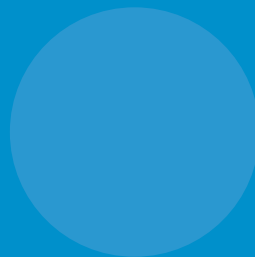


Ultra Low Temperature Freezers

Biomedical Refrigeration | UF



Technology for life

 **Dometic**
MEDICAL SYSTEMS

UF - Ultra Low Temperature Freezers down to -86° C

The models **UF 455 G** & **UF 755 G** reflect the highest and most uncompromising requirements in the area's state-of-the-art technology and economy.

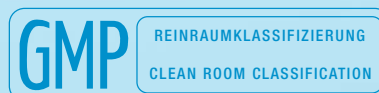
As a cascade system with two hermetically sealed compressors, the cold system is optimally designed with respect to energy consumption and development

of waste, heat, and noise. Additionally, the use of efficient insulating materials ensures a balanced temperature stability throughout the entire refrigeration chamber of the model range UF, at ambient temperatures of +16°C to +32°C.

The model range UF complies with the **GOLD** Safety Standard

MODEL	UF 455 G	UF 755 G
GMP Clean Room Class B / ISO 6 (ISO EN 14644-1)	●	●
GMP Clean Room Class A / ISO 5 (ISO EN 14644-1), with water cooling	○	○
Gold Electronic 2008	●	●
Key-operated power switch (power ON/OFF)	●	●
Safety door lock	●	●
Digital temperature indicator (display 0,1 digits)	●	●
Self-contained alarm system with integrated battery takes over the alarm function and temperature value measurements in case of power failure for at least 48 hours	●	●
Acoustic/visual alarm signal in case of temperature alarm and power failure	●	●
All relevant data of temperature alarm and power failure alarm are stored in the alarm history, such as date and time of start and end; minimum, maximum and average temperature	●	●
Alarm function test: simulation of a temperature rise or drop in order to test the alarm functionality	●	●
Control via self-diagnostic system	●	●
Door-opening alarm	●	●
Remote transmission alarm signal (via potential-free contact) in case of temperature alarm (change-over contact)	●	●
Remote transmission alarm signal (via potential-free contact) in case of power failure (change-over contact)	●	●
Automatic closing of the front door below a door opening angle of 90°	●	●
Interior made from stainless steel	●	●
Separate internal doors for prevention of cold loss when the front door opens	●	●
Climate class (ambient temperature range) N (+16°C to +32°C)	●	●
Smooth castors with stabilizers for optimum flexibility of movement	●	●
RS485 interface for the display of all operating and control functions (hardware and software settings) via standard DMN monitoring software on a peripheral device (computer)	●	●
DMN software package	○	○
DCU - Dometic Communication Unit	○	○

● standard / ○ optional



CFC & HCFC free

As precious as gold – Dometic’s Gold Electronic

One of many innovative characteristics, Dometic’s new Gold Electronic microprocessor and control panel features a password-protected settings menu that ensures optimum protection over your stored preparations.

Further, the control panel has been designed to offer simple and intuitive utilization, ensured by a user-friendly operation panel.



- 1 Power switch, key-operation O = OFF I = ON
- 2 LED “Alarm”
- 3 LED “Power on”
- 4 Navigation buttons
- 5 Back button
- 6 Menu button

Settings menu

```

- - -
SET - POINT
- - -
DATE / TIME
ALARMS
- - -
FRAME HEATER
ALARM TEST
COMM. ADDRESS
SERVICE
USER PASSWORD
CALIBRATION
    
```

Extra menu

```

HISTORY
BUZZER
DISPLAY
VOLTAGE IND.
AMBIENT PROBE
ADD. PROBE
RESOLUTION
TEMP. UNIT
LANGUAGE
DIAGNOSTICS
PARAMETERS
    
```

CO₂ BackUp / Emergency cooling system (internal)

Backup cooling for the additional protection of temperature-sensitive goods in storage against sudden temperature rises within the working space. The emergency cooling system injects CO₂ (boiling point/sublimation point: -78.92°C) into the working space if the internal temperature within the working space rises above a certain programmable alarm value (CO_{2 On}). The injection stops automatically when the temperature within the working space has reached another certain programmable temperature value (CO_{2 Off}).

CO₂ is inclusive of an additional operation and control panel for all operational and control functions of the

emergency cooling system, as well as a foil-protected keyboard and digital temperature display. The emergency cooling system is powered by an integrated battery.

The On and Off temperatures within an area can be freely set within a range of -20°C to -75°C.

Default setting: CO_{2 On} : -60°C
CO_{2 Off} : -70°C

The CO₂ injection is stopped automatically when the front door is opened.



Control of the storage temperature and documentation of the temperature changes can—depending on the application—be carried out via an optional temperature recorder (in the form of a circular chart recorder) or via the optional DCU and Dometic Monitoring Network (DMN), Dometic’s proprietary monitoring and visualization software, which—in addition to the temperature recorder history—also records an event and activity history.

ARRANGEMENT POSSIBILITIES

UF 455 G

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15

Max. number of Cryo-Racks: 15 Pieces

UF 755 G

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25

Max. number of Cryo-Racks: 25 Pieces

1	6	11	16
2	7	12	17
3	8	13	18
4	9	14	19
5	10	15	20

Cryo-Rack
Box height
2”
for 20 Boxes

1	6	11
2	7	12
3	8	13
4	9	14
5	10	15

Cryo-Rack
Box height
3”
for 15 Boxes

Mixed inventory with different Cryo-Rack systems for different box heights possible.



UF 455 G, 16 Cu. Ft.

Gross volume: 453 L
Net volume: 440 L



UF 755 G, 26.6 Cu. Ft.

Gross volume: 753 L
Net volume: 733 L

Technical Data

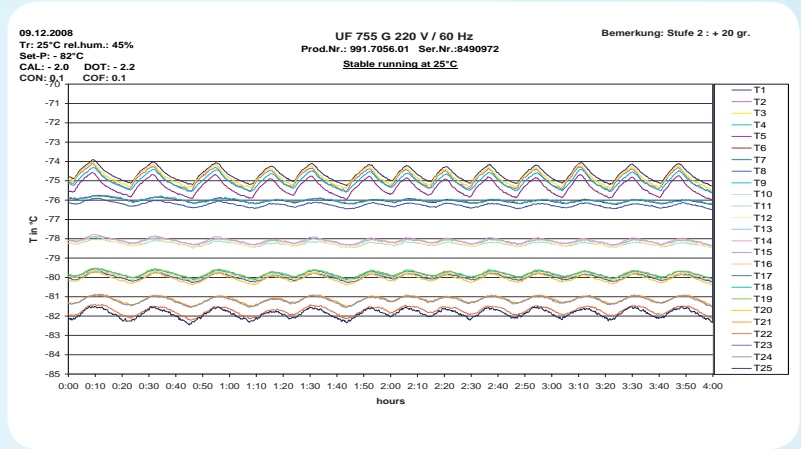
	UF 455 G	UF 755 G
Gross volume	16 cubic feet	26.60 cubic feet
Net volume	15.54 cubic feet	25.89 cubic feet
External dimensions (H x W x D)	57.1 x 35.8 x 37.4 inch	78.4 x 35.8 x 37.4 inch
External dimensions (H x W x D), without door	57.1 x 35.8 x 31.5 inch	78.4 x 35.8 x 31.5 inch
Inner dimensions (H x W x D)	32 x 28.75 x 30 inch	53.3 x 28.75 x 30 inch
Net weight (with standard equipment)	440 lbs	506 lbs
Operation & control panel (microprocessor-controlled)	Gold electronic 2008	Gold electronic 2008
Set temperature (preset)	-82°C	-82°C
Set temperature (setting range) can be adjusted in steps of 0.5 °C	-20°C to -86°C	-20°C to -86°C
Temperature cold alarm limit (preset)	-90°C	-90°C
Temperature warm alarm limit (preset)	-65°C	-65°C
Temperature alarm limits (setting range). The alarm setting ranges can be adjusted in steps of 0.5°C. The chosen limits must at least be around 5 °C ± the set temperature.	-65°C to -90 °C	-65°C to -90 °C
Control sensor	PT1000 2-WIRE 1/3DIN CL.B	PT1000 2-WIRE 1/3DIN CL.B
Precision (at -80°C)	± 0.97°C	± 0.97°C
Display sensor	as option PT1000 2-WIRE 1/3DIN CL.B	as option PT1000 2-WIRE 1/3DIN CL.B
Precision (at -80°C) in reference body with reference fluid 100 ml DOW corning 200-5CST (Silicon Oil)	± 0.97°C	± 0.97°C
Voltage	208-220 V / 60Hz	208-220 V / 60Hz
Power	1200 W	1200 W
Energy consumption	17.50 kWh /24h	19.00 kWh /24h
Heat emission	680 Kcal/h / 790 watts	680 Kcal/h / 790 watts
Compressor running time	60%	65%
Noise level (at 3.25' height & 3.25' distance)	< 62 dB(A)	< 62 dB(A)
Accu data/function time of the control panel when power failure	12V -7 AH / 48 hours	12V -7 AH / 48 hours
Climate class (ambient temperature range)	N (+16°C to +32°C)	N (+16°C to +32°C)
Relative humidity (at +32°C ambient temperature)	≤ 70%	≤ 70%
Defrosting technique	manual	manual
Refrigerant type (1st step/2nd step)	R404a / R508b+R170	R404a / R508b+R170
Door insulation (polyurethane foam + Vaccum Insulation Panels)	2.6 inch PU + 0.79 inch VIP	2.6 inch PU + 0.79 inch VIP
Casing insulation (polyurethane foam + Vaccum Insulation Panels)	2.8 inch PU + 0.79 inch VIP	2.8 inch PU + 0.79 inch VIP
Thermal Resistance (R-value)	1.0224 @ +20°C	1.0224 @ +20°C
Hold over time (from -84°C to -60°C), empty	120 min	120 min
First Stage Compressor/Second Stage Compressor	1.5 HP / 1.5 HP	1.5 HP / 1.5 HP
GMP - clean room classification	class ISO6/EC GMP B	class ISO6/EC GMP B
Material inner body and inserts	Stainless steel (304 SS)	Stainless steel (304 SS)
Material internal doors	ABS (Plastic)	ABS (Plastic)
Material outer casing and door	Galvanized sheet steel (ST02Z-AZ150)	Galvanized sheet steel (ST02Z-AZ150)
Color outer casing	White (similar to RAL9010)	White (similar to RAL9010)
Color internal doors	Grey (similar to RAL7035)	Grey (similar to RAL7035)
Color contrasts	Blue (similar to RAL5002)	Blue (similar to RAL5002)
CFC/HCFC free	Yes	Yes
Certificate	GS/CE/c CSA us/GMP/Ex/ISO	GS/CE/c CSA us/GMP/Ex/ISO
NEMA Plug Reference	6-15P	6-15P
NEMA Receptacle Required	6-15R	6-15R

Interior Equipment & Options

	3 compartments / 2 inserts ●	5 compartments / 4 inserts ●
Stainless steel compartment division/inserts	3 ●	5 ●
Separate internal doors in order to minimize the loss of cold	2" racks = 300 boxes ○	2" racks = 500 boxes ○
Cryo Racks H50	3" racks = 225 boxes ○	3" racks = 375 boxes ○
Cryo Racks H75	15	25
ST-Rack, maximum	○	○
DCU - Dometic Communication Unit	○	○
DMN Software package	○	○
Ambient temperature sensor	○	○
Potential-free contact in case of "power failure"	●	●
Integrated inlet for external sensor (installed by customer)	●	●
Smooth castors with stabilizers for optimum flexibility of movement	●	●
Integrated temperature recorder in the form of a circular chart recorder, recording range: -100°C to -50°C	for 24 hours or 7 days ○	for 24 hours or 7 days ○
CO ² BackUp/Emergency cooling system	internal ○	internal ○
Ice scraper	●	●
Water cooling (external) via connection to customer's on-site water supply/refrigeration by circulation	○	○
Door hinge right	●	●
Door hinge left	○	○

Example of “Stable running (temperature stability)”

For all models, temperature distribution graphs for the stages “Cool Down (Cooling),” “Stable Running (temperature stability),” “Defrost (defrosting phase)” and “Hold Over (temperature graphs, for example in case of power failure)” are available upon inquiry for various voltages. Determined at 5 measuring points per level or compartment (empty).

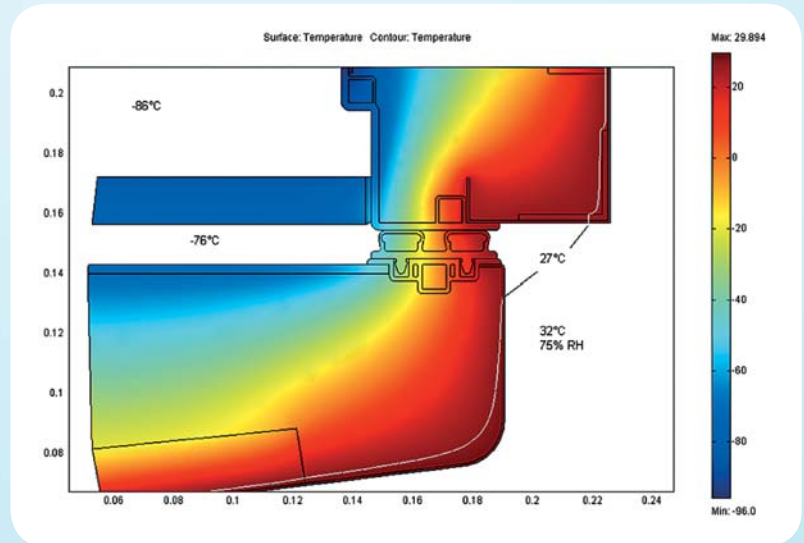


Example

Model: UF 755 G (220V/60Hz)
 Ambient temperature: +25°C (empty)
 Relative humidity: 45%
 Set point: -82°C
 Cold alarm: -90°C
 Warm alarm: -65°C

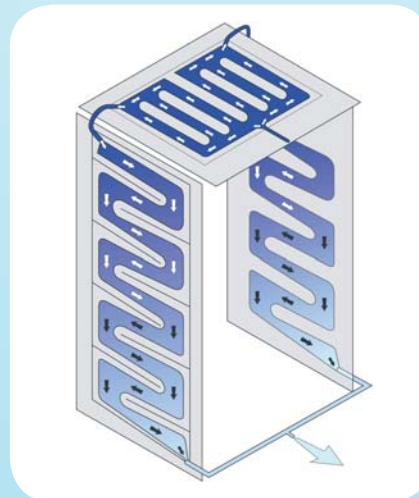
Protection against cold losses

The separate interior doors (with PU foam insulation) allow for the targeted removal of preparations, thus protecting the remaining stored products against cold losses caused physically by the opening of the front door. The combination of a heated high-grade silicon seal (designed for temperatures down to -110°C) along the entire door frame and the separate interior doors with PU foam insulation ensures the absolute tightness of the system and prevents ice from forming in the device.

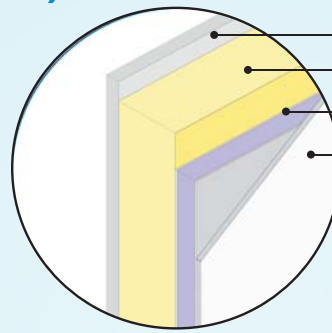
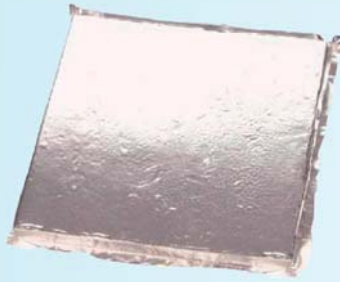


Evaporator Technology

Innovative “Rollbond” evaporator technology of the highest grade (stainless steel) provides for constant temperatures and uniform temperature distribution.



VIP (Vacuum Insulation Panel)

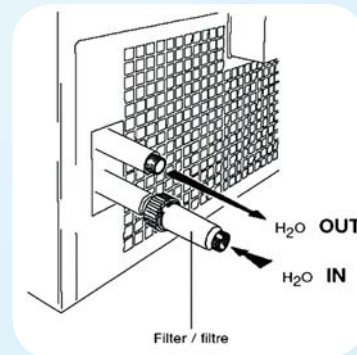


- Inner cabinet wall = evaporator
- PU foam
- Vacuum Insulation Panel
- Outer casing

Equipment/Options



Temperature recorder
(in form of a circular chart recorder)



Water cooling
external (ex factory, optional)



Ice scraper
(standard)



DCU



Cryo Rack
Stainless steel rack for Cryobox
H50, H75 & H100



**Remote temperature
and power failure alarm**

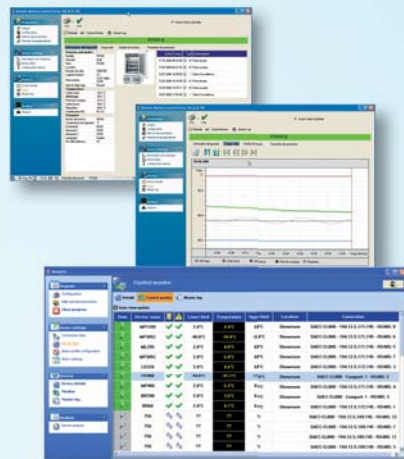


ST-Rack
Stainless steel racks

DMN- Dometic Monitoring Network

DMN is a universal software package designed to gather, display and monitor temperature data (graphically illustrated) and provide an activity history for all appliance components. In case of power failure, temperature alarms, door opening alarms, etc., the software forwards the alarm messages directly via mail or SMS to the person in charge.

A connection to a third-party appliance is possible via network technology.



DCU - Dometic Communication Unit

The DCU, newly developed, notes all operating conditions and passes them through to a central data base – via local network (RS485 Bus, Ethernet LAN/WLAN, TCP/IP), on which devices are connected. The DCU offers a range of possibilities:

- Interface connection of Dometic appliances to existent network
- The DCU offers direct connection to the Ethernet, even wireless, to the serial BUS, as well as to the central building control system
- Digital IN/OUT
- The integrated USB port allows to write stored data to an external memory stick
- Recording and storage of relevant data of the appliance
- The battery buffer allows continuous recording, even in case of a power failure; data are recorded and secured in the internal DCU memory (absolute timestamp included); the data can be illustrated in the DMN without time gaps
- Possibility of connection of several additional self-sufficient temperature sensors (up to 4 PT1000 & 2 PT100)
- The DCU replaces the paper temperature recorder
- The DCU also works with Dometic electronics which were applied until October 08
- The DCU, with its own power supply, can be used for data collection of several sensors; all data are recorded and saved in the database of the DMN and are available for analyzing purposes at any time
- Possibility of connection of actors (4 to 20 milliA out)
- Thanks to the internal memory of the DCU, the DMN allows to diagnose breakdowns even on units that are never connected to a PC or network



Sold exclusively in the United States by Baker BioScience Solutions, A Division of The Baker Company, Inc.

Baker BioScience Solutions

The Baker Company, Inc.
P.O. Drawer E
161 Gatehouse Road, Sanford, Maine 04073 USA
sales@bakerbioscience.com
www.bakerbioscience.com

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