



**New Brunswick Scientific**  
*Where Quality and Innovation Have Become Tradition*

## ULTRA-LOW TEMPERATURE FREEZERS

*Space Saving, Energy Efficient, Quiet Running and Dependable*





**New Brunswick Scientific**  
*Where Quality and Innovation Have Become Tradition*

# NBS -86°C Freezers

*Space Saving, Energy Efficient, Quiet Running and Dependable*

**New Brunswick Scientific's** lab equipment is legendary for design innovation, quality construction and long-term durability. Our -86°C freezers are no exception. Energy efficient, quiet-running and dependable, with a 25-year track record, they're offered in ten models and two product ranges to accommodate a variety of needs; and are stocked for ready delivery, year-round:

**Innova® freezers** — use Vacuum Insulation Panel technology to provide up to 30% more storage capacity than traditionally-insulated freezers — without increasing external dimensions. These top-of-the-line models also offer a variety of added design advantages, such as seals on inner doors and higher-grade seals on outer doors to better preserve samples and lower energy bills; heated vent with plunger to clear ice build-up and prevent vacuum formation allowing the door to be quickly re-opened without delay; and easy lift-off inner doors that simplify removal for cleaning.

**Premium freezers** — are high quality and full-featured, using conventional polyurethane insulation to provide a cost-saving alternative.



For labs short on space, we now offer a new slender model, Innova U360. Use of ultra-efficient vacuum insulation panel technology enables the U360 to hold 25,200 samples, yet measure under 27" (67 cm) wide, including the handle. It features our advanced new controller with extra-large display and built-in data logging and graphing capability.



More storage — same space. That's the advantage of our Innova freezers, available in chest or upright styles. It's room you won't have to make room for.

## ENERGY EFFICIENT

**NBS Freezers Consume Less Power per Kilowatt-Hour** than ultra-low temperature freezers of similar size, resulting in lower energy bills. How much can you save over the lifetime of your freezer? See page 9

**Rapid Temperature Recovery After Door Opening** offers enhanced sample stability

- 1 Outer Door Seals**  
flexible, low-temperature seals prevent cold air loss for lower energy bills and less maintenance
- Inner Door Seals**  
reduce cabinet temp. fluctuations and limit cold air loss, reducing recovery time and energy consumption. (Innova models)
- 2 Quiet Powerful Fan**  
reduces noise and maintenance
- 3 Multiple Compartments**  
with insulated inner doors & sub-lids protect samples and improve energy efficiency

## SAMPLE SECURITY

- 4 Keyed Locks on Outer Doors & Lids**  
prevent unauthorized access. Optional padlock adapter kit available for added security
- 5 User-Defined Password**  
prevents unauthorized changes to alarm and temperature setpoints
- 5 Audible and Visual Alarms**  
indicate high & low temperature conditions, power failure, low battery, blocked filter & fault condition
- 6 Lockable Plate**  
over power & alarm switches prevent accidental shutdown

**Automatic Restart with Non-Volatile Memory**  
returns setpoints to user-programmed levels after power interrupt

**Battery Backup**  
maintains temperature settings and activates alarms during power outage

**Optional CO<sub>2</sub> & LN<sub>2</sub> Backup Systems**  
protect freezer contents

**Remote Contacts**  
provide connection to an external, user-supplied, security system



## OTHER DESIGN ADVANTAGES

**7 Innova Models**  
increase storage by up to 30% over freezers of equal size

**Top-Quality Stainless-Steel Interior**  
prevents oxidation, scratches or rust; easily cleaned

**Two Pass-Through Ports**  
allow CO<sub>2</sub>/LN<sub>2</sub> injection or addition of probes

**8 Two-Stage Cascade Refrigeration**  
system uses industrial-grade, commercially-available, hermetically-sealed compressors

**Unique Automatic Reset**  
protects the microprocessor controller from damage by electrical spikes

**Internal Voltage Stabilizer**  
evens out voltage fluctuations to protect your freezer and maintain stable power. (Innova 60 Hz models only, excluding U101 & U360. Slide-in stabilizer optional on U360. External option on U101 and Premium models)

## FLUSH, FRONT-MOUNTED MICROPROCESSOR CONTROL PANEL

- Ergonomically located
- Easy to read and operate
- Membrane keypad is easily cleaned

### CONVENIENCE

- Flush, Front-Mounted Control Panel** is easy to read and reach
- Easy-to-Open Door** provides one-handed operation; cam latch ensures secure door closure
- Heated Vent with Spring-Assisted Plunger to Break Icing** prevents vacuum formation, allowing door to be re-opened quickly. (Premium models include heated vent, without plunger)
- Low Noise & Low Heat Output** allow freezer to be placed directly in the lab
- New Innova Inner Door System with Molded Grip and Ice-Proof Latch** provides improved accessibility
- Easy Mobility** all models fit through standard doors and elevators and include heavy-duty casters. (Compact U101 provided with rear rollers)
- Remote Control & Data Logging** using optional CryoCommand™ software with RS-485 interface controls up to 30 freezers. (Not available for Innova U360)
- Optional Data Loggers**, from chart recorders to independent temp. monitoring systems, simplify validation. (Innova U360 includes built-in, automated data logging & storage capability for up to 30 days of data)
- Optional Inventory Racking** is available to optimize your storage space
- Front-Mounted, Washable Filter** easily accessed without tools
- Stainless-Steel Shelves** provided in all uprights. Adjustable height, high quality
- Inner Doors Easily Lift Off Without Tools** for defrosting & cleaning. (Door hinges in Premium models unscrew)

**Remote Control Indicator**  
Illuminates when control is via RS-485 port and CryoCommand software

**Filter Clean Indicator**  
Lights when filter needs cleaning to prevent overheating the compressor

**Bright Red LED Display**  
Displays temperature, alarm setpoints, and fault codes

**Setpoint Keypad**  
Allows quick setpoint entry

**Programming Keys**  
Used to program password, setpoints and alarms

**Alarm Test / Mute**  
Allows testing of audible and visual alarms. "Mute" silences alarm for 30 min., allowing alarm condition to be corrected

**Battery Backup**  
Continuously-charged system provides full alarm functions and displays, in case of power failure  
Low Battery Indicator flashes when battery is low

**Fault Indicator\***  
Indicates a system failure  
**S.M.A.R.T. Plus™** self-diagnostic software identifies fault codes for quick diagnosis

**High & Low Temperature Alarms\***  
Indicate temperature has exceeded user-defined setpoints

**Power Failure Indicator\***  
Indicates loss of power. Light remains on, until reset, after power is restored

**NEW BRUNSWICK SCIENTIFIC**

**TEMPERATURE**  
88.8 °C

1 2 3 4 5 6  
7 8 9 0 E C

REMOTE CONTROL FILTER CLEAN BATTERY LOW  
TEMP ALARM POWER FAIL FAULT

SET POINT LOW ALARM HIGH ALARM LOCK CODE CHANGE ALARM TEST MUTE

(\* Remote alarm contacts are provided to allow external alarm and auto-dialer systems to communicate with our freezers, where asterisk is shown.

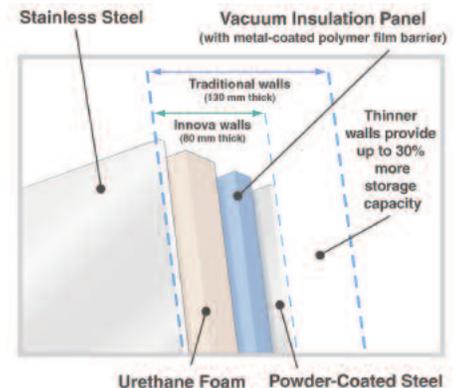
## WHAT IS VACUUM INSULATION AND WHY IS IT ADVANTAGEOUS?

Vacuum insulation is an advanced thermal insulation technology that significantly outperforms insulating materials such as closed-cell foams (urethane), foam beads or fiber blankets. These conventional technologies attempt to trap gasses to reduce heat transfer. Vacuum insulation removes the gasses within the insulating space, so the material is placed under a "vacuum." With air molecules removed, heat transfer is greatly reduced. The result is:

- Thermal insulation performance that far exceeds traditional insulating materials
- Ultra-thin walls for up to 30% more room to store samples

There are other freezers that use vacuum insulation panel technology, but none use Vacupor™ NT. Vacupor panels provide:

- The best thermal insulation of any traditional or vacuum insulation material on the market
- An environmentally friendly design, using biodegradable, CFC-free and HCFC-free materials
- A metal-coated polymer film barrier seal to maintain its vacuum. Competitive models are subject to accumulation of gasses over time, resulting in a loss of vacuum level and therefore reduced thermal performance. Even under complete vacuum barrier failure, Vacupor outperforms foams. (Vacupor is a registered trademark of Porextherm GmbH.)



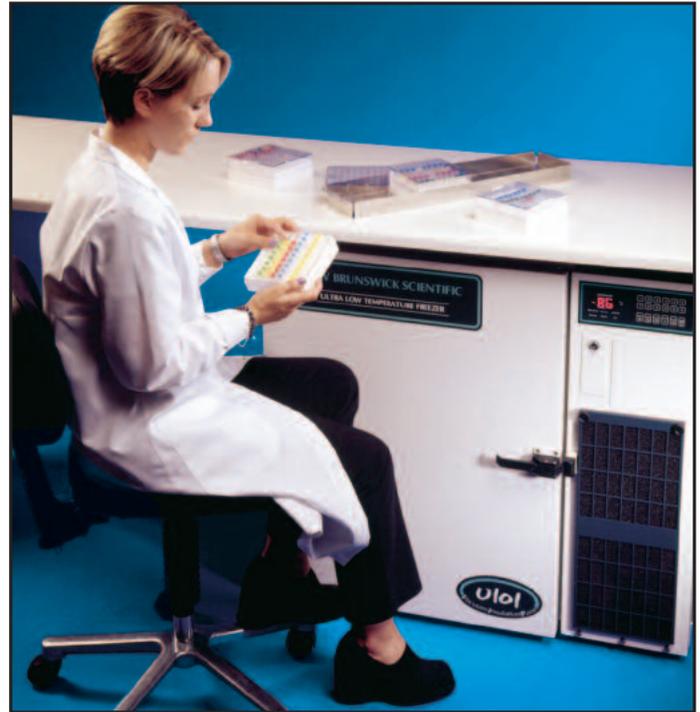
# INNOVA FREEZERS WITH VACUUM

## UP TO 30% MORE STORAGE CAPACITY — SAME FOOTPRINT

NBS' Innova freezers combine Vacuum Insulation Panel technology with our efficient cooling technology to provide the ultimate in space and power efficiency.

### INNOVA FREEZER ADVANTAGES

- **Greater Internal Storage Capacity** in the same footprint through use of Vacuum Insulation Panel technology
- **Inner Door Seals Prevent Cold Air Loss** and eliminate need for a door heater, resulting in lower energy bills and less maintenance
- **Higher-Grade Seals** for outer door and cabinet; and better-quality internal lids on chest models
- **Heated Air Vent with Plunger** quickly clears any ice build-up and prevents vacuum formation for easy opening throughout the day
- **Inner Doors Lift Off Hinges Without Tools** to simplify removal for cleaning
- **Adjustable Leveling Feet** provide stability on uneven floors
- **Two Unique Upright Models Fit in the Tightest of Labs.** Innova U101 fits on or under the bench, or can be stacked two high, shown at right. Innova U360 is an ultra-slender model with advanced new controller and sophisticated display. (Lift the flap at right)



Keep your samples safe, secure and accessible only by you with Model U101 — a unique, personal-sized upright freezer that fits on or under your lab bench, or can be stacked two high.

### CAPACITY & DIMENSIONS

Model No. Style	Catalog #	Electrical	Capacity		Max. Box Capacity			Dimensions (H x W x D)†		Shipping Wt.
			L	Cubic Ft.	2"	3"	4"	External	Internal	
U101 Upright	U9420-0000	120 V, 60 Hz	101	3.6	60	36	24	32.7" x 35.4" x 22.3" 83 x 90 x 56.6 cm	25.2" x 18.9" x 13" 64 x 48 x 33 cm	256 lbs 116 kg
	U9420-0001	230 V, 50 Hz*								
U360 Upright	U9425-0000	120 V, 60 Hz	360	12.7	252	180	108	76.8" x 26.4" x 34.1" 195 x 60 x 86.7 cm	53.7" x 17.3" x 24.2" 136.5 x 44.0 x 61.5 cm	55 lbs 270 kg
	U9425-0001	230 V, 50 Hz*								
U535 Upright	U9430-0000	120 V, 60 Hz	535	18.9	336	240	144	76.8" x 31.5" x 34.1" 195 x 80 x 86.7 cm	53.7" x 25.2" x 24.2" 136.5 x 64 x 61.5 cm	551 lbs 250 kg
	U9430-0002	208/220 V, 60 Hz								
	U9430-0001	230 V, 50 Hz*								
U725 Upright	U9440-0002	208/220 V, 60 Hz	725	25.6	504	360	216	76.8" x 40.4" x 34.1" 195 x 102.5 x 86.7 cm	53.7" x 34.1" x 24.2" 136.5 x 86.5 x 61.5 cm	694 lbs 315 kg
	U9440-0001	230 V, 50 Hz*								
C585 Chest	U9400-0000	120 V, 60 Hz	585	20.7	416	288	192	43" x 66.5" x 30.9" 109.2 x 169 x 78.5 cm	30.7" x 47.2" x 24.6" 78 x 120 x 62.5 cm	529 lbs 240 kg
	U9400-0002	208/220 V, 60 Hz								
	U9400-0001	230 V, 50 Hz*								
C760 Chest	U9410-0002	208/220 V, 60 Hz	760	26.9	572	396	264	43" x 80.7" x 30.9" 109.2 x 205 x 78.5 cm	30.7" x 61.4" x 24.6" 78 x 156 x 62.5 cm	628 lbs 285 kg
	U9410-0001	230 V, 50 Hz*								

(†) To allow for handles and hinges, add 3.1" (8 cm) to width of upright freezers and 4.3" (11 cm) to the depth of chest freezers.

(\*) All 50 Hz freezers are supplied with both U.K. and Schuko cord sets.



Upright: Model U101

(As shown here, not to scale)



Chest: Model C585



Chest: Model C760

# INSULATION PANELS

Upright Models U101, U360, U535, U725,  
and Chest Styles C585, C760

## INNOVA FREEZER SPECIFICATIONS\*

### CONSTRUCTION

**Insulation:** Ultra-thin Vacuum Insulation Panels with Vacupor NT, encapsulated between a metallic polymer film barrier, bonded to foamed-in-place polyurethane foam; 3.15", 80 mm thick

**Exterior:** 18 gauge steel, 1.2 mm thick. Powder coated, scratch and rust resistant

**Interior:** Top-quality, polished 304L stainless steel

**Heated Air Vent with Spring-Assisted Plunger:** clears ice build-up and prevents vacuum formation

**Air Filter:** Front-mounted; Easily accessed by 1/4 turn screws

**Access Ports:** Two pass-through ports, 3/4", 20 mm diameter

**Casters & Feet:** Heavy-duty lockable casters with adjustable leveling feet. Model U101 provided with two rear wheels

### TEMPERATURE CONTROL SYSTEM

**Range:** Programmable, to -86°C, in 1°C increments, even at ambient temperature up to 32°C

**Control:** Microprocessor-controlled temperature & alarms with non-volatile memory. Model U360: Advanced new user interface with extra large display, automated data logging, communications ports & more. Open flap at right for details

**Display:** Large, bright, digital LED characters, 1/2", 1.3 cm high. Mounted at eye level on uprights. Model U360: Extra-large, backlit LCD measuring 4.75" x 2.7" (12 x 6.8 cm), identifies alarms, door opening, temp., passwords and more. Open flap at right for details

**Optional Remote Control:** Factory-installed RS-485 port with optional CryoCommand™ software monitors/controls up to 30 freezers simultaneously. (Not available on U360)

**Battery Back-Up:** Activates alarms and displays temperature during power outages. Separate on-off switch provided for cleaning/servicing/thawing

### REFRIGERATION

**Cascade Refrigeration:** Hermetically-sealed two-stage cascade system with capacity to cope in high-ambient conditions

**Compressors:** Low-noise, heavy-duty & commercially-available

**Circulation:** Requires just one fan for reduced power consumption and noise

**Refrigerants:** CFC-free and HCFC-free

**Compressor Lubricants:** Biodegradable and commercially-available, high-performance, synthetic polyolester oil. Prevents "oil-logging"

(\*) Specifications subject to change without notice

### SECURITY FEATURES

**Unique 4-Digit Password:** For temperature setpoint and alarms, prevents unauthorized changes. Model U360: Up to eight users can program alphanumeric names & passwords

**Removable Keyed Lock:** For outer door/lid. Padlock adapter kit optional

**Lockable Security Plate:** protects on-off switch and alarm on/off

### MONITORING & ALARMS

**S.M.A.R.T. Plus™ Diagnostic Software:** Built into the control panel, provides fault codes to trace and solve system errors

**Remote Alarm Contacts:** Provide connection to external user-supplied alarm/monitoring system

**Visual Alarms:** High/low temp. condition, power out, system fail, battery low, filter clean and remote-controlled operation indicated via LED light; with fault codes displayed on screen.

Model U360: Readout of alarm setpoints and status, including door open alarms, are displayed on screen with time-date stamp. User-programmable, password protected, with alarm acknowledgements logged by user. See flap at right for details

**Audible Alarms:** High/low temperature, power out & system fail, with battery backup. Model U360 adds a door-open alarm

### UPRIGHT MODEL FEATURES

**Door Latch:** Molded handle with built-in removable lock. Powerful cam-action/reverse cam-action latch provides one-handed operation; pulls door firmly closed and pushes door open. Clicks to indicate proper closure

**Compartments and Shelving:** Three compartments with two adjustable-height, stainless-steel shelves. Additional shelving available. Model U101: Two compartments, one fixed shelf

**Inner Doors:** Insulated & gasketed with high-quality seals. New one-piece molded design with push-pull latch eliminates icing issues. Lightweight doors lift off stainless-steel hinges without tools. Two inner doors on U101; three on U535 & U725

**Cabinet & Outer Door:** Insulated, and provided with high-efficiency silicone seals on outer door

### CHEST MODELS FEATURES

**Lid Latch:** Positive, single-handed cam action latch with lock

**Sub-Lids:** Two injection-molded, insulated lids on C585; three on C760

### CERTIFICATIONS

**CE Certified and UL Certified**



Upright: Model U360



Upright: Model U535



Upright: Model U725

# SLIM-STYLED INNOVA U360

## ADVANCED DESIGN, SOPHISTICATED CONTROL AND AUTOMATED DATA LOGGING



Designed for labs tight on space, the ultra-slim U360 is the first in the Innova line to feature our advanced new controller with extra-large display, data logging and graphing capability. It offers all the quality construction and system advantages as our original Innova models, plus the following benefits:

### EXTRA-LARGE INNOVA DISPLAY

**On-Screen System Messaging:** displays setpoints, and details of alarms, door openings and operating conditions with time-date stamp  
**Automated Data Logging:** temperature, alarms and door opening data are stored for up to 30 days, for on-screen graphing. Downloadable to PC with optional communication ports, for your strictest validation requirements  
**Bright, Easily Read, Backlit LCD:** is located at eye level. Display screen measures 4.75" x 2.7" (12 x 6.8 cm)

### SUPERIOR USER CONTROLS

**Total System Security & Control:** are ensured through use of multiple sensors, and flexible programming of alarms, user ID & passwords  
**Alarm Log:** identifies door open, power failure, electric fault, and sensor failures for cabinet and ambient temp. and air-cooled and cascade condensers  
**Communications Ports: Two PS2 Data Ports Standard.** RS-485 & Ethernet ports optional for downloading to PC for validation requirements

### SIGNIFICANTLY REDUCED NOISE LEVELS

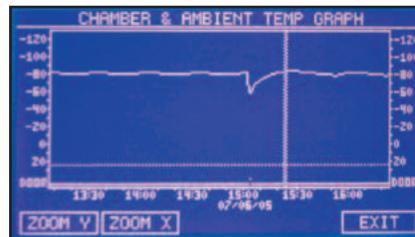
**Quiet Operation:** achieved through an advanced compressor housing with noise-reducing insulation, enabling placement of the freezer directly in your work area

### LARGE CAPACITY, SMALL FOOTPRINT

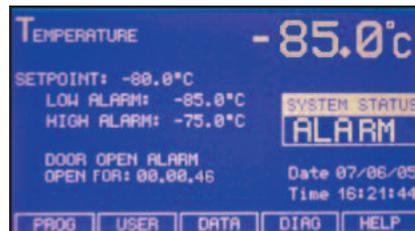
**360 liters (12.7 cubic feet):** Holds up to 252 2" boxes  
**Narrow Design:** Only 26.4" (67 cm) wide, with the handle



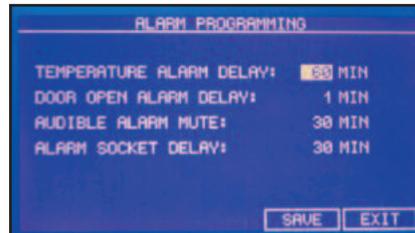
Large character display provides immediate review of important parameters "at a glance" from a distance. Intuitive menu system and directional arrows provide simple access & control of all parameters.



**Multiple sensors and up to 30 days of data storage** provide a graphic record of all system temperatures and activity, including door openings



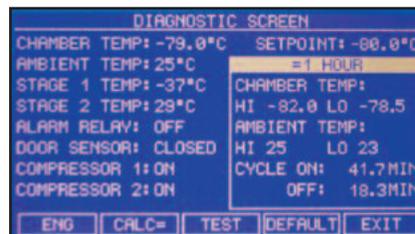
**On-Screen Messaging with Time-Date Stamp** identifies and logs current and past system status and events



**Flexible Alarm Programming** helps avoid false temperature alarms and allows greater user flexibility in alarm control.



**User ID and Password** programmable for up to eight users, provides multiple levels of security and control, including alarm acknowledgement log by user



**Sophisticated Diagnostics** allow system engineers to diagnose most issues over the phone, saving you time and money

# PREMIUM RANGE FREEZERS

## ADVANCED FEATURES AT A GREAT VALUE

Premium Freezers are the result of nearly two decades of design innovations, yielding an efficient refrigeration system proven to perform reliably year after year. Like Innova freezers, Premiums are high-quality, full-featured freezers, with the ability to safely preserve your samples over the long term. The distinction is that Premium Freezers use traditional urethane insulation to achieve and maintain ultra-low temperatures.



Premium freezers offer external dimensions nearly identical to the Innova models and are available in two upright and two chest style models. Shown clockwise starting from back left: U410, U570, C660, and C340.

## CAPACITY & DIMENSIONS

Model No. Style	Catalog #	Electrical	Capacity		Max. Box Capacity			Dimensions (H x W x D)†		Shipping Wt.
			L	Cubic Ft.	2"	3"	4"	External	Internal	
U410 Upright	U9260-0000	120 V, 60 Hz	410	14.5	240	180	120	75.4" x 31.5" x 33.5"	49.8" x 21.7" x 22.6"	518 lbs 235 kg
	U9260-0002	208/220 V, 60 Hz						191.5 x 80 x 85.2 cm	126.5 x 55 x 57.5 cm	
	U9260-0001	230 V, 50 Hz*								
U570 Upright	U9270-0000	120 V, 60 Hz	570	20	400	300	200	75.8" x 40.4" x 33.5"	49.8" x 30.1" x 22.6"	584 lbs 265 kg
	U9270-0002	208/220 V, 60 Hz						192.5 x 102.5 x 85.2 cm	126.5 x 76.5 x 57.5 cm	
	U9270-0001	230 V, 50 Hz*								
C340 Chest	U9230-0000	120 V, 60 Hz	340	12	260	180	120	42.3" x 52.8" x 33.1"	30.0" x 30.0" x 23.2"	441 lbs 205 kg
	U9230-0001	230 V, 50 Hz*						107.5 x 134 x 84 cm	76 x 76 x 59 cm	
C660 Chest	U9250-0002	208/220 V, 60 Hz	660	23.3	520	360	240	42.3" x 80.7" x 33.1"	30.0" x 57.9" x 23.2"	617 lbs 280 kg
	U9250-0001	230 V, 50 Hz*						107.5 x 205 x 84 cm	76 x 147 x 59 cm	

(†) To allow for handles and hinges, add 3.1" (8 cm) to width of upright freezers and 4.3" (11 cm) to the depth of chest freezers.

(\*) All 50 Hz freezers are supplied with both U.K. and Schuko cord sets.



Upright: Model U410



Upright: Model U570



Upright: Model U570

(As shown here, not to scale)

## PREMIUM FREEZER SPECIFICATIONS\*

### CONSTRUCTION

**Insulation:** Polyurethane foam, 5.1", 130 mm thick  
**Exterior:** 18 gauge steel, 1.2 mm thick. Powder coated, scratch and rust resistant  
**Interior:** Top-quality, polished 304L stainless steel  
**Heated Air Vent:** prevents vacuum formation  
**Air Filter:** Front-mounted; easy access by 1/4 turn screws  
**Access Ports:** Two pass-through ports, 3/4", 20 mm dia.  
**Casters & Feet:** Heavy-duty lockable casters

### TEMPERATURE CONTROL SYSTEM

**Range:** Programmable, to -86°C, in 1°C increments, even at ambient temperature up to 32°C  
**Control:** Microprocessor-controlled temperature and alarms with non-volatile memory  
**Display:** Large, bright, digital LED characters, 1/2", 1.3 cm high, mounted at eye level on uprights  
**Optional Remote Control:** Factory-installed RS-485 port with optional CryoCommand™ software monitors/controls up to 30 freezers simultaneously  
**Battery Back-up:** Activates alarms and displays temperature during power outages. Separate on-off switch provided for cleaning/servicing/thawing

### REFRIGERATION

**Cascade Refrigeration:** Hermetically-sealed two-stage cascade system with adequate capacity to cope in high-ambient conditions  
**Compressors:** Low-noise, heavy-duty & commercially-available  
**Circulation:** Requires just one fan for reduced power consumption and noise  
**Refrigerants:** CFC-free and HCFC-free  
**Compressor Lubricants:** Biodegradable and commercially-available, high-performance, synthetic polyolester oil. Prevents "oil-logging"

### SECURITY FEATURES

**Unique 4-Digit Password:** For temperature setpoint and alarms, prevents unauthorized changes  
**Lock and Key:** For outer doors/lids. Barrel lock is removable  
**Lockable Security Plate:** Protects on-off switch and alarm on/off

### MONITORING & ALARMS

**S.M.A.R.T. Plus™ Diagnostic Software:** Built into the control panel, provides fault codes to trace and solve system errors  
**Remote Alarm Contacts:** Provide connection to external user-supplied alarm/monitoring system  
**Visual Alarms:** High/low temperature, power out, system fail, battery low, filter clean and fault analysis. LED lamp for remote control operation  
**Audible Alarms:** High/low temperature, power out and system fail

### UPRIGHT MODEL FEATURES

**Door Latch:** Molded handle with built-in removable lock. Powerful cam-action/ reverse cam-action latch provides one-handed operation; pulls door firmly closed and pushes door open. Clicks to indicate proper closure  
**Compartments and Shelving:** Five compartments with four adjustable-height, stainless-steel shelves. Additional shelving available  
**Inner Doors:** Five insulated doors on U410 & U570. Stainless-steel hinges unscrew for defrosting/cleaning  
**Cabinet & Outer Door:** Insulated and fitted with low-temperature seals on outer door

### CHEST MODELS FEATURES

**Door Latch:** Positive, single-handed cam action latch with lock  
**Sub-Lids:** Two insulated Fomex panels with stainless steel edging on C340; three on C660

### CERTIFICATIONS

**CE Certified and UL Certified**



Chest: Model C340



Chest: Model C660

# POWER CONSUMPTION - HOW MUCH CAN YOU SAVE?

## POWER CONSUMPTION\*

Brand	Model	Voltage	Amps	Plug Provided	Power Consump.		Pull-Down Time /Hrs.
					Watts	kWh/Day	
Innova	U101	120 V, 60 Hz 220/240 V, 50 Hz	13 5	A D/E	530	12.72	4.5
	U360	120 V, 60 Hz ◊ 230 V, 50 Hz	16.5 6.5	B D/E	487 491	11.7 11.8	5.6
	U535	120 V, 60 Hz ◊ 208/240 V, 60 Hz 220/240 V, 50 Hz	16.5 9 5	B C D/E	550 550 509	13.20 13.20 12.22	5.3
	U725	208/230 V, 60 Hz 220/240 V, 50 Hz	10 6.5	C D/E	685 660	16.44 15.84	5.2
	C585	120 V, 60 Hz ◊ 208/230 V, 60 Hz 220/240 V, 50 Hz	16.5 9 5.5	B C D/E	580 580 565	13.92 13.92 13.56	4.5
	C760	208/230 V, 60 Hz 220/240 V, 50 Hz	10 6	C D/E	698 665	16.75 15.96	5.8
Premium	U410	120 V, 60 Hz ◊ 208/230 V, 60 Hz 220/240 V, 50 Hz	16.5 8 5	B C D/E	540 540 525	12.96 12.96 12.60	4.1
	U570	120 V, 60 Hz ◊ 208/220 V, 60 Hz 230 V, 50 Hz	16.5 9 6	B C D/E	590 590 565	14.16 14.16 13.56	5.2
	C340	120 V, 60 Hz ◊ 220/240 V, 50 Hz	16.5 4.5	B D/E	430 420	10.32 10.08	3.4
	C660	208/230 V, 60 Hz 220/240 V, 50 Hz	8 6	C D/E	595	14.28	6.0

(\*) All models use single phase power. Amperage shown designates "running" amps.  
 (◊) 120 V freezers with this designation require a dedicated 20 Amp line to cover the amps drawn at start-up.

**Power Consumption** is based on an empty freezer set to -80°C, ambient temperature 20°C - 25°C. Test run over a 24 hr period at rated electrical supply.

**Pull Down** is based on an empty freezer at ambient temperature of 20 - 25°C.

## POWER SAVINGS CALCULATOR (Over 10 Year Average Life span of Your Freezer)

**Equation:** kWh/Day x Local Cost kWh x 365 days x 10 years  
**Example:** 20 cu. ft. Freezer, NBS vs. Competitor, in New York  
**NBS:** 13.6 kWh/Day x 14.3¢/kWh x 365 x 10 = \$7,100  
**Competitor:** 20.3 kWh/Day x 14.3¢/kWh x 365 x 10 = \$10,600  
**Savings: \$3,500 over 10 years. How much can you save?**

## POWER FEATURES, ADVANTAGES & PLUGS

**Internal Voltage Stabilizer (60 Hz Innova Models excluding U101 & U360):** Evens out high and low voltage fluctuations and optimizes energy usage. Optional external unit available for Premiums and Innova U101; slide-in stabilizer optional for Innova U360

**Automatic Reset:** Protects the microprocessor controller from failure caused by power spikes

**Automatic Restart with Non-Volatile Memory:** Returns alarms and setpoints to user-programmed levels after power interrupt

**Programmed Restart:** Random startup, 1 - 1.5 minutes apart. Prevents power overload

Freezers with this Code	Have this Plug	Require this Receptacle	NEMA Plug	Reference Receptacle
A			5-15P	5-15
B			5-20P	5-20
C			6-15P	6-15
I N T E R N A T I O N A L				
D			European (Schuko)	
E			UK Model	

## RACKING CAPACITIES & CATALOG NUMBERS

Freezer Brand	Freezer Model	Cu. Ft.	Compartments Per Freezer	Racks Per Shelf	Racks Per Freezer	Box Size *	Boxes Per Rack	Boxes Per Freezer	Vials Per Freezer	Rack Catalog No.
Innova	U101	3.6	2	3	6	2" 3"	10 6	60 36	6,000 3,600	K0641-3003 K0641-3004
	U360	12.7	3	3	9	2" 3"	28 20	252 180	25,200 18,000	K0641-3000 K0641-3001
	U535	18.9	3	4	12	2" 3"	28 20	336 240	33,600 24,000	K0641-3000 K0641-3001
	U725	25.6	3	6	18	2" 3"	28 20	504 360	50,400 36,000	K0641-3000 K0641-3001
	C585	20.7	NA	NA	32 †	2" 3"	13 9	416 288	41,600 28,800	K0641-1690 K0641-1700
	C760	26.9	NA	NA	44 †	2" 3"	13 9	572 396	57,200 39,600	K0641-1690 K0641-1700
Premium	U410	14.5	5	3	15	2" 3"	16 12	240 180	24,000 18,000	K0641-1900 K0641-1890
	U570	20.0	5	5	25	2" 3"	28 20	400 300	40,000 30,000	K0641-1900 K0641-1890
	C340	12.0	NA	NA	20 †	2" 3"	16 12	260 180	26,000 18,000	K0641-1690 K0641-1700
	C660	23.3	NA	NA	40 †	2" 3"	13 9	520 360	52,000 36,000	K0641-1690 K0641-1700

(\*) 4" Boxes also available. Ask your rep for details

(\*\*) Based on a box capacity of 100 vials

(†) Half-height racking available

# FREEZER ACCESSORIES

Everything you need to preserve the integrity of your samples.



CO<sub>2</sub>/LN<sub>2</sub> controller features selectable setpoint dial. LED lights to indicate when system is activated or valve open

## CO<sub>2</sub> & LN<sub>2</sub> CONTROLLER BACK-UP SYSTEM

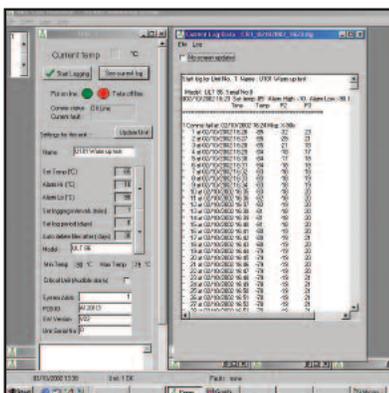
Safely protect your samples

- Maintain temperature between -55°C and -70°C with Liquid CO<sub>2</sub>, or down to -85°C with LN<sub>2</sub>, subject to environmental conditions
- Coolant addition is pulsed to avoid excessive consumption
- Built-in safety device prevents pulsing while the door is open

## CRYOCOMMAND™ SOFTWARE

Remotely log and control temperature and alarms in up to 30 NBS freezers from a single PC. (Not available on Innova U360)

- Easy-to-use screens let you individually change high and low temperature alarms and setpoints
- Alarm conditions are recorded and signalled by a flashing screen
- Package includes software and factory-installed RS-485 interface



NBS' CryoCommand software

## CHART RECORDER & DATA LOGGERS

Continuously monitor and record temperature for up to 7 days

- Temperature range of +20°C to -90°C, ± 2%
- Front-mounted for easy access. Factory installation recommended
- Contact your sales representative for other options



7-day chart recorder

## AUTO-DIALERS

Auto-dialers can call a set of preprogrammed telephone numbers in the event of an alarm condition and connect right into the freezer's remote alarm port

## TEMPERATURE PROBES

Additional temperature probe for an external alarm system or for validation can be installed upon request

## VALIDATION PACKAGES

Installation and operational qualifications are available. Ask your NBS sales rep for details

## INVENTORY RACKING & SHELVES

Exclusively designed and manufactured for NBS freezers to maximize storage space

- Anodized aluminum racking is lightweight and durable
- Standard racks hold 2", 3" or 4" boxes
- Custom racking solutions also available
- Waterproof boxes and wax-coated cardboard dividers provide a low-cost alternative to injection-molded boxes
- Supplemental stainless-steel shelves also available



NBS manufactures a variety of racking systems, boxes and dividers to maximize storage space

## VOLTAGE STABILIZER

Modulates incoming line voltage.

- Internal slide-in stabilizer available for U360 120 V units
- External stabilizer available for Premium and U101 models

## PADLOCK ADAPTER KIT

Allows up to two user-supplied padlocks to be secured to outer door handle for extra security

## WARRANTY & AFTER SALES SUPPORT

### All NBS freezers are covered by a FIVE-YEAR Limited Warranty:

Two years covering parts and labor — with THREE ADDITIONAL years covering parts. Additionally, Innova vacuum insulation panels are warranted for TWELVE YEARS. Freezer accessories, such as chart recorders or back up systems, carry a one-year warranty on parts and labor. Customizable extended warranties and preventive maintenance plans can also be tailored to best suit your individual requirements. Outside of the U.S. and Europe, contact your local NBS sales representative for warranty details.

Every NBS freezer is also equipped with unique S.M.A.R.T. Plus™ diagnostic software to help quickly identify the cause of a fault or setpoint variance. Easily accessed through the front control panel, S.M.A.R.T., Systems Monitoring and Reporting Technology, can be used to identify and correct problems, often over the phone at no charge, with the aid of our trained service technicians. S.M.A.R.T. Plus not only eliminates unnecessary service calls, but provides advance diagnosis, so should an on-site repair become necessary, the service engineer arrives at your facility with the components needed to complete the repair.

Compressor and biodegradable gasses are commercially available, for ready replacement, anywhere in the world. NBS freezers also conform to European WEEE Directives affecting disposal.

NBS freezers are backed by one of the largest service organizations, comprised of in-house technicians, field engineers, and factory-authorized service centers in your local area.



## New Brunswick Scientific

**P.O. Box 4005  
44 Talmadge Road  
Edison, NJ 08818-4005 USA**

**In North America: 800-631-5417  
Elsewhere: 732-287-1200  
Fax: 732-287-4222**

**bioinfo@nbsc.com  
www.nbsc.com**

**BELGIUM**  
New Brunswick Scientific NV-SA  
Stationsstraat 180/4  
3110 Rotselaar  
+32 (0) 16 56 28 31  
Fax: +32 (0) 16 57 27 53  
sales@nbsnv-sa.be

**FRANCE**  
New Brunswick Scientific S.A.R.L.  
12 - 14, Rond Point des Champs Elsées  
75008 Paris  
+33 (0) 1-53 53 15 11  
Fax: +33 (0) 1-53 53 15 57  
sales@nbsarl.fr

**GERMANY**  
New Brunswick Scientific GmbH  
In der Au 14  
D-72622 Nürtingen  
+49 (0) 7022-932490  
Fax: +49 (0) 7022-32486  
sales@nbsgmbh.de

**THE NETHERLANDS**  
New Brunswick Scientific B.V.  
Kerkenbos 1101, 6546 BC  
Nijmegen  
P.O. Box 6826, 6503 GH Nijmegen  
+31 (0) 24 3717 600  
Fax: +31 (0) 24 3717 640  
sales@nbsbv.nl

**UNITED KINGDOM**  
New Brunswick Scientific (UK) Ltd.  
17 Alban Park, Hatfield Road  
St. Albans, Hertfordshire AL4 0JJ  
Free Tel: 0800 581331  
+44 (0) 1727 853855  
Fax: +44 (0) 1727 835666  
bioinfo@nbsuk.co.uk  
www.nbsuk.co.uk

**CHINA, Shanghai**  
New Brunswick Scientific Co., Inc.  
RA903, 904 Yin Hai Bldg., No. 250,  
Cao Xi Rd.  
Shanghai 200235  
+86-21-648 45955  
Fax: +86-21-648 45933  
nbschc@online.sh.cn