

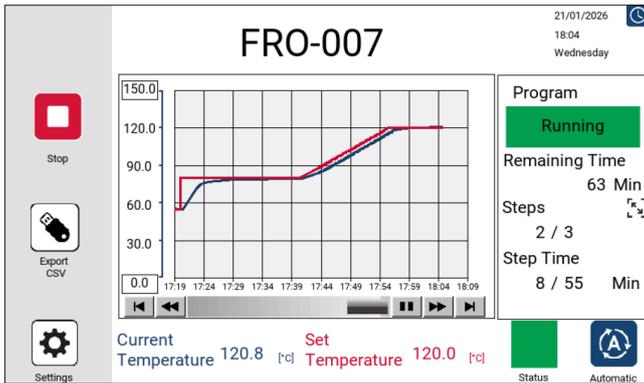
# INCUBATORS

 **Froilabo**



# INCUBATORS FOR A VARIETY OF APPLICATIONS

Froilabo offers a full range of incubators with forced air or forced cooling to cover most laboratory applications.



Example of the new Froilabo on-board software and touchscreen interface.

Thermal disinfection cycle that runs at +160°C (Expert range & Scientific range)

Easy to clean with smooth internal stainless steel panels.



## Cost effective

Component standardization and adaptation of heating power offer excellent value for money without compromising quality, security and accuracy.



## Smart Interface

With Bio Scientific Incubators, Froilabo developed a new embedded software, easy to use for all applications.



## Multiple applications

Our incubators meet the needs of biology, research, medical testing, environmental, food, pharmaceutical and cosmetic labs... whose requirements exceed the current standards.



## Disinfection cycle

Froilabo incubators also provide a thermal disinfection cycle. The cycle runs at +160°C (+320°F) for 2.5 hours, offering an additional layer of bacteriological safety.



## High safety standard

All our equipments have a very low heat emission and are tested to meet electrical safety standard IEC EN 60335-1, this standard is a public pledge to provide additional security for laboratories.



## Robust & durable

Froilabo's Incubators are robust and durable due to their unique design and use of strong manufacturing materials.

# BE

## Bio Expert Range

High quality and high performance for essential applications

### When you need added functionality

The Expert range offers high temperature precision and excellent homogeneity and stability. This range is the perfect solution for common applications without compromising functionalities and budget constraints.

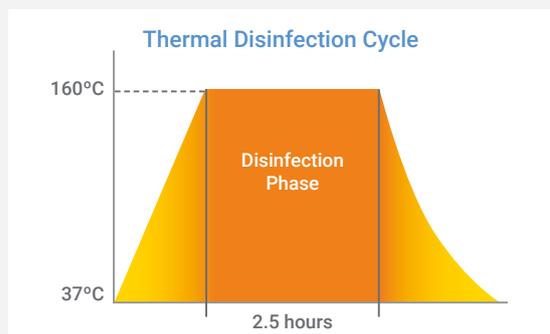
Standard features will allow control of the different parameters: temperature, air flow, and also independent metrological calibration and qualification. Dry heat disinfection cycle will ensure optimum decontamination of equipment.

Adjustable air flow, programmable controller and RS485 connectivity



#### BENEFITS OF THE BIO EXPERT RANGE (BE)

- **Thermal disinfection cycle** 160°C for 2.5 hours
- Cable entry port to enable validation and calibration with additional probes
- Individual quality control certificate
- Temperature range: ambient +5°C to +100°C
- Turbine ventilation ensuring stability and excellent temperature uniformity (0.5°C at 37°C)
- Control by PT 100 ohm probe
- Chamber heating by convection, no risk of conduction or radiation (air inlet at temperature setpoint)
- **Adjustable air flow** (from 0 to 100%)
- Audible and visible alarm
- 2 anti-tip stainless steel shelves included (BE: 1)
- Hands free door closing
- Adjustable over temperature security device Class II as defined in the European norm NF EN61010-2-010 (equivalent to DIN3.1)
- Conforms to EN60068-3-11
- **24 month warranty**



#### MODELS AVAILABLE

220-230V / 50Hz	60 L	120 L	240 L
Bio Expert, plain door	BE60	BE120	BE240
Bio Expert, viewing door	BE60 PV	BE120 PV	BE240 PV

110V and 50-60Hz version available.

# BS

## Bio Scientific Range

### When program set up becomes simple

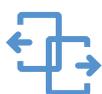
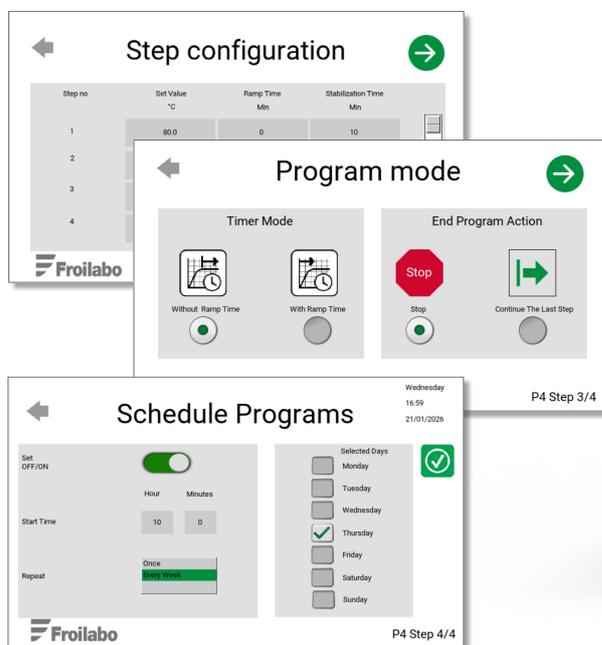
The Scientific range offers the same Performances than Expert models with a new intuitive interface and a large touchscreen. New easy-to-use software includes up-to-date functionalities and a smart process to work in manual mode or to program a temperature cycling.

Adjustable air flow, and connectivity by ethernet to enable remote access



#### BENEFITS OF THE BIO SCIENTIFIC IN ADDITION TO THE BE SPECIFICATIONS

- Embedded and upgradable software including manual mode and program mode
- Key information displayed in real-time: temperature value, set temperature value, real-time temperature profile
- Temperature profile with adjustable scale
- Program settings: program name editing, step configuration including up to 16 different temperatures, ramp time, stabilisation time, schedule program settings (start time, selected days etc.)
- USB port to export data, logs files
- Different user level access: user, admin, service



#### MODELS AVAILABLE

220-230V / 50Hz	60 L	120 L	240 L
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Bio Scientific Incubators

BS60

BS120

BS240

110V and 50-60Hz version available. Viewing door available as an option.

# BRS

## Bio Scientific Refrigerated Range

Powerful refrigerating unit delivering effective, fast and precise cooling

### Forced Convection Refrigerated

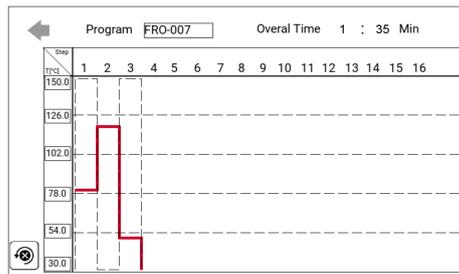
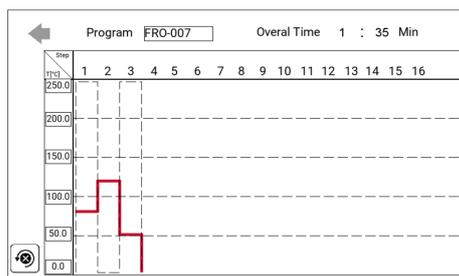
Ideal for micro-organisms, fungus, microbiological cultures at temperatures close to or below ambient, these incubators are suitable for wider application ranges. Once incubation is terminated, samples can be kept at +4°C after long term operation, overnight or weekend. They are perfect if used in variable environmental conditions.

Temperature range: 0°C to 100°C (32°F to 212°F)

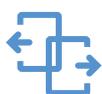


#### BENEFITS OF THE BIO SCIENTIFIC REFRIGERATED (BRS) IN ADDITION TO THE BS SPECIFICATIONS

- **Powerful refrigerating unit**
- 100 years of Froilabo know-how and experience
- Temperature range 0°C to 100°C



Exemple of the benefit to adjust the scale of temperature profile to get the best global overview on the program.



#### MODELS AVAILABLE

220-230V / 50Hz	60 L	120 L	240 L
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Bio Scientific Refrigerated Incubators    BRS60    BRS120    BRS240

110V and 50-60Hz version available. Viewing door available as an option.



# BP LV

## Bio Performance Large Volume Range

### Forced Convection

Large volume forced convection incubators provide the user with high homogeneity and temperature stability. The perfect solution to manage lots of samples at a time or large samples, without compromising on performance.

Available in volumes of 414 litres or 735 litres



### BENEFITS OF THE BIO PERFORMANCE LARGE VOLUME RANGE

- Excellent temperature homogeneity ( $\pm 0.3^{\circ}\text{C}$  at  $37^{\circ}\text{C}$ )
- Rapid temperature setpoint achieved with internal fan
- PID self regulating and self-adaptive programmable controller
- Heating of the chamber by forced convection, no risk of conduction and radiation: the air is introduced into the chamber at the set temperature
- Safety glass inner doors for better insulation
- Temperature range: ambient  $+7^{\circ}\text{C}$  to  $100^{\circ}\text{C}$  /  $44.6^{\circ}\text{F}$  to  $212^{\circ}\text{F}$
- Available in 2 volumes: 414L and 735L
- Air renewal adjustable on the front and rear exhaust
- Brushed stainless steel inner tank allowing easy cleaning
- Overtemperature safety class II according to the European standard **EN 61010-2-010** (DIN 3.1 equivalent)
- **24 month warranty**

2 anti-slip stainless steel wire shelves included



### MODELS AVAILABLE

220-230V / 50Hz	414 L	735 L
Bio Performance Large Volume	BP414	BP714
110V and 50-60Hz version available.		

# Bio Scientific Incubators cover a large range of applications

Since 37°C is the approximate core temperature of the human body, it is the optimal temperature for the rapid growth of many pathogens (disease-causing microorganisms) that pose a risk to human health through food contamination. Temperatures slightly above, such as 42°C or 44°C, are often used to selectively isolate specific heat-tolerant (thermotolerant) indicator organisms or pathogens.

## Pathogen Detection and Enumeration (37°C to 42°C):

The primary goal of these tests is to detect organisms that could cause foodborne illness. Incubation at human body temperature (37°C) accelerates their growth. Examples : Coliforms, E. coli, Salmonella spp, Staphylococcus aureus, Listeria monocytogenes.

## Total Viable Count (TVC) / Total Aerobic Count (TAC) Purpose:

This test measures the overall number of viable bacteria in a food sample. It gives an indication of the general hygienic quality of the food and its potential shelf life

## Stability and Stress Testing (Up to 70°C to 80°C):

Some incubators are used for non-microbiological testing or specific high-temperature microbial tests, such as accelerated Shelf-Life Testing. Food products (especially packaged goods) are often placed in incubators at slightly elevated temperatures to simulate the degradation that would occur over a longer period at room temperature. This helps manufacturers quickly determine the best-before date.

If the culture is not a human pathogen (which naturally lives in the body at 37°C), its optimal incubation temperature is likely to be in the range of 5°C to 30°C.

## Yeasts and Fungi

The majority of environmental yeasts and molds grow very well around 25°C to 30°C.

- **Examples:** Saccharomyces cerevisiae (baker's yeast) has optimal growth around 30°C. Environmental molds (Aspergillus, Penicillium).
- **Application:** Fermentation, beer and wine production, genetic studies, environmental microbiology.

## Environmental Microorganisms

Soil and Water Bacteria:

- **Examples:** Many species isolated from soil, lakes, or rivers are optimized for temperatures lower than 37°C, often around 25°C to 30°C.
- **Application:** Bioremediation, biodiversity studies.

## Yogurt Bacteria and Probiotics

- **Examples:** Lactic acid bacteria (e.g., Lactobacillus, Streptococcus thermophilus) used in dairy production often have variable optimal temperatures, some of which are below 37°C or involve cold maturation phases.
- **Application:** Dairy and food industry.

## Insect Cells and Associated Viruses

- **Examples:** Culturing insect cells for protein or virus production is often carried out at lower temperatures than mammalian cells, typically between 26°C and 28°C.
- **Application:** Vaccine production (baculovirus system).



# OPTIONS & SPECIFICATION

## OPTIONS & CONFORMITIES

### OPTIONS LIST

- Stainless steel perforated shelf
- Base with 4 casters (Diam: 80 mm, 2 with brakes, total H: 250 mm)
- Stacking kit including 2 spacers, a key and an explanatory note
- Data recovery software (RS485 cable to USB for PXR4 regulator)
- Key door lock
- 4 casters (Diam: 80 mm, 2 with brakes)
- Additional cable entry port 50 mm with sealing plug
- Additional Pt 100 Ohms probe + DIN plug for recorder connection
- PT 100 Ohms probe, delivered with 3 points COFRAC verification
- Electronic recorder 1 way, continuous plot
- Basement with or without casters
- Lovenstein shelves
- External door with glass (viewing door)

### SUPPLIED WITH

- 1 or 2 shelves (depending on model)
- 1 power cord
- User manual (available on [www.froilabo.com](http://www.froilabo.com))

### CERTIFICATION / CONFORMITIES

Equipment meets the specifications and CE compliant to:

**EN60068-3-11**

**2014/35/UE – Low voltage directive**

**2014/30/UE – EMC directive, Class A device**

# SPECIFICATIONS

SPECIFICATIONS		FORCED CONVECTION			FORCED CONVECTION			FORCED CONVECTION REFRIGERATED		
MODEL		BE60	BE120	BE240	BS60	BS120	BS240	BRS60	BRS120	BRS240
Temperature Range		Amb +5°C to +100°C			Amb +5°C to +100°C			0°C to 100°C***		
Temperature uniformity +/- (°C)*	at 4°C	-	-	-	-	-	-	0.7	0.7	0.7
	at 37°C	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	at 44°C	0.7	0.7	0.7	0.7	0.7	0.7	-	-	-
	at 60°C	1	1	1	1	1	1	1	1	1
Temperature stability (°C)	at 37°C	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2
	at 44°C	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2
Time for temperature elevation (min)**	at 37°C	4.5	6	6	4.5	6	6	4.5	6	6
	at 44°C	6	7	7	6	7	7	6	7	7
	at 60°C	6	8	7.5	6	8	7.5	6	8	7.5
Recovery time after door opening of 30 secs (min)**	at 37°C	1	1	1	1	1	1	1	1	1
	at 44°C	1	1	1	1	1	1	1	1	1

ELECTRICAL	BE60	BE120	BE240	BS60	BS120	BS240	BRS60	BRS120	BRS240
IP rating	Front panel IP55			Front panel IP55			Front panel IP55		
Power supply	220-230V 50/60Hz 10A			220-230V 50/60Hz 10A			220-230V 50/60Hz 10A		
Power (W)	750	750	1500	750	750	1500	1650	1650	2400

EXTERNAL DIMENSIONS	BE60	BE120	BE240	BS60	BS120	BS240	BRS60	BRS120	BRS240
Length (mm)	526	626	626	526	626	626	526	626	626
Height (mm)	640	750	1230	640	750	1230	910	1020	1500
Depth (mm)	579.5	679.5	679.5	579.5	679.5	679.5	579.5	679.5	679.5
Exterior depth (mm)	26.5	26.5	26.5	26.5	26.5	26.5	26.5	26.5	26.5
Side clearance (mm)	100	100	100	100	100	100	100	100	100
Height (mm) stackable kit	30	30	30	30	30	30	30	30	30

INTERIOR DIMENSIONS	BE60	BE120	BE240	BS60	BS120	BS240	BRS60	BRS120	BRS240
Actual volume (L)	58	118	230	58	118	230	58	118	230
Length (mm)	400	500	500	400	500	500	400	500	500
Height (mm)	390	500	980	390	500	980	390	500	980
Depth (mm)	370	470	470	370	470	470	370	470	470
Shelves (standard/max)	2/6	2/10	2/18	2/6	2/10	2/18	2/6	2/10	2/18
Weight per shelf/total (kg)	20/50	20/70	20/90	20/50	20/70	20/90	20/50	20/70	20/90
Shelf dimensions L X D (mm)	380x320	480x430	480x430	380x320	480x430	480x430	380x320	480x430	480x430
Empty weight/Gross weight (kg)	39/53	53/69	79/97	44/58	58/74	84/102	76/85	93/99	119/137

\* Not including measure uncertainties, FROILABO procedure : 9 points characterisation according to NFX15-140 norm

\*\* 98% of the value

\*\*\* Set at 4°C (39°F) at the factory

Testing at an ambient temperature of 25°C and a variation in the supply Voltage of +/- 10%

# SPECIFICATIONS

SPECIFICATIONS		FORCED CONVECTION BP LV	
Model		BP414	BP714
Temperature Range		Amb +7°C to 100°C	
Temperature uniformity +/- (°C)*	at 37°C	0.3	0.3
	at 50°C	1	1
Temperature stability (°C)	at 37°C	0.2	0.2
Time for temperature elevation (min)**	at 37°C	15	19
	at 50°C	25	30
Recovery time after door opening of 30 secs (min)**	at 37°C	2	4
	at 50°C	5	8

ELECTRICAL	BP LV	
IP rating	Front panel IP55	
Power supply	Voltage 230V ~ +/-10%, 50 Hz	
Power (W)	1500	2000

EXTERNAL DIMENSIONS	BP LV	
Length (mm)	1130	1130
Height (mm)	1170	1760
Depth (mm)	855	855
Exterior depth (mm)	100	100
Side clearance (mm)	150	150

INTERIOR DIMENSIONS	BP LV	
Actual volume (L)	414	735
Length (mm)	990	990
Height (mm)	760	1350
Depth (mm)	550	550
Shelves (standard/max)	2/10	2/17
Weight per shelf/total (kg)	70/140	35/180
Shelf dimensions L X D (mm)	975x475	975x475
Empty weight/Gross weight (kg)	210/240	240/280

\* Not including measure uncertainties, FROILABO procedure : 9 points characterisation according to NFX15-140 norm

\*\* 98% of the value

\*\*\* Set at 4°C (39°F) at the factory

## TECHCOMP GROUP

In addition to Froilabo, Techcomp Europe comprises of the following companies:



### Contact us

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