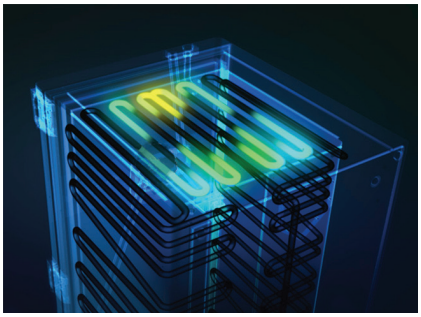
-86°C Ultra-Low Freezers



How It's Made **Matters**

Helmer SCIENTIFIC

How It's Made **Matters**

Designing an Ultra-Low Freezer You Can Trust for Your Sample Storage

Understanding "How It's Made Matters" was the tenet around which our Ultra-Low Freezers were designed and developed. Care was taken to focus on each aspect of the product, ensuring that every component works together to create an optimized system that instills confidence in the user.

The benefits of the Helmer Ultra-Low Freezer go beyond what you can see and include design elements that guarantee TrueBlue™ performance.

Let us show you how it's made matters.

Designed for optimized performance

Fits through standard 36” (914mm) doorways

Data exchange port
USB port used to download temperature, event, and access data or to upload software updates

Information at hand
Color, eye-level, touchscreen user interface provides access to all critical information on the home screen

Ergonomic, One-handed operation
Cast aluminum handle and hardened steel latch, door-mounted for easy operation

Built to last
Galvannealed steel construction with bacteria-resistant powder coating provides extra protection

Industrially-designed, adjustable hinges
Help prevent door sag for easy operation

Premium Insulation
Vacuum insulated panels in all outer doors and cabinets create energy efficient barrier

Easy Access
Drop-down and removable panels provide line-of-sight and easy access to serviceable components

Washable filter
Keeps dirt and other particles out of refrigeration system for increased refrigeration performance

Installation and placement
Heavy-duty, locking casters and leveling feet simplify installation

Remote alarm contacts and communication ports
Connects easily to facility LIMS or monitoring systems

Design Matters

Unique Heat Barrier System™ keeps heat out and reduces frost

The adversary of any ultra-low freezer is heat. We designed 4 levels of containment that combine an ice-resistant sealing surface with high-quality materials to keep heat out, providing better temperature uniformity and reducing frost. These containment measures create the Heat Barrier System™ exclusive to Helmer.

Fortified Outer Door

Secure closure prevents air leaks, keeping heat out and reducing frost build-up.

- Robust door with 3 heavy-duty, adjustable hinges
- Multi-bulb, polygonal gasket compresses significantly providing a compact sealing surface
- Heavy-duty, cast aluminum single-handed door handle provides smooth operation

Insulated Inner Doors

Maintaining cabinet temperature helps eliminate frost build-up.

- Structurally reinforced, insulated design provides a tighter closure to minimize change in interior temperature during routine door openings
- Dual-blade gasket system prevents the intrusion of warm air between inner doors sealing out heat
- Multiple doors provide easy access to samples without compromising other samples and can be removed individually for defrosting
- Positive latching inner doors prevent swing-outs

Single-handed Door Handle

Heavy-duty, cast aluminum and hardened steel are used to mold the door-mounted handle and latch of the ergonomic, door handle. The one-handed design is smooth and easy to operate, even while wearing gloves or holding samples.

The door handle includes both a key lock and padlock hasp for securing valuable samples.

Design Matters

Hot Gas Loop Anchors Frame and Cabinet Design

An ice-resistant sealing surface maintains a better seal that improves temperature uniformity and minimizes interior frost formation.

- Energy-efficient hot gas loop surrounds the frame, resulting in a virtually frost-free door frame
- Advanced composite panels provide reinforcement in the cabinet and reduce the amount of heat transfer

Using premium insulation panels in outer doors results in thinner, lighter doors that help prevent door sags, creating tighter seals and minimizing energy consumption

Premium Insulation

Stable temperature uniformity preserves outstanding sample quality and minimizes energy consumption.

- Premium insulation panels are used in all outer doors and cabinets
- Combined with traditional EcoMate™ foam-in-place insulation, the cabinets provide a precision temperature environment for the long-term preservation of specimens and components in laboratories and hospitals

Multi-point Gaskets

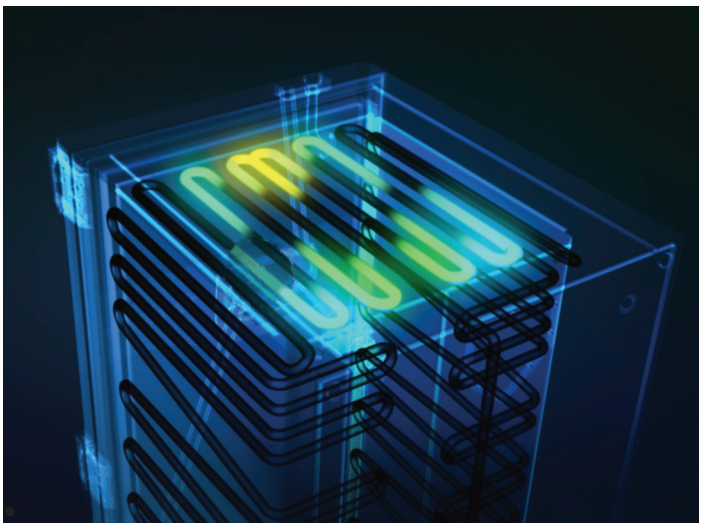
Multi-bulb, polygonal gaskets are used on outer doors which compress against the frame of the cabinet to form a tight seal and prevent moisture migration, keeping heat out and reducing frost build-up. The multiple points of compression lead to a longer-lasting, tighter seal for better performance.

Dual-blade gaskets between inner doors further prevent the intrusion of warm air, helping to eliminate frost from the freezer cabinet.

Cooling Matters

Optimum Oil Management Leads to Greater Reliability

One of the most important concepts in developing a reliable ultra-low freezer is designing an optimized refrigeration system that protects the compressor. By providing maximum heat exchange and designing a system for optimized oil management, Helmer has developed a system that will reduce stress on the compressor and increase the reliability of the freezer.



Oil Management

A primary cause of compressor failure is too much oil in the refrigeration system. Helmer has eliminated this issue with our exclusive refrigeration design.

- Specially engineered oil separator removes virtually all oil from refrigeration lines
- Mixed refrigerant has been optimized to ensure proper flow rate at extremely low temperatures

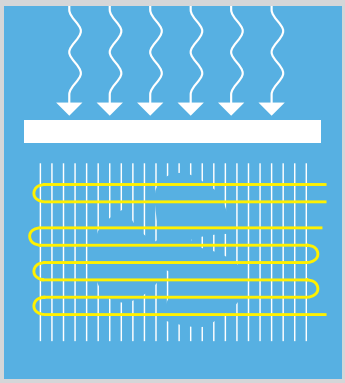
Maximum Heat Exchange

Providing optimum heat exchange pathways increase the efficiency of the system, reducing stress on the compressor and increasing reliability.

- Split evaporator evenly cools the cabinet from top to bottom delivering excellent uniformity and fast temperature response
- Precisely placed, hand-wrapped coils contact more surface area, offering better heat transfer and excellent temperature uniformity, increasing the overall efficiency and reducing the compressor run time
- Large, robust condenser provides a greater cooling surface area that improves low-stage performance even in the most demanding applications

Better heat transfer increases overall efficiency and reduces compressor run time

Larger cooling surface area improves low-stage performance, reduces stress on compressor

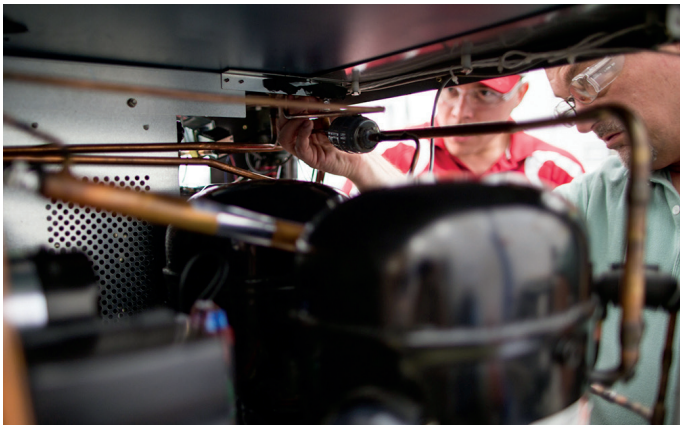


Service Matters

Reduced downtime and cost

Our goal is to ensure that your equipment operates at ultimate performance capacity. We are committed to providing the highest quality products and world-class service to complete the customer experience.

Our outstanding serviceability was created by design. Field Service Engineers, experts in servicing ultra-low freezers, were members of our design team. The result is an ultra-low freezer that is extremely reliable and easily serviceable, reducing both downtime and repair costs.



Additional Support

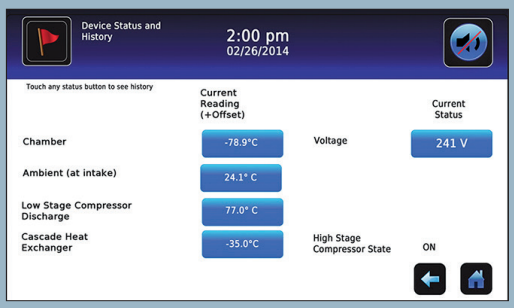
Personalized and professional service before, during, and after your purchase to ensure peak performance.

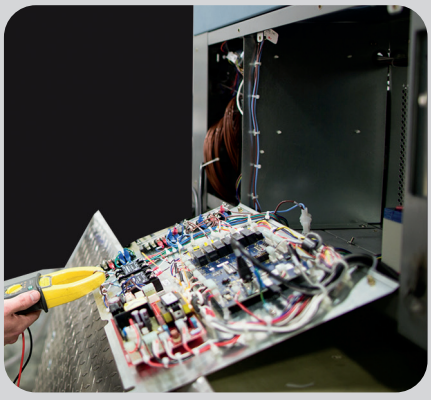
- IQ/OQ equipment validation guides available
- Warranty provided; extended warranties and preventive maintenance plans available
- Multiple levels of service support: customer service, technical support, and trained third-party providers

Troubleshooting

Faster problem diagnosis saves time and money, and keeps products where they should be... in the freezer.

- Device Status and History screen
  - Provides diagnostic data and graphs allowing system engineers to diagnose most issues over the phone at no cost
  - Observe trends to identify potential problems before they occur
- Service Thermocouples:
  Provide additional information to further pinpoint the problem location, leading to faster diagnosis and troubleshooting





Accessibility

Easy access to components reduces troubleshooting time and repair costs

- Critical components are accessible through drop-down and removable panels providing line of sight to all serviceable systems
- Service compartments provide adequate room to aid in the repair and replacement of serviceable components
- All condensing unit components are independently accessible eliminating the need to remove multiple system components

Intelligence Matters

Information at hand.

Our ultra-low freezers are smart. The i.C^3 Information Center provides intelligent diagnostic information and temperature data, while providing security features to keep the information safe. It consolidates everything you need to know about the status of your freezer in one secure location.

With the i.C^3, you can monitor and optimize performance with just a fingerstroke. Want to know who's been opening the freezer? Simple, check the Access Control Log. With intuitive prompts and messages, it's never been easier to set parameters, track performance, and download freezer data.

System Status Console

Snapshot of current conditions

Monitor the status of your freezer with one quick glance at the i.C^3® Home Screen. The system status console allows the user to monitor and optimize performance without entering the user interface.

Status Available

- Current temperature
- Current alarm conditions
- Any alerts in progress
- Unacknowledged alarms
- Historical temperature data
- Backup system status

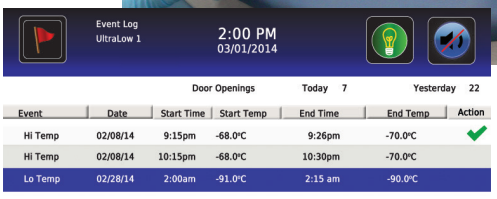
Information and Event Center

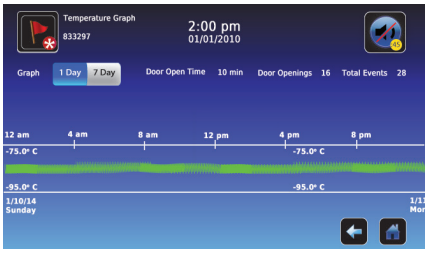
The what, when, and where

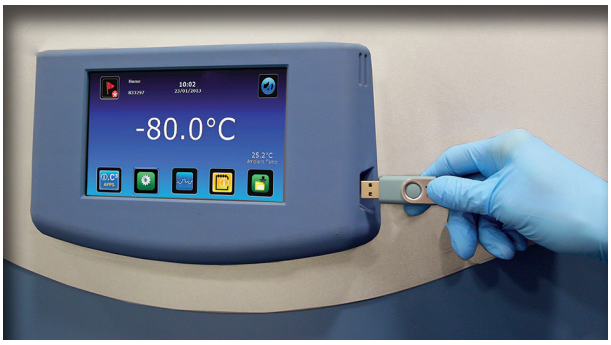
When you need more information, it's just a touch away. Our interactive temperature graph provides a visual history of the freezer performance and acts as a shortcut to the comprehensive event log.

The event log offers detailed information on event status, temperature data, and more. i.Act™ Event Acknowledgement offers the ability to record corrective actions and acknowledge events directly on-screen with a signature, date, and time stamp.

- Event status, start, and end times
- Door open status
- Max/min temps during alarm conditions
- 7 and 1-day graph view







Guardian Plus™ protects your products

Integrated Access Control Included

Limit user access on every ultra-low freezer, ensuring sample protection and integrity. The access control log tracks door openings by user, recording the date, time, duration, and method of access.

» Access log and PIN setup via i.C³
» Download access log via USB port

Password protected settings and multiple security levels can be tailored to individual requirements keeping your samples secure. The freezer can be configured for full access, with password protected settings, or with fully restricted access control.

Data Transfer

Export data with ease

Temperature, event, and access data is simply exported via the USB port in the side of the i.C³ Information Center and can be opened in a spreadsheet program.

Firmware updates can also be uploaded.

Device Status Console

Diagnostic support close at hand

The Device Status Console delivers diagnostic support by displaying both the current and historic status of the refrigeration system on the Device Status and History screen.

» Environmental Conditions: Shows the ambient temperature and real-time electrical voltage entering the unit
» Compressors: Shows the current state of the compressors - On/Off
» Seven-day service graphs: Each probe has a 7-day graph that shows historical data, taking the guesswork out of troubleshooting for quicker decision making and reduced downtime

i.Series Ultra-Low Freezer (-50°C to -86°C)

iUF118

iUF126

Model		iUF118	iUF126
Application Data	Temp Range	-50°C to -86°C	-50°C to -86°C
Electrical Data	Power Supply	208/230V 60Hz	208/230V 60Hz
	Maximum Current	11 FLA	11 FLA
	Plug	NEMA 6-15	NEMA 6-15
Dimensions	Storage Capacity (2"Cryobox)	352	528
	Storage Volume / cu ft (L)	18 (510)	26 (736)
	Interior Dimensions w x h x d in. (mm)	23.1 x 54.1 x 23.3 587 x 1374 x 592	34.4 x 54.1 x 23.3 874 x 1374 x 592
	Exterior Dimensions* w x h x d in. (mm)	32.5 x 78.2 x 37.5 826 x 1986 x 953	43.8 x 78.2 x 37.5 1113 x 1986 x 953
	Net Weight / lbs (kg)	622 (282)	725 (328)
	Shipping Weight / lbs (kg)	717 (325)	828 (375)
	Number of shelves / compartments	4 / 5	4 / 5
	Max. Shelf Weight / lbs (kg)	160 (72.6)	160 (72.6)
Performance	Energy Consumption (at -80°C setpoint)	18.5 kWhr/day	19 kWhr/day
	Uniformity (Peak Variation from -80°C setpoint)	+/- 5°C	+/- 5°C

*Exterior dimensions includes handles, casters, and hinges
Fits through standard 36" doorway. Fits through 32" doorway with door open and lower bezel removed.
Warranty: 5 years compressor, 2 years parts, 2 years labor

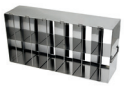
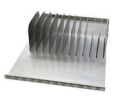
Options

Description		Part No.
CO_2 Backup System Maintains temperature down to -80°C with CO_2 Includes display/control module, backup battery, and freezer connection hardware.	Field Installed	220628
LN_2 Backup System Maintains temperature down to -80°c with liquid nitrogen. Includes alarm display/control module, backup battery, and freezer connection hardware.	Field Installed	220629
Chart Recorder (Inkless) 4" (102mm) Includes battery backup and 52 charts.	Factory Installed	4050033-1 iUF118 4050037-1 iUF126
Power Management Additional voltage boost system	Factory Installed	4900054-1
Set Temperature -70°C	Factory Set	4900057-1
Temperature Validation Certificate Documentation	Factory Tested	4900062-1
Certificate of Calibration Documentation	Factory Tested	4900061-1

Accessories

Description	Part No.
Chart Paper 4" (102mm) diameter, -100° C to -40° C, (pkg of 52)	220352
Replacement Air Filter	220582
IQ/OQ Equipment Validation Documentation	460299-A
Cryo Gloves Small Medium Large Extra Large	220624 220625 220626 220627
USB Flash drive	401095-1
i.C³® Screen Protectors (Pkg of 3)	450007-1

Ultra-Low Upright Freezer Racks

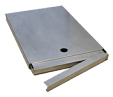
2” Box Racks	Part No. Description	Dimensions w x d x h in mm	Storage	iUF118	iUF126
	322098-1 Side access rack for (16) 2” boxes (inc. boxes and dividers)	5.5 x 21.625 x 8.75 140 x 550 x 225	Boxes Per Rack	16	16
			Racks Per Compartment	4	6
			Boxes Per Freezer	320	480
	322099-1 Side access rack for (20) 2” boxes (inc. boxes and dividers)	5.5 x 21.625 x 11 140 x 550 x 280	Boxes Per Rack	20	20
			Racks Per Compartment	4	6
			Boxes Per Freezer	352*	528*
	322100-1 Sliding drawer rack for (16) 2” boxes (inc. boxes and dividers)	5.5 x 22 x 8.125 140 x 559 x 225	Boxes Per Rack	16	16
			Racks Per Compartment	4	6
			Boxes Per Freezer	320	480
	322101-1 Sliding drawer rack for (20) 2” boxes (inc. boxes and dividers)	5.5 x 22 x 11 140 x 559 x 280	Boxes Per Rack	20	20
			Racks Per Compartment	4	6
			Boxes Per Freezer	352*	528*
3” Box Racks					
	322102-1 Sliding drawer rack for (8) 3” boxes (inc. boxes and dividers)	5.5 x 22 x 6.375 140 x 559 x 161	Boxes Per Rack	8	8
			Racks Per Compartment	4	6
			Boxes Per Freezer	160	240
Adjustable Racks					
	322103-1 Adjustable side access rack for 2” or 3” boxes (inc. boxes and dividers)	5.5 x 21.9375 x 8.875 (140 x 557 x 225)	Boxes Per Rack	16 / 8	16 / 8
			Racks Per Compartment	4	6
			Boxes Per Freezer	320/160	480/240
Tube Racks					
	322104-1 Sliding drawer rack for 15 ml centrifuge tubes (80)	5.5 x 22 x 4.9375 (140 x 559 x 126)	Tubes Per Rack	80	80
			Racks Per Compartment	4	6
			Tubes Per Freezer	1600	2400
	322105-1 Sliding drawer rack for 50 ml centrifuge tubes (39)	5.5 x 22 x 4.9375 (140 x 559 x 126)	Tubes Per Rack	39	39
			Racks Per Compartment	4	6
			Tubes Per Freezer	780	1170
Microplate Racks					
	322106-1 Side access rack for 96-well and 384-well microtiter plates with locking rod	5.5 x 22 x 11 (140 x 559 x 280)	Plates Per Rack	96 w/ lid 120 w/o lid	96 w/ lid 120 w/o lid
			Racks Per Compartment	4	6
			Plates Per Freezer	1920/2400	2880/3600
	322107-1 Side access rack for 96 Deep-well microtiter plates with locking rod	5.5 x 21.6 x 11 (140 x 550 x 280)	Plates Per Rack	24	24
			Racks Per Compartment	4	6
			Plates Per Freezer	480	720
	322108-1 Sliding drawer rack for 96-well and 384-well microtiter plates	5.4 x 21.5 x 7.3 (138 x 547 x 186)	Plates Per Rack	54 w/ lid 72 w/o lid	54 w/ lid 72 w/o lid
			Racks Per Compartment	4	6
			Plates Per Freezer	1080/1440	1620/2160
	322109-1 Sliding drawer rack for 96 Deep-well microtiter plates	5.4 x 21.5 x 8.1 (138 x 547 x 205)	Plates Per Rack	24	24
			Racks Per Compartment	4	6
			Plates Per Freezer	480	720
Red Cell Canister Racks					
	401256-1 Vertical rack for storage	11.2 x 16.3 x 4 (284x 414 x 102)	Canisters Per Rack	12	12
			Racks Per Compartment	2	2
			Canisters Per Freezer	120	120
	401257-1** Horizontal rack for processing	10 x 15.2x 4.2 (254 x 386 x 107)	Canisters Per Rack	3	3
			Canisters Per Freezer	3	3

* 4 tall on first three shelves, 5 tall on bottom two shelves.
**Only use (1) 401257 per freezer. 401257 holds 3 canisters.

Vial Boxes and Dividers

		Part No	Quantity	Dividers
	**2”(51mm) Fiberboard Vial Box** 5.25” x 5.25” (133 x 133mm) water repellent cardboard	322096-1	1	None
	**3”(75mm) Fiberboard Vial Box** 5.25” x 5.25” (133 x 133mm) water repellent cardboard	322097-1	1	None
	**2” (47mm) Plastic Vial Box** 5.12” x 5.12” (130 x 130mm) Autoclavable polypropylene with transparent lid and location ID	220620 white	1	81
		220621 blue	1	81
		220622 green	1	81
		220623 pink	1	81

Red Cell Canister

		Part No	Quantity	Dividers
	**Red Cell Canister for 2000 ml bags** 14.8 X 9.2 X 0.8 (376 x 234 x 20mm)	322110-1	1	N/A

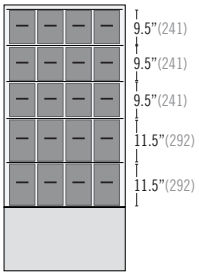
Fiberboard Grid Dividers

Part No.	Dimensions	Quantity	Holds
220618	9x9, 0.5” cell	1	13mm vials (81)
220619	10x10, 0.45” cell	1	12mm vials (100)

Rack Configurations

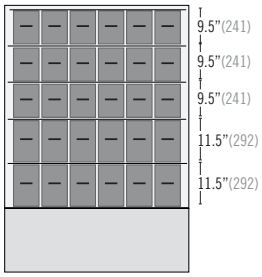
iUF118

5 compartments



iUF126

5 compartments



Manufacturing Facility

Helmer Scientific ultra-low freezers are designed, manufactured, and assembled in our U.S.-based, state-of-the-art and eco-conscious ISO13485 certified manufacturing facility in Noblesville, Indiana

Visit www.helmerinc.com/matters
to view our interactive demo.

Helmer Scientific
14400 Bergen Boulevard Noblesville, IN 46060 USA
Toll Free (US and Canada): 800.743.5637
Phone: +1.317.773.9073 Fax: +1.317.773.9082
www.helmerinc.com