFP430)
- Provides permanent record of storage conditions

**Refrigeration System**
- Heavy duty, industrial-grade, hermetically sealed compressors
- Automatic defrost maintains optimum cooling capacity
- Automatic condensate removal; no drain lines required

**Optional Accessories**
- Voltage safeguard, free-standing
- Access port, 1" (25 mm) diameter
- Stainless steel interior and exterior surfaces
- 2" (50 mm) casters
- Stainless steel drawer dividers
- Finished countertop for UFP430
- Free-standing temperature recorder for UFP430

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*Published interior volumes are nominal; usable cu. ft./L capacities may be offset by shelves, drawers, blower coils, or cabinet protrusions. For specific cabinet dimensions and allowances, or for verification of clearance tolerances, contact our sales representative. Product performance may be affected by ambient temperature conditions, humidity conditions, sample loading preferences, and frequency of door openings. Contact our sales representative for specific inquiries regarding your application.

** Nominal capacity based on 250 mL plasma boxes.
Thermo Scientific
Revco -20°C
Enzyme Freezers

Featuring IntrLogic Microprocessor Control

Our manual defrost -20°C upright freezers are designed for storage applications where slight intermittent coil warming during an auto defrost cycle is not desired. Two models feature gravity convection air systems for maximum stability without blowers or fans.

IntrLogic Microprocessor Control

Our -20°C enzyme freezers feature the IntrLogic microprocessor control system, gravity air circulation, industrial quality cabinet construction, and extra-strength refrigeration compressors selected for industrial, clinical and scientific use. The UEN2320 enzyme freezer features an easily accessible inventory system.

- Pre-set -20°C operation
- Icon-based controls and displays include graphic references for universal operation
- Setpoint security with key-operated triple-position master switch controls power to all systems for added safety
- Audible/visual warnings for over-temperature, undertemperature and power failure, with visual status reports on critical functions
- Graphic thermometer confirms proper operation at-a-glance, shows normal, high or low temperature condition; steady green for normal, flashing top bar for overtemperature, flashing bulb for undertemperature
- Enlarged digital display, resolution to within 0.1°C, improves visibility
- Alarm silence, ringback and automatic reset functions
- Push button alarm test verifies sensor continuity
- Battery backup assures control panel function during power failure
- Remote alarm contacts are standard on all models

High impact plastic enzyme storage bins enable easily accessible, highly concentrated inventory storage. Additional bins are useful for managing loose material in general purpose applications; see Accessories section.
Enzyme Freezers

**Temperature Range:** -20°C (manual defrost)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Cu.Ft. (L)</th>
<th>Voltage (Hz)</th>
<th>Amps/Breaker (Plug)</th>
<th>Cabinet</th>
<th>Door</th>
<th>Shelves</th>
<th>Int. Dimensions*</th>
<th>Ext. Dimensions*</th>
<th>Ship Weight lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UEN2320A</td>
<td>23.3 (659)</td>
<td>115 (60)</td>
<td>13.5/20 (P1)</td>
<td>upright</td>
<td>single, solid</td>
<td>9</td>
<td>58.0 x 29.0 x 24.0</td>
<td>77.5 x 35.5 x 28.0</td>
<td>425 (193)</td>
</tr>
<tr>
<td>UEN2320D</td>
<td>208/230 (60)</td>
<td>5.6/15 (P4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UEN2320V</td>
<td>230 (50)</td>
<td>5.6/15 (P7)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UEN2320W</td>
<td>230 (50)</td>
<td>5.6/15 (P8)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Published interior volumes are nominal; usable cu.ft. (L) capacities may be offset by shelves, drawers, blower coils, or cabinet protrusions. For specific cabinet dimensions and allowances, or for verification of clearance tolerances, contact our sales representative. Product performance may be affected by ambient temperature conditions, humidity conditions, sample loading preferences, and frequency of door openings. Contact our sales representative for specific inquiries regarding your application.

**Cabinet Construction**
- Upright 23.3 cu.ft. (659 L) cabinet
- High-density, CFC-free urethane foam insulation protects cabinet from ambient temperature fluctuations and minimizes operating costs
- Solid door with keyed door lock for added security
- Self-closing door closes against closed-cell peripheral gasket
- Door locking provision on all models
- Full-length door handle
- Adjustable leveling feet standard; optional casters are available
- Scratch resistant painted interior and exterior finish for easy cleaning

**Inventory System**
- Epoxy-coated, open wire shelves, adjustable in 1" (25 mm) increments; no tools required
- Includes nine shelves with enzyme storage system of five bins per shelf, maximum 45 bins; labels not provided

**Refrigeration System**
- Heavy duty, industrial-grade, hermetically sealed compressors
- Manual defrost

**Optional Accessories**
- Voltage safeguard, free-standing
- Built-in 6" (152 mm), 7-day circular chart recorder
- Access port, 1" (25 mm) diameter
- Stainless steel exterior
- 2" (50 mm) casters
- Additional shelves
- Additional bins
Accessories

Productive use of your refrigerator or freezer can be enhanced with accessories specially designed to improve utility and convenience. Many accessories are factory installed and must be specified with your original order.

Field installed accessories may require the services of a factory authorized technician.

Some accessories or options may affect refrigerator or freezer performance; for more information contact your Sales Representative.

Voltages and Serial Numbers
Serial number tags on all our Forma products contain model numbers and voltage information needed for accurate selection of accessories ordered for field installation.
- It is recommended that accessories be ordered when your refrigerator or freezer is ordered.
- Factory-installed accessories allow proper set-up without power-down or emptying the cabinet.

Validation Testing Program
Validation testing services in advance of shipment can accelerate in-house FDA Installation Qualification (IQ) and Operation Qualification (OQ) programs. Validation services include documentation and performance reports, compressor and subsystem component specifications, microprocessor flow diagrams, software specifications and more. For more details, contact your sales representative.

Certification of Calibration
Control, alarm and temperature recording systems are systematically calibrated at the factory for accurate performance. An optional Certificate of Calibration to an NIST (National Institute of Standards and Technology, formerly National Bureau of Standards) traceable instrument includes a model number and serial number certificate and single point calibration. Multiple point calibration is also available. Calibration certificates must be requested when ordering.

Catalog No. 6916-2

Glass Doors
Solid doors are offered standard on most refrigerators unless otherwise specified. Optional dual-pane glass doors must be specified when ordering. Contact your Sales Representative for information on heated glass doors.

Shelves
Additional epoxy-coated, open-wire shelves are designed to fit individual cabinets; shelves are available in full- and half-sizes. Undercounter models use full-size only.

Voltage safeguard
Roll-Out Drawers
Optional stainless steel drawers, offered as an alternative to standard open wire shelving, are adjustable with full extension. Drawers are factory installed and must be specified when ordering cabinet.

<table>
<thead>
<tr>
<th>Roll-Out Drawers</th>
<th>Nominal Cabinet Volume, Cu. Ft.</th>
<th>Catalog Number</th>
<th>(Number of Drawers)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refrigerator</td>
<td>11.5</td>
<td>7134</td>
<td>(5)</td>
</tr>
<tr>
<td>Freezer</td>
<td>11.5</td>
<td>7134</td>
<td>(5)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drawers, Complete Set Catalog Number (Number of Drawers)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refrigerator</td>
</tr>
<tr>
<td>Freezer</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drawers, Additional Catalog Number</th>
<th>Refrigerator</th>
<th>Freezer</th>
</tr>
</thead>
<tbody>
<tr>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>

Interior, Exterior and Countertop Finishes
- Optional stainless steel interior and/or exterior surfaces are available and must be specified when ordering.
- Optional stainless steel or white finished countertops on undercounter models.

<table>
<thead>
<tr>
<th>Thermo Scientific LabCooler Modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catalog No. 6744, shown top; Catalog No. 6745, shown above.</td>
</tr>
</tbody>
</table>

Casters
Casters are optional on most models. Caster are factory installed when ordered at time of cabinet order, customer installed if ordered separately. Choose from 2” (50 mm) or 3” (76 mm) casters.

<table>
<thead>
<tr>
<th>Casters Catalog No.</th>
<th>Normal Cabinet Volume, Cu. Ft.</th>
<th>(133)</th>
<th>(326)</th>
<th>(659)</th>
<th>(826)</th>
<th>(1297)</th>
<th>(1447)</th>
<th>(2231)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2” Casters</td>
<td>4.9</td>
<td>11.5</td>
<td>23.3</td>
<td>29.2</td>
<td>45.8</td>
<td>51.1</td>
<td>78.8</td>
<td></td>
</tr>
<tr>
<td>3” Casters</td>
<td>4.9</td>
<td>11.5</td>
<td>23.3</td>
<td>29.2</td>
<td>45.8</td>
<td>51.1</td>
<td>78.8</td>
<td></td>
</tr>
<tr>
<td>Locking Casters for -30°C Freezers only</td>
<td>4.9</td>
<td>11.5</td>
<td>23.3</td>
<td>29.2</td>
<td>45.8</td>
<td>51.1</td>
<td>78.8</td>
<td></td>
</tr>
<tr>
<td>2-4 lockers</td>
<td>0041</td>
<td>0041</td>
<td>0041</td>
<td>0041</td>
<td>0041</td>
<td>0041</td>
<td>0041</td>
<td>0041</td>
</tr>
<tr>
<td>2-4 non-locking</td>
<td>0030</td>
<td>0030</td>
<td>0030</td>
<td>0030</td>
<td>0030</td>
<td>0030</td>
<td>0030</td>
<td>0030</td>
</tr>
</tbody>
</table>

Temperature Recorders
Optional 6” (152 mm) chart, 7-day temperature recorders use pressure-sensitive chart paper; one box of 50 charts included. Built-in recorders must be specified when ordering. Recorders are standard on 11.5 cu.ft. (326 L) and larger refrigerators, coolers and plasma freezers.

<table>
<thead>
<tr>
<th>Temperature Recorders Catalog Number</th>
<th>Normal Cabinet Volume, Cu. Ft.</th>
<th>(133)</th>
<th>(326)</th>
<th>(659)</th>
<th>(826)</th>
<th>(1297)</th>
<th>(1447)</th>
<th>(2231)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Built-in</td>
<td>Free-standing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer Installed</td>
<td>n/a</td>
<td>0182</td>
<td>0182</td>
<td>0182</td>
<td>0182</td>
<td>0182</td>
<td>0182</td>
<td>0182</td>
</tr>
<tr>
<td>Freestanding</td>
<td>n/a</td>
<td>0383</td>
<td>0383</td>
<td>0383</td>
<td>0383</td>
<td>0383</td>
<td>0383</td>
<td>0383</td>
</tr>
<tr>
<td>Replacement Chart paper</td>
<td>n/a</td>
<td>0354</td>
<td>0354</td>
<td>0354</td>
<td>0354</td>
<td>0354</td>
<td>0354</td>
<td>0354</td>
</tr>
</tbody>
</table>

Alarm Delay Module
The alarm delay eliminates nuisance alarms due to intermittent or transitory conditions such as lightning or brief power outages. The adjustable delay requires an alarm condition to exist continuously for a pre-determined time (adjustable) before a signal is released to a central alarm/monitoring system or telephone dialer.

<table>
<thead>
<tr>
<th>Alarm Delay Module</th>
<th>Adjustable delay from 0.5 to 32 minutes</th>
</tr>
</thead>
</table>

Thermo Scientific LabCooler Modules

Our LabCooler II Benchtop Cooler maintains enzymes at stable -20°C for up to two hours. Holds (24) 1.5 ml tubes and (8) 0.5 ml tubes.

The LabCooler Lite Benchtop Cooler is smaller and more compact, maintains enzyme temperatures at -10°C or below for up to one hour outside the freezer. Holds up to (7) 1.5 ml tubes. Includes a clear interlocking top.

<table>
<thead>
<tr>
<th>Thermo Scientific LabCooler Modules Catalog No. 6744</th>
</tr>
</thead>
<tbody>
<tr>
<td>The LabCooler II Benchtop Cooler</td>
</tr>
<tr>
<td>The LabCooler Lite Benchtop Cooler</td>
</tr>
</tbody>
</table>

Drawer Dividers (Blood Bank Refrigerators and Plasma Freezers)
Stainless steel drawer dividers help manage inventory of bags and boxes.

<table>
<thead>
<tr>
<th>Drawer Dividers Catalog No.</th>
<th>Normal Cabinet Volume, Cu. Ft.</th>
<th>(133)</th>
<th>(326)</th>
<th>(659)</th>
<th>(826)</th>
<th>(1297)</th>
<th>(1447)</th>
<th>(2231)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refrigerator</td>
<td>4.9</td>
<td>11.5</td>
<td>23.3</td>
<td>29.2</td>
<td>45.8</td>
<td>51.1</td>
<td>78.8</td>
<td></td>
</tr>
<tr>
<td>Freezer</td>
<td>4.9</td>
<td>11.5</td>
<td>23.3</td>
<td>29.2</td>
<td>45.8</td>
<td>51.1</td>
<td>78.8</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drawer Dividers</th>
<th>Stainless steel column divider (number of columns)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2” Casters</td>
<td>7007</td>
</tr>
<tr>
<td>3” Casters</td>
<td>7007</td>
</tr>
<tr>
<td>Locking Casters for -30°C</td>
<td>7007</td>
</tr>
<tr>
<td>2-4 lockers</td>
<td>7007</td>
</tr>
<tr>
<td>2-4 non-locking</td>
<td>7007</td>
</tr>
<tr>
<td>2-4 non-locking</td>
<td>7007</td>
</tr>
<tr>
<td>Freezer</td>
<td>7007</td>
</tr>
<tr>
<td>2-4 non-locking</td>
<td>7007</td>
</tr>
</tbody>
</table>

Finished countertop adds 1” (25 mm) to unit height.
NALGENE® and NUNC™
cryogenic storage
give you everything you need to safely store precious specimens, organize freezer space and simplify sample retrieval. NALGENE and NUNC combine to provide one-stop shopping for the widest variety and highest quality of externally and internally threaded cryovials, storage boxes, lab top coolers and controlled rate freezing containers. New NUNC Cryobank and Bank-It™ cryovials are designed automated cryogenic storage.

For further information regarding these products – visit www.nalgene.com

Access Port
Additional port for probes, cables, leads or measuring instruments may be added to any cabinet. Port is 1” (25 mm) diameter for freezers and 2” (50 mm) for refrigerators. Location must be specified when ordering. 2” for refrigerators and freezers.

Class No. 6038

Enzyme Storage Bin
Bins are supplied standard on Model FFEN-2320 Enzyme Freezer.

Additional bins are useful for storage and inventory management. Formed of high impact ABS plastic, off-white. Labels not included.

Class No. 6736

Digital Temperature Monitor Specifications

<table>
<thead>
<tr>
<th>Class No.</th>
<th>Digital</th>
<th>Microprocessor-Based</th>
</tr>
</thead>
<tbody>
<tr>
<td>6898</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>6899</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6900</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

- Input channels: 1, 2, 3, 4
- Temperature range: -100°C to +25°C
- Display and setpoint resolution: 1°C, 0.1°C
- Temperature alarm: high only, high and low
- LCD alphanumeric display: numeric only, 8-character, back-lit, adjustable
- Visual alarm: green = normal, red = deviation
- Solid-state probe lead wire: 8 foot TFE, 20 foot TFE, color-coded
- Relay delay: programmable, 0 - 30 minutes
- Alarm/battery test switch: standard
- Mounting method: Velcro bracket
- Case dimensions: 27 x 114 x 50 mm, 158 x 83 x 50 mm

- The monitor can be installed on or adjacent to any refrigerator or freezer
- Activates an audible and visual warning in case of power failure or overtemperature condition
- Choose from single probe digital models or multiple probe, microprocessor-based models
- Temperature range is -100°C to +25°C
- Probe size 1.25”L x 0.25” diameter (32 mm x 6 mm)
CFC-Free Refrigerants, Insulation and Packaging
All our refrigerators and freezers use CFC-free refrigerants, cabinet insulation and packaging.

Product Selection
This catalog is divided into sections according to general product application. Because most controllers allow adjustable setpoints, all temperatures are listed as design operating temperatures and typically represent the lowest or coldest temperature of a temperature range.

Electrical Information
Thermo Scientific Forma refrigerators and freezers are designed to meet UL, CUL, CE and TUV criteria for safety and performance. All connections must comply with local electrical codes.

- Selection charts for each standard model list voltage, rated amperage, recommended circuit breaker size, and NEMA (National Electrical Manufacturers’ Association, USA) electrical plug information
- Most refrigerators and freezers are supplied with line cord plugs (P) which require corresponding receptacles illustrated on the line cord plug reference chart to the right
- Site preparation requires availability of the proper receptacle; a dedicated circuit is recommended
- Special voltage selections may be available at extra cost and must be specified when ordering
- For questions regarding site preparation, installation and electrical connection, contact our sales representative

Certification of Calibration
Control, alarm and temperature recording systems are systematically calibrated at the factory for accurate performance. An optional Certificate of Calibration to an NIST (National Institute of Standards and Technology, formerly National Bureau of Standards) traceable instrument includes a Model Number and Serial Number Certificate (single point calibration). Multiple point calibration is also available. Calibration certificates must be requested when ordering; for details contact our sales representatives.

Validation Testing Program
Validation testing services in advance of shipment can accelerate in-house FDA Installation Qualification (IQ) and Operation Qualification (OQ) programs. Validation services include documentation and performance reports, compressor and subsystem component specifications, microprocessor flow diagrams, software specifications and more. For more details, contact our sales representatives.

Performance Data
For detailed performance information such as temperature recovery, power consumption and other model-specific operational characteristics, contact our sales representatives.

Ordering Information
Our sales representatives will assist in choosing the proper refrigerator or freezer for your application.

- Each model number is voltage specific. For clarity, please include the voltage of your selected refrigerator or freezer when ordering
- When ordering your refrigerator or freezer, please consider current or future accessory requirements such as temperature recorders, extra shelves and alarm/monitoring systems
- Many accessories are factory installed and must be specified when ordering

Specifications
Refrigerators and freezers supplied with line cord plugs (P) require corresponding receptacles illustrated in the Line Cord Plug Reference. Catalog selection charts list each standard model with voltage, rated amperage, recommended circuit breaker size and NEMA electrical plug information.

<table>
<thead>
<tr>
<th>Models with this code</th>
<th>Have this plug</th>
<th>Require this receptacle</th>
<th>NEMA Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td></td>
<td>5-15P</td>
<td>5-15R</td>
</tr>
<tr>
<td>P2</td>
<td></td>
<td>5-20P</td>
<td>5-20R</td>
</tr>
<tr>
<td>P3</td>
<td></td>
<td>5-30P</td>
<td>5-30R</td>
</tr>
<tr>
<td>P4</td>
<td></td>
<td>6-15P</td>
<td>6-15R</td>
</tr>
<tr>
<td>P5</td>
<td></td>
<td>6-20P</td>
<td>6-20R</td>
</tr>
<tr>
<td>P6</td>
<td></td>
<td>6-30P</td>
<td>6-30R</td>
</tr>
<tr>
<td>P7 (European)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P8 (British)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Refrigerators and freezers supplied with line cord plugs (P) require corresponding receptacles illustrated in the Line Cord Plug Reference. Catalog selection charts list each standard model with voltage, rated amperage, recommended circuit breaker size and NEMA electrical plug information.