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your samples

To the rest of the world these are samples. To us they are a scientist's life's work. A lab's mission. A company's breakthrough. We are obsessed with sample integrity. Every one of our cold storage solutions is optimized for the best protection of critical samples. Thermo Scientific™ HERAfreeze™ ultra-low temperature freezers offer a complete range of upright and chest configurations designed for maximum sample protection.
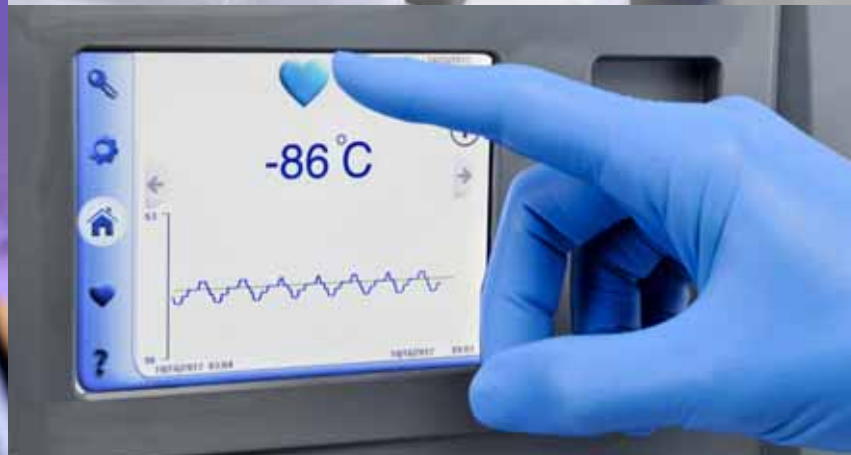
our obsession

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Introducing the new Thermo Scientific HERAfreeze HFU-T Series

Your samples need to stay cold. Period.
That's why our HFU-T Series freezers offer outstanding door opening recovery rates and consistent temperature uniformity. To ensure the safety of your samples, our new freezers endured rigorous testing – the equivalent of more than 26 years of run time before making their way to the market.

Your samples are precious and so is your lab space.
With our HFU-T Series freezers, it really is possible to fit more samples into less physical space. With five convenient sizes to choose from, we've got a freezer that will fit just right.

Sample protection should be easy.
Our HFU-T Series freezers feature an easy-to- use, touch screen panel with an innovative health monitor that lets you see what's going on inside without opening the door. On-board data logging provides you with a downloadable record.

Protect your samples and the environment too. From water-blown foam insulation and an environmentally-friendly mix of refrigerants, to an energy-saving mode option, our HFU-T Series freezers protect more than just your samples.

-86ºC and -40ºC upright and chest freezers

Our **HFU-B Series -86ºC** and **-40ºC** upright freezers feature an intuitive microprocessor control for uncompromised sample protection.

Our **HFU-C Series -86ºC** and **-40ºC chest freezers** offer all the features and benefits of our HFU-B Series uprights.
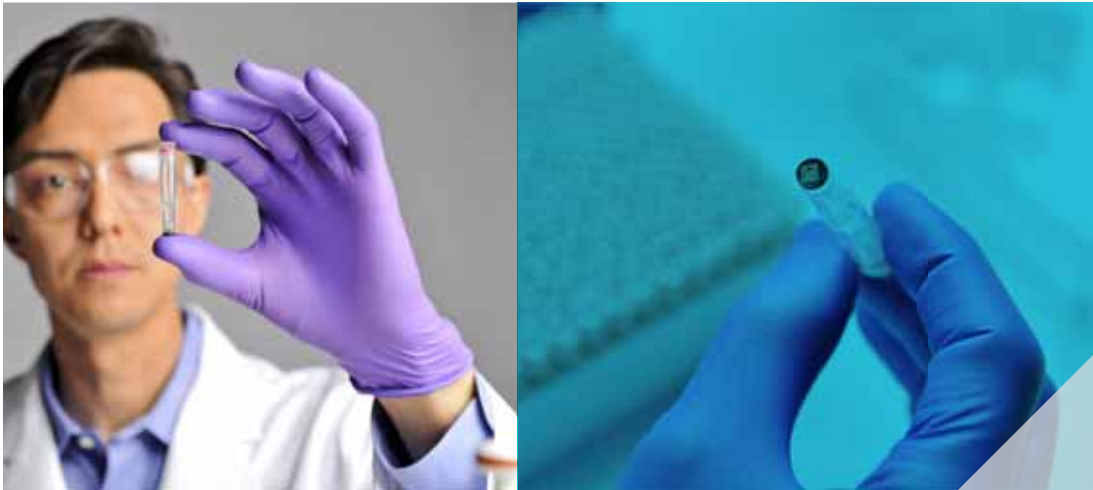
what to look for
in an ultra-low temperature freezer

Select the optimal capacity and design

		HERAfreeze™ HFU-T Series -86ºC Freezers					HERAfreeze™ HFU-B Series -86ºC Freezers			
		HFU300T	HFU400T	HFU500T	HFU600T	HFU700T	HFU240B	HFU320B	HFU400B	HFU600B
Capacity	cu. ft. (liters)	14.9	19.4	24.1	28.8	33.5	13	17.3	23	28
		(421)	(548)	(682)	(815)	(949)	(368)	(490)	(651)	(793)
2" Box Capacity	boxes	300	400	500	600	700	240	320	400	600
Vial Capacity	2mL vials	30,000	40,000	50,000	60,000	70,000	24,000	32,000	40,000	60,000
Footprint	sq. ft. (sq. meters)	7.05	8.46	9.92	11.38	12.85	7.61	9.00	11.02	12.64
		(0.65)	(0.79)	(0.92)	(1.06)	(1.19)	(0.71)	(0.84)	(1.02)	(1.17)
Energy*	KW/day	17	19	19	20	22	17	18	19.3	21
Vial to Footprint	vials/ft²	4,255	4,728	5,040	5,272	5,447	3,154	3,600	3,360	4,747
	(vials/m²)	(46,154)	(50,633)	(54,348)	(56,604)	(58,824)	(33,803)	(38,095)	(39,216)	(51,282)
Vials to Energy	watts/100 2mL vials (box)	2.36	1.93	1.54	1.39	1.31	2.95	2.47	1.98	1.46

* Based on internal performance data. Data on file. May, 2011.

what to look for
in an ultra-low temperature freezer

Choose advanced technologies

	HERAfreeze HFU-T Series -86ºC Freezers					HERAfreeze HFU-B Series -86ºC Freezers			
	HFU300T	HFU400T	HFU500T	HFU600T	HFU700T	HFU240B	HFU320B	HFU400B	HFU600B
Performance									
Display	LCD Touch-Screen					LED Push Button			
On-Board Datalogging	Standard					Not Available			
Setpoint Security	Standard					Not Available			
Operating Modes	Two Modes – High-Performance or Energy-Savings					One Mode – Standard Operation			
Security									
Key Lock	Standard					Standard With Unique Key Option			
Padlock Compatible	Standard					Standard			
Card Access	Optional					Not Available			
Setpoint Security	Standard					Not Available			
Data Management									
Monitoring Outputs	Standard: RS-485, 4-20mA, Dry Contacts					Standard: Dry Contacts, 4-20mA, RS-485 Optional: PT100 probe			
Data Outputs	Log File Through USB					Not Available			

Other ultra-low temperature freezers

-40ºC Upright and Chest Freezers
Choose our HFU-B Series -40ºC upright freezers or HFU-C Series -40ºC chest freezers for applications requiring storage between -10ºC and -40ºC. Select from 13, 17 or 23 cu. ft. (368, 490, 651L) uprights or 3, 12, 17 or 20 cu. ft. (85, 360, 481, 566L) chests. Models are available with optional chart recorders and backup systems.

-86ºC Chest Freezers
Do you require a -86ºC chest freezer configuration? Select from our HFU-C Series' 3, 12, 17 or 20 cu. ft. (85, 360, 481, 566L) cabinets to meet a wide variety of storage needs. Models are available with optional chart recorders and backup systems.

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ultimate protection
optimum capacity

Introducing the new Thermo Scientific HERAfreeze HFU-T Series

Built specifically to protect the most critical of samples, our new HFU-T Series freezers achieve outstanding thermal performance, safety and security through state-of-the-art engineering.

Oustanding Performance

Our new HFU-T Series freezers feature an outstanding BTU (British Thermal Unit) reserve. This leads to fast door opening recovery times so that sample integrity isn't compromised.[1]

Safety and Security

The highlight of our HFU-T Series freezers is an innovative, touch-screen user interface. Here you can control all freezer settings and user authority levels as well as monitor the freezer's health 24/7 and access a detailed event log. Need a record? Simply download a report of the current event log to a portable drive via a built-in USB port.

Energy-Savings

Save up to 15% in energy usage with our energy-savings mode* or choose our high-performance mode for applications requiring ultra-tight temperature uniformity.*

* Comparison between high-performance and energy-savings mode.
1. Based on internal performance data. Data on file. May, 2011.

ultimate protection
optimum capacity

Sample Storage Capacity

Laboratories come in all shapes and sizes, often creating a dilemma for the quantity of samples requiring protection. Our HFU-T Series freezers meet that challenge with five sizes, featuring outstanding capacity per footprint specifications.[1]

designed for
ultimate sample protection

Maximize temperature uniformity, space and minimize energy use

- High-tech construction combines vacuum panel insulation with environmentally-friendly, water-blown foam insulation for maximum sample-to-vial footprint storage.
- Environmentally-friendly, CFC/HCFC free refrigerants.
- Remote alarm contacts and 4-20 milliamp output compatible with external alarm and monitoring systems.
- Two rear access, 1-inch (25mm) ports allow for the use of external probes or instrumentation.

- Pressure Equalization Port (PEP) allows for quick re-entry after door openings.
- Power management system protects against a wide range of voltage variation and is easily accessible through the touch- screen display.
- NEW refrigeration system with high-efficiency compressors for outstanding performance and reliability. Brazed plate heat exchangerfor more efficient heat transfer. Induction brazed joings to reduce leak potential and improve reliability.

NEW reinforced shelves

Store up to 278 lbs. of samples (depending on freezer model) on our reinforced, stainless steel shelving.

NEW inner doors

Four polystyrene insulated inner doors help maintain cabinet temperature during openings and feature embedded rare earth magnets, eliminating exposed latches or magnets.

NEW outer door gaskets

4x7 heated gasket provides four touchpoints of security and seven zones of protection, maximizing cabinet temperature and eliminating frost build-up.

Optional stainless steel inventory racking solutions

NEW optional hands-free locking option

Proximity card access control for enhanced security. On-board com- puter records who opened the door, when it occurred and for how long.

designed for
ultimate sample protection

Long-life durability

Rugged steel construction with
a corrosion-resistant coating.

Information at your fingertips

New touch-screen user interface
provides access to vital freezer
information including event log,
settings and user profiles.

On-board data storage

Store up to 15 years worth of temperature
and event data on our on-board computer.

Optional LN$_2$ and CO$_2$ back-up systems

Provides three control points of
additional protection to ensure
maximum sample protection

Easily exchange data

Use the new USB port to
download freezer temperature and
event log data, or freezer settings
from one freezer to another.

Single-hand operation

Easy-to-use, padlock-compatible,
ergonomic door handle
with integrated key lock.

Optional chart recorder

Optional seven day, 6" (15.2cm)
chart recorder for validation and
regulatory requirements.

Easy-to-remove, washable filter

Rugged steel construction with
a corrosion-resistant coating.

Long-life durability

Provides protection against dust on the
condenser, which can cause reduced
refrigeration performance and increased
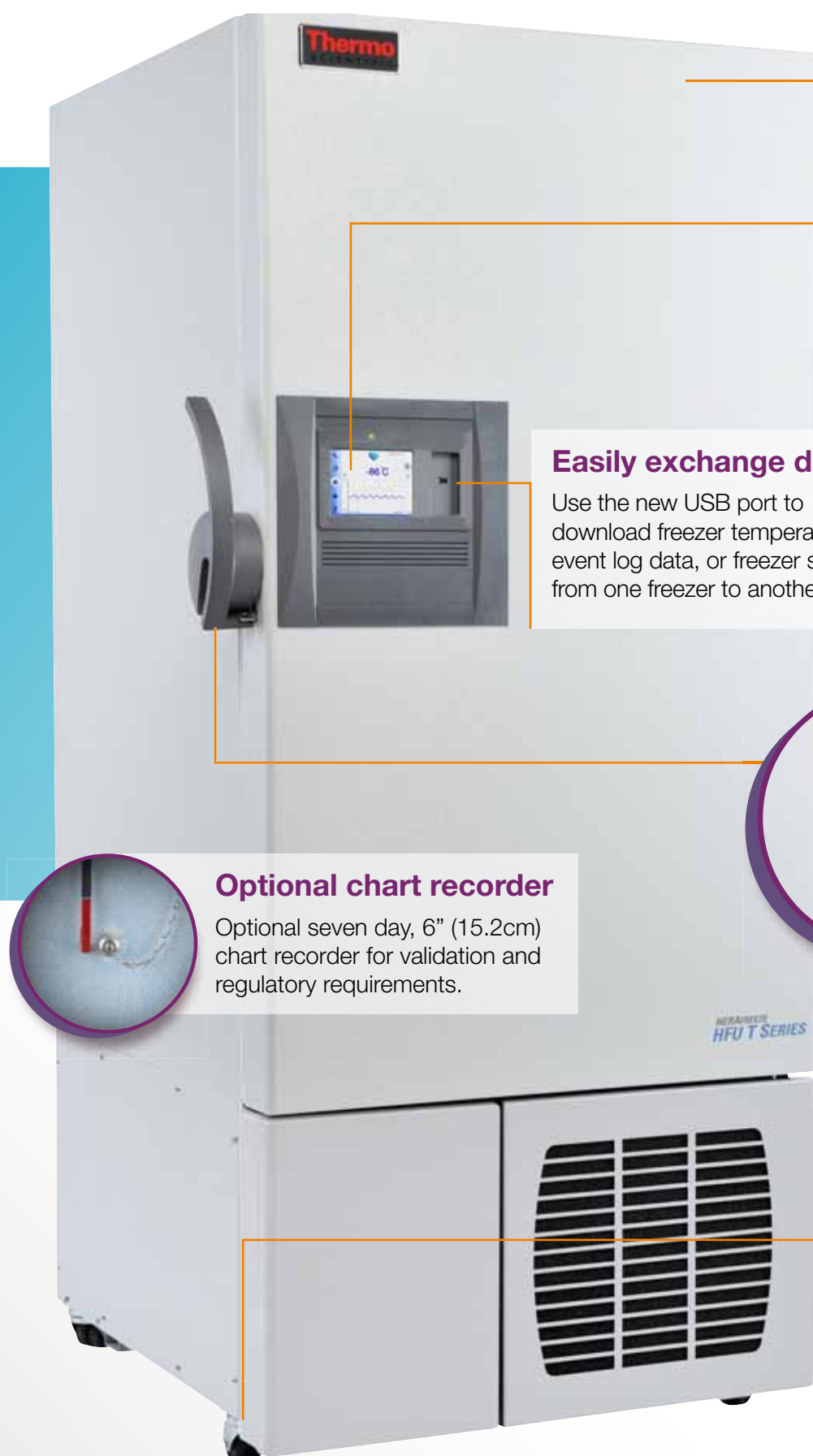risk to samples.

Simplified installation

with our new easy-roll 2" (5cm)
locking casters.

more samples

less freezer footprint

Our HFU-T Series freezers maximize sample storage capacity while minimizing the freezer's physical space inside your laboratory. Space concerns are common in labs throughout the world and that's why we offer five models to accommodate your storage as well as your footprint requirements.

**Store 20% more in 19% less space with our new HFU600T***

Store 60,000 2mL vials in our new HFU600T freezers compared with 48,000 in the previous generation HERAfreeze freezer.

Save 22% in space with the new HFU400T*

Store 40,000 2mL vials in a smaller footprint compared to the previous generation HERAfreeze freezer
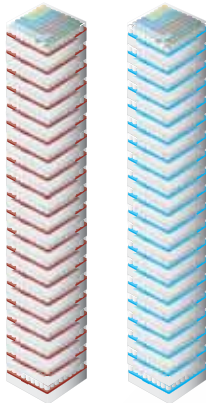
Each box represents 20 2" cryoboxes

Each box represents 20 2" cryoboxes
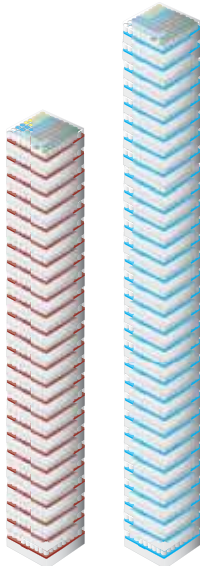
Previous Generation Freezer
24.4 cu. ft. (691L)
Held 48,000 vials

New HFU600T
28.8 cu. ft. (815L)
Holds 60,000 vials

Previous Generation Freezer
20.2 cu. ft. (572L)
Held 40,000 vials

New HFU400T
19.4 cu. ft. (548L)
Holds 40,000 vials

43.6" (110.8cm)
48" (122cm)

32.4" (82.2cm)
41.7" (105.6cm)

Store up to 118,300 vials in a single freezer

Working with our new cabinet design, vacuum insulation panel technology increases the internal capacity of 2 inch vials over previous generation freezers. And, by using our 1mL CryoBank™ tubes, you gain up to 76% more capacity for high-density storage in the same footprint!*

Freezer Model	Footprint (Nominal)	2 inch Boxes	3 inch Boxes	2mL Tubes	1mL Tubes
HFU300T	7.05 sq. ft. (0.65 m2)	300	225	30,000	50,700
HFU400T	8.46 sq. ft. (0.79 m2)	400	300	40,000	67,600
HFU500T	9.92 sq. ft. (0.92 m2)	500	375	50,000	84,500
HFU600T	11.38 sq. ft. (1.06 m2)	600	450	60,000	101,400
HFU700T	12.85 sq. ft. (1.19 m2)	700	525	70,000	118,300

your choice
of refrigeration

For the strictest tolerances, our high-performance mode provides the tightest temperature uniformity.**
For most applications, energy- savings mode offers excellent temperature control, plus up to
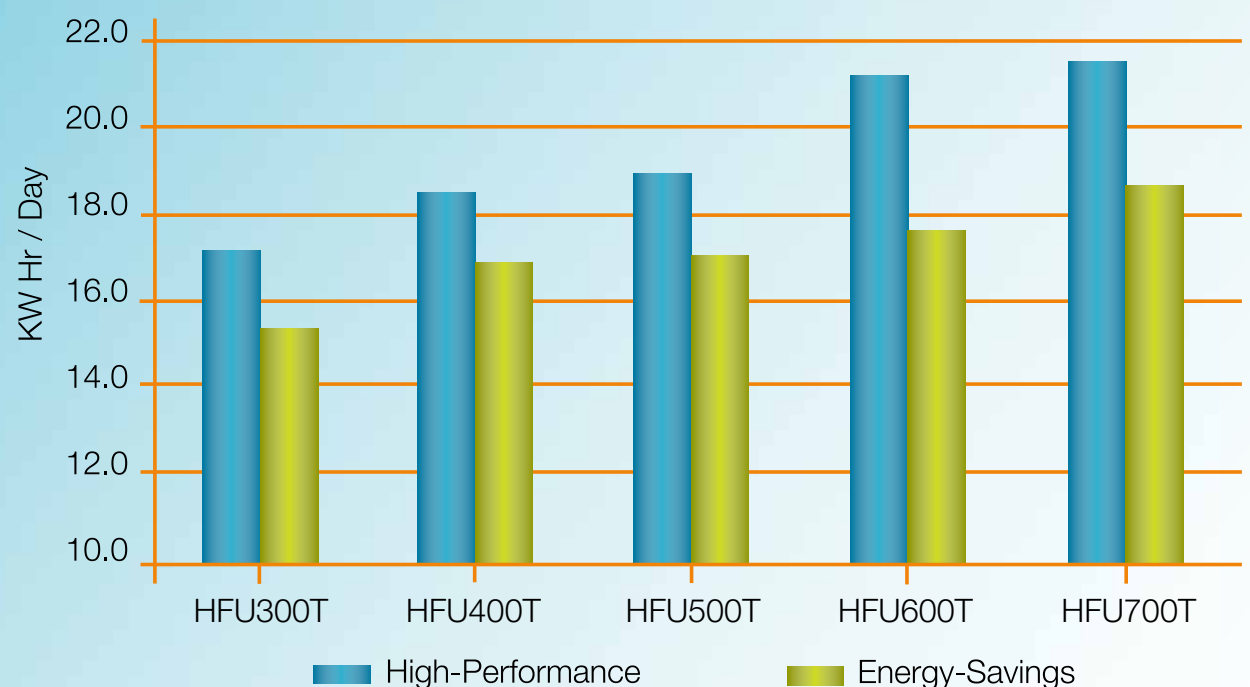15% savings on energy usage.**

High-Performance[1]
• Outstanding temperature
  uniformity and peak variation
  from setpoint
• Designed with GMP
  applications in mind

Energy-Savings[1]
• Excellent temperature uniformity
• Up to 15% energy savings over
  high-performance mode

Energy Usage per Day

KW Hr / Day

22.0
20.0
18.0
16.0
14.0
12.0
10.0

HFU300T   HFU400T   HFU500T   HFU600T   HFU700T

■ High-Performance   ■ Energy-Savings

By controlling the temperature and time of the cycles, the energy-savings
mode can save up to 15% while still offering tightly-controlled cabinet
temperature and excellent door-opening recovery. The high-performance
mode maintains the strictest cabinet temperature control.**

1. Based on internal performance data. Data on file. May, 2011.
* Compared to previous generation HERAfreeze.
** Comparison between high-performance and energy savings modes.

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sample protection
at your fingertips

You can check your freezer's "health" at any time by simply touching the heart icon on the main screen. Here, you will see the freezer's temperature and can access the settings.

Health monitoring system

- **If the heart is blue**, your freezer is in good health, protecting your samples.

- **In the event the heart changes to yellow**, something needs to be addressed. The yellow heart provides indications of system status, battery alerts, preventative maintenance reminders, ambient alerts and unacknowledged alarms.

- **A red heart indicates there is a problem**. Should this occur, you will be notified with visual and audible alarms. Conditions causing a red heart include warm and cold alarms, door open alarms and power failure.

Who is using this freezer?

Our freezers have multiple security levels to fit your lab requirements:

- **No access control required?** Use our full-access mode and the freezer operates like any other.

- **Need to restrict who can change setpoints?** Use our secure mode where you can designate different types of users.

sample protection
at your fingertips

Don't open the door: here's what's going on inside...

If at any time you want to know what's going on inside the freezer, you don't need to open the door (despite our excellent recovery times). The following are just a finger stroke away:

- **Alarm status:** including active alarms and past events.

- **Door opening status:** How many door openings and length of time the door was open.

- **Temperature status:** What is the actual temperature? When was the freezer at its warmest and coldest? Need more detail? Simply press the thermometer icon to get the temperature status at 8 points in the freezer or refrigeration system.

- **Environmental conditions:** See a summary of the ambient temperature and the incoming electrical voltage.

- **Back-up system status:** CO2 or LN2 is actively injecting into the freezer. "Green" means good; "Red" signifies to re-fill the CO2 or LN2 supply tank.

What happened, when, where?

Because each of your samples is precious, we've developed an intuitive event log as part of the HFU-T Series freezer's touch-screen interface. And, you can easily export your event log data via the built-in USB port to Microsoft™ Excel™. Simply insert your USB drive and touch the download icon.

Do you have multiple freezers on-site?

No problem. Simply load the data from one freezer to the next, via the built-in USB port. This simple action takes the freezer setpoint and user database from one freezer to another.

HFU300T   HFU400T   HFU500T   HFU600T   HFU700T

Thermo Scientific HERAfreeze HFU-T Series Upright Freezers (-50°C to -86°C)

Model No.	Capacity cu. ft. (liters)	2 inch Box Qty.	Electrical	Amps/Breaker (Plug)	Shelf Weight lbs. (kg)	Interior Dimensions H x W x D in. (cm)	Exterior Dimensions H x W x D in. (cm)	Shipping Weight lbs. (kg)
HFU300TA HFU300TD HFU300TV	14.9 (421)	300	115V / 60Hz 208-230V / 60Hz 230V / 50Hz	16/20 (NEMA 5-20) 12/15 (NEMA 6-15) 12/15 (European)	125 (56.8)	51.23 x 17.78 x 28.29 (130.11 x 45.16 x 71.86)	78.0 x 27.0 x 37.6 (198.1 x 68.6 x 95.5)	697 (303)
HFU400TA HFU400TD HFU400TV	19.4 (548)	400	115V / 60Hz 208-230V / 60Hz 230V / 50Hz	16/20 (NEMA 5-20) 12/15 (NEMA 6-15) 12/15 (European)	165 (73.4)	51.23 x 23.13 x 28.29 (130.11 x 58.74 x 71.86)	78.0 x 32.4 x 37.6 (198.1 x 82.2 x 95.5)	730 (332)
HFU500TA HFU500TD HFU500TV	24.1 (682)	500	115V / 60Hz 208-230V / 60Hz 230V / 50Hz	16/20 (NEMA 5-20) 12/15 (NEMA 6-15) 12/15 (European)	205 (91.7)	51.23 x 28.75 x 28.29 (130.11 x 73.03 x 71.86)	78.0 x 38.0 x 37.6* (198.1 x 96.5 x 95.5)	782 (355)
HFU600TA HFU600TD HFU600TV	28.8 (815)	600	115V / 60Hz 208-230V / 60Hz 230V / 50Hz	16/20 (NEMA 5-20) 12/15 (NEMA 6-15) 12/15 (European)	245 (110.1)	51.23 x 34.38 x 28.29 (130.11 x 87.31 x 71.86)	78.0 x 43.6 x 37.6* (198.1 x 110.8 x 95.5)	854 (388)
HFU700TD HFU700TV	33.5 (949)	700	208-230V / 60Hz 230V / 50Hz	12/15 (NEMA 6-15) 12/15 (European)	285 (128.4)	51.23 x 40.0 x 28.29 (130.11 x 101.60 x 71.86)	78.0 x 49.2 x 37.6* (198.1 x 125.1 x 95.5)	951 (432)

* Door opening clearance for HFU500T, HFU600T and HFU700T is 34.5" (86cm).

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| HFU300T | HFU400T | HFU500T | HFU600T | HFU700T |

Freezer Performance Data

Model No.	Energy Consumption (kW-hour/day)*		Peak Variation From -80ºC Setpoint (ºC)**	Door Opening Recovery (Minutes)	Warm-Up Time (-80ºC to -50ºC) (Minutes)***
	Energy-Savings Mode	High-Performance Mode			
HFU300T	15.3	17	+5.5 / -6.4	13	213
HFU400T	16.9	18.5	+5.6 / -5.3	20	225
HFU500T	17	19	+3.8 / -5.6	28	237
HFU600T	17	21.3	+2.9 / -4.9	33	240
HFU700T	18.5	21.8	+2.2 / -5.5	39	241

*   Energy Calculation: Average data based on internal testing with freezer setpoint at -80ºC and ambient temperature at 25ºC
** Peak Variation from Setpoint: Average data based on internal testing with freezer setpoint at -80ºC and ambient temperature at 25ºC
*** Warm-Up Time: Average: Average data based on internal testing with freezer setpoint at -80ºC and ambient temperature at 25ºC

Standard Plug Options

Model No.	Plug Description	Plug Type
US125V20A	NEMA 5-20	
US230V15A	NEMA 6-15	
EU230V16A	Continental EU	

Additional Cords and Plugs

Model No.	Plug Description
430266	115V/20A Twist Lock Plug (NEMA L5-20P)
430267	230V/15A Twist Lock Plug (NEMA L6-15P)

Specialty Plug Options

Choose one of our specialty plugs to configure your freezer to meet local requirements

Model No.	Plug Description	Plug Type
IT230V16A	Italy	
UK230V13A	Great Britian	
IN230V16A	India	
IS230V16A	Israel	
AU230V16A	Australia	
CH230V16A	China	
DK230V16A	Denmark	
AR230V16A	Argentina	
SW230V16A	Switzerland	
BR230V16A	Brazil	

Options (Field-installed must be installed by qualified professional)

Description	For Use With ▶	HFU300T	HFU400T	HFU500T	HFU600T	HFU700T
LN2 Back-Up System Maintains temperature down to -80ºC with liquid nitrogen. Models for HFU300T are stand alone.	**Factory Installed**	N/A	LN4567	LN4567	LN4567	LN4567
	Field Installed	FLN300A* FLN300D* FLN300V* FLN300W*	FLN4567	FLN4567	FLN4567	FLN4567
CO2 Back-Up System Maintains temperature down to -67ºC with CO2. Models for HFU300T are stand alone.	**Factory Installed**	N/A	CO4567	CO4567	CO4567	CO4567
	Field Installed	FCO300A* FCO300D* FCO300V* FCO300W*	FCO4567	FCO4567	FCO4567	FCO4567
Chart Recorder (Inkless) 6" (150mm), seven day, inkless recorder, to -115 to +50ºC, +5ºC resolution	**Factory Installed**	N/A	CR4567	CR4567	CR4567	CR4567
	Field Installed	N/A	FCR400H	FCR567FTH	FCR567FTH	FCR567FTH
Chart Recorder (Ink) 6" (150mm), seven day, recorder, -100 to +38ºC, +2ºC resolution	**Factory Installed**	N/A	CRP4567	CRP4567	CRP4567	CRP4567
	Field Installed	6383-6A* 6383-6D* 6383-6V* 6383-6W*	FCRP400H	FCRP567FTH	FCRP567FTH	FCRP567FTH
Access Key Option Card access control, includes five key cards	**Factory Installed**	RAC34567	RAC34567	RAC34567	RAC34567	RAC34567
	Field Installed	FRAC34567	FRAC34567	FRAC34567	FRAC34567	FRAC34567
Stainless Steel Freezer Interior	**Factory Installed**	SS34567	SS34567	SS34567	SS34567	SS34567

* A = 115V/60 Hz (NEMA 5-20 plug); D = 208-230V/60 Hz (NEMA 6-15 plug); V = 230V/50 Hz (EU plug); W = 230V/50 Hz (UK plug).

Accessories

Description	For Use With ▶	HFU300T	HFU400T	HFU500T	HFU600T	HFU700T
Access Key Pack (US) Includes five cards; supports ISO15693 Protocol		ACU34567	ACU34567	ACU34567	ACU34567	ACU34567
Access Key Pack (EU) Includes five cards;supports ISO14443 Protocol		ACE34567	ACE34567	ACE34567	ACE34567	ACE34567
Replacement Air Filter		AF34567	AF34567	AF34567	AF34567	AF34567
Replacement Back-Up Battery		400159	400159	400159	400159	400159
Shelf Kit Includes one shelf and clips		SK300	SK400	SK500	SK600	SK700
Chart Recorder Paper (Inkless) Quantity: 50		N/A	6185	6185	6185	6185
Chart Recorder Paper (Ink) Quantity: 50		17020	17020	17020	17020	17020
Cryo Gloves™ Medium		4425	4425	4425	4425	4425
Cryo Gloves™ Large		4426	4426	4426	4426	4426
Alarm Delay Module Eliminates nuisance alarms due to intermittent or transitory conditions. Adjustable delay requires alarm condition to exist for user defined period before signal is released to moni- toring system		6903	6903	6903	6903	6903
Seismic Restraint Kit		TF-ULT300	TF-ULT400	TF-ULT500	TF-ULT600	TF-ULT700

Water-Cooled Condenser Option

Model No.	For Use With
WC34567	All HFU-T Series freezers

The water-cooled condenser option is available on our HFU-T Series as a factory-installed option. Improve your energy utilization by decreasing energy consumption by up to 5% and decreasing heat emitted into your surroundings by up to 80%. This option utilizes our cascade refrigeration design to absorb heat into the water, re-using the energy while maximizing sample protection. Like our standard freezers, those with the water-cooled condenser options are UL or CE marked, depend- ing on the voltage.

Water Requirement

Pressure Range . . . . less than 90 PSI
206.8–620.5 kpa

Temperature Range 12.0ºC (53.6ºF)
to 25.0ºC (77.0ºF)

Water Flow Rate Required (per minute)
1.0 gal. (3.8L) per min.

Connections
1/2" NPT or 1/2" BSPT on inlet and outlet.
Installation requires a qualified technician.

Thermo Scientific TSU Series Upright Freezer Racks

2" Box Racks	Model No. (Description)	Dimensions H x W x D in. (cm)	Storage	HFU300T	HFU400T	HFU500T	HFU600T	HFU700T
	398329 (Sliding Drawer Rack for 2" Boxes)	9.5 x 5.5 x 26.9 (24 x 14 x 68.3)	Boxes Per Rack	20	20	20	20	20
			Racks Per Shelf	3	4	5	6	7
			Racks Per Freezer	15	20	25	30	35
			Boxes Per Freezer	300	400	500	600	700
	1950518 (Adjustable Side Access Rack for 2" Boxes)	9.4 x 5.4 x 26.75 (23.9 x 13.7 x 67.9)	Boxes Per Rack	20	20	20	20	20
			Racks Per Shelf	3	4	5	6	7
			Racks Per Freezer	15	20	25	30	35
			Boxes Per Freezer	300	400	500	600	700

3" Box Racks	Model No. (Description)	Dimensions H x W x D in. (cm)	Storage	HFU300T	HFU400T	HFU500T	HFU600T	HFU700T
	398328 (Sliding Drawer Rack for 3"Boxes)	9.5 x 5.5 x 26.9 (24 x 14 x 68.3)	Boxes Per Rack	15	15	15	15	15
			Racks Per Shelf	3	4	5	6	7
			Racks Per Freezer	15	20	25	30	35
			Boxes Per Freezer	180	240	300	360	420
	1950519 (Adjustable Side Access Rack for 3" Boxes)	9.4 x 5.4 x 26.75 (23.9 x 13.7 x 67.9)	Boxes Per Rack	15	15	15	15	15
			Racks Per Shelf	3	4	5	6	7
			Racks Per Freezer	15	20	25	30	35
			Boxes Per Freezer	180	240	300	360	420

Microplate Racks	Model No. (Description)	Dimensions H x W x D in. (cm)	Storage	HFU300T	HFU400T	HFU500T	HFU600T	HFU700T
	1950639 (Sliding Drawer Microplate Racks for Standard or Deepwell Plates)	9.5 x 5.5 x 26.9 (24 x 14 x 68.3)	Plates Per Rack	28	28	28	28	28
			Racks Per Shelf	3	4	5	6	7
			Racks Per Freezer	15	20	25	30	35
			Plates Per Freezer	420	560	700	840	980
	1950522 (Side Access Rack for Standard)	9.4 x 5.5 x 25.5 (23.9 x 14 x 64.8)	Plates Per Rack	77	77	77	77	77
			Racks Per Shelf	3	4	5	6	7
			Racks Per Freezer	15	20	25	30	35
			Plates Per Freezer	1,155	1,540	1,925	2,310	2,695
	398322 (Side Access Rack with Locking Rod for Standard or Deepwell)	9.4 x 5.5 x 25.7 (23.9 x 14 x 65.3)	Plates Per Rack	98	98	98	98	98
			Racks Per Shelf	3	4	5	6	7
			Racks Per Freezer	15	20	25	30	35
			Plates Per Shelf	294	392	490	588	686

Racking Shelf Kits Includes Sliding Drawer Racks and 2" Boxes With 100 Count Cell Dividers	For Use With ▶	HFU300T	HFU400T	HFU500T	HFU600T	HFU700T
	Model No.	RSK300SD5	RSK400SD5	RSK500SD5	RSK600SD5	RSK700SD5
	Number of Racks Included	3	4	5	6	7
	Number of 2" Boxes Included	60	80	100	120	140

Fiberboard Cryo Boxes

Description	Model No.	Quantity	Dividers
2" (50mm) Fiberboard Boxes 5" x 5" (12.7 x 12.7cm) water-repellant cardboard	5954 820002 820109	12 1 1	none 81 100
3" (80mm) Fiberboard Boxes 5" x 5" (12.7 x 12.7cm) water-repellant cardboard	5956 820003	12 1	none 81

Fiberboard Grid Dividers

Model No.	Dimensions	Quantity	Holds
5958	10 x 10, 0.49" cell	12	12mm vials (100)
820100	10 x 10, 0.49" cell	1	12mm vials (100)
6212	9 x 9, 0.54" cell	12	13mm vials (81)
820081	9 x 9, 0.54" cell	1	13mm vials (81)
5960	8 x 8, 0.61" cell	12	14mm vials (64)
820064	8 x 8, 0.61" cell	1	14mm vials (64)
5959	7 x 7, 0.7" cell	12	16mm vials (49)
820049	7 x 7, 0.7" cell	1	16mm vials (49)
820025	5 x 5, 0.98" cell	1	25 vials
820016	4 x 4, 1.22" cell	1	16 vials

Sliding Drawer Inserts (Pack of 5)

Description	Model No.	Slots
microplate insert	1950671P5	7
box insert	1950672P5	5

Thermo Scientific™ Nunc™ Cryobank™ systems

are a natural companion for our ultra-low temperature freezers. Both products have been designed tomaximize sample protection as well as sample space. The vials' 2D barcode is easily read by instruments,offering safe sample identifi cation and reading of entire racks in one process. In addition, our Cryobank™ systems provide the highest density cryo vial available: you can actually store up to 118,300 vials inside our 33.5 cu. ft. (948.7L) freezer.

Plus Thermo Scientifi c Nunc tubes conveniently click into their storage compartments with ease and can be handled without the risk of an accidental drop – yet one more reason why your samples deserve the outstanding quality and protection of Nunc storage products.

For more information, visit www.thermoscientific.com/densestorage.

daily dependability

Thermo Scientific HERAfreeze HFU-B Series upright freezers are designed for daily sample protection and depandability. All models feature state-of-the-art refrigeration, rugged construction and easy-to-use microprocessor control.

Rugged construction for everyday use

- Heavy gauge, cold-rolled steel cabinets with a powder coat paint finish for a uniform exterior that resists chipping and rust.

- 5" (127mm) foamed-in-place, polyurethane insulation reduces power consumption, maintains temperature setpoint and combined with triple-point door gasket, provides longer holding time in the event of a power loss.

- State-of-the-art, refrigeration system improves temperature control and increases reserve capacity, resulting in a more stable temperature sample.

- Two 1" (25mm) access ports allow for the use of inexpedient probes or instrumentation.

- Select from painted glaveneel or stainless steel interiors on the HFU-B -86°C Series or glaveneel interior on the HFU-B -40°C Series.

- Vacuum relief port permits easy access after door openings

Secure inner doors

Five inner doors reduce cold air loss and improve temperature recovery after door openings.

HFU-B Series -40ºC Freezer

daily dependability

Microprocessor control

Centralized information center, including microprocessor control and monitoring system, ensures that all controls and displays are easy to reach and read. Eye level on our -86ºC models and knee level on the -40ºC models.

Power Management System

With low voltage surge protectionand buck/boost.

Optional CO2 or LN2 back-up

Optional choice of CO2 or LN2 safety back-up systems for additional sample protection in the event of a power or mechanical failure.

Optional chart recorder

Optional built-in chart recorder can be installed at eye level on our -86ºC models and knee level on the -40ºC models.

Single-hand operation

Easy-to-use, ergonomic door handle with integrated key lock.

Easy-to-remove, washable filter

Provides protection from dust on the condenser, causing reduced refrigeration performance and increased risk to samples.

Simplified installation

with our new easy-roll 2" (5cm) locking casters.

HFU-B Series -86ºC Freezer

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Thermo Scientific HERAfreeze HFU-B Series -86ºC Upright Freezers (-50ºC to -86ºC)

Model No. (Painted Interior)	Model No. (Stainless Steel Interior)	Capacity cu. ft. (liters)	2 in. Box Qty.	Electrical	Amps / Breaker (Plug)	Maximum Shelf Weight lbs. (kg)	Interior Dimensions H x W x D in. (cm)	Exterior Dimensions H x W x D in. (cm)	Shipping Weight lbs. (kg)
HFU240BA HFU240BD HFU240BV	HFU240BSSA HFU240BSSD HFU240BSSV	13.0 (368)	240	115V / 60Hz 208-230V / 60Hz 230V / 50Hz	16/20 (NEMA 5-20) 12/15 (NEMA 6-15) 12/15 (European)	125 (57)	51.5 x 23.0 x 19.3 (130.8 x 58.4 x 49.0)	77.9 x 33.3 x 32.9 (197.9 x 84.6 x 83.6)	711 (323)
HFU320BA HFU320BD HFU320BV	HFU320BSSA HFU320BSSD HFU320BSSV	17.3 (490)	320	115V / 60Hz 208-230V / 60Hz 230V / 50Hz	16/20 (NEMA 5-20) 12/15 (NEMA 6-15) 12/15 (European)	125 (57)	51.5 x 23.0 x 25.3 (130.8 x 58.4 x 64.3)	77.9 x 33.3 x 38.9 (197.9 x 84.6 x 98.8)	830 (376)
HFU400BA HFU400BD HFU400BV	HFU400BSSA HFU400BSSD HFU400BSSV	23.0 (651)	400	115V / 60Hz 208-230V / 60Hz 230V / 50Hz	16/20 (NEMA 5-20) 12/15 (NEMA 6-15) 12/15 (European)	125 (57)	51.5 x 30.6 x 25.3 (130.8 x 77.7 x 64.3)	77.9 x 40.8 x 38.9 (197.9 x 103.6 x 98.8)	879 (399)
HFU600BD HFU600BV	HFU600BSSD HFU600BSSV	28.0 (793)	600	208-230V / 60Hz 230V / 50Hz	12/15 (NEMA 5-20) 12/15 (European)	125 (57)	51.5 x 36.6 x 27.0 (130.8 x 93.0 x 68.6)	77.9 x 46.8 x 38.9 (197.9 x 118.9 x 98.8)	1090 (494)

Thermo Scientific HERAfreeze HFU-B Series -40ºC Upright Freezers (-10ºC to -40ºC)

Model No.	Capacity cu. ft. (liters)	2 in. Box Qty.	Electrical	Amps / Breaker (Plug)	Maximum Shelf Weight lbs. (kg)	Interior Dimensions H x W x D in. (cm)	Exterior Dimensions H x W x D in. (cm)	Shipping Weight lbs. (kg)
HFU40240BA HFU40240BD HFU40240BV	13.0 (368)	240	115V / 60Hz 208-230V / 60Hz 230V / 50Hz	16/20 (NEMA 5-20) 12/15 (NEMA 5-15) 12/16 (European)	125 (57)	51.5 x 23.0 x 19.3 (130.8 x 58.4 x 49.0)	77.9 x 33.3 x 32.9 (197.9 x 84.6 x 83.6)	711 (323)
HFU40320BA HFU40320BD HFU40320BV	17.3 (490)	320	115V / 60Hz 208-230V / 60Hz 230V / 50Hz	16/20 (NEMA 5-20) 12/15 (NEMA 5-15) 12/16 (European)	125 (57)	51.5 x 23.0 x 25.3 (130.8 x 58.4 x 64.3)	77.9 x 33.3 x 38.9 (197.9 x 84.6 x 94.0)	830 (376)
HFU40400BD HFU40400BV	23.0 (651)	400	115V / 60Hz 208-230V / 60Hz 230V / 50Hz	16/20 (NEMA 5-20) 12/15 (NEMA 5-15) 12/16 (European)	125 (57)	51.5 x 30.6 x 25.3 (130.8 x 77.7 x 64.3)	77.9 x 40.8 x 38.9 (197.9 x 103.6 x 94.0)	879 (399)

Monitoring and Remote Options

Model No.	Electrical	Description
5612-1A 5612-3V	120V / 60Hz 230V / 50Hz	**Remote Alarm with Audible Signal** Extend the freezer's on-board alarm systems to remote locations in the facility.
400047 400182	120V / 60Hz 220V / 50Hz	**Sensaphone™ Telephone Dialing System** Monitors up to four channels and dials up to four telephone numbers. A dedicated telephone line is required. Not approved for sales requiring CE.
400134 400183	120V / 60Hz 220V / 50Hz	**Sensaphone Telephone Dialing System** Monitors up to eight channels and dials up to eight telephone numbers. A dedicated telephone line is required. Not approved for sales requiring CE.
400048 400049	120V / 60Hz 220V / 50Hz	**Temperature / Power Monitor** External digital and audible/visual alarm monitors temperature and power supply of the freezer. Includes temperature probes.

Sensaphone Telephone Dialing System

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Options (Field-installed must be installed by qualified professional)

Model No.	Installation	Description
1950535	Factory	**LN2 Back-Up System**
1950536	Field	Maintains temperature down to -80ºC with liquid nitrogen
1950533	Factory	**CO2 Back-Up System**
1950534	Field	Maintains temperature down to -70ºC with CO2
224195	Factory	**Ink Chart Recorder**
224196	Field	6" (15.2cm), seven day recorder to -150ºC. Includes one red felt tip pen and box of chart paper (quantity: 50)
224197	Factory	**Inkless Chart Recorder**
224198	Field	6" (15.2cm), seven day inkless recorder to -150ºC. Includes box of chart paper (quantity: 50)
195915	Factory	**Unique Key Lock**
290199	Factory	**PT100 Sensor**
290211	Field	Optional sensor for connection to building automation systems

Back-Up Systems

Chart Recorder

Accessories

Model No.	Description
195890	**Replacement Air Filter** (quantity: 5)
400159	**Replacement Back-Up Battery**
991505	**High-Pressure Liquid CO2 Hose** 6' long, kink-resistant, stainless steel lined, double-braided sheath. 316 stainless steel NPT F fitting. Maximum working pressure 25,000 psig
950316	**Wall Clamp –** CO2 cylinder holder for securing tank to the wall for OSHA guidelines
4000401	**LN2 Transfer Hose –** flexible 6' metal hose: 0.5" diameter, 45º flare with swivel end
17020	**Ink Chart Paper** (quantity: 50)
180000	**Inkless Chart Paper** (quantity: 50)
224134	**Shelf Kit for 240 box capacity freezers** (includes one shelf and clips)
224135	**Shelf Kit for 320 box capacity freezers** (includes one shelf and clips)
224158	**Shelf Kit for 400 box capacity freezers** (includes one shelf and clips)
224180	**Shelf Kit for 600 box capacity freezers** (includes one shelf and clips)
245231	**Red Felt Tip Pen**
245232	**Blue Felt Tip Pen**
4425	**Cryo Gloves** (medium)
4426	**Cryo Gloves** (large)
TF-ULT13	**Seismic restraint kit for 13 cu. ft. (368L)**
TF-ULT17	**Seismic restraint kit for 17.3 cu. ft. (490L)**
TF-ULT23	**Seismic restraint kit for 23 cu. ft. (651L)**
TF-ULT28	**Seismic restraint kit for 28 cu. ft. (600L)**

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Water-Cooled Condenser Option

Model No.	For Use With
195964	HFU240B
195965	HFU320B, HFU400B, HFU600B

The water-cooled condenser option is available on our -86ºC upright and chest freezers.

Your work environment stays cooler because 50% less heat is emitted to your surroundings (i.e. less BTU rejection) A water regulating valve automatically controls the water flow needed to maintain the compressor discharge pressure. Cooler compressor temperatures enhance compressor stability and reliability.

Like our standard freezers, those with the watercooled condenser options are also UL listed to Canadian and United States requirements and bear the CE mark.

The following specifications apply to tower and city water sources:*

Water Pressure and Temperature

Maximum Pressure .... 150 psig

Maximum Temperature 29.4ºC

Connections

Inlet .... 0.5" compression

Outlet .... 0.5" compression

Water Flow Rate Required (per minute)

Tower Water .... 3.0 gal. (11.4L)

City Water .... 1.0 gal. (3.8L)

Drain Required?

Tower Water .... No (return line)

City Water .... Yes

Installation requires a qualified technician and should include proper adjustment of the regulating valve which controls the discharge pressure.

*Actual requirements may vary due to specific water pressure conditions.

Thermo Scientific HERAfreeze HFU-B Series Upright Freezer Racks for 2" Boxes

2" Box Racks	Model No. (Description)	Dimensions H xW x D in. (cm)	Freezer Vol. cu. ft. (liters)	Boxes/ Rack	Racks/ Shelf	Racks/ Freezer	Boxes/ Freezer
	398332 (Sliding Drawer Rack for 2" Boxes)	9.4 x 5.5 x 16.6 (23.9 x 14 x 42.2)	13 (368.1)	12	4	20	240
	398331 (Sliding Drawer Rack for 2" Boxes)	9.4 x 5.5 x 22 (23.9 x 14 x 55.9)	17.3 (490)	16	4	20	320
			23 (651.3)	16	5	25	400
	1950728 (Sliding Drawer Rack for 2" Boxes)	9.4 x 5.5 x 26.3 (23.9 x 14 x 66.5)	28.1 (793)	20	6	30	600
	398324 (Adjustable Side Access Rack)	9.4 x 5.4 x 16.5 (23.9 x 13.7 x 41.9)	13 (368.1)	12	4	20	240
	398326 (Adjustable Side Access Rack)	9.4 x 5.4 x 22 (23.9 x 13.7 x 55.9)	17.3 (490)	16	4	20	320
			23 (651.3)	16	5	25	400

Thermo Scientific HERAfreeze HFU-B Series Upright Freezer Racks for 3" Boxes

3" Box Racks	Model No. (Description)	Dimensions H xW x D in. (cm)	Freezer Vol. cu. ft. (liters)	Boxes/ Rack	Racks/ Shelf	Racks/ Freezer	Boxes/ Freezer
	920099 (Sliding Drawer Rack for 3" Boxes)	9.5 x 5.5 x 17.4 (24 x 14 x 44.2)	13 (368.1)	9	4	20	180
	398330 (Sliding Drawer Rack for 3" Boxes)	9.5 x 5.5 x 22 (24 x 14 x 55.9)	17.3 (490)	12	4	20	240
			23 (651.3)	12	5	25	300
	1950729 (Sliding Drawer Rack for 3" Boxes)	9.5 x 5.5 x 26.3 (24 x 14 x 66.8)	28.1 (793)	15	6	30	450
	398325 (Side Access Rack for 3" Boxes)	9.4 x 5.4 x 16.1 (23.9 x 13.7 x 41.9)	13 (368.1)	9	4	16	144
	398327 (Side Access Rack for 3" Boxes)	9.4 x 5.4 x 22.1 (23.9 x 13.7 x 56.1)	17.3 (490)	12	4	20	240
			23 (651.3)	12	5	25	300
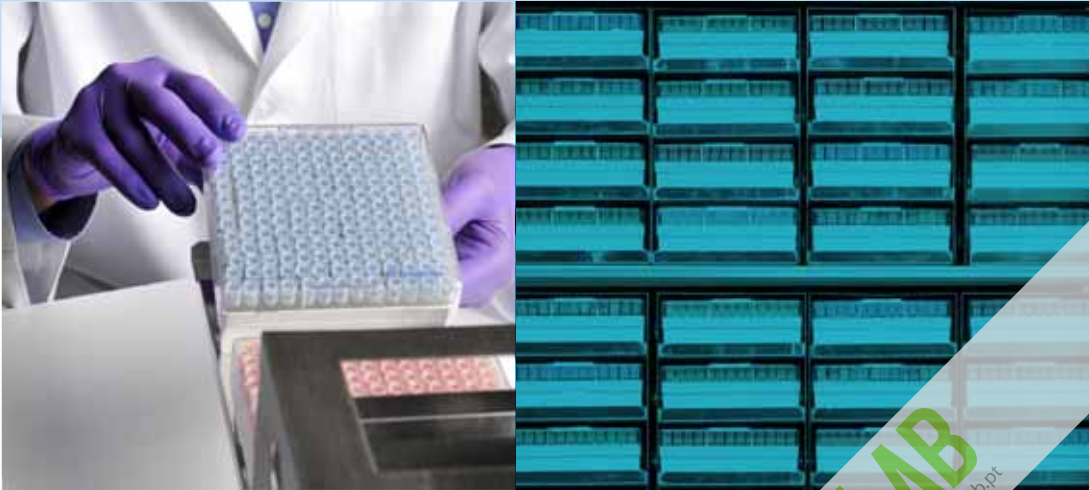
Sliding Drawer Inserts (Pack of 5)

Model No.	For	Freezer Volume	Slots
1950666P5	microplates	13 cu. ft. (368L)	4
1950669P5	microplates	17/23 cu. ft. (490/651L)	6
1950671P5	microplates	28 cu. ft. (793L)	7

Model No.	For	Freezer Volume	Slots
1950668P5	boxes	13 cu. ft. (368L)	3
1950670P5	boxes	17/23 cu. ft. (490/651L)	4
1950672P5	boxes	28 cu. ft. (793L)	5

Racking Shelf Kits (Includes Sliding Drawer Racks and 2" Boxes with 100-Count Cell Dividers)

Model No.	Freezer Vol. cu. ft. (liters)	Racks Included	Boxes Included
RSK13SD5	13.0 (368)	4	48
RSK17SD5	17.3 (490)	4	64
RSK23SD5	23.0 (651)	5	80
RSK28CFSD5	28.0 (793)	6	120

Thermo Scientific HERAfreeze HFU-B Series Upright Freezer Racks for Microplates

Microplate Racks	Model No. (Description)	Dimensions H xW x D in. (cm)	Freezer Vol. cu. ft. (liters)	Plates/ Rack	Racks/ Shelf	Racks/ Freezer	Plates/ Freezer
	1950637 **Sliding drawer rack**	9.5 x 5.5 x 16.6 (24 x 14 x 44.2)	13 (368.1)	16	4	20	320
	1950638 **Sliding drawer rack**	9.5 x 5.5 x 22 (24 x 14 x 55.9)	17.3 (490)	24	4	20	480
			23 (651.3)	24	5	25	600
	1950730 **Sliding drawer rack**	9.4 x 5.5 x 26.3 (24 x 14 x 66.8)	28 (793)	28	6	30	840
	398334 **Side access rack**	9.4 x 5.3 x 14.7 (23.9 x 13.5 x 37.3)	13 (368.1)	44	4	20	880
	398333 **Side access rack**	9.4 x 5.3 x 22 (23.9 x 13.5 x 55.9)	17.3 (490)	66	4	20	1320
			23 (651.3)	66	5	25	1650
			28 (793)	66	6	30	1980
	398335 **Side access rack**	9.4 x 5.3 x 22 (23.9 x 13.5 x 55.9)	17.3 (490)	30	4	20	600
			23 (651.3)	30	5	25	750
			28 (793)	30	6	30	900

See Page 19 for Boxes and Dividers

versatile and reliable

Thermo Scientific HERAfreeze HFU-C Series chest freezers contain all the sample protection features of our HFU-B upright series. Choose a -86ºC or -40ºC cabinet in four convenient sizes as well as a full range of racking solutions.

Rugged construction for everyday use

- Heavy gauge, cold-rolled steel cabinets with a powder coat paint finish for a uniform exterior that resists chipping and rust.

- 5" (127mm) foamed-in-place, polyurethane insulation reduces power consumption, maintains temperature setpoint and combined with sub lids and door gasket, provides longer holding time in the event of a power failure.

- State-of-the-art, refrigeration system improves temperature control and increases reserve capacity, resulting in a more stable temperature sample.

- Stainless steel interior.

- 1" (2.5cm) access ports allow for the use of independent probes or instrumentation.

Optional CO2 or LN2 back-up

Optional choice of CO2 or LN2 safety back-up systems for additional sample protectioin in the event of a power or mechanical failure.

Microprocessor control

Centralized information center, including microprocessor control and monitoring system ensures that all controls and displays are easy to reach and read. Knee level on the 3 cu. ft. (85L) models.

Polystyrene interiorsub-lids

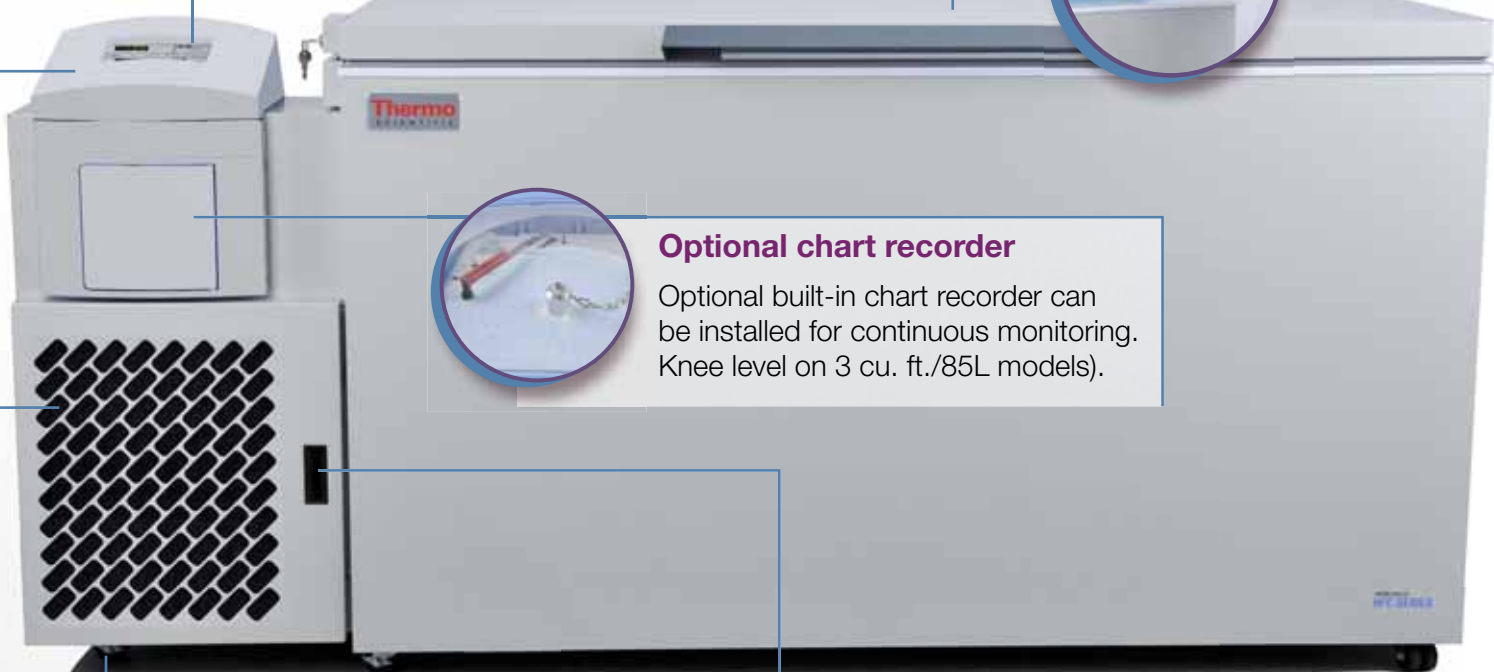Reduce cold air loss and improve temperature recovery after door openings.

Single-hand operation

Easy-to-use, ergonomic, lockable door handle.

Optional chart recorder

Optional built-in chart recorder can be installed for continuous monitoring. Knee level on 3 cu. ft./85L models).

Simplified installation

With our new easy-roll 2" (5cm) locking casters.

RS-485 and 4-20 milliamp analog outputs

For independent monitoring devices and recorders.

Easy-to-remove, washable filter

Provides protection from dust on condenser, reducing the risk of refrigeration malfunction or risk to samples

Thermo Scientific HERAfreeze HFU-C Series -86ºC Chest Freezers

Model No.	Capacity cu. ft. (liters)	2 in. Box Qty.	Electrical	Amps / Breaker (Plug)	Interior Dimensions H x W x D in. (cm)	Exterior Dimensions H x W x D in. (cm)	Shipping Weight lbs. (kg)
HFC390TA HFC390TV	3.0 (85)	63	115V / 60Hz 230V / 50Hz	10.5/20 (NEMA 5-20) 5.4/15 (European)	16.5 x 18.5 x 18.5 (41.69 x 47.0 x 47.0)	43.8 x 28.5 x 29.9 (113.3 x 72.4 x 75.9)	432 (196)
HFC1390TA HFC1390TD HFC1390TV	12.7 (360)	252	115V / 60Hz 208-230V / 60Hz 230V / 50Hz	16/20 (NEMA 5-20) 12/15 (NEMA 6-15) 12/15 (European)	28.0 x 42.5 x 18.5 (71.1 x 108.0 x 47.0)	40.5 x 72.0 x 33.4 (102.9 x 182.9 x 84.8)	716 (325)
HFC1790TA HFC1790TD HFC1790TV	17.0 (481)	348	115V / 60Hz 208-230V / 60Hz 230V / 50Hz	16/20 (NEMA 5-20) 12/15 (NEMA 6-15) 12/15 (European)	28.0 x 58.8 x 18.5 (71.1 x 149.4 x 47.0)	40.5 x 87.6 x 33.8 (102.9 x 222.5 x 85.9)	821 (372)
HFC2090TA HFC2090TD HFC2090TV	20.0 (566)	396	115V / 60Hz 208-230V / 60Hz 230V / 50Hz	16/20 (NEMA 5-20) 12/15 (NEMA 6-15) 12/15 (European)	28.0 x 66.5 x 18.5 (71.1 x 168.9 x 47.0)	40.5 x 96.0 x 33.4 (102.9 x 243.8 x 84.8)	833 (378)

Thermo Scientific HERAfreeze HFU-C Series -40ºC Chest Freezers (-10ºC to -40ºC)

Model No.	Capacity cu. ft. (liters)	2 in. Box Qty.	Electrical	Amps / Breaker (Plug)	Interior Dimensions H x W x D in. (cm)	Exterior Dimensions H x W x D in. (cm)	Shipping Weight lbs. (kg)
HFC350TA HFC350TV	3.0 (85)	63	115V / 60Hz 230V / 50Hz	5/15 (NEMA 5-20) 3/15 (European)	16.5 x 18.5 x 18.5 (41.69 x 47.0 x 47.0)	43.8 x 28.5 x 29.9 (113.3 x 72.4 x 75.9)	395 (179)
HFC1350TA HFC1350TD HFC1350TV	12.7 (360)	252	115V / 60Hz 208-230V / 60Hz 230V / 50H	6.5/15 (NEMA 5-20) 6.5/15 (NEMA 6-15) 6.5/15 (European	28.0 x 42.5 x 18.5 (71.1 x 108.0 x 47.0)	40.5 x 72.0 x 33.4 (102.9 x 182.9 x 84.8	659 (299
HFC1750TA HFC1750TD HFC1750TV	17.0 (481)	348	115V / 60Hz 208-230V / 60Hz 230V / 50Hz	6.5/15 (NEMA 5-20) 6.5/15 (NEMA 6-15) 6.5/15 (European	28.0 x 58.8 x 18.5 (71.1 x 149.4 x 47.0	40.5 x 87.6 x 33.8 (102.9 x 222.5 x 85.9	764 (34
HFC2050TA HFC2050TD HFC2050TV	20.0 (566)	396	115V / 60Hz 208-230V / 60Hz 230V / 50H	6.5/15 (NEMA 5-20) 6.5/15 (NEMA 6-15) 6.5/15 (European)	28.0 x 66.5 x 18.5 (71.1 x 168.9 x 4	40.5 x 96.0 x 33.4 (102.9 x 243.8 x 84.	776 (352)

Monitoring and Remote Options

Model No.	Electrical	Description
5612-1A 5612-3V	120V / 60Hz 230V / 50Hz	**Remote Alarm with Audible Signal** Extend the freezer's on-board alarm systems to remote locations in the facility
400047 400182	120V / 60Hz 220V / 50Hz	**Sensaphone Telephone Dialing System** Monitors up to four channels and dials up to four telephone numbers. A dedicated telephone line is required. Not approved for sales requiring CE.
400134 400183	120V / 60Hz 220V / 50Hz	**Sensaphone Telephone Dialing System** Monitors up to eight channels and dials up to eight telephone numbers. A dedicated telephone line is required. Not approved for sales requiring CE.
400048 400049	120V / 60Hz 220V / 50Hz	**Temperature / Power Monitor** External digital and audible/visual alarm monitors temperature and power supply of the freezer. Includes temperature probes.

Options

Model No.	Installation	Description
1950535	Factory	**LN2 Back-Up System** Maintains temperature down to -80ºC with liquid nitrogen
1950536	Field	
1950533	Factory	**CO2 Back-Up System** Maintains temperature down to -70ºC with CO2
1950534	Field	
201241	Factory	**Chart Recorder** 6" (150mm), seven day recorder to -150ºC. Includes box of chart paper (quantity: 50)
201240	Field	
398213	RS-232 (0-1)	**Data Outputs (Factory-Installed Only)**
398214	RS-485 (0-1V)	
398215	RS-485 (0-5V)	
195967	Factory	**Water-Cooled Condenser Option for -86ºC Chest Freezers** See page 24 for details.

Accessories

| Model No.	Description
195947	**Replacement Air Filter for 3 cu. ft. (84.9L) Chest Freezers** (quantity: 5)
195948	**Replacement Air Filter for Other Chest Freezers** (quantity: 5)
17020	**Ink Chart Paper** (quantity: 50)
400159	**Replacement Back-Up Battery**
245231	**Red Felt Tip Pen**
245232	**Blue Felt Tip Pen**
4425	**Cryo Gloves** (medium)
4426	**Cryo Gloves** (large)
4000401	**LN2 Transfer Hose –** flexible 6' metal hose: 0.5" diameter, 45º flare with swivel end
950316	**Wall Clamp –** CO2 cylinder holder for securing tank to the wall for OSHA guidelines
991505	**High-Pressure Liquid CO2 Hose –** 6' long, kink-resistant, stainless steel lined, double-braided sheath. 316 stainless steel NPT F fitting. Maximum working pressure 2,500 psig.

Chest Freezer Racks

Model No. (Description)	Dimensions W x D x H in. (cm)	Freezer Vol. cu. ft. (liters)	Boxes/ Rack (Plates)	Racks/ Freezer (Plates)	Boxes/ Freezer (Plates)
398184 (2" Box Rack with locking rod)	5.5 x 5.5 x 15.2 (14 x 14 x 38.6)	3.0 (85)	7	9	63
398186 (2" Box Rack with locking rod)	5.5 x 5.6 x 26.5 (14 x 14.2 x 67.3)	12.7 (360) 17.0 (481) 20.0 (566)	12 12 12	21 29 33	252 348 396
398185 (3" Box Rack)	5.5 x 5.5 x 16 (14 x 14 x 40.6)	3.0 (85)	5	9	45
398187 (3" Box Rack)	9.4 x 5.5 x 26.5 (14 x 14 x 67.3)	12.7 (360) 17.0 (481) 20.0 (566)	8 8 8	21 29 33	168 232 264
398188 (27 Position Microplate Rack)	5.3 x 3.5 x 25.8 (13.5 x 8.9 x 65.5)	12.7 (360) 17.0 (481) 20.0 (566)	(27) (27) (27)	(33) (48) (51)	(891) (1,296) (1,377)
114048 (Wire Basket with Rollers)*	11.8 x 16.5 x 12.3 (29.9 x 41.9 x 31.2)	12.7 (360) 20.0 (566)	N/A	5 9	N/A
189001 189000 (Basket Rail Set)	11.8 x 16.5 x 12.3 (29.9 x 41.9 x 31.2)	12.7 (360) 20.0 (566)	N/A	N/A	N/A

See Page 19 for Boxes and Dividers

**2" Box Rack
Model No.
398184**

**3" Box Rack
Model No.
398185**
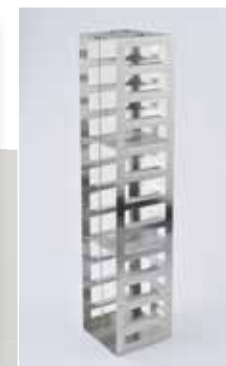
**2" Box Rack
Model No.
398186**

**Wire Basket
Model No.
114048**

**3" Box
Rack
Model No.
398187**

**Microplate
Rack
Model No.
398188**

Wireless remote monitoring for your ultra-low temperure freezer

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- Intelligent plug and play simplicity
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- Data traceability and security
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* Smart-Vue wireless monitoring kits are designed for first time users monitoring critical temperature parameters in ultra-low temperature freezers. Smart-Vue modules and sensors are availablefor temperature, RH, CO2 concentration, differential pressure, 4-20mA output, ambient conditions and alarm/relay dry contacts. Solutions vary by RF regions worldwide and are compatible with multiple types of laboratory equipment. Please ask your sales representative to evaluate a Smart-Vue wireless monitoring soution that best meets your specific needs.

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