



MORE THAN TECHNOLOGY

Life Science Business Unit
AS - Biomedical Equipment Division

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





→ Angelantoni Industrie SpA manufactures a wide range of blood bank refrigerators, plasma blast freezers and freezers to meet demands of small, medium and large blood centers, hospitals and analytical laboratories.

All products for transfusion centers are certified according to Medical Device directive 93/42/EEC demonstrating the great commitment of Angelantoni Industrie SpA in producing high quality and reliability products, ensuring the enhanced security in the storage of material.

→ Two lines of blood bank refrigerators are available, to store up to 700 blood bags:

Mini line (130 and 250 liters): up to 100 bags of 450 ml.

BBR line (700, 900 and 1500 liters): more than 700 bags of 450 ml.

→ **Low energy consumption.**

→ **Temperature uniformity.**

→ **Microprocessor control board with alarm section completely independent from regulation section.**

→ **Very low noise cooling system.**



/Optional

Dividers
23-50 mm port hole
Software
PT 100 probe
Serial interface
Safety key lock for control panel





Technical specifications

Modello	BBR 700				BBR 900		BBR 1500		
	/5	/6	/7	/8	/8	/9	/12	/14	
Nominal capacity (l)	700				900		1500		
Bags capacity (n°)	450 ml	220	264	308	352	440	495	528	616
	250 ml	380	456	523	608	720	810	912	1064
Drawers (n°)	5	6	7	8	8	9	12	14	
Working temperature (°C)	+4 °C								
Supply voltage (V)*	230V /50Hz								
Maximum absorbed current (A)	5,5								
Cooling gas	R134A								
External dimensions (mm)	740x865x1998				810x1060x1998		1480x865x1998		
Overall weight with standard packaging (Kg)	250	255	260	265	300	308	470	480	
Noise level (dbA)	43								

Modello	Mini 130/2	Mini 250/4	Mini 250/5	
Nominal capacity (l)	130	250	250	
Bags capacity (n°)	450 ml	36	72	90
	250 ml	80	160	200
Drawers (n°)	2	4	5	
Working temperature (°C)	+4 °C			
Supply voltage (V)*	230V /50Hz			
Maximum absorbed current (A)	3			
Cooling gas	R134A			
External dimensions (mm)	600x640x1280	600x640x1850		
Overall weight with standard packaging (Kg)	105	135	140	
Noise level (dbA)	45			

→ Illustration, description and technical data may be changed without notice.
 (*) 230V/60Hz and 115V/60Hz models are available without 93/42/EEC certification.

- PRO** → Professional Line.
- +4** → Working temperature: +4°C.
- 93/42/EEC** → Equipment certified according to 93/42/EEC directive and following amendments.

Technical features

Structure / Zinc plated steel to ensure durability. Internal chamber of **MINI** models in zinc plated steel painted in white, **BBR** models in stainless steel AISI 304 with rounded corners for easy cleaning.

MINI models are equipped with adjustable feet for proper positioning.

BBR models are provided with castors for easy moving and adjustable feet for positioning.

Door /Triple vacuum-sealed glass with special anodized aluminum profiles and anti-moisture electric resistors to guarantee the best performances and avoid frost formation.

Key lock to preclude access to unauthorized personnel.

Port hole /Diameter 23 mm, with rubber cap for the insertion of additional probes.

Internal Lamp /Door open courtesy light.

Insulation /Injected CFC-free foamed polyurethane. Thickness - **MINI**: mm 50; **BBR**: mm 75.

Drawers /In stainless steel, sliding on plastic wheels.

Front screen in transparent PVC to offer an immediate view of the content and inhibit warm air entering while the door is opened.

Each drawer can be equipped with suitable partition screen (optional) in transparent PVC to simplify bags positioning and label reading during release.

Temperature chart recorder /Battery operated, weekly diagrams, key lock, adjustable pen. Temperature range: from +30°C to -30°C.

Adjustment and control system /Microprocessor controller E2003, with two independent sections, the first one to set and control temperature, the second one to manage the alarm system and display temperature.

Rechargeable buffer battery (12 V, 2Ah) to maintain the alarm system on for 48 hours in case of power outage.

Configured for a remote replication of alarms.

01 02



03 04

- 01. BBR 900/8
- 02. Drawer extraction, more than 90%.
- 03. Mini 250/4 and 130/2
- 04. Electronic control board detail





→ **Chest and up-right freezers at -40°C / -86°C** for freezing and long term storage of blood components and derivatives.

- **Low energy consumption.**
- **V.I.P. Technology for footprint optimization.**
- **Microprocessor control board with seven independent sections for top reliability in case of failures.**
- **Alarm logs in text and graphs.**
- **Data export on SD memory card.**
- **Access control.**



/Optional

- Shelf
- Drawer
- Dividers
- 23-50 mm port hole
- Bioguard®
- Software
- PT 100 probe
- Back-up system (CO2-LN2)
- Serial interface





- PRO** → Professional Line.
- EE** → Working temperature: -40°C /-86°C.
- 93/42/EEC** → Equipment certified according to 93/42/EEC directive and following amendment.

Technical features

Structure /Fully metallic in heavy-gauge phosphate-coated, powder-painted steel plate with interior in top quality stainless steel: 8/10 AISI 304 (**PLATINUM**); AISI 304 10/10 (**IRIDIUM**). Both Up-right and chest models are installed on castors and adjustable feet.

Door /**PLATINUM STD** models equipped with mechanical lock and key;
IRIDIUM STD models equipped with magnetic lock and key.

In **PLUS** version the door is equipped with patented transponder system **BIOGUARD®**, which enables the door opening by a card to authorized personnel only.

The system guarantees a complete access control. In case of power outage, the buffer battery maintains the system on for 24 hours.

Heated pressure compensation valve allows an easy and quick opening of the door.

Port hole /Diameter 23 mm, with rubber cap for the insertion of additional probes.

Inner doors (only for up-right models) /

PLATINUM models: panels in antishock polystyrene with magnetic lock and special gaskets.

IRIDIUM models: panels in composite materials (aluminum - pvc - aluminum) and magnetic stop.

Shelves (only for up-right models) /Stainless steel adjustable in height.

Insulation /**PLATINUM** models: thickness 140 mm. High pressure (40 kg/mc) polyurethane foam.

IRIDIUM models: thickness 70 mm. Vacuum Insulated Panels (V.I.P.) and polyurethane foam.

Cooling system /single stage hermetic system. CFC-Free and HCFC-free refrigerant.

Temperature chart recorder /battery operated, weekly diagrams, key lock, adjustable pen. Temperature range: from -30°C to -90°C.

Adjustment and control system /**PLATINUM** e **IRIDIUM** models: microprocessor controller E2003, with two independent sections, the first one to set and control temperature, the second one to manage the alarm system and display temperature.

01 02 03



Rechargeable buffer battery (12 V, 2Ah) to maintain the alarm system on for 48 hours in case of power outage. Configured for a remote replication of alarms.

PLATINUM Next™ and IRIDIUM Next™ models

Microprocessor controller **Cold Brain™**, with seven independent sections to maintain the proper working conditions even in presence of failures.

The multiple high quality sensors (four PT100 and four 4 NTC) and the efficient and flexible alarm system guarantee the maximum security in sample control.

Key features

- **Multi language** compliant to European rules.
- **Wide graphic display** (240x128pixel) (240 x128 pixel), with regulation and alarm sections
- **Touch keyboard** using 8 soft keys with context dependent functions.
- **On-Screen System Messaging:** displays set-points, details of alarms, door openings and operating conditions.
- **Integrated Data Recorder:** traditional paper chart recorder is replaced by electronic recorder.
Data (alarms and parameters) are stored for 3 months at a sample interval of 1 min.
- **Audible and Visual Alarms** for high and low temperature conditions, power failure, low battery, malfunctions and filter cleaning.
- **Alarm Log** provided via text and graphically, to record door openings, power failure, electronic fault, internal probe and ambient temperature probe failures, fan and condenser malfunctions.
- **Back up battery** (up to 48 hours): maintains settings and activates visual and acoustic alarms during power outage.
- **Battery charge indicator.**
- **Prearranged for CO2 & LN2 Backup Systems:** simplifies and enables the installation of the equipment to be provided at a lower cost.
- **Remote Alarm Contacts** provides connection to centralized monitoring systems.
- **Secure Digital (SD) card** to download data on PC.
- **Ethernet Interface** (Optional Wireless) to connect to a laboratory pC network. Through **Cryolog2** software, it is possible to monitor parameters and alarms of multiple freezers (up to 30).
- **Protected On-Off Switch** to prevent accidental shut off.
- **Low noise.**

04 05



01. Platinum 500 with drawers.
02. Drawer detail.
03. Platinum 340.
04. Iridium 800.
05. BIOGUARD® detail.

Double door Freezers: IRIDIUM Next™ DD Series

Independent chambers /Two separated chambers, accessible through independent doors.
Structure /Fully metallic in heavy-gauge phosphate-coated, powder-painted steel plate with interior in top quality stainless steel: 10/10 AISI 304.
 Installed on castors and adjustable feet, for easy movement.
 All our freezers fit with standard doors.

Port hole /Diameter 23 mm, with rubber cap for the insertion of additional probes.
Door /STD models: equipped with magnetic lock and key.
 The **PLUS** version has the facility that the door is equipped with patented transponder system **BIOGUARD®**, which enables the door opening by a card to authorized personnel only.
 The system guarantees a complete access control.

In case of power outage, the buffer battery maintains the system on for 24 hours.
 Heated pressure compensation valve allows an easy and quick opening of the door.

Inner doors /Panels in composite material (aluminum – pvc – aluminum) and magnetic stop.

Shelves (only for up-right models) /Stainless steel adjustable in height.

Insulation /Thickness 70 mm. Vacuum Insulated Panels (V.I.P.) and polyurethane foam.

Cooling system /Single stage hermetic system. CFC-Free and HCFC-free refrigerant.

Adjustment and control system /Microprocessor controller **Cold Brain™**, with seven independent sections to maintain the proper working conditions even in presence of failures. The multiple high quality sensors (four PT100 and four 4 NTC) and the efficient and flexible alarm system guarantee the maximum security in sample control.

Key features

- **Multi language** compliant to European rules.
- **Wide graphic display** (240 x128 pixel), with regulation and alarm sections.
- **Touch keyboard** using 8 soft keys with context dependent functions.
- **On-Screen System Messaging:** displays set-points, details of alarms, door openings and operating conditions.
- **Integrated Data Recorder:** traditional paper chart recorder is replaced by electronic recorder. Data (alarms and parameters) are stored for 3 months at a sample interval of 1 min.
- **Audible and Visual Alarms** for high and low temperature conditions, power failure, low battery, malfunctions and filter cleaning.
- **Alarm Log** in text and graphs, to check door openings, power failure, electronic fault, internal probe and ambient temperature probe failures, fan and condenser malfunctions.
- **Backup battery** (up to 48 hours): maintains settings and activates visual and acoustic alarms during power outage.
- **Battery charge indicator**
- **Prearranged for CO2 & LN2 Backup Systems:** simplifies and makes cheaper the installation.
- **Remote Alarm Contacts** provide connection to centralized monitoring systems.
- **Secure Digital (SD) card** to download data on PC.
- **Ethernet interface** (Optional wireless) to connect to a laboratory PC network. Through **Cryolog2** software, it is possible to monitor parameters and alarms of multiple freezers (up to 30).
- **Protected On-Off Switch** to prevent accidental shut off.
- **Low noise.**

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Technical specifications

Modelli Orizzontali						
Modello	PLATINUM 110		PLATINUM 370		PLATINUM 550	
	SH		SH	Next 370 H	SH	Next 550 H
Nominal capacity (l)	110		370		550	
Working temperature (°C)	-40		-86		-40 / -86	
Temperatura range (°C)	-20 /-45		-40 /-86		-20 /-45 / -40 /-86	
Supply voltage (V)*	230V /50Hz					
Maximum absorbed current (A)	3,5		7		3,5 / 7	
Cooling gas	R404		R404 /R508 /mix		R404 / R404 /R508 /mix	
External dimensions (mm)	730x900x1100		1780x855x1140		2350x855x1140	
Internal dimensions (mm)	450x570x450		1050x520x670		1590x520x670	
Overall weight with standard packaging (Kg)	175		274		324 / 325	
Noise level (dbA)	<52					

Modelli Verticali							
Modello	PLATINUM 340		PLATINUM 500		IRIDIUM 520	IRIDIUM 800	
	SV	Next 340 V	SV	Next 500 V	Next 520 V	SV	Next 800 V
Nominal capacity (l)	340		500		520	800	
Working temperature (°C)	-40 / -86		-40 / -86		-86	-40 / -86	
Temperatura range (°C)	-20 /-45 / -40 /-86		-20 /-45 / -40 /-86		-40 /-86	-20 /-45 / -40 /-86	
Supply voltage (V)*	230V /50Hz						
Maximum absorbed current (A)	3,5 / 7		3,5 / 9		9	4 / 9	
Cooling gas	R404 / R404 /R508 /mix		R404 / R404 /R508 /mix		R404 /R508 /mix	R404 / R404 /R508 /mix	
External dimensions (mm)	765x900x1985		1015x900x1985		730x854x1980	1086x890x1995	
Internal dimensions (mm)	450x530x1350		700x530x1350		586x613x1470	906x609x1472	
Inner doors (n°)			3 /4			3 /4 /5	
Overall weight with standard packaging (Kg)	244 / 260		295 / 330		260	355 / 390	
Noise level (dbA)	<52				<53	<52 / <53	

Modelli Verticali - Doppia Porta		
Modello	IRIDIUM Next DD 520	IRIDIUM Next DD 800
Nominal capacity (l)	520	800
Working temperature (°C)	-86	-86
Temperatura range (°C)	-40 /-86	-40 /-86
Supply voltage (V)*	230V /50Hz	
Maximum absorbed current (A)	9	
Cooling gas	R404 /R508 /mix	
External dimensions (mm)	730x854x1980	1086x890x1995
Internal dimensions (mm)	586x613x1470	906x609x1472
Inner doors (n°)	4	
Overall weight with standard packaging (Kg)	274	407
Noise level (dbA)	<53	

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 (*) 230V/60Hz and 115V/60Hz models are available without 93/42/EEC certification.



- **Blast freezer** designed to freeze the blood plasma under -30°C in less than 60 minutes, in compliance with the international standards to preserve the plasma factors.
- **Maximum efficiency due to the innovative freezing shelves.**
- **Full flexibility to freeze many different kinds of plasma bags.**
- **Certification of freezing process (ITeM™).**
- **Ergonomic and easy to use.**



/Optional

Chart recorder



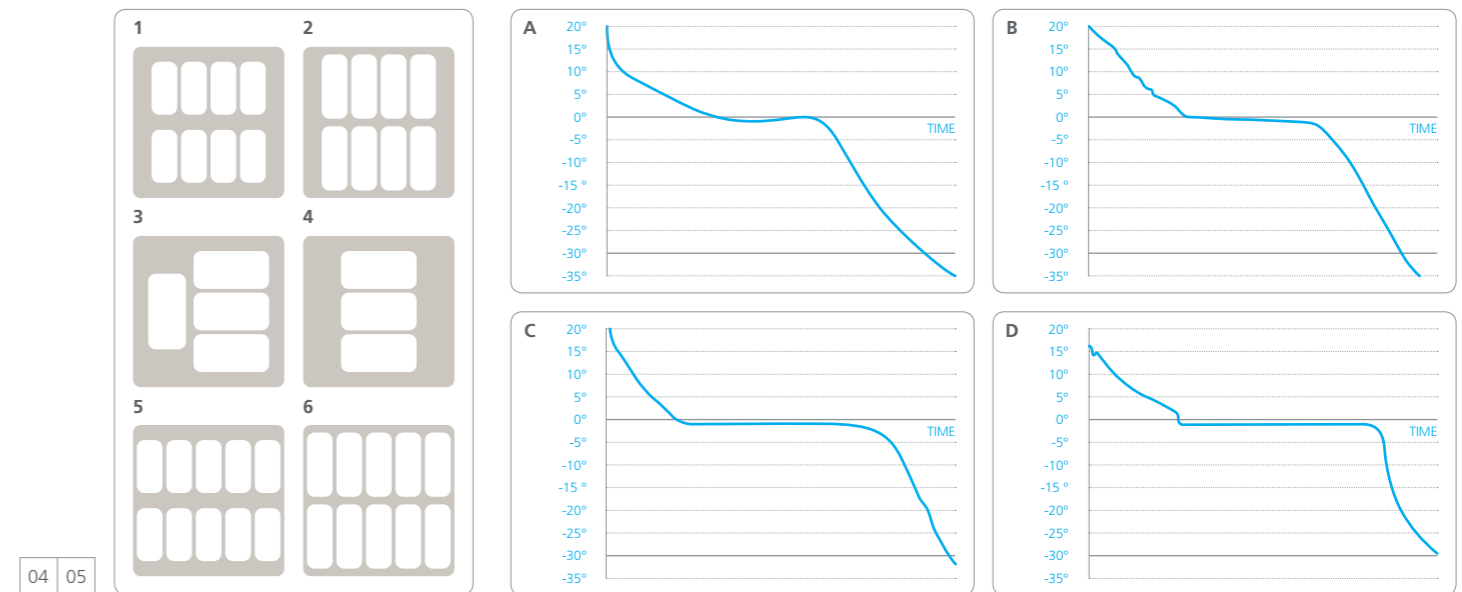
Plasmafrost 3



Technical specifications

Modello	PLASMAFROST 3			PLASMAFROST 4		
	3	3 (400 V)	Item 3	4 (400 V)	4 - W	Item 4
Nominal capacity (l)	250					
Working temperature (°C)	-75					
Supply voltage (V)*	230V /50Hz	400V /50Hz	230V /50Hz	400V /50Hz		
Maximum absorbed current (A)	16			12		
Cooling gas	-75					
External dimensions (mm)	895×1490×1760		1300×1490×1830	895×1490×1760		1300×1490×1830
Cooling shelves (n°)	3			4		
Overall weight with standard packaging (Kg)	658	680	695	708	725	
Noise level (dbA)	60	<62	62	<62	62	
Condensazione ad acqua	NO			SI	NO	

Bag type (ml)	400		450		1000		400		450		1000	
Plasma quantity (ml)	250	300	250	300	650	800	250	300	250	300	650	800
Bags (n°)	24		24		12	9	40		40		16	12
Maximum freezing time (s)	35	55	30	45	45	55	35	55	30	45	45	55
Bags position on the shelf	1	1	2	2	3	4	5	5	6	6	3	4
Freezing curve (graphs)	B	D	A	C	C	D	B	D	A	C	C	D



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- 01. Plasmafrost.
- 02. Internal shelves detail.
- 03. Bags position.
- 04. Bags position on the shelf.
- 05. Freezing graphs.
- 06. Control board detail.



PRO → Professionale Line.

-75 → Working temperature: -75°C.

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

Technical features

Structure /Fully metallic in heavy-gauge phosphate-coated, powder-painted steel plate. Mounted on wheels for easy moving. Interior in stainless steel AISI 304 with rounder corners for easy cleaning.

Door /equipped with key lock and silicon gaskets.

Insulation /High pressure polyurethane foam, CFC/HCFC free. Average thickness 125 mm.

Refrigerant system /Realized through refrigerated shelves and anodized aluminum plates for best performances.

The refrigerant flows inside the shelf for the maximum freezing efficiency and the plates on the bags guarantee a major temperature uniformity.

The cooling system makes use of a cascade of two hermetic/semi-hermetic (PLASMAFROST⁴) compressors and air condenser.

Control panel /Placed on the front side of the unit; is complete of on/off switch with light, visual and acoustic signal at the end of freezing process; max alarm for high pressure in high/low stage; digital display of inner temperature; main switch placed on the left front side of the unit.

Software /ITeM™, models are equipped with an on-board PC including dedicated software which allows to certify the success of the plasma freezing process and to manage the user interface for loading and unloading commands in communication with the control board ColdBrain™.

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M O R E T H A N T E C H N O L O G Y

Life Science Business Unit _

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