eppendorf

New Eppendorf Freezers –
Sample security meets the latest in energy efficiency


# The Evolution of Cooling

The Eppendorf Ultra-Low Temperature Freezer Family

# »Expect longevity and energy savings.«

Decades of experience in the field of ultra-low temperature freezers, combined with New Brunswick™ technology and advanced Eppendorf engineering enables us to understand your requirements for safe sample storage at -86 °C.

Different models, different sizes—we have one that will meet your needs.

**Concerned about your sample safety?**
> Dedicated alarm and backup systems for 24/7 sample safety
> Superior warm-up times to keep your samples safe
> Reliable service and spare parts when necessary

**Burdened by energy bills?**
> High-efficiency insulation for low power consumption
> Flat, flexible seals keep the cold inside the freezer and reduces compressor usage
> High-efficiency compressors and condensers provide excellent performance with minimized energy usage

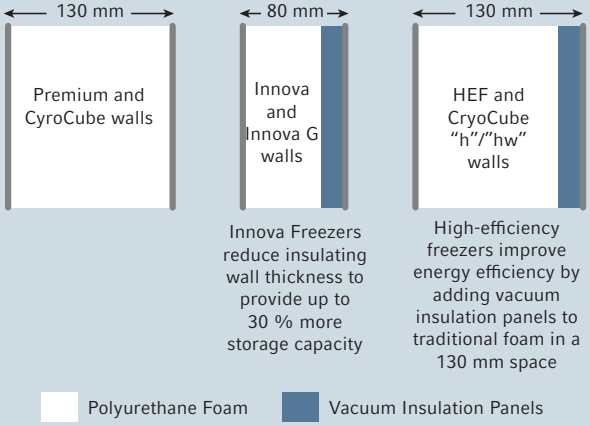

**Suffering from uncomfortable design?**
> Door handles designed with the PhysioCare Concept® for easy, ergonomic access
> User interface at eye-level for easy reading
> Easily move the freezers with the heavy-duty castors

# Eppendorf High-Efficiency ULT Freezers

For Eppendorf, being green is not a trend, it's in our nature. Since 1945, we have shown commitment to sustainability by building high-quality, long-lasting products. Today, we continue to set new standards with our high-efficiency freezers, among the most energy-efficient ultra-low temperature freezers on the market. Eppendorf high efficiency ULT freezers minimize operating costs while providing superior protection for your critical samples (e.g. the high-efficiency CryoCube F570h needs 27 % less energy than the CryoCube F570). This group of freezers provides all of the features of the other Eppendorf freezer models with additional cost-saving benefits. Six models are offered: HEF® U410, CryoCube® F570h/ hw, CryoCube FC660h, and Innova® U725G (air/ water)


1. Premium seals for optimal temperature uniformity and sample safety
2. Ergonomic handle requires less force and provides easier access*
3. New high-efficiency fan, compressor, and condensor for energy saving
4. New automatic vent port on front door improves energy consumption and enables fast sample access*
5. Vacuum insulation panels combined with traditional polyurethane foam form a thick layer of insulation for exceptional energy efficiency
6. Lockable main switch to prevent accidental shut-offs
7. Easy-to-access chart recorder for data documentation

➤ *: limited to upright CryoCube models




Innova Freezers reduce insulating wall thickness to provide up to 30 % more storage capacity

High-efficiency freezers improve energy efficiency by adding vacuum insulation panels to traditional foam in a 130 mm space

**Advanced vacuum insulation panel technology**

Innova® and high-efficiency ULT freezers use vacuum insulation panel technology: an advanced thermal insulation technology that significantly outperforms traditional materials such as closed-cell foams (urethane), foam beads, and fiber blankets. Vacuum insulation removes gasses within the insulating space to reduce heat transfer; as a result, thermal insulation performance far exceeds traditional materials. Other freezers use vacuum insulation panel technology, but none use Vacupor® NT. Vacupor panels not only provide exceptional thermal insulation, they have a metal-coated, polymer film barrier seal to maintain vacuum and they are composed of biodegradable, CFC-free, and HCFC-free materials.


New door handle design based on Eppendorf PhysioCare Concept to enable easy access*


New front-mounted auto vent port makes door opening easier and more comfortable*

➤ *: limited to upright CryoCube models

# Ergonomics – Eppendorf PhysioCare Concept®

**Annoyed by uncomfortable handling?**
Ergonomics is far beyond the „ergonomically designed chair". Eppendorf already started to optimize the laboratory devices regarding ergonomics in the early 1970s. In 2003, we started the PhysioCare Concept, focusing on ergonomic liquid handling devices like our pipettes.

The Eppendorf PhysioCare Concept has now been broadened to include other laboratory products as a holistic solution to harmonize the workflow in your laboratory with your health and well-being, as for the Eppendorf ULT Freezer Family:

> User interface is located at eye-level to enable reading without looking upwards or downwards
> Heavy-duty castors enable moving of the freezer with minimal force
> Door handle is molded to grip of your hand to enable easy opening with one hand
> Automatic vent port for easy re-access to samples

# Eppendorf Innova® ULT Freezers

When it comes to maximizing sample storage capacity, Innova ULT Freezers set the standard. They take advantage of ultra-efficient, ultra-compact Vacuum Insulation Panels, which are used in combination with traditional insulation to slim down the freezer wall thickness from 130 mm to 80 mm. These models are ideal for labs with limited space. Six models are offered: U101, U360, U725, U535, C585, and C760.


1. Inner doors in upright models are gasketed and insulated, creating three separate compartments to minimize cold air loss and direct sample access

2. Provides up to 30 % more storage capacity than freezers with traditional insulation

3. Innova U101 and U360 provide a convenient and space saving solution when space is limited

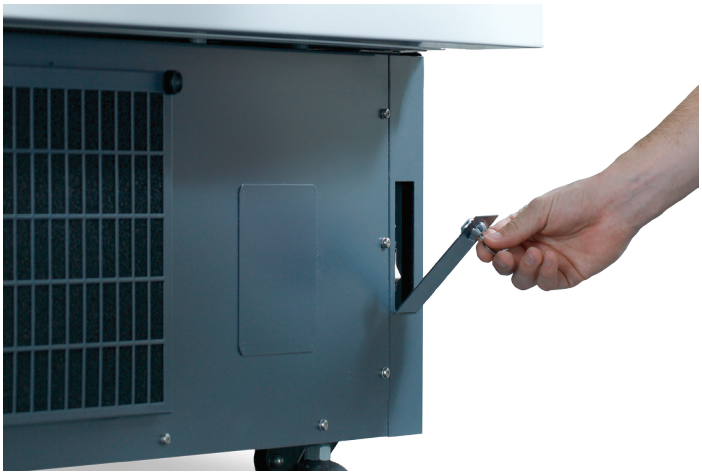
4. Advanced lock and alarm features for improved sample security

5. Heated air vent with plunger to clear ice buildup and release vacuum formation providing immediate access to the freezer

6. Flat, frost resistant gaskets on outer door on all upright and chest models reduce cold air loss and allow for rapid temperature recovery

7. Built-in voltage stabilizer on U535, U725, C585, and C760 freezers provides extra sample security

Easy-to-access air vent port enables fast re-opening of freezer



Lockable security plate protects power and alarm-off switches from accidental shut-off

Up to 50,400 tubes can be stored in the Eppendorf Innova ULT freezer U725

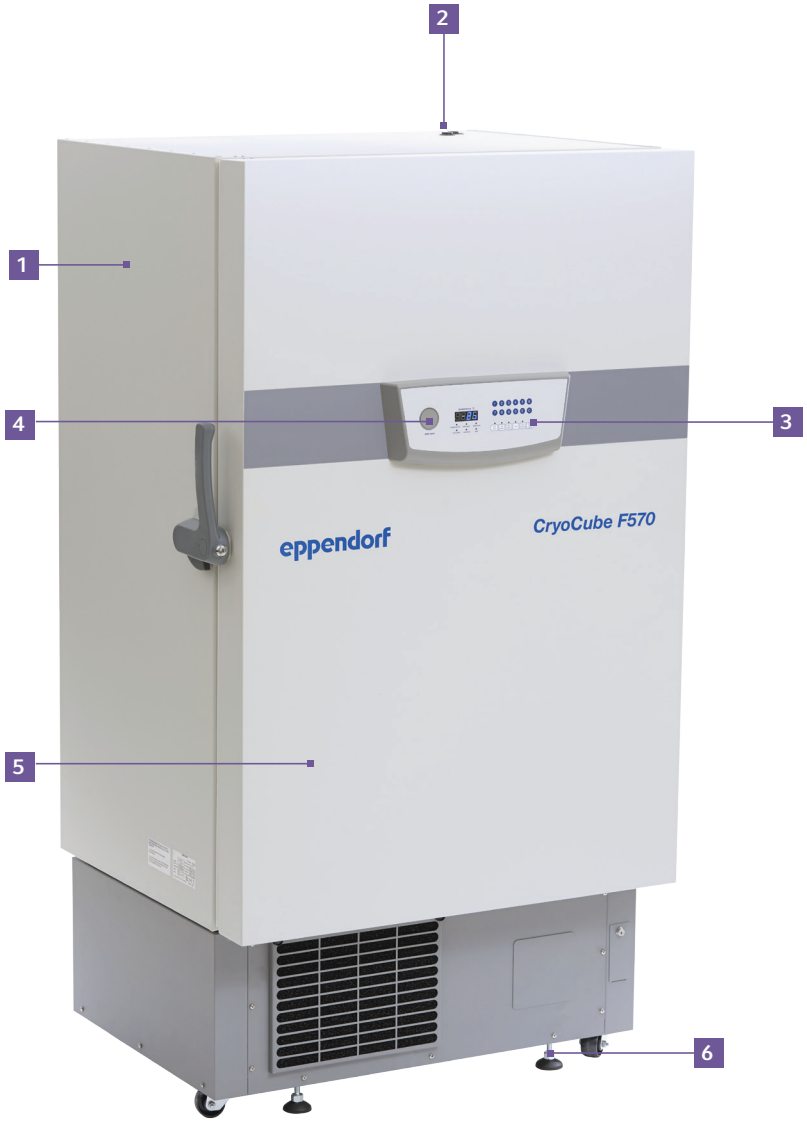
The Innova ULT freezer U101: A personal sized upright freezer that packs all of the features of our full uprights into one small package

30 mm thick inner lids, constructed from molded insulation, help maintain temperature stability in chest models

Inner doors can easily be removed for good access to compartment during cleaning of freezer

# Eppendorf ULT Freezers

Eppendorf ULT Freezers are known for their energy efficiency, reliability, and worry-free, long-term sample preservation. They provide many of the same features as our Innova ULT freezers, but are conventionally-insulated for a cost-effective alternative. Polyurethane insulation combined with a highly efficient cooling system achieve and maintain ultra-low temperatures of -86 °C. Three models are offered: Premium U410, CryoCube F570, and CryoCube FC660.




1. Polyurethane insulation for high performance and efficiency, reducing your energy bill and keeping your samples safe
2. Access port for TCA-3 alarm system for supervised sample storage
3. Classic interface for easy control of the important parameters
4. Automatic* and heated vent port for easy re-access to samples
5. Five interior compartments with insulated inner doors for superior sample protection
6. Heavy duty castors to easily move the freezer to a new position

➤ *: limited to upright CryoCube models

Quick release air grill for easy access and cleaning


Automatic vent port on front door enables fast sample access*

Stainless steel inner compartment for easy cleaning

Two access ports allow $CO_2$/$LN_2$ injection or addition of probes

New magnetic closures on inner doors for easy access to samples*

Individual racking and storage boxes for flexible sample storage

➤ *: limited to upright CryoCube models

# The Eco-Logical Choice

**Paying your own power bill?**
Environmentally friendly and energy efficient Ultra-low temperature freezers traditionally consume a large amount of energy, as they maintain extremely low temperatures 24/7. With today's high energy costs and focus on the environment, energy conservation has become even more important in the lab. Eco-friendly Eppendorf ULT freezers are designed to help you save energy without compromising sample security.

> A highly efficient compressor control system reduces cycling times to lower energy consumption and increase freezer longevity
> Low noise levels and heat output to benefit your work environment
> High-quality insulation materials and gaskets provide ultimate temperature control and optimized energy efficiency
> Environmentally safe, HCFC-free and CFC-free refrigerants minimize greenhouse gases
> Biodegradable and commercially-available, high-performance, synthetic compressor lubricants prevent "oil-logging"
> A single, quiet, condenser fan reduces energy consumption; compared to many freezers that require two
> Built with 95–98 % recyclable materials (by weight)
> Meets WEEE directives for disposal


**Generational change:**
Eppendorf is constantly striving to improve our already energy-efficient ULT Freezers. With every new generation of freezers comes new and exciting developments in the Eco-Logical storage solutions.

> **The predecessor Premium U570 vs. the new CryoCube F570:**
11.8 KWh/ day vs. 10.5 KWh/ day = 15% less energy consumption

> **The predecessor HEF U570 vs. the new CryoCube F570h:**
8.9 KWh/ day vs. 7.6 KWh/ day = 14% less energy consumption

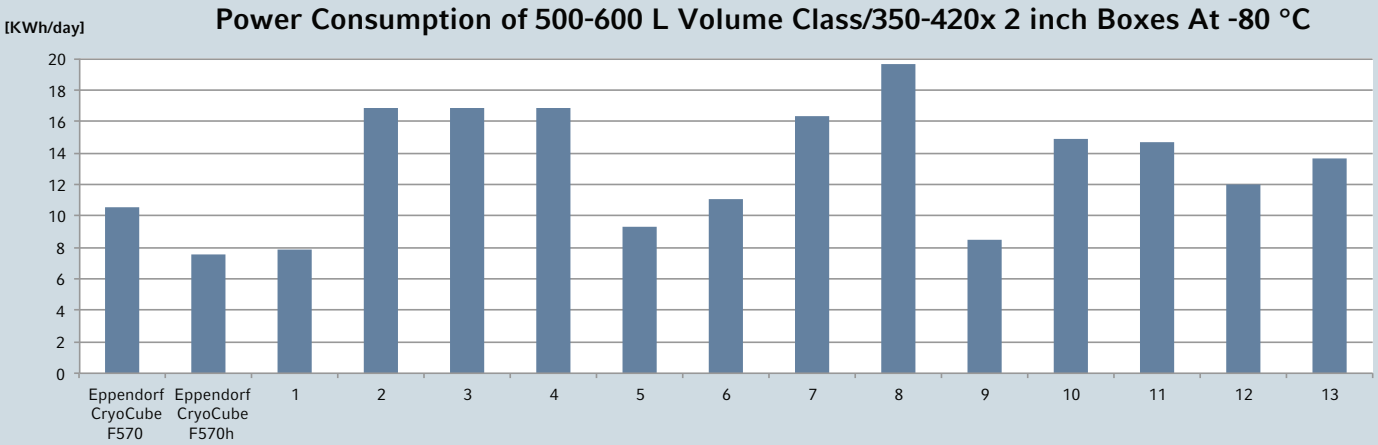
> **The predecessor Premium C660 vs. the new CryoCube FC660:**
14.3 KWh/ day vs. 10.6 KWh/ day = 25% less energy consumption

> **The predecessor HEF C660 vs. the new CryoCube FC660h:**
11.4 KWh/ day vs. 8.1 KWh/ day = 29% less energy consumption

**Less Power Consumption. Smaller Carbon Footprint. Save using Eppendorf Freezers (230 V/ 50 Hz)**

| | Capacity | Power consumption Eppendorf freezer | Power consumption competitor's freezer | Power saving with Eppendorf freezer |
|---|---|---|---|---|
| Innova® U725-G (Air-cooled) [1] | 725 L | 12.2 kWh/day | 17.0 kWh/day | 4.8 kWh/day |
| Premium U410 | 410 L | 10.8 kWh/day | 15.3 kWh/day | 4.5 kWh/day |
| HEF® U410 | 410 L | 8.4 kWh/day | 15.3 kWh/day | 6.9 kWh/day |
| CryoCube® F570 | 570 L | 10.5 kWh/day | 16.9 kWh/day | 6.4 kWh/day |
| CryoCube® F570h | 570 L | 7.6 kWh/day | 14.9 kWh/day | 7.6 kWh/day |

[1] Hydrocarbon based models[2] According to the European Commision eurostat.[3] Electricity sources in Europe emit 352 g $CO_2$ per kWh, according to the International Energy Agency, IEA.




A comparison of the number of kilowatt hours per day it takes to keep 350 – 420x 2 inch boxes at a temperature of -80 °C in freezers with a volume of 500 – 600 L. The CryoCube F570h (230 V/50 Hz) can maintain the storage temperature using 7.6 KWh/day, less than 50 % of the energy required by some other units!

Values based on published data (230 V/ 50 Hz) of suppliers as of spring 2016.

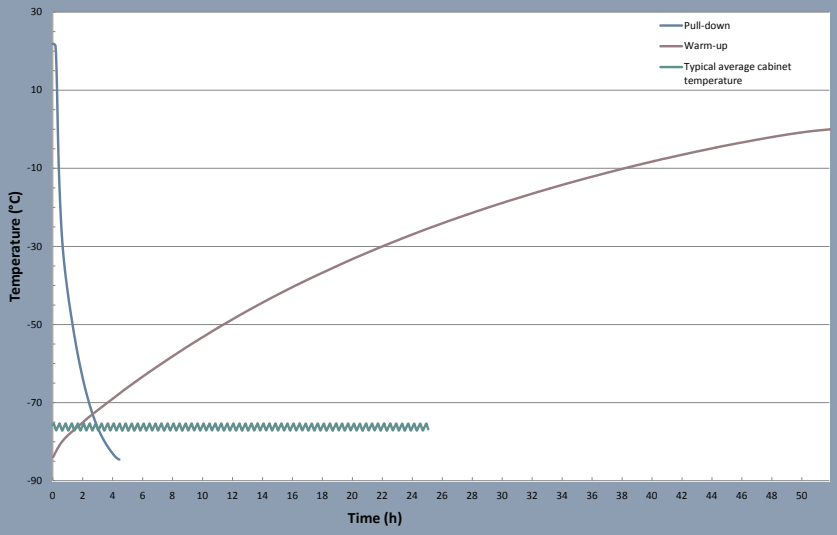
**Offset with Eppendorf Freezers**

The standard rule of thumb is you produce 352 g of carbon dioxide with each kilowatt hour of electricity you use. In other words, for every kilowatt hour of electricity you do not use, you save 352 g of carbon dioxide from entering the atmosphere.

On average, by selecting an Eppendorf freezer you can save up to 9.4 metric tons of $CO_2$ from entering the atmosphere over the lifetime of the unit. This would be equivalent to 241 tree seedlings planted and grown for 10 years. The average vehicle traveling 15,000 km each year consuming 5.5 L gasoline per 100 km emits more than 2,310 kg of carbon dioxide per year. Not only do you help save the environment, but also substantially reduce your operating costs. To see how much you can save, see the table below.

| Average cost per kWh [2] | Eppendorf energy savings over 10 years | Energy savings for every 25 units over 10 years | Reduction in $CO_2$ emission tons over 10 years [3] |
|---|---|---|---|
| 0.22 € | 3,854.40 € | 96,360.00 € | 6.2 t |
| 0.22 € | 3,613.50 € | 90,337.50 € | 5.8 t |
| 0.22 € | 5,540.70 € | 138,517.50 € | 8.6 t |
| 0.22 € | 5,139.20 € | 128,480.00 € | 8.2 t |
| 0.22 € | 5,861.90 € | 146,547.50 € | 9.4 t |

# Efficiency Demands Performance




A performance graph that charts the pull-down time, warm-up time, and typical average cabinet temperature within a CryoCube F570h ULT freezer

**Pull-down time**
After installation and de-frosting of the ULT freezer, samples need to return to -80 °C as soon as possible. Back-up freezers are required to be ready in the shortest time possible. In general, Eppendorf ULT freezers need just 4 to 5 hours to pull-down from room temperature to -80 °C, saving precious time and protecting your samples.

**Warm-up time**
In cases of power failure or device break-down, the freezer insulation and the door seals are your last lines of defense against losing your valuable samples. Eppendorf ULT freezers provide you at least 8–10 h with at least -50 °C within your freezer.

# Sample Integrity After Door Opening

How often do you open the ULT freezer door per day? For how long? It is best practice to always enter and exit the freezer as quickly as possible when storing new samples or attempting to locate a vial or tube which is stored out of sight. However, this takes time.

The more time it takes, the more the temperature of both the cabinet and your frozen samples increases. The longer the door remains opened, the longer it takes for the freezer to regain the set temperature. 30 to 60 seconds is a realistic time frame to add a new sample or remove a stored one.

**Door Open Recovery Time (Freezer set to -80 °C)**

| Model | Door opening 15 seconds | Door opening 30 seconds | Door opening 60 seconds |
|---|---|---|---|
| CryoCube F570h, 230 V/50 Hz | 15 min | 21 min | 31 min |
| Innova U725-G air-cooled, 230 V/50 Hz | 20 min | 23 min | 36 min |

# Quality Matters

Every Eppendorf ULT freezer is throughly examined after production. This process is documented by an individual certificate, complete with serial number, provided as standard for your documentation.

Eppendorf is your expert partner for long lasting ULT freezers. Low investment costs at the beginning and warranty on non-critical parts are nice to have, but long-term cost-of-ownership and durable, future-oriented instruments are the way you profit most.

You can trust your samples to Eppendorf ULT freezers, and you can trust your investment in the all finely-engineered Eppendorf instruments.

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Eppendorf Certificate

Certificate of Quality

Eppendorf Ultra- Low Temperature Freezer

Eppendorf Ultra- Low Temperature Freezers are manufactured in a controlled area and each individual freezer is tested after production. Tests (e.g. pull- down time, condenser, heat exchanger, and cabinet temperature) are performed in a separate area.

Freezer Model: U101 230V 50Hz
Serial Number: F101XXXXXXX



* Set point change

The equipment referenced above has been manufactured, tested and inspected in accordance with Eppendorf quality standards.

Your local distributor: www.eppendorf.com/contact
Eppendorf AG ·22331 Hamburg ·Germany
E- mail: eppendorf@eppendorf.com

ISO 9001 Certified
ISO 13485 Certified
ISO 14001 Certified



www.eppendorf.com


# Water-Cooled ULT Freezers

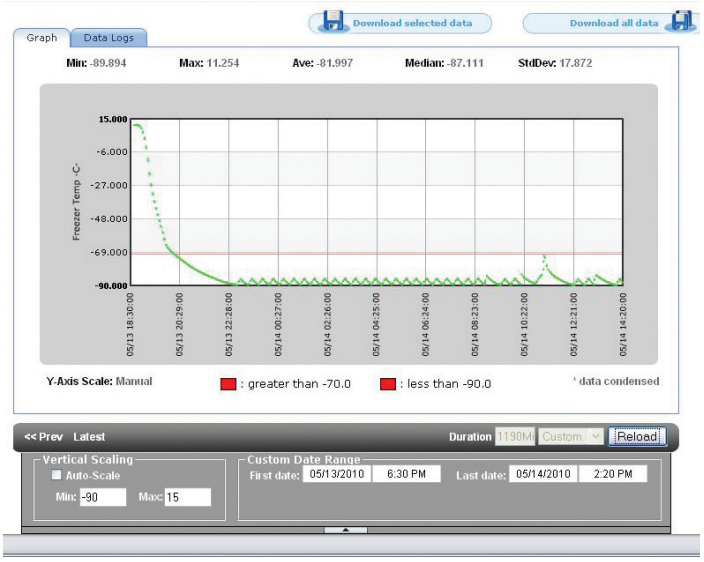
You can improve the conditions and comfort in your lab while saving energy by installing a water-cooled Eppendorf freezer. Many ULT freezers use the air in the laboratory to extract heat energy from the freezer's heat exchanger. Another option is to use a water-cooled ULT freezer connected to a facility's recirculating water system. A constant stream of water removes the heat from the heat exchanger, rather than the ambient air in the lab.

> Reduce air conditioning power consumption by letting the water carry away the heat
> The heated cooling water can be reused for other heat demanding systems in the facility
> System specifications:
- Minimum flow: 3.8 L/min
- Maximum inlet pressure: 10 bar
- Minimum inlet pressure: 1 bar
- Temperature range of water: 7 °C to 25 °C

# Maximum Sample Protection

**Advanced monitoring and security**
Eppendorf ULT freezers safeguard your valuable samples with these advanced security features:

> TCA-3 Temperature Monitoring System (optional) offers added security; combines an independent temperature monitor with alarm, an electronic chart recorder, and an auto-dialer into one small pod (country dependent)
> User-programmable, four-digit passwords for freezer setpoint and alarms for high sample safety
> Battery back-up maintains temperature settings and activates alarms during a power outage
> Optional $CO_2$ and $LN_2$ back-up, as well as a range of remote monitoring and data logging systems are available for complete peace of mind
> Automatic restart with non-volatile memory after power interrupt for on-going sample protection
> Audible and visual alarms indicate high/low temperature, power failure, and alarm conditions; LED light indicates low battery, filter clean, and fault analysis
> Alarm socket enables testing of power-fail and low-battery alarms; connects to your building management system or optional auto-dialer




With the TCA-3 Temperature Monitoring System there is no software to download; record and view freezer temperature, ambient temperature and alarm data from any web-based computer! (Inquire for availability)


TCA-3 pod with independent temperature probe, only 125 x 65 x 30 mm, easily mounts to the side of your freezer

**Technical specifications**

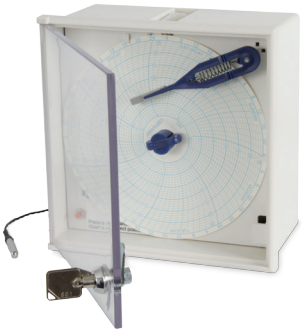
| | |
|---|---|
| Dimensions | 125 x 65 x 30 mm<br>4.9 x 2.6 x 1.2 in |
| Weight | 227 g (8 oz) |
| Sampling rate | User-selected, 30 sec. to 24 hr. |
| Emergency data storage | 256 data points |
| Operating environment | -40 °C to 70 °C, 5 to 95 % rh |

**Performance specifications**

| | |
|---|---|
| **In-Chamber Temperature Sensor** | |
| Temperature range | -100 °C to +100 °C |
| Typical accuracy | ±1 °C |
| Measurement resolution | 0.1 °C |
| Sensor type | 1 x RTD |
| **Ambient Temperature Sensor** | |
| Temperature range | -40 °C to +70 °C |
| Typical accuracy at 25 °C | ±1.4 °C |
| Typical accuracy over full range | ±2.1 % |
| Measurement resolution | 0.21 °C |

**Ordering information**

| Description | Electrical service | Order no. |
|---|---|---|
| Pod and probe with wall plug power connection | 60 Hz | P0625-1630 |
| Pod and probe with wall plug power connection | 50 Hz | P0625-2050 |



## Chart Recorder

> Includes chart recorder, RTD probe, keys, chart recorder paper and chart recorder pens
> Will continuously monitor and record freezer temperature for documentation
> Front mounted to your freezer for easy access and can be fitted to all freezer models
> Battery powered: will provide a minimum of eighteen months of operation
> Selectable temperature range (0 to -50 °C and -50 to -100 °C) and rotation speed for flexible usage
> User configurable built in Hi and Lo temperature alarms
> Can be factory installed with your freezer order at no additional charge or retrofitted on location

**Ordering information**

| Description | Order no. |
|---|---|
| **Chart recorder pens**, 3 pk | K0660-0051 |
| **Chart recorder paper**, -50 to -100 °C | P0625-2110 |
| **Chart recorder paper**, 0 to -50 °C | P0625-2111 |
| **Chart recorder** | P0625-2100 |

## $CO_2$ and $LN_2$ Back-up System

> Equipped with a battery back-up to temporarily protect the contents of your freezer in case of power failure.
> Available in either liquid $CO_2$ and $LN_2$. Liquid $CO_2$ can maintain temperatures between -50 °C and -70 °C, where as $LN_2$ can go down to -85 °C.
> Both systems can be factory installed with your freezer order at no additional charge or retrofitted on location
> $CO_2$ and $LN_2$ are not interchangeable systems

**Ordering information**

| Description | Order no. |
|---|---|
| **$CO_2$ back-up system**, 230 V/50 Hz, New Brunswick™ Innova® and Green „G“ | U9043-0004 |
| **$LN_2$ back-up system**, 230 V/50 Hz, New Brunswick™ Innova® and Green „G“ | U9044-0004 |
| **$CO_2$ back-up system**, 230 V/50 Hz, CryoCube®, New Brunswick™ Premium and HEF® | U9043-0008 |
| **$LN_2$ back-up system**, 230 V/50 Hz, CryoCube®, New Brunswick™ Premium and HEF® | U9044-0008 |

## Padlock adaptor kit

> Allows a user-supplied padlock to be added to the freezer's outer handle for extra security
> Available for upright models only

**Ordering information**

| Description | Order no. |
|---|---|
| **Padlock adaptor kit**, for CryoCube® models | F651570003 |
| **Padlock adapter**, for all upright ULT freezers except CryoCube® models | P0625-1170 |

# Maximum Storage

**Inventory Racking**
Eppendorf inventory racking systems are lightweight for easy transport, yet extremely durable. They are designed exclusively for Eppendorf freezers to maximize storage space. We offer a wide selection of standard racks for both upright and chest freezers.

> Constructed of strong, non-corrosive anodized aluminum for long-term use
> Standard racking is offered for 50 mm, 75 mm, and 100 mm boxes
> **High flexibility: freezer boxes with sizes of up to 133 mm**

Choose from a wide selection of racks for 50, 75, and 100 mm tall boxes. Chest freezer racks include a top handle for easy insertion and removal from the freezer.

**Ordering information**

| Description | Order no. |
|---|---|
| **Upright freezer rack**, Innova® U101 | |
| 50 mm (2 in) tall box,10 boxes per rack | K0641-3003 |
| 75 mm (3 in) tall box, 6 boxes per rack | K0641-3004 |
| 100 mm (4 in) tall box, 4 boxes per rack | K0641-3005 |
| **Upright freezer rack**, Innova® U360, U535, U725, and U725G | |
| 50 mm (2 in) tall box, 28 boxes per rack | K0641-3000 |
| 75 mm (3 in) tall box, 20 boxes per rack | K0641-3001 |
| 100 mm (4 in) tall box, 12 boxes per rack | K0641-3002 |
| **Chest freezer rack**, CryoCube® FC660 and FC660h, Innova® C585 and C760, Premium C340 and C660 | |
| 50 mm (2 in) tall box, 13 boxes per rack | K0641-1690 |
| 75 mm (3 in) tall box, 9 boxes per rack | K0641-1700 |
| 100 mm (4 in) tall box, 6 boxes per rack | K0641-1750 |
| **Upright freezer rack**, CryoCube® F570 and F570h, HEF U410, and Premium U410 | |
| 50 mm (2 in) tall box, 16 boxes per rack | K0641-1900 |
| 75 mm (3 in) tall box, 12 boxes per rack | K0641-1890 |
| 100 mm (4 in) tall box, 8 boxes per rack | K0641-1880 |

> A new family of stainless-steel racks for freezer boxes of up to 136 mm depth/width in different configurations will be available soon; please check at **www.eppendorf.com**

# Eppendorf Storage Boxes

The Eppendorf Storage Boxes - a complete system solution for sample storage

The comprehensive modular concept allows to select the optimal box combinations for individual storage demands. The outer footprint dimensions (136 mm) are compatible with common freezer rack systems and the different inner grid variants provide for a perfect fit to all typical tube formats: cryogenic tubes, microcentrifuge tubes, conical tubes 15 and 50 mL and other laboratory vessels. This space-saving approach, together with the application benefits resulting from the listed product features, helps to optimize your storage and archiving of samples.

> Made of polypropylene (PP) for high stability in freezing applications and a smooth opening and closing
> For freezing to -86 °C
> High-contrast permanent alphanumeric marking of each location through laser labeling enables easy sample reference and minimizes risk of sample mix-up
> Autoclavable (121 °C, 20 min)
> Transparent lid for easy and fast sample inspection
> Flexible and reliable labelling on the light colored box and on the 5 writing areas of the lid
> Optimal use of freezer space through to flexible combination of the different formats

**Ordering information**

| Description | Order no. |
|---|---|
| **Storage Box 10 × 10**, for 100 cryogenic tubes w. int. thread, 3 pcs., height 52.8 mm, 2 inch, polypropylene, for freezing to -86 °C, autoclavable, with lid and alphanumeric code | 0030 140.508 |
| **Storage Box 9 × 9**, for 81 screw cap (cryog.) tubes 1-2 mL, 3 pcs., height 52.8 mm, 2 inch, polypropylene, for freezing to -86 °C, autoclavable, with lid and alphanumeric code | 0030 140.516 |
| **Storage Box 9 × 9**, for 81 screw cap (cryog.) tubes 3 mL, 2 pcs., height 76.2 mm, 3 inch, polypropylene, for freezing to -86 °C, autoclavable, with lid and alphanumeric code | 0030 140.540 |
| **Storage Box 9 × 9**, for 81 screw cap (cryog.) tubes 4-5 mL, 2 pcs., height 101.6 mm, 4 inch, polypropylene, for freezing to -86 °C, autoclavable, with lid and alphanumeric code | 0030 140.567 |
| **Storage Box 8 × 8**, for 64 tubes 1-2 mL, 3 pcs., height 52.8 mm, 2 inch, polypropylene, for freezing to -86 °C, autoclavable, with lid and alphanumeric code | 0030 140.524 |
| **Storage Box 5 × 5**, for 25 tubes 5 mL, 4 pcs., height 63.5 mm, 2.5 inch, polypropylene, for freezing to -86 °C, autoclavable, with lid and alphanumeric code | 0030 140.532 |
| **Storage Box 5 × 5**, for 25 tubes 5 mL screw cap, 2 pcs., height 76.2 mm, 3 inch, polypropylene, for freezing to -86 °C, autoclavable, with lid and alphanumeric code | 0030 140.613 |
| **Storage Box 5 × 5**, for 25 tubes 15 mL, 2 pcs., height 127 mm, 5 inch, polypropylene, for freezing to -86 °C, autoclavable, with lid and alphanumeric code | 0030 140.583 |
| **Storage Box 3 × 3**, for 9 tubes 50 mL and 4 tubes 15 mL, 2 pcs., height 127 mm, 5 inch, polypropylene, for freezing to -86 °C, autoclavable, with lid and alphanumeric code | 0030 140.591 |

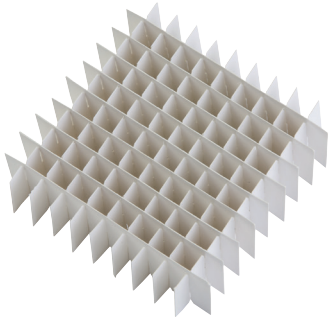
# Freezer Boxes

## Freezer Cardboard Storage Boxes

> White cardboard box with water resistant coating, designed to withstand ultra-low temperature
> Available in 50 mm (2 in), 75 mm (3 in), and 100 mm (4 in) tall boxes
> Compatible with box dividers 7 × 7 to 10 × 10 (dividers sold separately)
> Box size: 133 mm

**Ordering information**

| Description | Order no. |
|---|---|
| **Freezer Cardboard Storage Boxes**, white | |
| 50 mm tall | B50-SQ |
| 75 mm tall | B75-SQ |
| 100 mm tall | B95-SQ |



## Freezer Boxes Dividers

> Available in 7 × 7, 8 × 8, 9 × 9 and 10 × 10 configurations
> Compatible with freezer cardboard storage boxes (sold separately)

**Ordering information**

| Description | Order no. |
|---|---|
| **Freezer Boxes Dividers** | |
| 7 × 7, 17.4 mm max. tube diameter, holds 49 tubes | D49 |
| 8 × 8, 15 mm max. tube diameter, holds 64 tubes | D64 |
| 9 × 9, 13 mm max. tube diameter, holds 81 tubes | D81 |
| 10 × 10, 11.8 mm max. tube diameter, holds 100 tubes | D100 |

# Eppendorf Handling Solutions

Liquid Handling
Cell Handling
Sample Handling

**We have been developing and producing well sophisticated, groundbreaking products and solutions in the areas of Liquid Handling, Cell Handling and Sample Handling for more than 70 years. We always had one goal in mind: to make your job in the lab easier and more efficient.**

To find out more about the Eppendorf product world, visit www.eppendorf.com

## Liquid Handling

**In 1961, Eppendorf launched the first piston-stroke pipette.** Today, our broad product offerings in Liquid Handling range from manual pipettes to electronic pipettes, dispensers and burettes to automated pipetting systems. Eppendorf products are associated with state-of-the-art technology, outstanding ergonomics and award-winning design. This applies to both devices and the requisite consumables such as pipette tips and Combitips®.

### Multipette® E3/E3x

A motor driven dispensing system that utilizes the positive displacement principle and is capable of accurately pipetting any liquid.

> Eliminates time consuming volume calculations with auto Combitip recognition
> One-button tip ejector for one handed operation and contact-free advanced ejection

### Eppendorf Combitips advanced®

Eppendorf Combitips advanced have been completely redesigned and optimized to meet all the needs of any modern laboratory.

> The 9 volume sizes (0.1 mL – 50 mL) offer a maximum range of dispensing volumes
> High-precision dispensing regardless of the physical properties of the liquid

### ep*Motion*® 96

The Eppendorf epMotion 96 is a semi-automated electronic pipette for fast and precise parallel 96 channel microplate processing.

> Without changes to the system, a large volume range of 0.5 µL to 300 µL is available
> Performs 12 times faster than 8 channel pipettes

### Eppendorf Xplorer®

The Eppendorf Xplorer electronic pipettes are designed to eliminate many of potential error risks associated with manual pipetting.

> Single, 8-, and 12-channel pipettes for liquid volumes from 0.5 µL to 10 mL
> Intuitive operating concept for quick and easy work

### Eppendorf Easypet® 3

Experience a new dimension of electronic pipetting with complete speed control and the utmost precision.

> Intuitive and convenient speed adjustment simply done with the tips of your fingers
> Lightweight, well-balanced and ergonomic design that allows for fatigue-free pipetting



| | Eppendorf High-Efficiency ULT Freezers | | |
|---|---|---|---|
| **Model** | **HEF® U410** | **CryoCube® F570h** | **CryoCube® F570hw** |
| **Order no.** | | | |
| **120V, 60 Hz** | U9260-0007 | F570220005 | — |
| **208 - 230V, 60 Hz** | — | — | — |
| **230V, 50 Hz** | U9260-0008 | F570320001 | F570320101 |
| **Insulation** | Vacuum insulation paneling/ polyurethane foam | Vacuum insulation paneling/ polyurethane foam | Vacuum insulation paneling/ polyurethane foam |
| **Capacity** | 410 L (14.5 ft³) | 570 L (20.0 ft³) | 570 L (20.0 ft³) |
| **Number of internal doors** | 5 | 5 | 5 |
| **Number of shelves** | 5 | 5 | 5 |
| **Max. racks per freezer** | 15 | 25 | 25 |
| **Box capacity per rack** | | | |
| **5 cm (2 in) tall boxes** | 16 | 16 | 16 |
| **7.5 cm (3 in) tall boxes** | 12 | 12 | 12 |
| **10 cm (4 in) tall boxes** | 8 | 8 | 8 |
| **Box capacity per freezer** | | | |
| **5 cm (2 in) tall boxes** | 240 | 400 | 400 |
| **7.5 cm (3 in) tall boxes** | 180 | 300 | 300 |
| **10 cm (4 in) tall boxes** | 120 | 200 | 200 |
| **Sample capacity** | | | |
| **5 cm (2 in) tall boxes** | 24,000 | 40,000 | 40,000 |
| **7.5 cm (3 in) tall boxes** | 18,000 | 30,000 | 30,000 |
| **10 cm (4 in) tall boxes** | 12,000 | 20,000 | 20,000 |
| **Dimensions (W × D × H)**[*3] [*4] [*5] | 80 × 85.2 × 193.0 cm (31.5 x 33.5 x 75.3 in) | 102.5 × 85.2 × 194 cm (40.4 x 33.5 x 76.4 in) | 102.5 × 85.2 × 194 cm (40.4 x 33.5 x 76.4 in) |
| **Dimensions internal (W x D x H)** | 55 × 57.5 × 126.5 cm (21.6 x 22.6 x 49.8 in) | 76.5 × 57.5 × 126.5 cm (30.1 x 22.6 x 49.8 in) | 76.5 × 57.5 × 126.5 cm (30.1 x 22.6 x 49.8 in) |
| **Weight w/o accessories** | 262 kg (518 lbs) | 296 kg (653 lbs) | 296 kg (653 lbs) |
| **Shipping weight** | 302 kg (623 lbs) | 341 kg (752 lbs) | 341 kg (752 lbs) |
| **Pull down time to -85 °C**[*2] | 4.7 h | 4.3 h | 4.1 h |
| **Noise level (230 V)** | 53 dBA | 59 dBA | 56.0 dB |
| **Heat output (230 V)** | 505 W | 316 W | 325 W |
| **Power supply** | 230 V, 50 Hz | 230 V, 50 Hz | 230 V, 50 Hz |
| **Power consumption Eppendorf freezer (230 V)**[*1] | 8.4 kWh/day | 7.6 kWh/day | 7.8 kWh/day |
| **Max. power consumption per 5 cm box (230 V)**[*1] | 35 Wh/day | 19 Wh/day | 19.5 Wh/day |
| **Interior** | Stainless steel | Stainless steel | Stainless steel |
| **Password protection of set-points** | yes | yes | yes |
| **Extras** | - | Automatic vent port | Automatic vent port, water-cooled |

[*1] Empty freezer with shelves fitted, upright freezers only, set point -80 °C, 21 – 23 °C ambient conditions. [*2] Empty freezer with shelves fitted, upright freezers only, pulldown from 21 – 23 °C ambient conditions.
[*3] Optional $CO_2$/$LN_2$ back-up systems add 8.65 cm/3.5 in to height. [*4] To allow for handles and hinges, add 80 mm to width of upright freezers and 110 mm to the depth [*5] Door open adds up to 15 cm.




| Eppendorf High-Efficiency ULT Freezers | | |
|---|---|---|
| **CryoCube® FC660h** | **Innova® U725-G air-cooled** | **Innova® U725-G water-cooled** |
| | | |
| — | — | — |
| F660420005 | — | — |
| F660320001 | U9440-0005 | U9440-0004 |
| Vacuum insulation paneling/polyurethane foam | Vacuum insulation paneling/polyurethane foam | Vacuum insulation paneling/polyurethane foam |
| 660 L (23.3 ft³) | 725 L (25.6 ft³) | 725 L (25.6 ft³) |
| | 3 | 3 |
| N/A | 3 | 3 |
| 40 | 18 | 18 |
| | | |
| 13 | 28 | 28 |
| 9 | 20 | 20 |
| 6 | 12 | 12 |
| | | |
| 520 | 504 | 504 |
| 360 | 360 | 360 |
| 240 | 216 | 216 |
| | | |
| 52,000 | 50,400 | 50,400 |
| 36,000 | 36,000 | 36,000 |
| 24,000 | 21,600 | 21,600 |
| 207 × 84 × 107.5 cm (81.5 x 33.3 x 42.9 in) | 102.5 × 86.7 × 195 cm (40.4 x 34.1 x 76.8 in) | 102.5 × 86.7 × 195 cm (40.4 x 34.1 x 76.8 in) |
| 147 × 59 × 76 cm (57.9 x 23.2 x 30 in) | 86.5 × 61.5 × 136.5 cm 34.1 x 24.2 x 53.7 in) | 86.5 × 61.5 × 136.5 cm 34.1 x 24.2 x 53.7 in) |
| 304 kg (670 lbs) | 315 kg (694 lbs) | 315 kg (694 lbs) |
| 352 kg (776 lbs) | 365 kg (805 lbs) | 365 kg (805 lbs) |
| 3.66 h | 4.8 h | 4.8 h |
| 58.3 dB | 59 dB | 59 dB |
| 338 W | 730 W | 730 W |
| 230 V, 50 Hz | 230 V, 50 Hz | 230 V, 50 Hz |
| 8.1 kWh/day | 12.2 kWh/day | 11.3 kWh/day |
| 15.6 Wh/day | 24.2 Wh/day | 22.4 Wh/day |
| Stainless steel | Stainless steel | Stainless steel |
| yes | yes | yes |
| 30 mm thick inner lids for temp conformity | 30 mm thick inner lids for temp conformity | 30 mm thick inner lids for temp conformity, water-cooled |




| | Eppendorf Innova® ULT Freezers | | |
|---|---|---|---|
| **Model** | **Innova® U101** | **Innova® U360** | **Innova® U535** |
| **Order no.** | | | |
| **120V, 60 Hz** | U9420-0000 | U9425-0000 | U9430-0000 |
| **208 - 230V, 60 Hz** | — | — | U9430-0002 |
| **230V, 50 Hz** | U9420-0001 | U9425-0001 | U9430-0001 |
| **Insulation** | Vacuum insulation paneling/ polyurethane foam | Vacuum insulation paneling/ polyurethane foam | Vacuum insulation paneling/ polyurethane foam |
| **Capacity** | 101 L (3.6 $ft^3$) | 360 L (12.7 $ft^3$) | 535 L (18.9 $ft^3$) |
| **Number of internal doors** | 2 | 3 | 3 |
| **Number of shelves** | 2 | 3 | 3 |
| **Max. racks per freezer** | 6 | 9 | 12 |
| **Box capacity per rack** | | | |
| **5 cm (2 in) tall boxes** | 10 | 28 | 28 |
| **7.5 cm (3 in) tall boxes** | 6 | 20 | 20 |
| **10 cm (4 in) tall boxes** | 4 | 12 | 12 |
| **Box capacity per freezer** | | | |
| **5 cm (2 in) tall boxes** | 60 | 252 | 336 |
| **7.5 cm (3 in) tall boxes** | 36 | 180 | 240 |
| **10 cm (4 in) tall boxes** | 24 | 108 | 144 |
| **Sample capacity** | | | |
| **5 cm (2 in) tall boxes** | 6,000 | 25,200 | 33,600 |
| **7.5 cm (3 in) tall boxes** | 3,600 | 18,000 | 24,000 |
| **10 cm (4 in) tall boxes** | 2,400 | 10,800 | 14,400 |
| **Dimensions (W × D × H)**[*3] [*4] [*5] | 90 × 56.6 × 83 cm (35.4 × 32.7 × 22.3 in) | 67 × 86.7 × 195 cm (26.4 × 34.1 × 76.8 in) | 80 × 86.7 × 195 cm (31.5 × 34.1 × 76.8 in) |
| **Dimensions internal (W x D x H)** | 48 × 33 × 64 cm (18.9 × 13 × 25.2 in) | 44 × 61.5 × 136.5 cm (17.3 × 24.2 × 53.7 in) | 64 × 61.5 × 136.5 cm (25.2 × 24.2 × 53.7 in) |
| **Weight w/o accessories** | 116 kg (256 lbs) | 230 kg (507 lbs) | 250 kg (551 lbs) |
| **Shipping weight** | 141 kg (330 lbs) | 240 kg (529 lbs) | 298 kg (656 lbs) |
| **Pull down time to -85 °C**[*2] | 3.66 h | 5.6 h | 5.3 h |
| **Noise level (230 V)** | 55 dB | 56 dB | 56 dB |
| **Heat output (230 V)** | 310 W | 590 W | 720 W |
| **Power supply** | 230 V, 50 Hz | 230 V, 50 Hz | 230 V, 50 Hz |
| **Power consumption Eppendorf freezer (230 V)**[*1] | 7.4 kWh/day | 10.7 kWh/day | 13.2 kWh/day |
| **Max. power consumption per 5 cm box (230 V)**[*1] | 123.3 Wh/day | 42.5 Wh/day | 39.3 Wh/day |
| **Interior** | Stainless steel | Stainless steel | Stainless steel |
| **Password protection of set-points** | yes | yes | yes |
| **Extras** | Stackable, fits below bench | - | - |

[*1] Empty freezer with shelves fitted, upright freezers only, set point -80 °C, 21 – 23 °C ambient conditions. [*2] Empty freezer with shelves fitted, upright freezers only, pulldown from 21 – 23 °C ambient conditions. [*3] Optional $CO_2$/$LN_2$ back-up systems add 8.65 cm/3.5 in to height. [*4] To allow for handles and hinges, add 80 mm to width of upright freezers and 110 mm to the depth [*5] Door open adds up to 15 cm.




| Eppendorf Innova® ULT Freezers | | |
|---|---|---|
| **Innova® U725** | **Innova® C585** | **Innova® C760** |
| | | |
| — | U9400-0000 | — |
| U9440-0002 | U9400-002 | U9410-0002 |
| U9440-0001 | U9400-0001 | U9410-0001 |
| Vacuum insulation paneling/ polyurethane foam | Vacuum insulation paneling/polyurethane foam | Vacuum insulation paneling/polyurethane foam |
| 725 L (25.6 $ft^3$) | 585 L (20.7 $ft^3$) | 760 L (26.9 $ft^3$) |
| 3 | | |
| 3 | N/A | N/A |
| 18 | 32 | 44 |
| | | |
| 28 | 13 | 13 |
| 20 | 9 | 9 |
| 12 | 6 | 6 |
| | | |
| 504 | 416 | 572 |
| 360 | 288 | 396 |
| 216 | 192 | 264 |
| | | |
| 50,400 | 41,600 | 57,200 |
| 36,000 | 28,800 | 39,600 |
| 21,600 | 19,200 | 26,400 |
| 102.5 × 86.7 × 195 cm (40.4 × 34.1 × 76.8 in) | 169 × 78.5 × 109.2 cm (66.5 × 30.9 × 43 in) | 205 × 78.5 × 109.2 cm (80.7 × 30.9 × 43 in) |
| 86.5 × 61.5 × 136.5 cm 34.1 × 24.2 × 53.7 in) | 120 × 62.5 × 78 cm (97.2 × 24.6 × 30.7 in) | 156 × 62.5 × 78 cm 61.4 × 24.6 × 30.7 in) |
| 315 kg (693 lbs) | 240 kg (528 lbs) | 285 kg (627 lbs) |
| 363 kg (799 lbs) | 298 kg (656 lbs) | 333 kg (732 lbs) |
| 5.6 h | 4.5 h | 5.8 h |
| 59 dB | 56 dB | 58 dB |
| 714 W | 700 W | 750 W |
| 230 V, 50 Hz | 230 V, 50 Hz | 230 V, 50 Hz |
| 17.1 kWh/day | 13.6 kWh/day | 16 kWh/day |
| 33.9 Wh/day | 32.7 Wh/day | 28 Wh/day |
| Stainless steel | Stainless steel | Stainless steel |
| yes | yes | yes |
| - | 30 mm thick inner lids for temp conformity | 30 mm thick inner lids for temp conformity |


| | Eppendorf ULT Freezers |
|---|---|
| **Model** | **Premium U410** |
| **Order no.** | |
| **120V, 60 Hz** | U9260-0000 |
| **208 - 230V, 60 Hz** | U9260-0002 |
| **230V, 50 Hz** | U9260-0001 |
| **Insulation** | Polyurethane foam |
| **Capacity** | 410 L (14.5 $ft^3$) |
| **Number of internal doors** | 5 |
| **Number of shelves** | 5 |
| **Max. racks per freezer** | 15 |
| **Box capacity per rack** | |
| **5 cm (2 in) tall boxes** | 16 |
| **7.5 cm (3 in) tall boxes** | 12 |
| **10 cm (4 in) tall boxes** | 8 |
| **Box capacity per freezer** | |
| **5 cm (2 in) tall boxes** | 240 |
| **7.5 cm (3 in) tall boxes** | 180 |
| **10 cm (4 in) tall boxes** | 120 |
| **Sample capacity** | |
| **5 cm (2 in) tall boxes** | 24,000 |
| **7.5 cm (3 in) tall boxes** | 18,000 |
| **10 cm (4 in) tall boxes** | 12,000 |
| **Dimensions (W × D × H)**[*3] [*4] [*5] | 80 × 85.2 × 193.0 cm<br>(31.5 x 33.5 x 75.3 in) |
| **Dimensions internal (W x D x H)** | 55 × 57.5 × 126.5 cm<br>(21.6 x 22.6 x 49.8 in) |
| **Weight w/o accessories** | 235 kg (518 lbs) |
| **Shipping weight** | 283 kg (623 lbs) |
| **Pull down time to -85 °C**[*2] | 4.1 h |
| **Noise level (230 V)** | 58.8 dB |
| **Heat output (230 V)** | 448 W |
| **Power supply** | 230 V, 50 Hz |
| **Power consumption Eppendorf freezer (230 V)**[*1] | 10.8 kWh/day |
| **Max. power consumption per 5 cm box (230 V)**[*1] | 45 Wh/day |
| **Interior** | Stainless steel |
| **Password protection of set-points** | yes |
| **Extras** | - |

[*1] Empty freezer with shelves fitted, upright freezers only, set point -80 °C, 21 – 23 °C ambient conditions. [*2] Empty freezer with shelves fitted, upright freezers only, pulldown from 21 – 23 °C ambient conditions.
[*3] Optional $CO_2$/$LN_2$ back-up systems add 8.65 cm/3.5 in to height. [*4] To allow for handles and hinges, add 80 mm to width of upright freezers and 110 mm to the depth [*5] Door open adds up to 15 cm.



| Eppendorf ULT Freezers | |
|---|---|
| **CryoCube® F570** | **CryoCube® FC660** |
| | |
| F570200005 | — |
| F570400005 | F660400005 |
| F570300001 | F660300001 |
| Polyurethane foam | Polyurethane foam |
| 570 L (20.0 ft³) | 660 L (23.3 ft³) |
| 5 | |
| 5 | N/A |
| 25 | 40 |
| | |
| 16 | 13 |
| 12 | 9 |
| 8 | 6 |
| | |
| 400 | 520 |
| 300 | 360 |
| 200 | 240 |
| | |
| 40,000 | 52,000 |
| 30,000 | 36,000 |
| 20,000 | 24,000 |
| 102.5 × 85.2 × 194 cm<br>(40.4 x 33.5 x 76.4 in) | 207 × 84 × 107.5 cm<br>(81.5 x 33.3 x 42.9 in) |
| 76.5 × 57.5 × 126.5 cm<br>(30.1 x 22.6 x 49.8 in) | 147 × 59 × 76 cm<br>(57.9 x 23.2 x 30 in) |
| 270 kg (595 lbs) | 280 kg (617 lbs) |
| 315 kg (695 lbs) | 328 kg (723 lbs) |
| 5.10 h | 4.35 h |
| 59.5 dB | 58.9 dB |
| 438 W | 440 W |
| 230 V, 50 Hz | 230 V, 50 Hz |
| 10.5 kWh/day | 10.6 kW/day |
| 26.3 Wh/day | 20.4 Wh/day |
| Stainless steel | Stainless steel |
| yes | yes |
| Automatic vent port | 30 mm thick inner lids for temp conformity |

# Backed By World-Class Service

## Service and support for your peace of mind

We are committed to providing not only the highest quality products, but also world-class service that delivers complete customer satisfaction. Like our products, our service and support sets the standard for excellence.

Our worldwide service and support organization is one of the largest and finest in the industry. We work hard to earn your loyalty by giving you personalized and professional service every day—before, during, and after you receive a product from Eppendorf.

Our goal is to ensure that your equipment operates at peak performance. We offer services beyond essential maintenance and support, and can tailor a solution to best fit your specific needs.

> Installation and Operational Qualification (IQ/OQ) available
> Every freezer is equipped with S.M.A.R.T. Plus diagnostic software that allows system engineers to diagnose most issues over the phone at no cost—saving you time and money
> In-stock parts and product
> Multiple levels of personalized service and support:
  – Knowledgeable customer service representatives
  – Manufacturer trained field service technicians
  – Trained and qualified third-party network available for rapid response

In addition to our extensive standard warranty, Eppendorf offers ULT Freezer Performance Plans to suit your lab's needs while enhancing your peace of mind. You can choose between essential function checks, preventive maintenance plans, or Installation and Operational (IQ/OQ) certification services. These protocols are designed to check, validate, and promote reliable freezer performance that coincide with our manufacturer's specifications.

**Protect your priceless samples!**


# ULT Freezer Performance Plans

| Service Operation | ESSENTIAL CHECK | ADVANCED MAINTE-NANCE | PREMIUM SERVICE | Installation Qualification (IQ) | Operational Qualification (OQ) |
|---|---|---|---|---|---|
| **Order Number** | 0082 070 003 | 0082 070 004 | 0082 070 005 | 0082 070 007 | 0082 070 008 |
| **External Checks & Maintenance** | | | | | |
| Check installation environment | ■ | ■ | ■ | ■ | ■ |
| Check electrical supply and fittings | | ■ | ■ | ■ | ■ |
| Check $CO_2$/$LN_2$ backup system installation* | | ■ | ■ | ■ | ■ |
| Check independent temperature monitoring system* | | ■ | ■ | ■ | ■ |
| Operation of freezer lid gas strut (chest freezer only) | | ■ | ■ | | ■ |
| Alignment of door handle | ■ | ■ | ■ | | ■ |
| Alignment & sealing of outer door (upright freezer only) | | ■ | ■ | | ■ |
| Air filter inspection & cleaning | ■ | ■ | ■ | | ■ |
| **Internal Equipment & Fittings** | | | | | |
| Inspection & cleaning of heated vent/condensor | ■ | ■ | ■ | | ■ |
| Condition and function of inner doors/lids | | ■ | ■ | | ■ |
| Compressors: operating temperature check | | ■ | ■ | | ■ |
| Cooling fan: condition of fan motor, bearings, fan blades | | ■ | ■ | | ■ |
| Condition of insulation – accessible cooling circuit pipes | | ■ | ■ | | ■ |
| Condition of accessible electrical wiring | | ■ | ■ | | ■ |
| Display and function keys operation | ■ | ■ | ■ | | ■ |
| Chamber temperature sensor function, alarms function | ■ | ■ | ■ | | ■ |
| **Validation & Metrology** | | | | | |
| Validation and adjustment of operating parameters to within Eppendorf specifications | ■ | ■ | ■ | | ■*** |
| **Documentation** | | | | | |
| Check List provided | ■ | ■ | ■ | | ■ |
| Dated service sticker to confirm Eppendorf service | ■ | ■ | ■ | ■ | ■ |
| IQ Report and Certificate | | | | ■ | |
| OQ Report and Certificate | | | | | ■ |
| **Supporting Information** | | | | | |
| Contract period | one year | one year | one year | n/a | n/a |
| Number of preventive services included | one | one | one | n/a | n/a |
| Cost of repairs/parts replacement outside scope of preventive maintenance visit (where Eppendorf product warranty has expired) | not included | not included | discount on parts, labor, travel time** | n/a | n/a |

*Where this optional feature is present
**Please contact your local Eppendorf Service representative for details of discounts and/or any potential additional charges applying. Additionally, if you require a Customized Service we will be very pleased to discuss your requirements.
***The detailed certification service contents are listed in the OQ Report: e.g. test of battery, alarm, vacuum effectiveness, and final test run.

Performance Plans are available in selected countries only and service offer may differ.

**Order number for combined Installation & Operational Qualification (IQ/OQ) services: 0082 070.009**

# »Eppendorf ULT Freezers: Your samples are safe with us.«

**Your local distributor: www.eppendorf.com/contact**
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eppendorf@eppendorf.com • www.eppendorf.com

www.eppendorf.com/freezer