


Blood bank refrigerators and freezers
BBR & Mini - Platinum & Iridium - Plasmafrost Series





→ ANGELANTONI LIFE SCIENCE propose a wide range of blood bank equipment for blood products storage as well for shock freezing of plasma bags. This brochure includes +4°C blood bank refrigerators, -40°C plasma storage freezers, -86°C ULT freezers for red blood cells storage and plasma shock freezers too.

All products listed in this brochure are Medical Devices, CE marked in Class IIa according to the EU Directive 93/42/EEC.

All the products have been designed to help the blood bankers while doing their day to day job. They are efficient, easy to use, designed upon the EU recommendation for blood products and manufactured with high quality parts.



There are two available lines of blood bank refrigerators:
Mini line with blood bags capacity from 48 to 120 units,
BBR line with blood bags capacity from 250 to 700 units.

- Heavy-duty air cooled refrigeration system
- Temperature uniformity of $\pm 1^{\circ}\text{C}$
- Operating temperature from $+2^{\circ}\text{C}$ to $+10^{\circ}\text{C}$
- Stainless steel sliding drawers*
- Internal lighting
- Weekly disc chart recorder
- Forced ventilation for best temperature uniformity
- Self-defrost with no temperature variation inside the blood bags
- Door key lock
- Microprocessor control board with independent alarm section and predisposition for Ethernet connection

*All models with B at the end of the name have no drawers but shelves: see technical specifications



+4

→ Operating temperature: +4°C. Temperature probes are inside a gel box for real temperature feedback like in the middle of the blood bag

93/42/EEC

→ Equipment certified according to 93/42/EEC directive and following amendments

Technical features

External body in zinc plated steel powder coated to ensure durability and bacteria resistance. The interiors of the **MINI** are zinc plated steel and white coated while all **BBR** are made of stainless steel. All blood bank refrigerators have rounded interiors corners for easy cleaning.

The **MINI** models are equipped with adjustable leveling feet for proper positioning.

The **BBR** models are provided with castors and adjustable leveling feet too.

All doors are made with triple vacuum-sealed glass, anodized aluminum profiles, magnetic gaskets, key lock and equipped with an anti-moisture heater for best air tighten and prevention of humidity condensation.

A porthole with 23 mm diameter and external rubber cap for insertion of additional probes, it is standard on all models.

Internal cold lamps with courtesy door open.

Insulation by injected CFC-free polyurethane foam with 50mm for **MINI** and 75mm for **BBR** series.

Drawers are made of stainless steel. They are telescopic and moving on PE wheels. The drawers are also equipped with a transparent front protection panel to reduce the entering of warm air while the main door is open and to facilitate the content view too.

As option, the drawers can be equipped with internal dividers that helps for bags positioning and facilitate the labels reading.

A temperature chart recorder, battery operated with weekly discs, key lockable, is included as well.

The controller is dual microprocessor based: one section controls the cooling system hence the internal temperature while the second section, independent, controls all the alarms and the displays. The controller is battery buffered by a self-recharging 12 VDC battery to supply energy to the electronics up to 48 hours in case of main power black-out. As standard, the controller is equipped with free contacts for remote alarms and has the predisposition for Ethernet connection (Ethernet request additional parts, see optional accessories).

BBR 850/8



Technical specifications

Code	Model	Operating range	Doors	Drawers	Bags capacity 450 ml	Nominal volume	Interior dimensions WxDxH mm	Exterior dimensions WxDxH mm	Package dimensions WxDxH mm	Net weight *with pack.	Electrical
13263	MINI 130/2	-2° to 10°C	1	2	48	130l	520x450x560	600x640x1280	640x680x1430	90 *105 kg	230 VAC 50 Hz - 3 FLA
13264	MINI 250/4	-2° to 10°C	1	4	96	250l	520x450x1110	600x640x1850	640x680x2000	120 *135kg	230 VAC 50 Hz - 3 FLA
13265	MINI 250/5	-2° to 10°C	1	5	120	250l	520x450x1110	600x640x1850	640x680x2000	125 *140kg	230 VAC 50 Hz - 3 FLA
13525	BBR 700/B	-2° to 10°C	1	7 (shelves)	400	700l	590x675x1500	740x865x1998	760x900x2170	200 *215 kg	230 VAC 50 Hz - 5.5 FLA
13266	BBR 700/5	-2° to 10°C	1	5	250	700l	590x675x1500	740x865x1998	760x900x2170	225 *240kg	230 VAC 50 Hz - 5.5 FLA
13267	BBR 700/6	-2° to 10°C	1	6	300	700l	590x675x1500	740x865x1998	760x900x2170	235 *255kg	230 VAC 50 Hz - 5.5 FLA
13268	BBR 700/7	-2° to 10°C	1	7	350	700l	590x675x1500	740x865x1998	760x900x2170	240 *260kg	230 VAC 50 Hz - 5.5 FLA
13269	BBR 700/8	-2° to 10°C	1	8	400	700l	590x675x1500	740x865x1998	760x900x2170	245 *265kg	230 VAC 50 Hz - 5.5 FLA
13526	BBR 850/B	-2° to 10°C	1	9 (shelves)	500	850l	660x875x1510	810x1060x1998	960x980x2170	240 *260kg	230 VAC 50 Hz - 5.5 FLA
13270	BBR 850/8	-2° to 10°C	1	8	624	850l	660x875x1510	810x1060x1998	960x980x2170	290 *316kg	230 VAC 50 Hz - 5.5 FLA
13271	BBR 850/9	-2° to 10°C	1	9	702	850l	660x875x1510	810x1060x1998	960x980x2170	298 *323kg	230 VAC 50 Hz - 5.5 FLA
13527	BBR 1500/B	-2° to 10°C	2	14 (shelves)	800	1500l	1330x675x1500	1480x865x1998	1500x950x2170	360 *380kg	230 VAC 50 Hz - 5.5 FLA
13272	BBR 1500/12	-2° to 10°C	2	12	600	1500l	1330x675x1500	1480x865x1998	1500x950x2170	445 *470kg	230 VAC 50 Hz - 5.5 FLA
13273	BBR 1500/14	-2° to 10°C	2	14	700	1500l	1330x675x1500	1480x865x1998	1500x950x2170	455 *480kg	230 VAC 50 Hz - 5.5 FLA

NOTES: All models are available upon request for 230 or 120 VAC, 60Hz. **MINI** models may have stainless steel interiors upon request.

Optional accessories for all **MINI** and **BBR** series

Code	Description
12279	Kit for chart recorder (100 discs, 2 pens)
13804	Ethernet board connection (requires CRYOLOG SW)
12124	CRYOLOG monitoring software for Windows computer (requires Ethernet connection)
11676	Additional PT 100 temperature probe class A
12132	Additional certified PT 100 temperature probe, class A with 3 calibration points

Optional accessories only for **MINI** series

Code	Description
10235	Set of internal dividers for one drawer
17023	Wooden cage package for MINI 130/2
17024	Wooden cage package for MINI 250/4 and /5

Optional accessories only for **BBR** series

Code	Description
12870	Set of internal dividers for 1 drawer of any BBR 700/.. BBR 1500/..
11869	Set of internal dividers for 1 drawer of any BBR 850/..
17038	Wooden cage package for any BBR 700
17094	Wooden cage package for any BBR 850
17039	Wooden cage package for any BBR 1500

MINI 250/4 and **MINI** 130/2



Standard controller for all the **MINI** / **BBR** models



-40 → Operating temperature: -20°/-43°C.

93/42/EEC → Equipment certified according to 93/42/EEC directive and following amendments

- Up-right freezer with 500 liters capacity
- Storage capacity up to 360 plasma bags of nominal 450 ml
- Including fourteen plastic drawers
- Temperature range from -20°C to -43°C
- Weekly disc chart recorder
- Static cooling system
- Door key lock with magnetic gasket
- Insulation with injected CFC-free PU foam - minimum 70 mm thickness
- White plastic interior and zinc plated steel white coated exterior
- Microprocessor control board with independent alarm section with predisposition for Ethernet connection

Technical specifications

Code	Model	Operating range	Doors	Drawers	Bags capacity 450 ml	Nominal volume	Interior dimensions WxDxH mm	Exterior dimensions WxDxH mm	Package dimensions WxDxH mm	Net weight *with pack.	Electrical
13543	KRYOS MD500	-20° to -43° C	1	14	360	500l	615x550x1500	745x740x1950	840x770x1970	143 *160 Kg	230 VAC 50 Hz - 3.5 FLA

NOTES: Available upon request for 230 or 120 VAC, 60Hz

Optional accessories for all the KRYOS MD 500

Code	Description
12282	Kit for chart recorder (100 graph diagram and 2 pens)
13233	Additional PT 100 temperature probe class A
12132	Additional PT 100 temperature probe, class A with 3 calibration
13804	Ethernet board connection (requires CRYOLOG SW)
12124	CRYOLOG monitoring software for Windows computer (requires Ethernet connection)
17132	Wooden cage package (recommended for sea freight)



-40 → Operating temperature: -20°/-45°C.

93/42/EEC → Equipment certified according to 93/42/EEC directive and following amendments

- Up-right freezer with up to 800 liters capacity
- Storage capacity up to 900 plasma bags of nominal 450 ml
- Temperature range from -20°C to -45°C
- Weekly disc chart recorder
- Static cooling system with one high efficiency compressor
- Door key lock with magnetic gasket and inners doors
- PLATINUM have classic insulation with injected CFC-free PU foam with minimum 140 mm
- IRIDIUM have insulation with vacuum panels and CFC-free PU foam for total 70 mm for best footprint usage
- Interiors are made of stainless steel
- Exteriors are made of zinc plated steel powder coated
- Upright versions can be equipped with optional stainless steel telescopic drawers
- Microprocessor control board with independent alarm section with predisposition for Ethernet connection

Detail of telescopic drawer



BIOGUARD, key card door opening system



PLATINUM 500SV with optional drawers



Technical specifications

Code	Model	Version and insulation kind	Operating range	Inner doors	Shelves	Bags capacity 450 ml	Nominal volume	Interior dimensions WxDxH mm	Exterior dimensions WxDxH mm	Package dimensions WxDxH mm	Net weight *with pack.	Electrical
13279	PLATINUM 340 SV	Upright, injected PU	-20° to -45°C	3	2	>400	340l	450x530x1350	765x900x1985	800x950x2150	214 *245 kg	230 VAC 50 Hz - 3.5 FLA
13283	PLATINUM 500 SV	Upright, injected PU	-20° to -45°C	3	2	>500	500l	700x530x1350	1015x900x1985	1050x1000x2120	262 *293kg	230 VAC 50 Hz - 3.5 FLA
13287	IRIDIUM 800 SV	Upright, VIP and PU	-20° to -45°C	3	2	>900	800l	906x609x1427	1086x890x1985	1151x990x2120	330 *360kg	230 VAC 50 Hz - 4.0 FLA
13276	PLATINUM 110 SH	Chest, injected PU	-20° to -45°C	1	none	>150	110l	450x560x450	730x850x1080	800x1020x1270	150 *175 kg	230 VAC 50 Hz - 3.5 FLA
13277	PLATINUM 370 SH	Chest, injected PU	-20° to -45°C	3	none	>350	370l	1050x520x670	1780x855x1140	1850x970x1300	234 *274kg	230 VAC 50 Hz - 3.5 FLA
13278	PLATINUM 550 SH	Chest, injected PU	-20° to -45°C	4	none	>600	550l	1590x520x670	2350x855x1140	2380x970x1300	275 *324kg	230 VAC 50 Hz - 3.5 FLA

NOTES: All models are available upon request for 230 or 120 VAC, 60Hz.

Optional accessories for all **PLATINUM** and **IRIDIUM** versions

Code	Description
12282	Kit for chart recorder (100 discs, 2 pens)
12680	BIOGUARD , door card opening system
11976	Additional user badge for BIOGUARD system
13804	Ethernet board connection (requires CRYOLOG SW)
12124	CRYOLOG monitoring software for Windows computer (requires Ethernet connection)
11676	Additional PT 100 temperature probe class A
12132	Additional certified PT 100 temperature probe, class A with 3 calibration points

Optional accessories only for **PLATINUM** chest

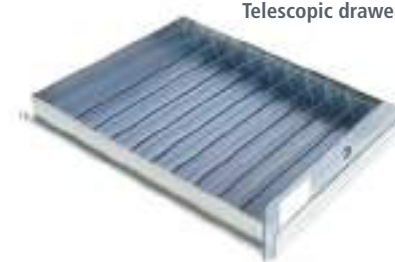
Code	Description
17040	Wooden cage package for PLATINUM 110SH
17041	Wooden cage package for PLATINUM 370SH
17042	Wooden cage package for PLATINUM 550SH

(The wooden cage are recommended for sea freight)

Optional accessories only for **PLATINUM** and **IRIDIUM** upright

Code	Description
11204	Stainless steel internal shelf (Max 10) for PLATINUM 340SV
11205	Stainless steel internal shelf (Max 10) for PLATINUM 500SV
13006	Stainless steel internal shelf (Max 10) for IRIDIUM 800SV
11835	SS grid shelf for mixing with drawers (see Note 1) for PLATINUM 340SV
11836	SS grid shelf for mixing with drawers (see Note 1) for PLATINUM 500SV
13007	SS grid shelf for mixing with drawers (see Note 1) for IRIDIUM 800SV
11202	SS sliding telescopic drawer (Max 8) for PLATINUM 340SV (see Note 1)
11203	SS sliding telescopic drawer (Max 8) for PLATINUM 500SV (see Note 1)
13004	SS sliding telescopic drawer (Max 8) for IRIDIUM 800SV (see Note 1)
11878	Set of internal dividers for one drawer code 11202 (PLATINUM 340SV)
11879	Set of internal dividers for one drawer code 11203 (PLATINUM 500SV)
13005	Set of internal dividers for one drawer code 13004 (IRIDIUM 800SV)
17043	Wooden cage package for PLATINUM 340SV
17044	Wooden cage package for PLATINUM 500SV
17055	Wooden cage package for IRIDIUM 800SV

Telescopic drawer



NOTE 1: by ordering one or more telescopic drawer, the standard holders of the shelves change too. If You fill the freezer with all drawers, no need to buy any different shelf but if You wish to create a mix of shelves and drawers, You have to replace the STD shelves with those suitable for Yr freezer (SS grip shelves for mixing with drawers ...)

Freezers /Platinum Next & Iridium Next -86°C freezers for red blood cells storage

-86 → Operating temperature: -50°/-86°C.

93/42/EEC → Equipment certified according to 93/42/EEC directive and following amendments

- Up-right and chest freezer with up to 800 liters capacity
- Storage capacity up to 900 RBC bags of nominal 450 ml
- Temperature range from -50°C to -86°C
- Electronic and graphic temperature recorder (on display) with SD memory card
- Static cooling system with two high efficiency cascade compressors
- Door key lock with magnetic gasket and inners doors
- PLATINUM Next have classic insulation with injected CFC-free PU foam with minimum 140 mm
- IRIDIUM have insulation with vacuum panels and CFC-free PU foam for total 70 mm for best footprint usage
- Interiors are all made of stainless steel
- Exteriors are made of zinc plated steel powder coated
- Upright versions can be equipped with optional stainless steel telescopic drawers
- ColdBrain™ intelligent controller with independent alarm section ready for Ethernet connection



PLATINUM PU Insulation



IRIDIUM V.I.P. Insulation

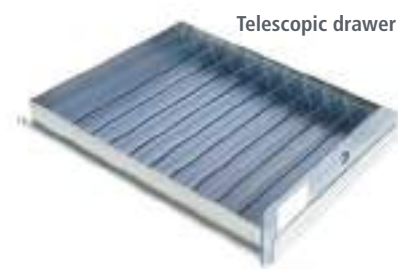
Technical specifications

Code	Model	Version and insulation kind	Operating range	Inner doors	Drawers	Bags capacity 450 ml	Nominal volume	Interior dimensions WxDxH mm	Exterior dimensions WxDxH mm	Package dimensions WxDxH mm	Net weight *with pack.	Electrical
13387	PLATINUM NEXT 340V	Upright, injected PU	-50° to -86°C	4	2	>400	340l	450x530x1350	765x900x1985	800x950x2150	214 *245 kg	230VAC 50Hz 7.0FLA
13391	PLATINUM NEXT 500V	Upright, injected PU	-50° to -86°C	4	2	>500	500l	700x530x1350	1050x900x1985	1080x1000x2120	262 *293kg	230VAC 50Hz 7.0FLA
13401	IRIDIUM NEXT 520V	Upright, VIP and PU	-50° to -86°C	4	2	>520	520l	586x613x1470	730x845x1980	880x950x2150	260 *290 Kg	230VAC 50Hz 9.0FLA
13396	IRIDIUM NEXT 800V	Upright, VIP and PU	-50° to -86°C	5	2	>900	800l	906x609x1427	1086x890x1985	1151x990x2120	364 *389 Kg	230VAC 50Hz 9.0FLA
13384	PLATINUM NEXT 370H	Chest, injected PU	-50° to -86°C	3	none	>350	370l	1050x520x670	1780x855x1140	1850x970x1300	234 *274kg	230VAC 50Hz 7.0FLA
13385	PLATINUM NEXT 550H	Chest, injected PU	-50° to -86°C	4	none	>600	550l	1590x520x670	2350x855x1140	2380x970x1300	275 *324kg	230VAC 50Hz 7.0FLA

NOTES: All models are available upon request for 230 or 120 VAC, 60Hz.

Optional accessories for all **PLATINUM NEXT** and **IRIDIUM NEXT** versions

Code	Description
11352	7-days temperature chart recorder (pern+diagrams for 1 year)
12293	Kit for chart recorder (100 graph diagram and 2 pens)
12680	BIOGUARD , door card opening system
11976	Additional user badge for BIOGUARD system
12124	CRYOLOG monitoring software for Windows computer (requires Ethernet connection)
13233	Additional PT 100 temperature probe class A
12132	Additional certified PT 100 temperature probe, class A with 3 calibration points



Telescopic drawer

Optional accessories only for **PLATINUM NEXT** chest

Code	Description
12278	CO ₂ back-up system (complete of battery, tubing and probe) for all chest units
12107	LN ₂ back-up system (complete of battery, tubing and probe) for all chest units
17041	Wooden cage package for PLATINUM Next 370VH
17042	Wooden cage package for PLATINUM Next 550VH

(The wooden cage are recommended for sea freight)

Optional accessories only for **PLATINUM Next** and **IRIDIUM Next** upright

Code	Description	Code	Description
11930	CO ₂ back-up system (complete of battery, tubing and probe) for PLATINUM Next 340V, 500V and IRIDIUM Next 800V	11203	SS sliding telescopic drawer (Max 8) for PLATINUM Next 500V (see Note 1)
12107	LN ₂ back-up system (complete of battery, tubing and probe) for PLATINUM Next 340V, 500V and IRIDIUM Next 520V, 800V	13351	SS sliding telescopic drawer (Max 8) for IRIDIUM Next 520V (see Note 1)
12278	CO ₂ back-up system (complete of battery, tubing and probe) for IRIDIUM Next 520V	13004	SS sliding telescopic drawer (Max 8) for IRIDIUM Next 800V (see Note 1)
11204	Stainless steel internal shelf (Max 10) for PLATINUM Next 340V	11878	Set of internal dividers for one drawer code 11202 (PLATINUM Next 340V)
11205	Stainless steel internal shelf (Max 10) for PLATINUM Next 500V	11879	Set of internal dividers for one drawer code 11203 (PLATINUM Next 500V)
13349	Stainless steel internal shelf (Max 10) for IRIDIUM Next 520	13352	Set of internal dividers for one drawer code 13351 (IRIDIUM Next 520V)
13006	Stainless steel internal shelf (Max 10) for IRIDIUM Next 800V	13005	Set of internal dividers for one drawer code 13004 (IRIDIUM Next 800V)
11835	SS grid shelf for mixing with drawers (see Note 1) for PLATINUM Next 340V	17043	Wooden cage package for PLATINUM Next 340V
11836	SS grid shelf for mixing with drawers (see Note 1) for PLATINUM Next 500V	17044	Wooden cage package for PLATINUM Next 500V
13350	SS grid shelf for mixing with drawers (see Note 1) for IRIDIUM Next 520V	17133	Wooden cage package for IRIDIUM Next 520V
13007	SS grid shelf for mixing with drawers (see Note 1) for IRIDIUM Next 800V	17055	Wooden cage package for IRIDIUM Next 800V
11202	SS sliding telescopic drawer (Max 8) for PLATINUM Next 340V (see Note 1)	(The wooden cage are recommended for sea freight)	

NOTE 1: by ordering one or more telescopic drawer , the standard holders of the shelves change too. If You fill the freezer with all drawers, no need to buy anydifferent shelf but if You wish to create a mix of shelves and drawers, You have to replace the STD shelves with those suitable for Yr freezer (SS grip shelves for mixing with drawers ...)

Plasmafrost are designed for quick plasma freezing to get best recovering of proteins and coagulation factors after fractionation. Besides, all **Plasmafrost** comply with the EU Recommendation n.° R (95)15 that applies for best practicing on plasma processing.

PLASMAFROST STD are suitable for those blood banks who need shock freezing without data recording (freezing stops automatically after 60 minutes from START).

PLASMAFROST I.Te.m are equipped with an on board computer, barcode reader, Ethernet connection. They are capable to stop freezing when the internal temperature of plasma arrives at -30°C. Besides, **PLASMAFROST I.Te.m.** can issue a printable Report which includes the freezing time, the date, as well as all bags ID (barcode labels).

- **PLASMAFROST** freeze the bags laying in horizontal position within 60 minutes as recommended as all International Standards
- Freezing is performed through metallic shelves kept at -75°C for best heat extraction and temperature uniformity
- Can freeze both standard and jumbo plasma bags
- Ergonomic and easy to use. Bags loading and downloading is performed by the Operator standing in vertical comfortable position
- Compliant with the European Plasma Master File (PMF)



PLASMAFROST standard



PLASMAFROST I.Te.M

Technical features

The working temperature is -75°C

The frame is made by fully metallic heavy-gauge phosphate-coated steel plate, powder-painted in grey and blue. One service door with push button unlock and magnetic PVC rubber gaskets (I.Te.m) or by key handle (STD). Assembled on 4 wheels for easy moving.

The internal chamber is made of polished stainless steel with rounded corners for easy cleaning. Three or four refrigerated shelves with uniformity plates made of anodized aluminium for maximum heat transfer capacity and easy cleaning.

Thermal insulation is guaranteed by its "Sandwich technique" with injected CFC-free polyurethane foam with 125 mm average thickness.

Cooling system is made of two high efficiency cascade semi-hermetic or hermetic compressors air cooled and the internal shelves act as freezing surface. A refrigerant fluid flows inside the shelves for maximum freezing efficiency while the top covers push the bags from the top, creating a kind of "sandwich" effect, again for an exceptional temperature uniformity and capacity of heat absorbance.

The refrigerants are Standard R404A and R23. Both gases are allowed by the Montreal Convention and are accepted as "environment friends gases" under the London amendment too.

The Software of Plasmafrost I.Te.M. is pre-loaded inside an integrated computer supplied as standard equipment. The software has an exclusive system with a specific mathematic algorithm developed by ALS which eliminates the needs to use dummy bags as normally used to measure the temperature inside the plasma bags. Besides, it permits the complete data management & recording of each lot of processed bags: access is password protected too. At the end of each procedure the Software allows to certify the success of the freezing cycle by issuing a complete REPORT (printable PDF file) with all relevant data such as the ID of the bags, the date and freezing time. Each procedure begins with the identification of the operator ID (barcode reader is included as standard), and the ID of each loaded bag. Data transfer can be done via Ethernet connection, USB port or txt file.

ALS ANGELANTONI LIFESCIENCE		PLASMAFROST Freezing Report									
Begin time:	06/02/2015 08:47	Lot:	PF1000021								
End time:	06/02/2015 09:22	Bag Type:	Bag Type 1								
Duration:	35 minutes										
<table border="1"> <thead> <tr> <th>Bag</th> <th></th> </tr> </thead> <tbody> <tr> <td>1234567</td> <td></td> </tr> <tr> <td>7654321</td> <td></td> </tr> </tbody> </table>				Bag		1234567		7654321			
Bag											
1234567											
7654321											
<table border="1"> <thead> <tr> <th>Time</th> <th>Event</th> </tr> </thead> <tbody> <tr> <td>08:45</td> <td>Start bags loading</td> </tr> <tr> <td>08:47</td> <td>Start freezing cycle</td> </tr> <tr> <td>09:22</td> <td>Freezing cycle ended</td> </tr> </tbody> </table>				Time	Event	08:45	Start bags loading	08:47	Start freezing cycle	09:22	Freezing cycle ended
Time	Event										
08:45	Start bags loading										
08:47	Start freezing cycle										
09:22	Freezing cycle ended										
<p>The bags have reached a temperature below -30°C in less than 35 minutes</p> <p>User states to have followed all procedures reported inside user manual.</p> <p>Loading user: Admin Unloading user: pluto Signature: _____</p> <p>06/02/2015 9:31:42 1/1</p>											

Example of report issued by the I.Te.M. software



Technical specifications

Code	Model	Operating range	Freezing shelves	Bags capacity 450 ml	Mean freeze time 450ml to -30°C	Bags capacity 1000 ml	Mean freeze time 1000ml to -30°C	Interior dimensions WxDxH mm	Exterior dimensions WxDxH mm	Package dimensions WxDxH mm	Net weight *with pack.	Electrical
13274	PLASMAFROST 3 STD	-50° to -80°C	3	24	30 min	12	45 min	600x565x770	895x1490x1760	920x1515x2000	625 *658 kg	230VAC 50Hz 16.0 FLA
13275	PLASMAFROST 3 STD	-50° to -80°C	3	24	30 min	12	45 min	600x565x770	895x1490x1760	920x1515x2000	645 *678 kg	400VAC- 4 poles 50Hz 12.0 FLA
13296	PLASMAFROST 4 STD	-50° to -80°C	4	40	30 min	16	45 min	600x565x770	895x1490x1760	920x1515x2000	675 *708 kg	400VAC- 4 poles 50Hz 12.0 FLA
13368	PLASMAFROST 3 I.Te.M	-50° to -80°C	3	24	30 min	12	45 min	600x565x770	895x1490x1760	920x1515x2000	660 *695 kg	230VAC 50Hz 16.0 FLA
13204	PLASMAFROST 4 I.Te.M	-50° to -80°C	4	40	30 min	16	45 min	600x565x770	895x1490x1760	920x1515x2000	690 *725 kg	400VAC- 4 poles 50Hz 12.0 FLA

NOTES: All models are available upon request for 60Hz.

Optional accessories for all PLASMAFROST series

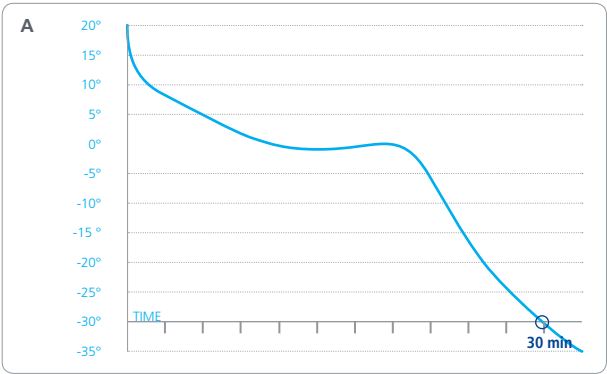
Code	Description
11521	Single channel microprocessor graphic recorder
12132	Additional certified PT 100 temperature probe, class A with 3 calibration points
17054	Wooden cage package for PLASMAFROST series

(The wooden cage is always requested with Plasmafrost)

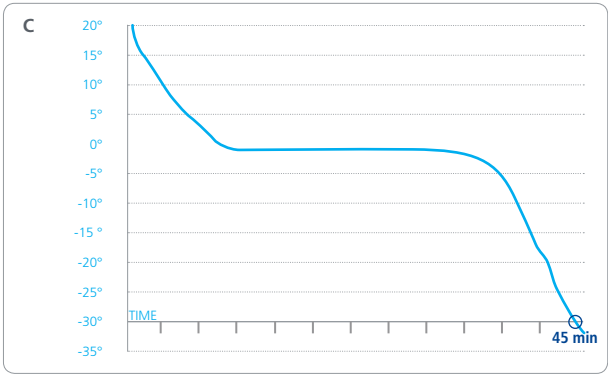
Bags loading of PLASMAFROST



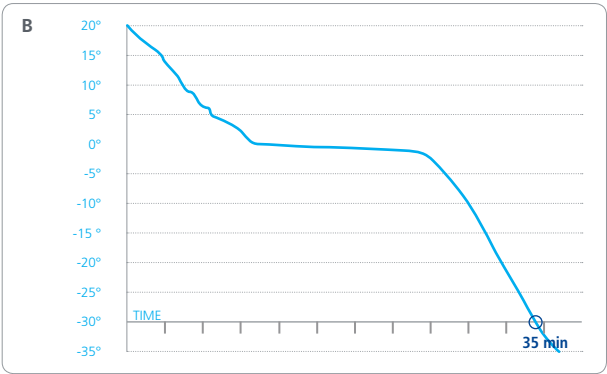
Mean typical freezing curves of Plasmafrost 4



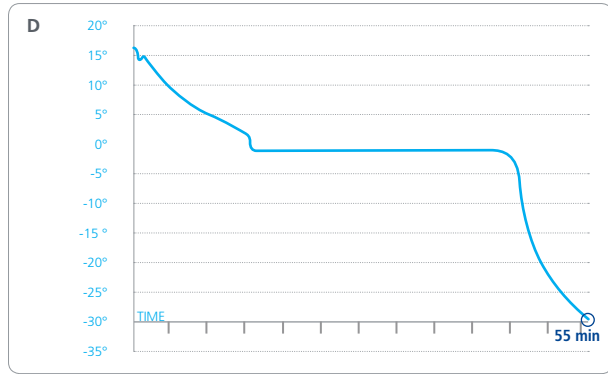
Loaded with 40x450ml bags, filled 250 ml



Loaded with 40x450ml bags, filled 300 ml
or 16x1000ml bags, filled 650 ml
(freezing curves are the same)



Loaded with 40x400ml bags, filled 250 ml



Loaded with 40x400ml bags, filled 300 ml
or 12x1000ml bags, filled 800 ml
(freezing curves are the same)

Standard controller for **MINI, BBR, KRYOS 500 MD and -40° PLATINUM / IRIIDIUM**



The standard controller is made of two independent parts: one for the cooling system control and another one for all local and remote alarms. It is equipped with rechargeable battery back-up which can provide energy to the electronics up to 48h even in case of power black-outs. The standard controller can be equipped with an optional Ethernet board, for connection and data handling to the **CRYOLOG** software (See optional accessories).

Cooling system:

- Temperature setting
- Temperature display
- Manual or automatic defrost
- Internal lighting ON/OFF (only **MINI** and **BBR**)
- Cooling system ON/OFF

Alarms section:

- Alarms setting
- Hi-Low temperature
- Door ajar
- Main power-off
- Acoustic and visual alarms
- Free contacts for remote alarms
- Led alarm status
- Remote alarm status

Intelligent controller for **PLATINUM Next, IRIIDIUM Next and PLASMAFROST I.Te.M.**



ColdBrain™

The **ColdBrain™** microcontroller uses a back lighted LCD graphic display of 240 x 128 pixels with a touch keyboard and two independent electronics for power & temperature management and alarms.

The architecture of **ColdBrain™** software is divided in two independent section:

one for the control of the cooling system and one for alarms and data communication handling. A self-diagnostic routine it's full time active to double check both electronic sections and to avoid data loss.

Cooling system:

- Temperature setting
- Temperature display
- Cooling system ON/OFF
- Full system diagnostic view by four Pt100 and three NTC probes
- Temperature graph on display of last twelve weeks
- Password protected memory card (SD) for graphs and alarms storage
- Ethernet port with configurable TCP/IP address
- Ready to be used with **CRYOLOG** Data Management Software
- Ready for CO₂ / LN₂ back-up system (only for -86°C Freezers)
- Electronics battery back-up (provide energy up to 48h)

Alarms section:

- Alarms setting
- Hi-Low temperature
- Full alarms logging
- Door ajar
- Main power-off
- Acoustic and visual alarms
- Free contacts for remote alarms
- Led alarm status
- Remote alarm status
- Compressor failure
- Probes failure
- Battery level low
- **BIOGUARD** failure (if installed, see options)
- Data communication failure

Main features of CRYOLOG

- Acquisition and monitoring of all data parameters
- Ethernet communication with programmable TCP/IP address
- Creation of a complete data base on computer hard disk
- Log storage and display of all events such as alarms, failures, door opening
- Fully programmable temperature graphs view (curve, color, grid selection...)
- Possibility of multiple view of different temperature curves by sliding cursor
- Reading of SD memory card

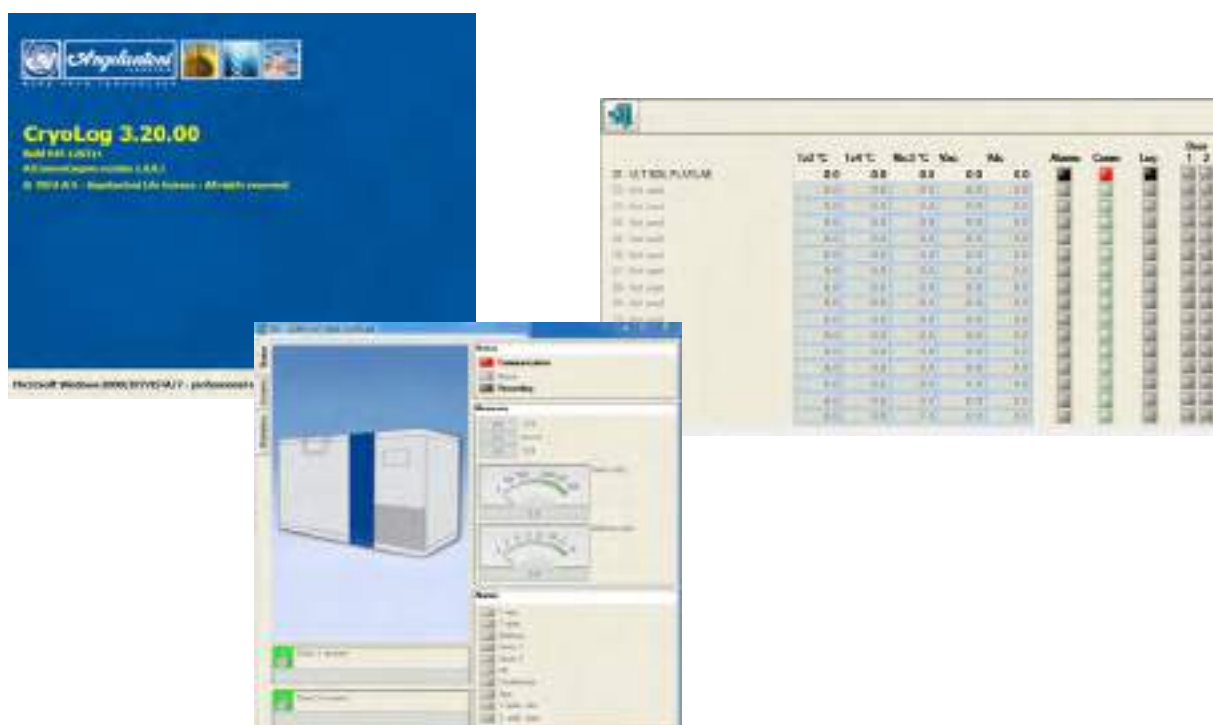
Minimum computer requirements

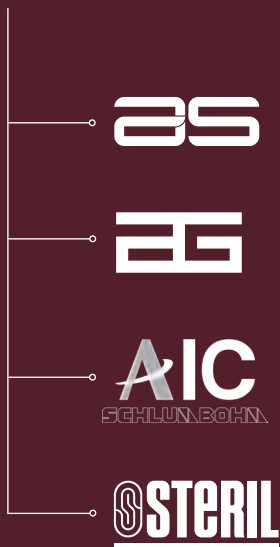
Before install the CRYOLOG application please be sure that your computer includes at least the following equipment:

- Intel Pentium 4 processor or higher version
- 1 GB RAM
- 200MB of free space on the Hard-Disk
- 1280 x 720 minimum resolution, 16 million colors
- Two Ethernet cards
- Mouse & keyboard
- Windows Vista / 7 / 8

To connect any device to the computer where CRYOLOG is installed, you need to provide by yourself for two Ethernet cables of proper length and one Ethernet Hub: one cable is for the device and the other one for computer connection.

If you have more than one device to connect with CRYOLOG, you need to provide by yourself for as many Ethernet cables as the number of devices you wish to connect to the computer, plus one extra cable, for the connection between the HUB and the computer.





AS

Biomedical refrigerators and freezers (+4°/-86°C), chambers for stability tests and LN2 robotic storing system for vials (-180°C)

EG

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Angelantoni Life Science S.r.l.

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