

ENVIRONMENT MAKERS

*Industrial products |
catalog 2017*



APPLICATIONS

Aerospace and Automotive

Food and Agriculture

Consumer and Retail

Governments and Foreign trade

Energy

Minerals

Games, toys and Hardlines

Medical and Pharmaceuticals

Chemicals

Industry and impiant

IT and Telco

Construction

Electric and Electronics

Textile, Apparel and Footwear



Environmental Simulation
The ideal conditions for your samples



Blood Safe
Fast temperature down



Ultra Low Temperature
Take care of research



Custom Solution
Particular machine upon your need

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COMPANY PRESENTATION

*Our Motto is
"Environment Makers"*



FDM is a family company dedicated to simulation chamber and temperature control. Founded in the 50's by Giuseppe Della Marca, the company soon became an example of proven cutting-edge technologies and pioneering innovations.

Nowadays, our quality products and maintenance services help you dominate thermostatic and refrigeration controlled systems in scientific, bio-medical, industry and research fields. We keep improving; differentiate ourselves from others through continuous innovation, through our R&D departments. The customer is our leader. We care listening to your real and concrete requirements, giving you the state-of-the-art solutions.

FDM is emerging in the European market for its capacity to adapt and the possibility to design and produce customized solution upon your specifications, with the passion of ever.

ENVIRONMENT M

COMPANY MISSION

FDM's mission is to help build the best environment condition for scientific research and laboratory testing. We want to improve efficiency and result of our customer, offering the best technology and our experience. Passion, technology and customization are described by our logo, a combination of rhombuses, like ice diamonds. The superior value of a long lasting solution for controlling your environment.

Our motto is "Environment Makers". It highlights our strongest ability combined with the modern "Makers" way of thinking: literally project, design and make a customized environment for you.

WE DO CARE ENVIRONMENT



We take into account ecology and sustainable environmental protection. For this reason FDM uses material combinations that can be separated to enable recycling.

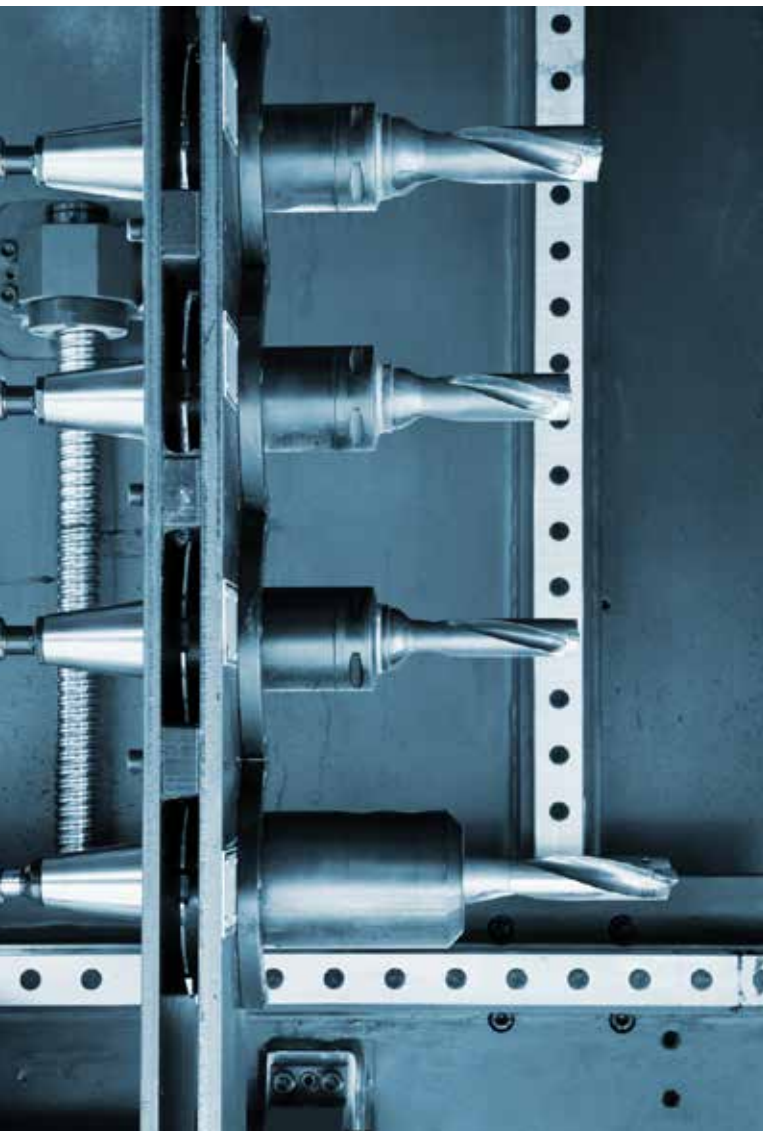
We consciously choose synthetic materials made of recycled resin in our manufacturing process without any compromise in quality.

MANUFACTURING

FDM is a leading company in material testing chambers and laboratory equipment manufacturing. Since 1950, we've made your testing environment better through innovation, passion and attention to Quality.

Our main products are:

- Material Testing Chamber (Constant/Cycle-Dynamic/Whit Light)
- Laboratory refrigerators
- Deep and Ultra Freezers
- Medical and Blood related equipment



QUALITY MANAGEMENT CERTIFICATES

Our company's quality

management system conforms to UNI EN ISO 9001 and UNI EN ISO 13485 standards. Moreover, our Ultra and Blast freezers and Blood refrigerators conform to Concil Directive 93/42/EEC on Medical Devices (Class IIa).



Don't think your project is too difficult to realize, FDM experience and technology will guide you in an analysis and development step-by-step process. We'll reach your goals together.

ENVIRONMENT M

As a family and dynamic company we are also able to satisfy your specific requirements through our Custom solutions department.



AREA OF APPLICATIONS

- Automotive
- Plastics and Industry
- Electronics / Semiconductor Industry
- Air / Space Travel, Defence
- Metal Industry / Engineering
- Pharmaceuticals Industry
- Basic Research / Research Institutes
- Packaging Industry
- Cosmetics Industry
- Food / Beverage
- Cosmetics Industry
- Plant / Insect Growth
- Packaging Industry
- Surface Technology
- Industry

Our Skill is realize special machine according to standards.

EN 196-1

Methods of testing cement,
Determination of strenght

EN 1367-1

Tests for thermal and weathering
properties of aggregates. Determination
of resistance to freezing and thawing

EN 12390-2

Testing hardened concrete. Making
and curing specimens for strength tests

EN 12371

Natural stone test methods.
Determination of frost resistance

EN 12004

Adhesives for tiles. Definitions and
specifications:
1348:2007 - 1346 - 1308 - 12002 - 1324

EN 13383-2

Armourstone. Test methods



MAIN STANDARDS THAT OUR PRODUCTS OSSERVE

Material testing is stressful not only for the specimens. When is required to satisfy standards. Don't worry about that, just relax and push the button!

Choose the standard you need to run on your climate chamber with the easiness of a touch screen, that's all.

You need more test standards? Program it by yourself or ask us to do it for you. We'll send you an USB key with the software updates. Tell us if you have special requirements about standards, run steps and temperature/humidity cycles.

EN 1348

Adhesives for tiles - Determination for tensile adhesion strength for cementitious adhesives

EN 1346

Adhesives for tiles - Determination of open time

EN 1308

Adhesives for tiles - Determination of slip

EN 12002

Adhesives for tiles. Determination of transverse deformation for cementitious adhesives and grouts

EN 1324

Adhesives for tiles. Determination of shear adhesion strength of dispersion adhesives

ASTM 2247-11

Standard practice for Testing Water Resistance of Coatings in 100% Relative Humidity

ASTM C581-03

Standard practice for Determining Chemical Resistance of Thermosetting Resins Used in Glass-Fiber-Reinforced Structures Intended for Liquid Service



Make easier simulations

CLIMATE CHAMBER

Program your environment with the easiness of a touch screen. An automatic regulator will perform the best temperature and humidity simulation cycles you need: cement/concrete testing, electronic components testing, accelerated aging and much more.

MODEL CODE CONFIGURATOR

1 2 3 4 5 6 7 8

□ - □ - □ - □ - □ - □ - □ - □

Optimal	1
With illumination	L
Standard	-

Type of lamp	2
Daylamp	D
Biolamp	B
Fluolamp	F
Arablamp	A

Parameter controls	3
Temperature	T
Temperature & humidity	C

Net volume	4
Net volume 130	140
Net volume 310	370
Net volume 370	440
Net volume 450	600
Net volume 530	700
Net volume 810	900
Net volume 1020	1200
Net volume 1180	1500
Net volume 1830	2300

Temperature range	5
-25...+70°C	B
0...+70°C	S

Special specs	6
Standard	-
Freeze-thaw	C

Material	7
White steel	-
Stainless steel	X

Controller type	8
Constant	-
Programmable with cycle	PRO

es. LDC140BXPRO = Light climate chamber 140 liters with daylamp light, -25...+70°C range temperature in stainless steel external material and programmer with cycle.

Cyclic Climate Chamber

CB-CS PRO

Page 12-13



Constant Climate Chamber

CB-CS

Page 14-15



Light Climate Chamber

LCB-LCS

Page 16-17



Material Test Chamber

CBC-CSC PRO

Page 18-19



The cyclic climate chamber

can simulate a ideal ambient for your samples.

The environment chamber simulate temperature up to 70°C and humidity equal to 98%.

The programmer have a full control of parameters for simulate a special environment. Its be able to repeat simulation many times over.

- Best quality components for a long-term simulation
- Temperature range of -25°C to +70°C (CB PRO) and 0°C to +70°C (CS PRO)
- Humidity range 10% r.H. to 98% r.H.
- Average heating and cooling rate according to EN 60068-3-5: +1.5/-0.8°C/min
- Display PRO with 1 program of 20 sections:
 - User friendly touch screen
 - Integrated chart of data
 - Cronology of data
 - Time clock
- Safety device with manual reset class 1 (DIN 12880)

[Improve your testing simulation and make the ideal environment with cyclical temperature/humidity control](#)

CYCLIC CLIMATE CHAMBER

CB-CS PRO Series



C700BX PRO model

AVAILABLE SIZES (liters)



OPTIONS

- | | | |
|--|--|--|
| <ul style="list-style-type: none"> • Door lock • Glass door • Air extraction/replacement system • Water softer system(self-regenerating) • Flooding system to automatic execute testing with freezing in air and thawing in water | <ul style="list-style-type: none"> • Lighting system • Digital recorder of Temperature/ Humidity • USB port for download of recorded data • Temperature extension to +80°C • Custom options (more information from page 42-43) | <p>Additional Programs:</p> <ul style="list-style-type: none"> • 10 programs / 50 steps • 25 programs / 100 steps • 50 programs / 200 steps |
|--|--|--|



Full technical details are available at:
www.dellamarca.it



Cyclic

You can launch countless times your test.
The 1 program and 20 steps is standard, but you can upgrade up to 50 programs and 200 steps.



Temperature

Two different models for positive or negative temperature. In both cases the temperature stability is $\pm 0.1^\circ\text{C}$.



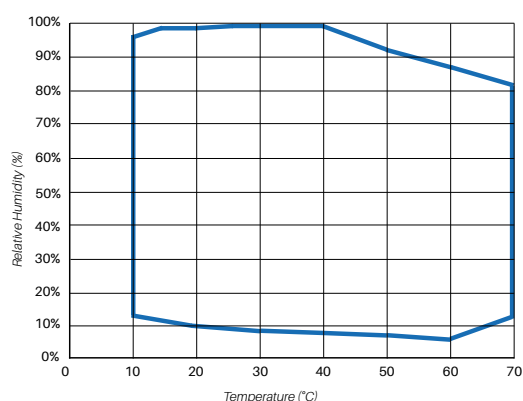
Humidity

Thanks to the control humidity devices, the chamber simulate the ideal environment for the samples test.

Model code (CB PRO Series)	C140BPRO	C370BPRO	C440BPRO	C600BPRO	C700BPRO	C900BPRO	C1200BPRO	C1500BPRO	C2300BPRO
Model code (CS PRO Series)	C140SPRO	C370SPRO	C440SPRO	C600SPRO	C700SPRO	C900SPRO	C1200SPRO	C1500SPRO	C2300SPRO
Dimension data									
Net Interior volume [L]	130	310	370	450	530	810	1020	1180	1830
Net weight of the unit [kg]	70	80	95	110	160	165	205	245	360
Exterior Dimension									
Width [mm]	530	600	600	750	750	1200	1500	1500	2250
Depth [mm]	640	600	700	700	820	700	700	820	820
Height [mm]	940	1920	1920	2100	2100	1920	2100	2100	2100
Main Door									
Number of Door	1	1	1	1	1	2	2	2	3
Number of Shelf	2	3	3	3	3	6	6	6	9
Temperature data									
Temperature range [°C] (CB PRO Series)	-25/+70								
Temperature range [°C] (CS PRO Series)	0/+70								
Temperature uniformity [± K] ¹	1								
Temperature fluctuation [± K] ¹	0.1								
Humidity data									
Humidity range [% r.H.]	10 to 98								
Humidity fluctuation[± % r.H.]	3								
Electrical data									
Energy consumption at 37 °C [kWh/h]	1.55	1.65	1.92	2.08	2.18	2.53	3.68	4.22	4.30
Rated Voltage [V]	220/240								
Power Frequency [Hz]	50								
Nominal Power [kW]	1.6								

¹depending on set point| All technical data are specified for units with standard equipment at an ambient temperature of 25 $^\circ\text{C}$ and a voltage fluctuation of $\pm 10\%$. We reserve the right to change technical specifications at any time.

TEMPERATURE-HUMIDITY CHART



The constant climate chamber

can simulate a ideal ambient for your samples.

The environment chamber simulate temperature up to 70°C and humidity equal to 98%.

The controllers have a full control of parameters for simulate a special environment. Its a perfect solution for stability test.

- Best quality components for a long-term simulation
- Temperature range of -25°C to +70°C (CB) and 0°C to +70°C (CS)
- Humidity range 10% r.H. to 98% r.H.
- Average heating and cooling rate according EN 60068-3-5:
+1.5/-0.8°C/min
- Display controllers for temperature and humidity
- PID constant stability
- Safety device with manual reset class 1 (DIN 12880)

[Set temperature and humidity of constant climate chamber and you have done half of the job. If your need is stability this is the right product to perform your simulations.](#)

CONSTANT CLIMATE CHAMBER CB-CS Series



C700BX PRO model

AVAILABLE SIZES (liters)



OPTIONS

- Door lock
- Glass door
- Air extraction/replacement system
- Water softer system(self-regenerating)
- Flooding system to automatic execute testing with freezing in air and thawing in water
- Lighting system
- Digital recorder of Temperature/Humidity
- USB port for download of recorded data
- Temperature extension to +80°C
- Custom options (more information from page 42-43)



Full technical details
are available at:
www.dellamarca.it



Stability

The reliable controllers monitoring the stability of test constantly and are equipped of PID technology.



Temperature

Two different models for positive or negative temperature. In both cases the temperature stability is $\pm 0.1^{\circ}\text{C}$.



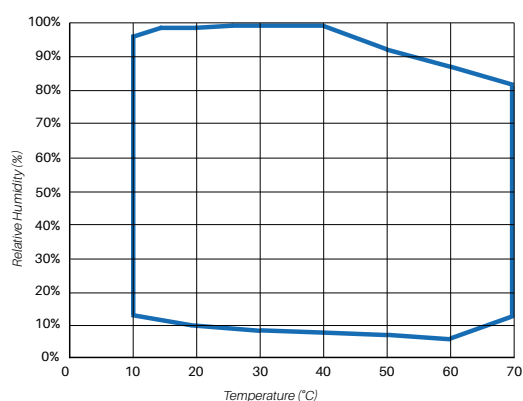
Humidity

Thanks to the control humidity devices, the chamber simulate the ideal environment for the samples test.

Model code (CB Series)	C140B	C370B	C440B	C600B	C700B	C900B	C1200B	C1500B	C2300B
Model code (CS Series)	C140S	C370S	C440S	C600S	C700S	C900S	C1200S	C1500S	C2300S
Dimension data									
Net Interior volume [L]	130	310	370	450	530	810	1020	1180	1830
Net weight of the unit [kg]	70	80	95	110	160	165	205	245	360
Exterior Dimension									
Width [mm]	530	600	600	750	750	1200	1500	1500	2250
Depth [mm]	640	600	700	700	820	700	700	820	820
Height [mm]	940	1920	1920	2100	2100	1920	2100	2100	2100
Main Door									
Number of Door	1	1	1	1	1	2	2	2	3
Number of Shelf	2	3	3	3	3	6	6	6	9
Temperature data									
Temperature range [°C] (CB Series)	-25/+70								
Temperature range [°C] (CS Series)	0/+70								
Temperature uniformity [± K] ¹	1								
Temperature fluctuation [± K] ¹	0.1								
Humidity data									
Humidity range [% r.H.]	10 to 98								
Humidity fluctuation[± % r.H.]	3								
Electrical data									
Energy consumption at 37 °C [kWh/h]	1.55	1.65	1.92	2.08	2.18	2.53	3.68	4.22	4.30
Rated Voltage [V]	220/240								
Power Frequency [Hz]	50								
Nominal Power [kW]	1.6								

¹ depending on set point! All technical data are specified for units with standard equipment at an ambient temperature of 25 $^{\circ}\text{C}$ and a voltage fluctuation of $\pm 10\%$. We reserve the right to change technical specifications at any time.

TEMPERATURE-HUMIDITY CHART



The light climate chamber

can simulate the perfect light distribution with the right led type for the right specimens. This is your choice for bacteria, plants and insect growing.

FDM offer different light climate chamber for lamp type.

DayLamp: Full-spectrum light suitable for different purpose Growth

BioLamp: Selected spectrum for Bacteria growth optimization

FluoLamp: Tends to yellow area of the spectrum. Suitable for specific Plant/ Animal Growth

ArabLamp: Dedicated to delicate Plant Growth like Arabidopsis

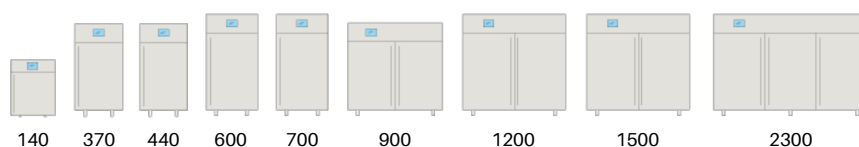
- Best quality components for a long-term simulation
- Temperature range of -25°C to +70°C (LCB PRO) and 0°C to +70°C (LCS PRO)
- Humidity range 10% r.H. to 98% r.H.
- Display PRO with 1 program of 20 sections (PRO controller):
 - User friendly touch screen
 - Integrated chart of data
 - Cronology of data
 - Time clock
- Easy Day/Night simulation with constant controller and switcher for lamp (Standard controller)
- Safety device with manual reset class 1 (DIN 12880)

LIGHT CLIMATE CHAMBER

LCB-LCS Series



AVAILABLE SIZES (liters)



OPTIONS

- | | |
|--|--|
| • Door lock | • Lighting system |
| • Glass door | • LED illumination system |
| • Air extraction/replacement system | • Digital recorder of Temperature/Humidity |
| • Water softer system(self-regenerating) | • USB port for download of recorded data |
| • Flooding system to automatic execute testing with freezing in air and thawing in water | • Temperature extension to +80°C |
| | • Custom options (more information from page 42-43) |

[Improve your testing simulation and make the ideal environment with cyclical temperature/humidity/light control in the same chamber.](#)



Full technical details are available at:
www.dellamarca.it



Stability

The reliable controllers monitoring the stability of test constantly and are equipped of PID technology.



Temperature

Two different models for positive or negative temperature. In both cases the temperature stability is $\pm 0.1^{\circ}\text{C}$.



Humidity

Thanks to the control humidity devices, the chamber simulate the ideal environment for the samples test.



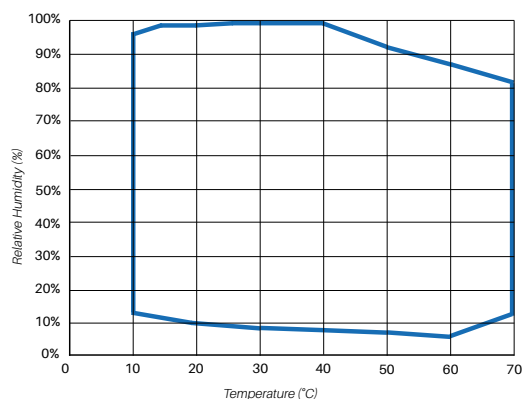
Light

Complete simulation with light. Choose on different lamp available, or if you need special light we can equip it.

Model code (LCB Series)	LC140B	LC370B	LC440B	LC600B	LC700B	LC900B	LC1200B	LC1500B	LC2300B
Model code (LCS Series)	LC140S	LC370S	LC440S	LC600S	LC700S	LC900S	LC1200S	LC1500S	LC2300S
Dimension data									
Net Interior volume [L]	130	310	370	450	530	810	1020	1180	1830
Net weight of the unit [kg]	70	80	95	110	160	165	205	245	360
Exterior Dimension									
Width [mm]	530	600	600	750	750	1200	1500	1500	2250
Depth [mm]	640	600	700	700	820	700	700	820	820
Height [mm]	940	1920	1920	2100	2100	1920	2100	2100	2100
Disposition									
Number of Door	1	1	1	1	1	2	2	2	3
Number of Shelf	2	3	3	3	3	6	6	6	9
Tube lamp per shelf	4	5	5	5	6	10	12	12	12
Tube lamp per wall ²	8	8	10	10	12	10	10	12	12
Temperature data									
Temperature range [°C] (LCB Series)	Light off: -10...+50 Light on: -5...+55								
Temperature range [°C] (LCS Series)	Light off: 0...+50 Light on: 0...+55								
Temperature uniformity [± K] ¹	1								
Temperature fluctuation [± K] ¹	0.1								
Humidity data									
Humidity range [% r.H.]	10 to 98								
Humidity fluctuation[± % r.H.]	3								
Electrical data									
Energy consumption at 37 °C [kWh/h]	1.55	1.65	1.92	2.08	2.18	2.53	3.68	4.22	4.30
Rated Voltage [V]	220/240								
Power Frequency [Hz]	50								
Nominal Power [kW]	1.6								

¹depending on set point² The installation of wall illumination reduces the useful width of the shelves. All technical data are specified for units with standard equipment at an ambient temperature of 25°C and a voltage fluctuation of $\pm 10\%$. We reserve the right to change technical specifications at any time.

TEMPERATURE-HUMIDITY CHART



LAMP SPECIFICATIONS

Type lamp	Daylamp(D)	Biolamp(B)	Fluolamp(F)	Arablamp(A)
Applications	Daylight Simulations	Animal Microorganism	Vegetal Plant	Arabidopsis Plant
Illumination on shelf [W/m ²]	58	58	58	57
Illumination on shelf [LUX]	20.000	21.000	8.000	11.000
Laterals inner walls illumination [LUX]	6.000	10.000	6.000	12.000
Spectrum light				

The material test chamber

tests allows testing materials for determining the resistance to temperature and humidity. It can submit the sample to freeze-thaw cycles by a programmer.

The objective of the environmental durability testing procedures is fatigue stress of the product and evaluate its durability. After submitting the material to freeze-thaw cycles, they shall examine and certify the aesthetic, chemical, physical and mechanical characteristics, in order to provide a complete assessment of the properties temperature-humidity of the tested products.

- Best quality components for a long-term simulation
- Temperature range of -25°C to +70°C (CBC) and 0°C to +70°C (CSC)
- Humidity range 10% r.H. to 98% r.H.
- Average heating and cooling rate according EN 60068-3-5: +1.5/-0.8°C/min
- Display PRO with 1 program of 20 sections:
 - User friendly touch screen
 - Integrated chart of data
 - Cronology of data
 - Time clock
- Safety device with manual reset class 1 (DIN 12880)

MATERIAL TEST CHAMBER

CBC-CSC Series



C700BCX PRO model

AVAILABLE SIZES (liters)



OPTIONS

- Door lock
- Glass door
- Air extraction/replacement system
- Water softer system(self-regenerating)
- Flooding system to automatic execute testing with freezing in air and thawing in water

- Lighting system
- Digital recorder of Temperature/Humidity
- USB port for download of recorded data
- Temperature extension to +80°C
- Custom options (more information from page 42-43)

Additional Programs:

- 10 programs / 50 steps
- 25 programs / 100 steps
- 50 programs / 200 steps

[Improve your testing simulation and make the ideal environment with cyclical temperature/humidity control](#)



Full technical details are available at:
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Cyclic

You can launch countless times your test.

The 1 program and 20 steps is standard, but you can upgrade up to 50 programs and 200 steps.



Temperature

Two different models for positive or negative temperature. In both cases the temperature stability is $\pm 0.1^\circ\text{C}$.



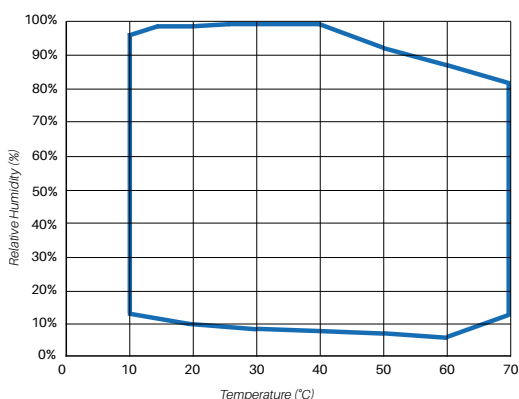
Humidity

Thanks to the control humidity devices, the chamber simulate the ideal environment for the samples test.

Model code (CBC Series)	C140BC	C370BC	C440BC	C600BC	C700BC	C900BC	C1200BC	C1500BC	C2300BC
Model code (CSC Series)	C140SC	C370SC	C440SC	C600SC	C700SC	C900SC	C1200SC	C1500SC	C2300SC
Dimension data									
Net Interior volume [L]	130	310	370	450	530	810	1020	1180	1830
Net weight of the unit [kg]	70	80	95	110	160	165	205	245	360
Exterior Dimension									
Width [mm]	530	600	600	750	750	1200	1500	1500	2250
Depth [mm]	640	600	700	700	820	700	700	820	820
Height [mm]	940	1920	1920	2100	2100	1920	2100	2100	2100
Main Door									
Number of Door	1	1	1	1	1	2	2	2	3
Number of Shelf	2	3	3	3	3	6	6	6	9
Temperature data									
Temperature range [°C] (CBC Series)	-25/+70								
Temperature range [°C] (CSC Series)	0/+70								
Temperature uniformity [± K] ¹	1								
Temperature fluctuation [± K] ¹	0.1								
Humidity data									
Humidity range [% r.H.]	10 to 98								
Humidity fluctuation[± % r.H.]	3								
Electrical data									
Energy consumption at 37 °C [kWh/h]	1.55	1.65	1.92	2.08	2.18	2.53	3.68	4.22	4.30
Rated Voltage [V]	220/240								
Power Frequency [Hz]	50								
Nominal Power [kW]	1.6								

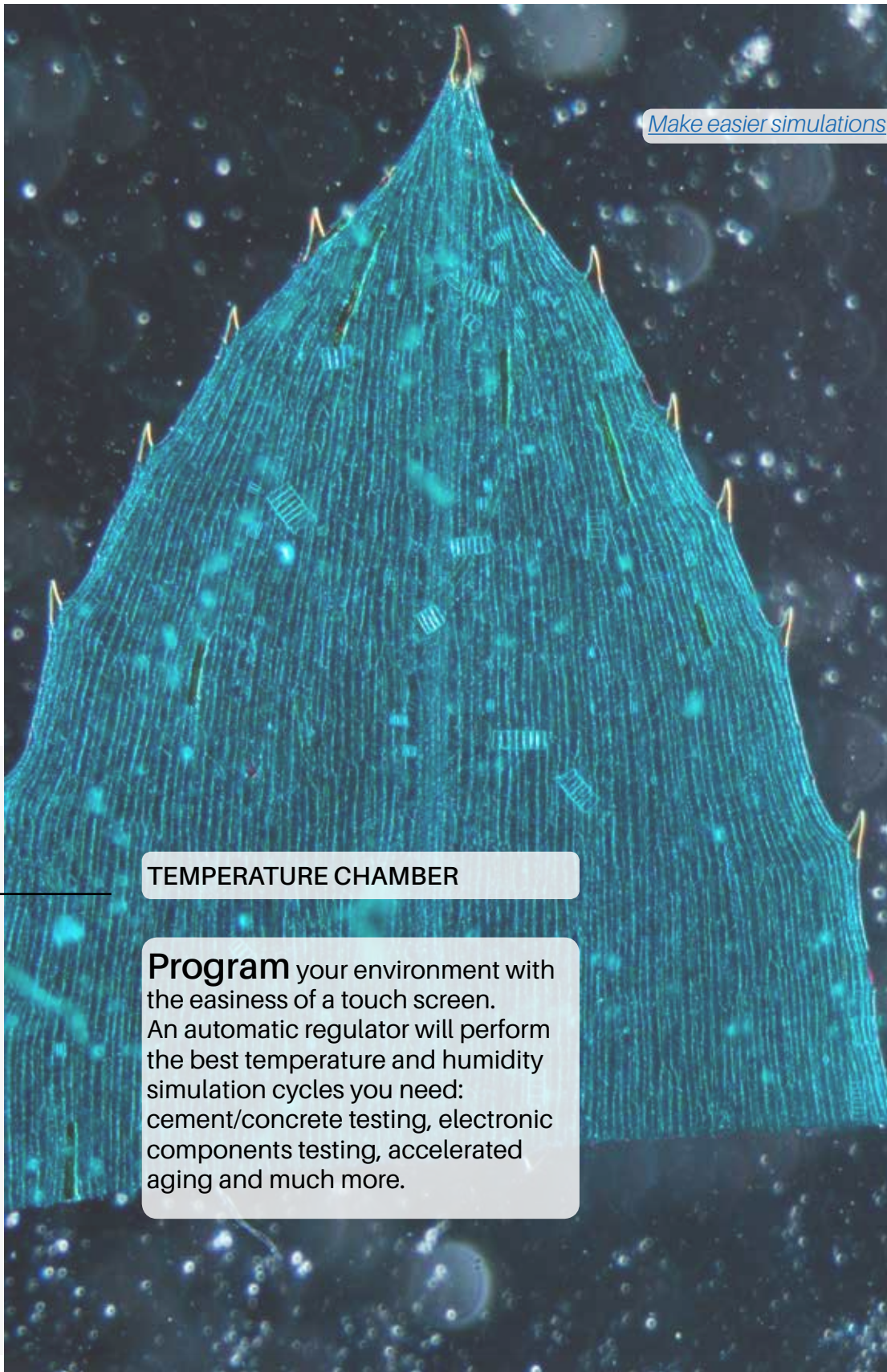
¹depending on set point| All technical data are specified for units with standard equipment at an ambient temperature of 25 $^\circ\text{C}$ and a voltage fluctuation of $\pm 10\%$. We reserve the right to change technical specifications at any time.

TEMPERATURE-HUMIDITY CHART



FOR STANDARDS

EN 196-1	EN 1346
EN 1367-1	EN 1308
EN 12390-2	EN 12002
EN 12371	EN 1324
EN 12004	ASTM 2247-11
EN 1348	ASTM C58103
EN 13383-2	



Make easier simulations

TEMPERATURE CHAMBER

Program your environment with the easiness of a touch screen. An automatic regulator will perform the best temperature and humidity simulation cycles you need: cement/concrete testing, electronic components testing, accelerated aging and much more.

ENVIRONMENT M

MODEL CODE CONFIGURATOR

1 2 3 4 5 6 7 8

□ - □ - □ - □ - □ - □ - □ - □

Optimal	1
With illumination	L
Standard	-
Type of lamp	2
Daylamp	D
Biolamp	B
Fluolamp	F
Arablamp	A
Parameter controls	3
Temperature	T
Temperature & humidity	C

Net volume	4
Net volume 130	140
Net volume 310	370
Net volume 370	440
Net volume 450	600
Net volume 530	700
Net volume 810	900
Net volume 1020	1200
Net volume 1180	1500
Net volume 1830	2300

Temperature range	5
-25...+70°C	B
0...+70°C	S

Special specs	6
Standard	-
Freeze-thaw	C
Material	7
White steel	-
Stainless steel	X
Controller type	8
Constant	-
Programmable with cycle	PRO

es. LDT140BXPRO = Light temperature chamber 140 liters with daylamp light, -25...+70°C range temperature in stainless steel external material and programmer with cycle.

Cyclic Temperature Chamber

TB-TS PRO

Page 12-13



Constant Temperature Chamber

TB-TS

Page 14-15



Light Temperature Chamber

LTB-LTS

Page 16-17



The cyclic temperature chamber

can simulate a ideal ambient for your samples.

The environment chamber simulate temperature up to 70°C.

The programmer have a full control of parameters for simulate a special environment. Its be able to repeat simulation many times over.

- Best quality components for a long-term simulation
- Temperature range of -25°C to +70°C (TB PRO) and 0°C to +70°C (TS PRO)
- Average heating and cooling rate according EN 60068-3-5:
+1.5/-0.8°C/min
- Display PRO with 1 program of 20 sections:
 - User friendly touch screen
 - Integrated chart of data
 - Cronology of data
 - Time clock
- Safety device with manual reset class 1 (DIN 12880)

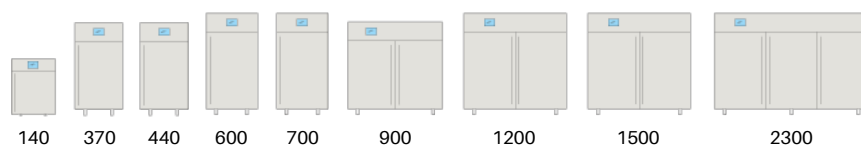
[Improve your testing simulation and make the ideal environment with cyclical temperature control](#)

CYCLIC TEMPERATURE CHAMBER TB-TS PRO Series



T700BX PRO model

AVAILABLE SIZES (liters)



OPTIONS

- | | | |
|---|--|--|
| <ul style="list-style-type: none"> • Door lock • Glass door • Air extraction/replacement system • Flooding system to automatic execute testing with freezing in air and thawing in water • Lighting system | <ul style="list-style-type: none"> • Digital recorder of Temperature/Humidity • USB port for download of recorded data • Temperature extension to +80°C • Custom options (more information from page 42-43) | <p>Additional Programs:</p> <ul style="list-style-type: none"> • 10 programs / 50 steps • 25 programs / 100 steps • 50 programs / 200 steps |
|---|--|--|



Full technical details
are available at:
www.dellamarca.it



Cyclic

You can launch countless times your test.

The 1 program and 20 steps is standard, but you can upgrade up to 50 programs and 200 steps.



Temperature

Two different models for positive or negative temperature. In both cases the temperature stability is $\pm 0.1^{\circ}\text{C}$.

Model code (TB PRO Series)	T140BPRO	T370BPRO	T440BPRO	T600BPRO	T700BPRO	T900BPRO	T1200BPRO	T1500BPRO	T2300BPRO
Model code (TS PRO Series)	T140SPRO	T370SPRO	T440SPRO	T600SPRO	T700SPRO	T900SPRO	T1200SPRO	T1500SPRO	T2300SPRO
Dimension data									
Net Interior volume [L]	130	310	370	450	530	810	1020	1180	1830
Net weight of the unit [kg]	70	80	95	110	160	165	205	245	360
Exterior Dimension									
Width [mm]	530	600	600	750	750	1200	1500	1500	2250
Depth [mm]	640	600	700	700	820	700	700	820	820
Height [mm]	940	1920	1920	2100	2100	1920	2100	2100	2100
Main Door									
Number of Door	1	1	1	1	1	2	2	2	3
Number of Shelf	2	3	3	3	3	6	6	6	9
Temperature data									
Temperature range [°C] (TB PRO Series)	-25/+70								
Temperature range [°C] (TS PRO Series)	0/+70								
Temperature uniformity [± K] ¹	1								
Temperature fluctuation [± K] ¹	0.1								
Electrical data									
Energy consumption at 37 °C [kWh/h]	1.55	1.65	1.92	2.08	2.18	2.53	3.68	4.22	4.30
Rated Voltage [V]	220/240								
Power Frequency [Hz]	50								
Nominal Power [kW]	1.6								

¹depending on set point| All technical data are specified for units with standard equipment at an ambient temperature of 25 °C and a voltage fluctuation of $\pm 10\%$. We reserve the right to change technical specifications at any time.

The constant climate chamber

can simulate a ideal ambient for your samples.

The environment chamber simulate temperature up to 70°C.

The controllers have a full control of parameters for simulate a special environment. Its a perfect solution for stability test.

- Best quality components for a long-term simulation
- Temperature range of -25°C to +70°C (TB) and 0°C to +70°C (TS)
- Average heating and cooling rate according EN 60068-3-5: +1.5/-0.8°C/min
- Display controllers for temperature and humidity
 - PID constant stability
- Safety device with manual reset class 1 (DIN 12880)

[Set temperature of constant temperature chamber and you have done half of the job. If your need is stability this is the right product to perform your simulations.](#)

CONSTANT TEMPERATURE CHAMBER TB-TS Series



T700BX PRO model

AVAILABLE SIZES (liters)



OPTIONS

- Door lock
- Glass door
- Air extraction/replacement system
- Flooding system to automatic execute testing with freezing in air and thawing in water
- Lighting system
- Digital recorder of Temperature/Humidity
- USB port for download of recorded data
- Temperature extension to +80°C
- Custom options (more information from page 42-43)



Full technical details are available at:
www.dellamarca.it



Stability

The reliable controllers monitoring the stability of test constantly and are equipped of PID technology.



Temperature

Two different models for positive or negative temperature. In both cases the temperature stability is $\pm 0.1^{\circ}\text{C}$.

Model code (TB Series)	T140B	T370B	T440B	T600B	T700B	T900B	T1200B	T1500B	T2300B
Model code (TS Series)	T140S	T370S	T440S	T600S	T700S	T900S	T1200S	T1500S	T2300S
Dimension data									
Net Interior volume [L]	130	310	370	450	530	810	1020	1180	1830
Net weight of the unit [kg]	70	80	95	110	160	165	205	245	360
Exterior Dimension									
Width [mm]	530	600	600	750	750	1200	1500	1500	2250
Depth [mm]	640	600	700	700	820	700	700	820	820
Height [mm]	940	1920	1920	2100	2100	1920	2100	2100	2100
Main Door									
Number of Door	1	1	1	1	1	2	2	2	3
Number of Shelf	2	3	3	3	3	6	6	6	9
Temperature data									
Temperature range [°C] (TB Series)	-25/+70								
Temperature range [°C] (TS Series)	0/+70								
Temperature uniformity [± K] ¹	1								
Temperature fluctuation [± K] ¹	0.1								
Electrical data									
Energy consumption at 37 °C [kWh/h]	1.55	1.65	1.92	2.08	2.18	2.53	3.68	4.22	4.30
Rated Voltage [V]	220/240								
Power Frequency [Hz]	50								
Nominal Power [kW]	1.6								

¹depending on set point| All technical data are specified for units with standard equipment at an ambient temperature of 25 $^{\circ}\text{C}$ and a voltage fluctuation of $\pm 10\%$. We reserve the right to change technical specifications at any time.

The light temperature chamber

can simulate the perfect light distribution with the right led type for the right specimens. This is your choice for bacteria, plants and insect growing.

FDM offer different light climate chamber for lamp type.

DayLamp: Full-spectrum light suitable for different purpose Growth

BioLamp: Selected spectrum for Bacteria growth optimization

FluoLamp: Tends to yellow area of the spectrum. Suitable for specific Plant/ Animal Growth

ArabLamp: Dedicated to delicate Plant Growth like Arabidopsis

- Best quality components for a long-term simulation.
- Temperature range of -25°C to +70°C (LTB PRO) and 0°C to +70°C (LTS PRO)
- Display LCD PRO with 1 program of 20 sections (PRO controller)
 - User friendly touch screen
 - Integrated chart of data
 - Cronology of data
 - Time clock
- Easy Day/Night simulation with constant controller and switcher for lamp (Standard controller)
- Safety device with manual reset class 1 (DIN 12880)

LIGHT TEMPERATURE CHAMBER

LTB-LTS Series



AVAILABLE SIZES (liters)



OPTIONS

- Door lock
- Glass door
- Air extraction/replacement system
- Water softer system(self-regenerating)
- Flooding system to automatic execute testing with freezing in air and thawing in water
- Lighting system
- LED illumination system
- Digital recorder of Temperature/Humidity
- USB port for download of recorded data
- Temperature extension to +80°C
- Custom options (more information from page 42-43)

[Improve your testing simulation and make the ideal environment with cyclical temperature/humidity/light control in the same chamber.](#)



Full technical details are available at:
www.dellamarca.it



Stability

The reliable controllers monitoring the stability of test constantly and are equipped of PID technology.



Temperature

Two different models for positive or negative temperature. In both cases the temperature stability is $\pm 0.1^{\circ}\text{C}$.



Humidity

Thanks to the control humidity devices, the chamber simulate the ideal environment for the samples test.



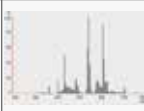
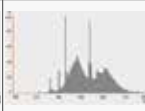
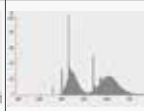
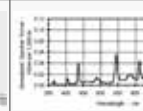
Light

Complete simulation with light. Choose on different lamp available, or if you need special light we can equip it.

Model code (LTB Series)	LT140B	LT370B	LT440B	LT600B	LT700B	LT900B	LT1200B	LT1500B	LT2300B
Model code (LTS Series)	LT140S	LT370S	LT440S	LT600S	LT700S	LT900S	LT1200S	LT1500S	LT2300S
Dimension data									
Net Interior volume [L]	130	310	370	450	530	810	1020	1180	1830
Net weight of the unit [kg]	70	80	95	110	160	165	205	245	360
Exterior Dimension									
Width [mm]	530	600	600	750	750	1200	1500	1500	2250
Depth [mm]	640	600	700	700	820	700	700	820	820
Height [mm]	940	1920	1920	2100	2100	1920	2100	2100	2100
Disposition									
Number of Door	1	1	1	1	1	2	2	2	3
Number of Shelf	2	3	3	3	3	6	6	6	9
Tube lamp per shelf	4	5	5	5	6	10	12	12	12
Tube lamp per wall ²	8	8	10	10	12	10	10	12	12
Temperature data									
Temperature range [°C] (LTB Series)	Light off: -10...+50 Light on: -5...+55								
Temperature range [°C] (LTS Series)	Light off: 0...+50 Light on: 0...+55								
Temperature uniformity [± K] ¹	1								
Temperature fluctuation [± K] ¹	0.1								
Electrical data									
Energy consumption at 37 °C [kWh/h]	1.55	1.65	1.92	2.08	2.18	2.53	3.68	4.22	4.30
Rated Voltage [V]	220/240								
Power Frequency [Hz]	50								
Nominal Power [kW]	1.6								

¹depending on set point² The installation of wall illumination reduces the useful width of the shelves! All technical data are specified for units with standard equipment at an ambient temperature of 25 °C and a voltage fluctuation of $\pm 10\%$. We reserve the right to change technical specifications at any time.

LAMP SPECIFICATIONS

Type lamp	Daylamp(D)	Biolamp(B)	Fluolamp(F)	Arablamp(A)
Applications	Daylight Simulations	Animal Microorganism	Vegetal Plant	Arabidopsis Plant
Illumination on shelf [W/m ²]	58	58	58	57
Illumination on shelf [LUX]	20.000	21.000	8.000	11.000
Laterals inner walls illumination [LUX]	6.000	10.000	6.000	12.000
Spectrum light				

Full water immersion

THERMOSTATIC BATH

With new thermostatic bath you can literally immerse your samples in your controlled environment. Strong, reliable and completely inox made, the FDM thermo bath is equipped with perforated shelves and one cover.

Thermostatic
Bath

VT

Page 12-13



THERMOSTATIC BATH

VT Series



Temperature

Two different models for positive or negative temperature. In both cases the temperature stability is $\pm 0.1^{\circ}\text{C}$.

Fully electrowelded

thermostatic bath, high resistance to corrosive agents, stainless steel AISI 304 or 316.

Digital microprocessor controller, with PID control for a better temperature tank stability.

Manual charging and drainage of water through the ball valve.

Top cover and interior shelves steel AISI 304 or 316.

Other sizes available



VT360 model

Model code	VT360
Dimension data	
Net Interior volume [L]	360
Net weight of the unit [kg]	55
Exterior Dimension	
Width [mm]	1135
Depth [mm]	725
Height [mm]	950
Disposition	
Number of Shelf	2 perforated
Temperature data	
Temperature range [$^{\circ}\text{C}$]	up to +50
Temperature fluctuation [$\pm$ K]	± 1
Electrical data	
Rated Voltage [V]	220
Power Frequency [Hz]	50
Nominal Power [kW]	3
Phase (Niminal voltage)	1~

All technical data are specified for units with standard equipment at an ambient temperature of 25°C and a voltage fluctuation of $\pm 10\%$. We reserve the right to change technical specifications at any time.

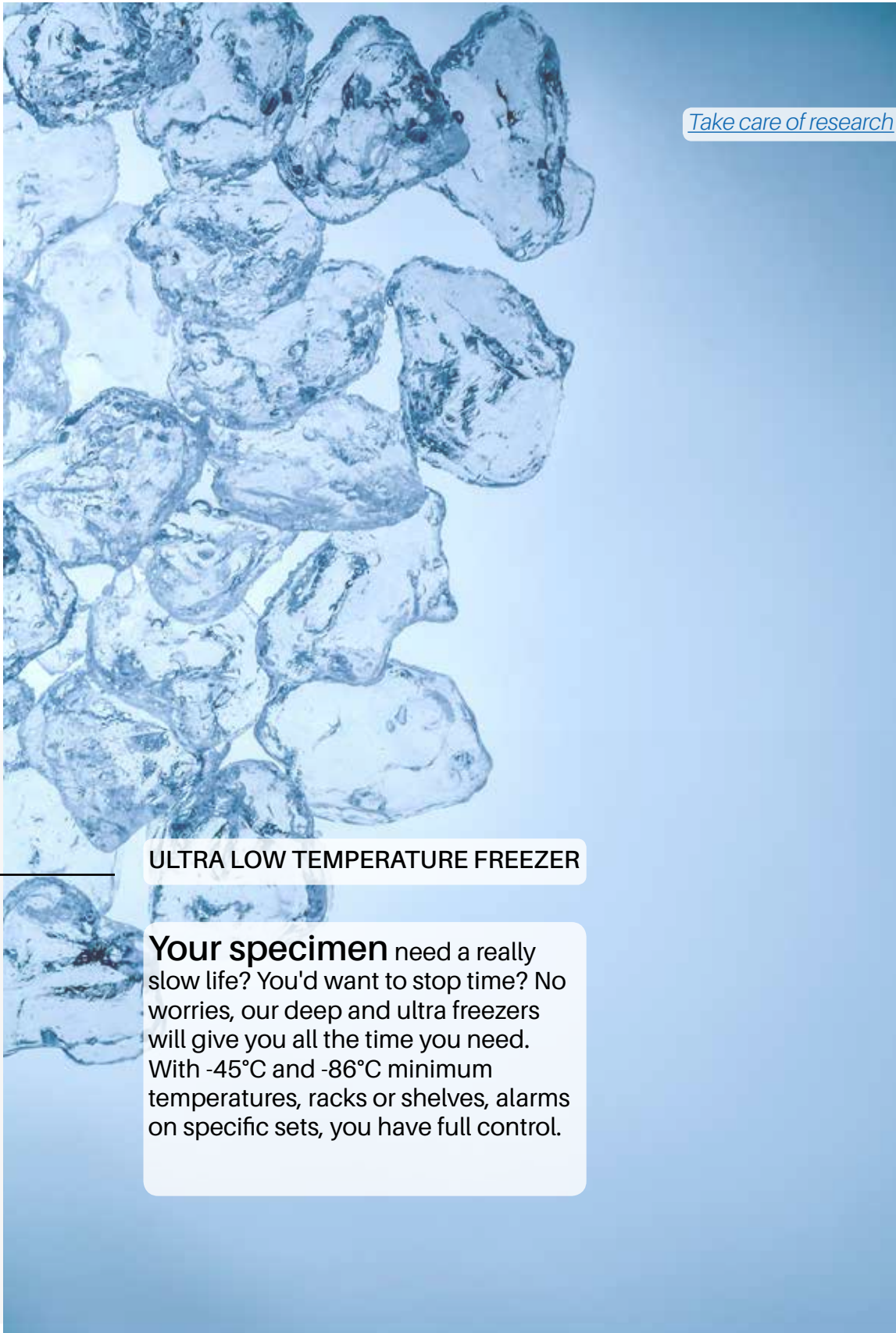
OPTIONS

- Other sizes available



Full technical details are available at:
www.dellamarca.it

A full immersion of water with an accurated control of temperature, it was never so precise.

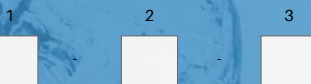


Take care of research

ULTRA LOW TEMPERATURE FREEZER

Your specimen need a really slow life? You'd want to stop time? No worries, our deep and ultra freezers will give you all the time you need. With -45°C and -86°C minimum temperatures, racks or shelves, alarms on specific sets, you have full control.

MODEL CODE CONFIGURATOR



Temperature range	1
-20...-45°C	45
-40...-86°C	86

Special specs	2
Upright freezer	NV
Chest freezer	NR
Biomedical freezer	ES

Net volume	3
Net volume 230	230
Net volume 390	390
Net volume 500	500
Net volume 650	650

es. 86ES23 = Biomedical Ultra low temperature freezer, -40...-86°C 230 net capacity.

Upright Ultra Low Freezer -86°C

NV-ES

Page 32-33



Upright Low Freezer -45°C

NV-ES

Page 34-35



Chest Ultra Low Freezer -86°C

NR-ES

Page 36-37



Chest Low Freezer -86°C

NR-ES

Page 38-39



Your specimen need a really slow life? You'd want to stop time? No worries, our deep and ultra freezers will give you all the time you need. With -40°C and -86°C minimum temperatures, racks or shelves, alarms on specific sets, you have full control.

- Temperature range: -40°C up to -86°C
- Cascade compressor cooling unit
- HFC Ecological refrigerant type, CFC and HCFC free
- Robust exterior structure in phosphated sheet steel
- Insulation CFC and HCFC free
- Interior chamber made of full stainless steel
- Door closing with security key
- Interior compartment doors
- Alarm system with backup battery
- LCD display with alarms and temperature memory log
- Easy and fast maintenance
- Height adjustable stainless steel shelves
- Temperature backup emergency system (optional)
- Reliable door gasket with quadruple sealing points

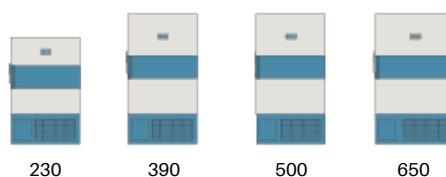
[Stop the aging of your samples with an ultra-low temp storage. Minimum Temperatures -86°C](#)

UPRIGHT ULTRA LOW FREEZER NV-ES Series



86NV50 model

AVAILABLE SIZES (liters)



OPTIONS

- | | | | |
|---|--|---|---|
| • Open door alarm | • Drawers sliding stainless various heights | • Integrated customizable opening for access management and the traceability of the openings allowed with acknowledgment of microprocessor smartcards and software management | • Validation I.Q. (Installation Qualification) and OQ (Operational Qualification) |
| • Weekly chart temperature recorder | • Voltage stabilizer built | • Uninterruptible Power Supply (UPS) | |
| • Back- up system CO2 or LN2 | • Audible and visual alarm system independent of the control system | | |
| • Ramp CO2 cylinder two-seater with automatic feeding exchanger | • Internal ventilation system for increased cooling distribution inside the refrigerated chamber | | |
| • Racks stainless cryoboxes | | | |
| • Stainless steel racks with drawers | | | |



Full technical details are available at:
www.dellamarca.it



Ultra Low Temperature

Best guard of samples, the ultra low freezer stop age of your samples.



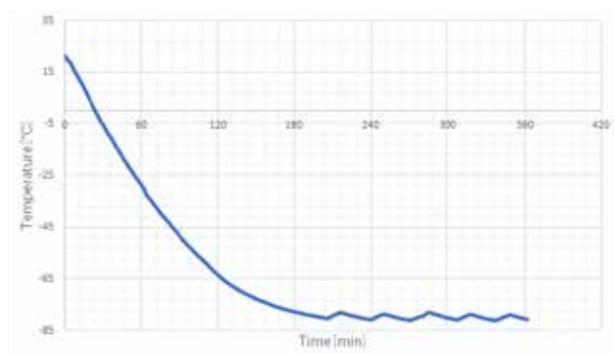
Upright Model

Choose in two different disposition of freezer, Chest or Upright.

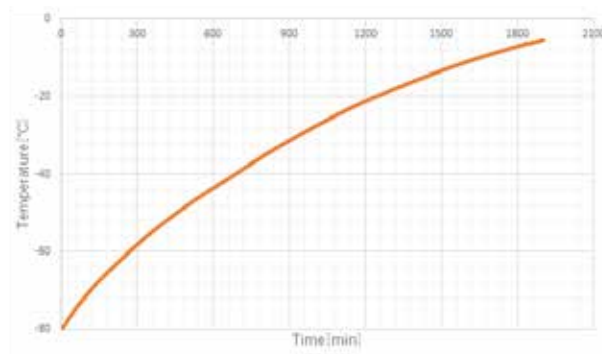
Model code (NV Series)	86NV23	86NV39	86NV50	86NV65
Model code (ES Series)	86ES23	86ES39	86ES50	86ES65
Dimension data				
Net Interior volume [L]	230	390	500	650
Net weight of the unit [kg]	200	280	320	390
Exterior Dimension				
Width [mm]	840	840	840	980
Depth [mm]	750	750	880	900
Height [mm]	1420	1970	1970	1970
Shelves data				
Fixed shelves [n°]	1	1	1	1
Adjustable shelves [n°]	2	3	3	3
Total shelves [n°]	3	4	4	4
Usable area, Width x Depth [mm]	44x59	57x59	57x59	73x66
Temperature data				
Temperature range [°C]	-40...-86			
Temperature variation at -80 °C [± K]	1.5			
Warm-up time during power failure from -80 °C to -60 °C [min]	140			
Warm-down time from 0 °C to -80 °C [min]	180			
Rack for cryoboxes data				
Total capacity of rack [n°]	8	16	16	20
Total capacity of cryoboxes 5.1 H size [n°]	144	240	320	400
Total capacity of cryoboxes 7.7 H size [n°]	96	144	192	240
Electrical data				
Rated Voltage [V]	230			
Power Frequency [Hz]	50			
Nominal Power [kW]	0.8	1.55	1.55	1.55

All technical data are specified for units with standard equipment at an ambient temperature of 25 °C and a voltage fluctuation of ±10 %. We reserve the right to change technical specifications at any time.

COOLING DOWN RATE



HEATING UP RATE



Your specimen need a really slow life? You'd want to stop time? No worries, our deep and ultra freezers will give you all the time you need. With -20°C and -45°C minimum temperatures, racks or shelves, alarms on specific sets, you have full control.

- Temperature range: -20°C up to -45°C
- Cascade compressor cooling unit
- HFC Ecological refrigerant type, CFC and HCFC free
- Robust exterior structure in phosphated sheet steel
- Insulation CFC and HCFC free
- Interior chamber made of full stainless steel
- Door closing with security key
- Interior compartment doors
- Alarm system with backup battery
- LCD display with alarms and temperature memory log
- Easy and fast maintenance
- Height adjustable stainless steel shelves
- Temperature backup emergency system (optional)
- Reliable door gasket with quadruple sealing points

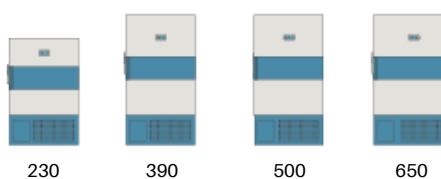
[Stop the aging of your samples with an ultra temp storage. Minimum Temperatures -45°C](#)

UPRIGHT LOW FREEZER NV-ES Series



45NV50 model

AVAILABLE SIZES (liters)



OPTIONS

- | | | | |
|---|--|---|---|
| • Open door alarm | • Drawers sliding stainless various heights | • Integrated customizable opening for access management and the traceability of the openings allowed with acknowledgment of microprocessor smartcards and software management | • Validation I.Q. (Installation Qualification) and OQ (Operational Qualification) |
| • Weekly chart temperature recorder | • Voltage stabilizer built | | |
| • Back- up system CO2 or LN2 | • Audible and visual alarm system independent of the control system | | |
| • Ramp CO2 cylinder two-seater with automatic feeding exchanger | • Internal ventilation system for increased cooling distribution inside the refrigerated chamber | • Uninterruptible Power Supply (UPS) | |
| • Racks stainless cryoboxes | | | |
| • Stainless steel racks with drawers | | | |



Full technical details are available at:
www.dellamarca.it



Low Temperature

Best guard of samples, the low freezer stop age of your samples.



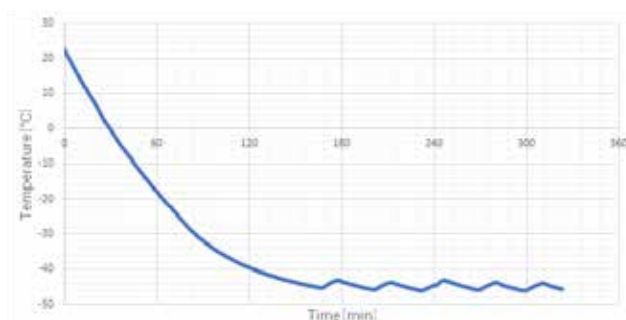
Upright Model

Choose in two different disposition of freezer, Chest or Upright.

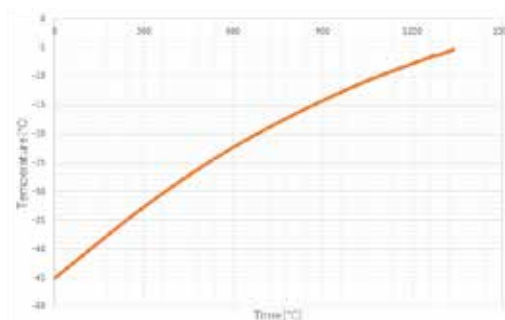
Model code (NV Series)	45NV23	45NV39	45NV50	45NV65
Model code (ES Series)	45ES23	45ES39	45ES50	45ES65
Dimension data				
Net Interior volume [L]	230	390	500	650
Net weight of the unit [kg]	200	280	320	390
Exterior Dimension				
Width [mm]	840	840	840	980
Depth [mm]	750	750	880	900
Height [mm]	1420	1970	1970	1970
Shelves data				
Fixed shelves [n°]	1	1	1	1
Adjustable shelves [n°]	2	3	3	3
Total shelves [n°]	3	4	4	4
Usable area, Width x Depth [mm]	44x59	57x59	57x59	73x66
Temperature data				
Temperature range [°C]	-20...-45			
Temperature variation at -45 °C [± K]	1.5			
Warm-up time during power failure from -45 °C to -20 °C [min]	140			
Warm-down time from 0 °C to -45 °C [min]	180			
Rack for cryoboxes data				
Total capacity of rack [n°]	8	16	16	20
Total capacity of cryoboxes 5.1 H size [n°]	144	240	320	400
Total capacity of cryoboxes 7.7 H size [n°]	96	144	192	240
Electrical data				
Rated Voltage [V]	230			
Power Frequency [Hz]	50			
Nominal Power [kW]	0.8	1.55	1.55	1.55

All technical data are specified for units with standard equipment at an ambient temperature of 25 °C and a voltage fluctuation of ±10 %. We reserve the right to change technical specifications at any time.

COOLING DOWN RATE



HEATING UP RATE



Your specimen need a really slow life? You'd want to stop time? No worries, our deep and ultra freezers will give you all the time you need. With -40°C and -86°C minimum temperatures, racks or shelves, alarms on specific sets, you have full control.

- Temperature range: -40°C up to -86°C
- Cascade compressor cooling unit
- HFC Ecological refrigerant type, CFC and HCFC free
- Robust exterior structure in phosphated sheet steel
- Insulation CFC and HCFC free
- Interior chamber made of full stainless steel
- Door closing with security key
- Interior compartment doors
- Alarm system with backup battery
- LCD display with alarms and temperature memory log
- Easy and fast maintenance
- Height adjustable stainless steel shelves
- Temperature backup emergency system (optional)
- Reliable door gasket with quadruple sealing points

[Stop the aging of your samples with an ultra-low temp storage. Minimum Temperatures -86°C](#)

CHEST ULTRA LOW FREEZER NR-ES Series



86NR39 model

AVAILABLE SIZES (liters)



230



390



500

OPTIONS

- | | | | |
|---|--|---|---|
| • Open door alarm | • Drawers sliding stainless various heights | • Integrated customizable opening for access management and the traceability of the openings allowed with acknowledgment of microprocessor smartcards and software management | • Validation I.Q. (Installation Qualification) and OQ (Operational Qualification) |
| • Weekly chart temperature recorder | • Voltage stabilizer built | | |
| • Back- up system CO2 or LN2 | • Audible and visual alarm system independent of the control system | | |
| • Ramp CO2 cylinder two-seater with automatic feeding exchanger | • Internal ventilation system for increased cooling distribution inside the refrigerated chamber | • Uninterruptible Power Supply (UPS) | |
| • Racks stainless cryoboxes | | | |
| • Stainless steel racks with drawers | | | |



Full technical details are available at:
www.dellamarca.it



Ultra Low Temperature

Best guard of samples, the ultra low freezer stop age of your samples.



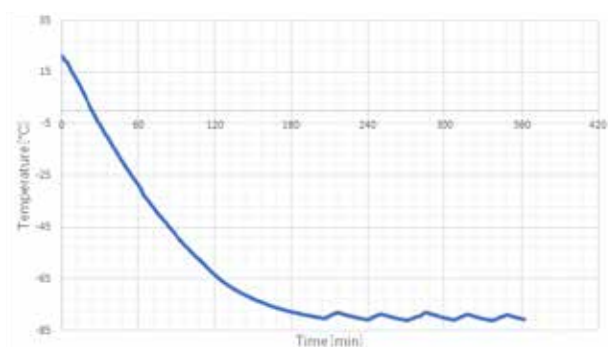
Chest Model

Choose in two different disposition of freezer, Chest or Upright.

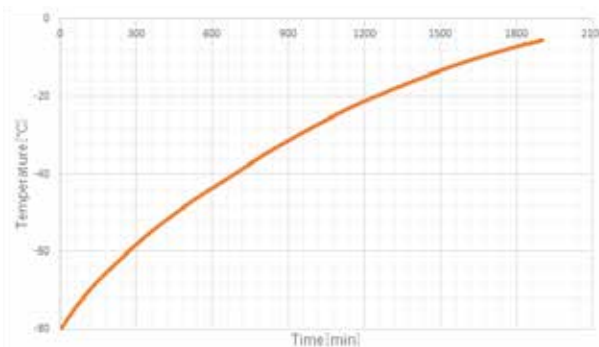
Model code (NV Series)	86NR23	86NR39	86NR50
Model code (ES Series)	86ES23	86ES39	86ES50
Dimension data			
Net Interior volume [L]	230	390	500
Net weight of the unit [kg]	200	280	320
Exterior Dimension			
Width [mm]	1000	1550	1890
Depth [mm]	840	840	840
Height [mm]	1090	1090	910
Disposition			
Service door [n°]	1	1	1
Interior compartment doors [n°]	-	-	-
Temperature data			
Temperature range [°C]	-40...-86		
Temperature variation at -80 °C [± K]	1.5		
Warm-up time during power failure from -80 °C to -60 °C [min]	140		
Warm-down time from 0 °C to -80 °C [min]	180		
Rack for cryoboxes data			
Total capacity of rack [n°]	20	36	36
Total capacity of cryoboxes 5.1 H size [n°]	160	288	360
Total capacity of cryoboxes 7.7 H size [n°]	100	180	360
Electrical data			
Rated Voltage [V]	230		
Power Frequency [Hz]	50		
Nominal Power [kW]	0.8	1.55	1.55

All technical data are specified for units with standard equipment at an ambient temperature of 25 °C and a voltage fluctuation of ± 10 %. We reserve the right to change technical specifications at any time.

COOLING DOWN RATE



HEATING UP RATE



Your specimen need a really slow life? You'd want to stop time? No worries, our deep and ultra freezers will give you all the time you need. With -20°C and -45°C minimum temperatures, racks or shelves, alarms on specific sets, you have full control.

- Temperature range: -20°C up to -45°C
- Cascade compressor cooling unit
- HFC Ecological refrigerant type, CFC and HCFC free
- Robust exterior structure in phosphated sheet steel
- Insulation CFC and HCFC free
- Interior chamber made of full stainless steel
- Door closing with security key
- Interior compartment doors
- Alarm system with backup battery
- LCD display with alarms and temperature memory log
- Easy and fast maintenance
- Height adjustable stainless steel shelves
- Temperature backup emergency system (optional)
- Reliable door gasket with quadruple sealing points

[Stop the aging of your samples with an ultra temp storage. Minimum Temperatures -45°C](#)

CHEST LOW FREEZER NR-ES Series



45NR39 model

AVAILABLE SIZES (liters)



230



390



500

OPTIONS

- | | | | |
|---|--|---|---|
| • Open door alarm | • Drawers sliding stainless various heights | • Integrated customizable opening for access management and the traceability of the openings allowed with acknowledgment of microprocessor smartcards and software management | • Validation I.Q. (Installation Qualification) and OQ (Operational Qualification) |
| • Weekly chart temperature recorder | • Voltage stabilizer built | | |
| • Back- up system CO ₂ or LN ₂ | • Audible and visual alarm system independent of the control system | | |
| • Ramp CO ₂ cylinder two-seater with automatic feeding exchanger | • Internal ventilation system for increased cooling distribution inside the refrigerated chamber | • Uninterruptible Power Supply (UPS) | |
| • Racks stainless cryoboxes | | | |
| • Stainless steel racks with drawers | | | |



Full technical details are available at:
www.dellamarca.it



Low Temperature

Best guard of samples, the low freezer stop age of your samples.



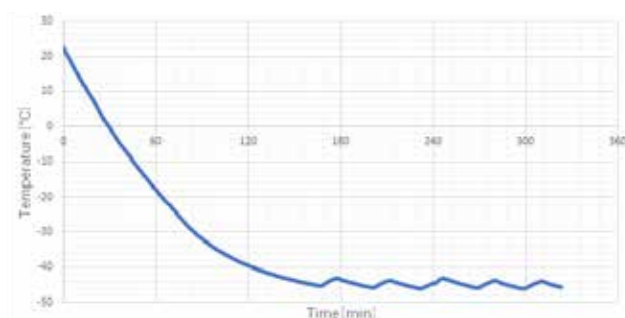
Chest Model

Choose in two different disposition of freezer, Chest or Upright.

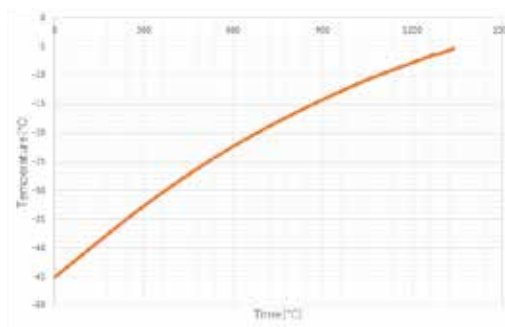
Model code (NV Series)	45NR23	45NR39	45NR50
Model code (ES Series)	45ES23	45ES39	45ES50
Dimension data			
Net Interior volume [L]	230	390	500
Net weight of the unit [kg]	200	280	320
Exterior Dimension			
Width [mm]	1000	1550	1890
Depth [mm]	840	840	840
Height [mm]	1090	1090	910
Disposition			
Service door [n°]	1	1	1
Interior compartment doors [n°]	-	-	-
Temperature data			
Temperature range [°C]	-20...-45		
Temperature variation at -45 °C [± K]	1.5		
Warm-up time during power failure from -45 °C to -20 °C [min]	140		
Warm-down time from 0 °C to -45 °C [min]	180		
Rack for cryoboxes data			
Total capacity of rack [n°]	20	36	36
Total capacity of cryoboxes 5.1 H size [n°]	160	288	360
Total capacity of cryoboxes 7.7 H size [n°]	100	180	360
Electrical data			
Rated Voltage [V]	230		
Power Frequency [Hz]	50		
Nominal Power [kW]	0.8	1.55	1.55
Power Frequency [Hz]	50		
Nominal Power [kW]	0.8	1.55	1.55

All technical data are specified for units with standard equipment at an ambient temperature of 25 °C and a voltage fluctuation of ± 10 %. We reserve the right to change technical specifications at any time.

COOLING DOWN RATE



HEATING UP RATE



*Ultra Security Freezer***PLASMA FREEZER**

Medical research is life. We believe in supporting our child to have a better healthy future. Our blood plasma freezers are the equipment we are proud to serve the science with. A fast run freezing machine capable of reach very low temperature in few time. Just to be sure your blood specimens run no risks.

Plasma
Freezer

ES

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PLASMA FREEZER

ES Series



Ultra Fast Freezing

Ultra fast freezeing for blood bags, less than one hour blood sack frozen at -30°C.

Special racks for plasma and blood samples storage, all protected by certified refrigerators.

- Less than one hour to have the hearth of blood sack frozen at -30°C
- Freeze blood plasma to -60°C
- We give you a full European blood standards machine
- No more sack's damages due to frozen racks
- Move your racks and change internal configuration
- In compliance to: CEE 93/42/EEC (medical devices) Class IIa



86ES23 model

Model	86ES23
Performance Data Temperature	
Temperature range [°C]	-45...-60
Time Freezing in middle of bag [min]	45
Temperature variation at -60 °C [± K]	1.5
Warm-up time during power failure from -45 °C to -60 °C [min]	140
Warm-down time from 0 °C to -60 °C [min]	180
Exterior Dimension	
Width [mm]	600
Depth [mm]	500
Height [mm]	760
Measures	
Net capacity [L]	230
Net weight unit (without load) [kg]	250
Temperature fluctuation [± K]	±1
Electrical data	
Rated Voltage [V]	220
Power Frequency [Hz]	50
Nominal Power [kW]	0.8
Phase (Niminal voltage)	1~

All technical data are specified for units with standard equipment at an ambient temperature of 25 °C and a voltage fluctuation of ±10 %. We reserve the right to change technical specifications at any time.

Capacity of freezing	
Number of 200 ml bags capacity [n°]	44
Number of 450 ml bags capacity [n°]	20
Number of 650 ml bags capacity [n°]	14
Number of 1000 ml bags capacity [n°]	9

OPTIONS

- Electronic system with touch-screen operator panel, for the acquisition by a barcode reader information relating to plasma bags to put in the freezer.
- Recorder of track temperatures
- Weekly chart temperature recorder.
- Voltage stabilizer built.
- The UPS.
- Customizable opening for access management and the traceability of the openings
- Validation I.Q. (Installation Qualification) and O.Q. (Operational Qualification).



Full technical details are available at: www.dellamarca.it



Environment Makers

SPECIAL SOLUTIONS

If you don't know how need, don't worry, FDM experience and technology will guide you in an analysis and development step-by-step process. We'll reach your goals together.

ENVIRONMENT MAKERS

Your special requirements deserve special solutions. For this purpose FDM has developed its CUSTOM division. Dedicated volumes, removable doors or exceptional specimens testing are only few examples.

We analyzed and developed things like machines for special mechanical tyres testing, climatic chambers filled with path tracks for mice testing and environmental chambers with special filters or lights.

Our experience and technical innovation skills encounter the quality of ever. This will be with your special requirements and your future FDM CUSTOM chamber.

We are the Environment Makers

SERVICE

- Customized regulation of heat, refrigeration, humidity, light, air, CO2, or O2 supply
- Accurate measurement, management, control and switching
- Design from parameters your special requirements and your future FDM CUSTOM chamber
- Customized integration of accessories (e.g. special mechanics or filters)
- Individual consultation
- Effective planning
- Comprehensive application support
- Effective planning
- Individual consultation
- Comprehensive application support
- Connections, outputs, inputs, extensions and modifications

GUARANTEE

- All components from a single source
- Compliance with ISO 9001 standards
- Guarantee on all customized solutions
- Operating instruction for the expanded scope
- Guarantee on spare parts inventory
- Individual identification to ensure that any spare parts for your customized application are provided correctly and promptly



KEEPING MOUSE CHAMBER

The customer's need was to simulate an ideal, controlled, environment for keeping mice. In addition to temperature range of 0°C to +40°C and humidity range of 30 to 80 r.H. the chamber is equipped of white inside light mounted at front doors (5000 lux) dimmable 0-100% to reproduce the natural photo-period. Red LED inside light (ON/OFF) for a not disturbing inspection.

SHOCK FREEZER MODULE

The customer require a refrigerated chamber for implement another machine at their use. The machine is composed of 2 module:

- refrigerated room.
- power module.

Both units are coated with different materials and insulated with polyurethane foam with a density of 42 kg / mc. The instruments are grouped on the side panel of the power module, inside which are also enclosed the electrical / electronic components.



More custom realization product are available at:
www.dellamarca.it



SERVICE

VALIDATION SYSTEM

Reduce your equipment qualification and validation costs with a FDM qualification package. FDM's professional validation service guarantees confidence in meeting validation requirements.

CALIBRATION SERVICE

By letting FDM calibrate your equipment, you can be sure that it will meet all of the requirements for maximum process safety. Our support for you: quick, reliable on-site execution, qualified calibration certificate, manufacturer's inspection plate on the unit and maintenance recommendations.

REPLACEMENT PARTS

Use only FDM original replacement parts to ensure full and satisfactory equipment performance and complete, unrestricted manufacturer warranty services. We provide our delivery service to ensure that you receive the optimum solution for your problems as quickly as possible.

REPAIR AND MAINTENANCE SERVICE

The FDM manufacturer service is particularly important when it comes to repairs or maintenance. They know the technology, the little changes and updates the best, invest most in training, diagnostic software, documentation and service products for your environment.

SERVICE CONTACT PREVENTION IS PRUDENT

Reduce your equipment qualification and validation costs with a FDM qualification package. FDM's professional validation service guarantees confidence in meeting validation requirements.



FDM real value
is in the service
you need. We are
improving every
day to give you
the best.

Services are the FDM extra value

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Service contact

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INCREASE

FDM speaks your language. Being present in Europe and extra UE countries gives us the possibility to support you with your requirements, at your side.

Our policy is looking for distributors that, with our training, become expert in FDM equipment and will help you with ordinary and extra ordinary after sale maintenance.

We know price is not the only valuable thing that matters. FDM Service and Support is present in: Spain, France, Poland, UK, Germany Benelux, Estonia, Switzerland, Greece, Serbia, Pakistan, Bangladesh, South Korea. Isn't it enough? Discover our Remote Support by our Engineering team.

ENVIRONMENT MAKERS

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