

Medical Device Line
Blood bank refrigerators and freezers



MEDICAL DEVICE



For the purposes of the relevant It. legislative decrees, this means any instrument, device, implant, software, substance or other product used alone or in combination with other devices or accessories, including software intended by the manufacturer to be used specifically for diagnostic, or therapeutic purposes, necessary for the proper functioning of the device and intended by the manufacturer to be used on humans for the purposes of:

- ♦ **Diagnosis, prevention, monitoring, treatment or alleviation of a disease;**
- ♦ **Diagnosing, monitoring, treating, alleviating or compensating for an injury or handicap;**
- ♦ **Investigation, replacement or modification of the anatomy or of a physiological process;**
- ♦ **Control of conception**

inwhich the device in question does not exercise its main action "in" or "on" the human body for which it is intended, by pharmacological or immunological means or by a metabolic process, but whose function may be supported with such means.

Medical device certification:

a product intended to prevent, diagnose, treat or control a disease/injury/handicap, the mechanism of action of which is usually physical (e.g. mechanical action, conduction of electric current, stimulation, replacement, organ support) and not pharmacological/metabolic/immunological, although in performing its function a medical device may incorporate by substances having an ancillary function and acting with the latter mechanisms of action.

ALS medical device equipment

All devices are certified according to the Medical Device Directive 93/42/EEC, evidence of the company's great commitment to implementing high quality and reliable products that guarantee maximum safety in the storage of biological liquids.



Notified body No. :
0051

The production of the entire range certified as a medical device line is the result of expertise and commitment in the storage of blood, plasma and their derivatives. Dedication to this field has made it possible to manufacture extremely safe and efficient devices, evidence of technologically innovative and high-performance products.

Medical Device: Classifications

Medical devices are divided into classes, according to the risk arising from their use.

The classification is purposed based on:

- ♦ Intended use of the device;
- ♦ Service life, degree of invasiveness;
- ♦ Operating mode;
- ♦ Organ in which the device performs its function.

Class of belonging risk level increases from I to III:

- ♦ **Class I** - low risk (e.g. corrective glasses, plasters, etc.);
- ♦ **Class IIa** - medium to low risk (e.g. endotracheal tubes, contact lenses, etc.); (certified devices in the ALS production range);
- ♦ **Class IIb** - medium to high risk (e.g. X-ray equipment, urethral stents, etc.);
- ♦ **Class III** - high risk (e.g. joint replacements, heart valves, coronary stents, etc.);
- ♦ **Active implantable devices** (e.g. pacemakers, defibrillators, etc.), this category is equivalent to III as a risk level.

Class IIa and IIb devices require the involvement of a Notified Body to approve the declaration of conformity through a conformity assessment.

This catalogue presents the ALS product line, which is certified as a medical device range.



EMOBANK, PLASMABANK and EMOPLASMABANK LINE

BLOOD AND PLASMA REFRIGERATORS AND FREEZERS

 **MAXIMUM CONNECTIVITY** using **Ethernet** communication modules



Access security and traceability with the **BIOGUARD®** system



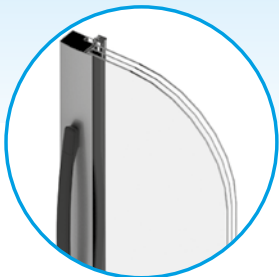
Cutting-edge **ELECTRONICS** with internal **CAN-BUS** communication protocol



WEEKLY CHART RECORDER
battery powered



Real-time data download via the integrated **USB** port; basic software included



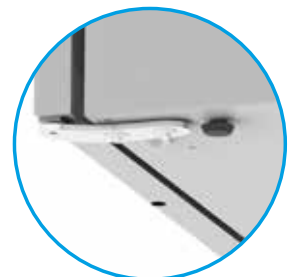
TRIPLE GLASS DOOR
for better thermal insulation



THROUGH-HOLE
for inserting cables, probes, or for other services



Height-adjustable **GRATED SHELVES** and drawers with telescopic slides



BALLS AND FEET
for easy moving or parking



Emobank 700 complete with accessories (standard and optional)

TECHINCAL SPECIFICATIONS

MODELS	EMOBANK					
	100/2	200/3	200/4	300/5	300/6	
DIMENSIONS						
Net internal Dim. (WxDxH)	mm	480x500x450	480x500x815		480x500x1385	
Net External Dim. (WxDxH)	mm	600x615x850	600x615x1425		600x615x1995	
Litres	l	95	176		303	
Net weight	Kg	85	100		115	
TECHNICAL SPECIFICATIONS						
Temperature range	°C	0 ~ +15				
Supply voltage	V	230				
Noise level	dB	<50				
Max. absorbed power	A	1,5	2			
Thermal dissipation	kcal/h	170	215			
Refrigerant gas		R 290				
STRUCTURE						
External finishes		Pre-painted zinc-plasticised sheet metal – colour RAL 9006 grey				
Internal material		AISI 304 Stainless Steel				
Insulation	mm	75				
Shelves	No.	2	3	4	5	6
Maximum load per shelf	Kg	30				
Capacity per drawer/shelf	No.	30 bags (250ml), 16 bags (450ml)				
Max. capacity	No.	60 bags (250ml), 32 bags (450ml)	90 bags (250ml), 48 bags (450ml)	120 bags (250ml), 64 bags (450ml)	150 bags (250ml), 80 bags (450ml)	180 bags (250ml), 96 bags (450ml)

MODELS	EMOBANK					
	700/5	700/6	700/7	700/8	700/B	
DIMENSIONS						
Net internal Dim. (WxDxH)	mm	590x675x1500				
Net External Dim. (WxDxH)	mm	740x815x1998				
Litres	l	600				
Net weight	Kg	170				
TECHNICAL SPECIFICATIONS						
Temperature range	°C	0 ~ +15				
Supply voltage	V	230				
Noise level	dB	<50				
Max. absorbed power	A	1				
Thermal dissipation	kcal/h	180				
Refrigerant gas		R 290				
STRUCTURE						
External finishes		Pre-painted zinc-plasticised sheet metal – colour RAL 9006 grey				
Internal material		AISI 304 Stainless Steel				
Insulation	mm	75				
Shelves	No.	5	6	7	8	7
Maximum load per shelf	Kg	40				
Capacity per drawer/shelf	No.	76 bags (250ml), 44 bags (450ml)				
Max. capacity	No.	380 bags (250ml), 220 bags (450ml)	456 bags (250ml), 264 bags (450ml)	532 bags (250ml), 308 bags (450ml)	608 bags (250ml), 352 bags (450ml)	532 bags (250ml), 308 bags (450ml)

Blood bank refrigerators and freezers

MODELS		EMOBANK					
		900/8	900/9	900/B	1500/12	1500/14	1500/B
DIMENSIONS							
Net internal Dim. (WxDxH)	mm	660x875x1510			1330x675x1500		
Net External Dim. (WxDxH)	mm	810x1010x1998			1480x815x1998		
Litres	l	870			1400		
Net weight	Kg	175			230		
TECHNICAL SPECIFICATIONS							
Temperature range	°C	0 ~ +15					
Supply voltage	V	230					
Noise level	dB	<50			<50		
Max. absorbed power	A	1,3			1,2		
Thermal dissipation	kcal/h	140			220		
Refrigerant gas		R 290					
STRUCTURE							
External finishes		Pre-painted zinc-plasticised sheet metal – colour RAL 9006 grey					
Internal material		AISI 304 Stainless Steel					
Insulation	mm	75					
Shelves	No.	8	9	9	12	14	14
Maximum load per shelf	Kg	40					
Capacity per drawer/shelf	No.	90 bags (250ml), 55 bags (450ml)			76 bags (250ml), 44 bags (450ml)		
Max. capacity	No.	720 bags (250ml), 440 bags (450ml)	810 bags (250ml), 495 bags (450ml)	912 bags (250ml), 528 bags (450ml)	1064 bags (250ml), 616 bags (450ml)		

MODELS		EMOPLASBANK					
		300		700		1500	
DIMENSIONS							
		1 ST compartment	2 ST compartment	1 ST compartment	2 ST compartment	1 ST compartment	2 ST compartment
Net internal Dim. (WxDxH)	mm	480x500x845	480x500x495	590x675x675		590x675x1500	
Net External Dim. (WxDxH)	mm	600x635x1995		740x815x1998		1480x815x1998	
Litres	l	184	108	300		600	
Net weight	Kg	120		180		230	
TECHNICAL SPECIFICATIONS							
Temperature range	°C	0 ~ +15	-23 ~ -10	0 ~ +15	-23 ~ -10	0 ~ +15	-23 ~ -10
Supply voltage	V	230					
Noise level	dB	<50		<60			
Max. absorbed power	A	6		7		8	
Thermal dissipation	kcal/h	700		370		430	
Refrigerant gas		R 290					
STRUCTURE							
External finishes		Pre-painted zinc-plasticised sheet metal – colour RAL 9006 grey					
Internal material		AISI 304 Stainless Steel					
Insulation	mm	60		75			
Shelves	No.	3	2	2	2	5	7
Maximum load per shelf	Kg	30		40			
Capacity per drawer/shelf	No.	30 bags (250ml), 16 bags (450ml)		76 bags (250ml), 44 bags (450ml)			
Max. capacity	No.	150 bags (250ml), 80 bags (450ml)		304 bags (250ml), 176 bags (450ml)		912 bags (250ml), 528 bags (450ml)	

MODELS		PLASMABANK	
		700	900
DIMENSIONS			
Net internal Dim. (WxDxH)	mm	590x675x1500	660x875x1510
Net External Dim. (WxDxH)	mm	740x815x1998	810x1010x1998
Litres	l	600	870
Net weight	Kg	170	
TECHNICAL SPECIFICATIONS			
Temperature range	°C	-30 ~ -10	
Supply voltage	V	230	
Noise level	dB	<55	<60
Max. absorbed power	A	6	6,2
Thermal dissipation	kcal/h	345	370
Refrigerant gas		R 452A	
STRUCTURE			
External finishes		Pre-painted zinc-plasticised sheet metal - colour RAL 9006 grey	
Internal material		AISI 304 Stainless Steel	
Insulation	mm	75	
Shelves	No.	7	9
Maximum load per shelf	Kg	40	
Capacity per drawer/shelf	No.	76 bags (250ml), 44 bags (450ml)	95 bags (250ml), 55 bags (450ml)
Max. capacity	No.	532 bags (250ml), 308 bags (450ml)	855 bags (250ml), 495 bags (450ml)



Plasmabank series from 700 to 900 litres



Emoplasmabank series from 300 to 1500 litres



Emobank series from 100 to 1500 litres

NEXUS EVO LINE

FREEZERS AND ULTRA-LOW TEMPERATURE FREEZERS FOR PLASMA AND PLASMA-DERIVED PRODUCTS

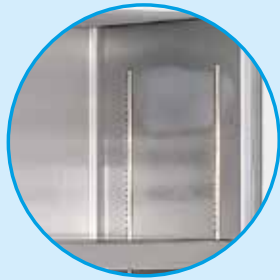
MAXIMUM CONNECTIVITY as a result of using **Ethernet** communication modules



Connection through an **ACCESS PORT**



Latest generation **CONTROLLER** with **CAN-BUS** internal protocol



Internal chamber in **AISI 304 STAINLESS STEEL**



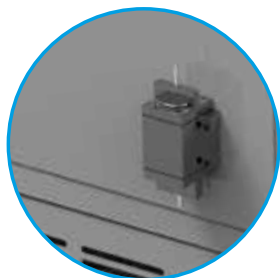
Real-time data download via integrated **USB** port and basic software included



Safety and traceability access with the **BIOGUARD®** system



Easy, user friendly with a new **ERGONOMIC HANDLE** for user comfort



ENERGY SAVING compensation valve to minimise **ICE FORMATION**



Easy moving with **PIVOTING CASTORS**



NEXUSlim 810 EVO MD

HORIZONTAL

-86°C		-40°C	
Model	Code	Model	Code
Nexus 110 H EVO MD	14430	Nexus 110 SH EVO MD	14421
Nexus 370 H EVO MD	14431	Nexus 370 SH EVO MD	14422
Nexus 550 H EVO MD	14432	Nexus 550 SH EVO MD	14423

VERTICAL

-86°C		-40°C	
Model	Code	Model	Code
NEXUS 340 V-3* EVO MD	14434	NEXUS 518 SV* EVO MD	14417
NEXUS 340 V-4* EVO MD	14435	NEXUS 340 SV-3* EVO MD	14424
NEXUS 530 V-3* EVO MD	14436	NEXUS 340 SV-4* EVO MD	14425
NEXUS 530 V-4* EVO MD	14437	NEXUS 530 SV-3* EVO MD	14426
NEXUSSlim 810 V-4* EVO MD	14438	NEXUS 530 SV-4* EVO MD	14427
NEXUSSlim 810 V-5* EVO MD	14439	NEXUSSlim 810 SV-4* EVO MD	14428
		NEXUSSlim 810 SV-5* EVO MD	14429

* Number of counter hatches

MODELLI	HORIZONTAL				VERTICAL			
	NEXUS EVO MD			NEXUS EVO MD			NEXUSSlim EVO MD	
	110	370	550	340	518	530	810	
DIMENSIONS								
Ext. Dim. (mm) (WxDxH)		730 x 990 x 1100	1780 x 920 x 1140	2320 x 920 x 1140	791 x 1026 x 1978	745 x 750 x 1965	1040 x 1026 x 1978	1112 x 1114 x 1978
Int. Dim. (mm) (WxDxH)		450 x 560 x 450	1050 x 520 x 670	1590 x 520 x 670	450 x 530 x 1350	605 x 550 x 1500	700 x 530 x 1350	906 x 601 x 1472
Litres (l)		113	370	550	322	500	500	810
Weight (kg)		150 (SH) 180 (H)	234 (SH) 280 (H)	275 (SH) 312 (H)	214 (SV) 234 (V)	143	262 (SV) 300 (V)	312 (SV) 362 (V)
TECHNICAL PERFORMANCE								
Temperature range (°C)	H	V	(-40 ~ -86)					
	SH	SV	(-20 ~ -43)					
Operating temperature (°C)	H	V	-80					
	SH	SV	-40					
Noise level (db (A))			<55					
Maximum absorbed power (A)	H	V	7		/	9		
	SH	SV	3,5		2	3,5	4	
Voltage			220 V - 115 V (50 Hz o 60 Hz)					
Refrigerant Gas	H	V	MIX (R23+R290+R170) (for -86°C)					
	SH	SV	R452a (for -40°C)					
STRUCTURE								
Exterior	Epoxy powder painting							
Interior	AISI 304 Stainless Steel							
Insulation (mm)	140 PU				70	140 (PU)	70 (VIP)	
Counter hatches (No.)	1	4	4	3 o 4	/	3 o 4	4 o 5	
Shelves (N.)	/	/	/	2 o 3	7	3 o 4	4 o 5	
Drawers (N.)	/	/	/	max 9 (optional)	14	max 8 (optional)	max 12 (optional)	
Max. shelves capacity (kg)	/	/	/	40	20	40	50	
Max. drawer capacity (kg)	/	/	/	40	20	40	50	
Plasma bags cap. 1000 ml (dimensions 300x130) per shelf	/	/	/	4	2	8	12	
Plasma bags cap. 450 ml (dimensions 180x130) per shelf	/	/	/	8	6	14	20	
Plasma bags cap. 1000 ml (dimensions 300x130) per shelf	50	130	200	/	28	/	/	
Plasma bags cap. 450 ml (dimensions 180x130) per shelf	100	260	400	/	84	/	/	

HEMOSAFE 2.0

AUTOMATED BLOOD BANK REFRIGERATOR



MACHINE UPS

It makes it possible to maintain automation and PC powered in the event of BLACKOUT



EXTERNAL BARCODE READER

For easy user authentication and for the triple security check



AUTOMATIC DRAWER

For bag loading and unloading



LABEL PRINTER

To print out the allocation labels at the end of picking up



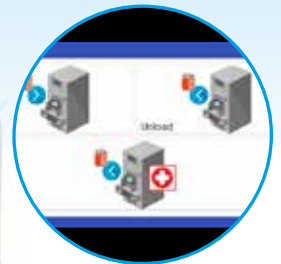
ACP 7 CONTROLLER

Temperature controller to set up/monitor parameters and adjust alarms



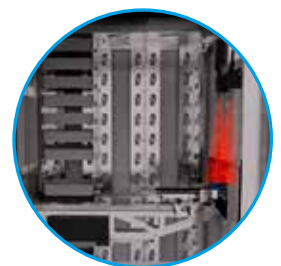
INTERNAL COMPARTMENT

90 plastic containers, 10 of which to manage 0 neg. urgencies



ON-BOARD PC

10" colour LCD panel for the user to interact with the device



INTERNAL BARCODE READER

It operates during loading and unloading, resetting human errors

TECHNICAL SPECIFICATIONS

HEMOSAFE® 2.0		
Sales code	14214	
CND Code	Z121701	
RMD Code	1769889/R	
Outer dimensions	mm	810 (W) x 1215 (D) x 2077 (H)
Bag capacity	N.	90 (450 ml)
Weight	Kg	350
Temperature range	°C	+2 / +10
Operating temperature	°C	+4
Temperature consistency	°C	±2*
Voltage	V / Hz	230 V - 50 Hz
Noise level	dB(A)	< 45
Energy consumption	Kwh	0,45**
Refrigerant gas	R 290	
Plug	Schuko	

Conditions of use		
Temperature	°C	10 ~ 36
Relative humidity	%	20 ~ 60
Dimensions with packaging	mm	1200 (W) x 1600 (D) x 2077 (H)
Weight with packaging	Kg	600

Code	Description
14214	Hemosafe® 2.0 (230 V/50 HZ)***
Mandatory configuration options (one excludes the other)	
14412	Basic bag configuration (90 black boxes)
14413	ONeg bag container configuration (80 black boxes + 10 red boxes)
Accessories for Hemosafe® 2.0	
14414	Weekly chart temperature recorder
12279	Chart recorder kit (100 diagrams and 2 pens)

* Guaranteed with set point at +4°C and room temperature of 20°C.
 ** Measured at 20°C room temperature considering 40 robotic actuations.
 *** Machine supply includes:
 Software licence of Hemosafe® 2.0 - label printer mod. Zebra supplied with paper model ETI.-ULTIMATE 3000T WHITE 25MM - one roll of RIBBON 84x74 Resin 5095.



Internal compartment for bag storage



PLASMAFROST ITeM[®]

RAPID PLASMA CHILLER



TEMPERATURE CONTROLLER (COLD-BRAIN)

To set up/edit the functional parameters



COOLING SYSTEM

Equipped with 2 compressors in cascade to rapidly freeze bags



CONTROL AND MONITORING SYSTEM

To carry out the bag loading/unloading activities and interface to the BBMS



12" COLOUR LCD PANEL
For the user to interact with the device

TECHNICAL SPECIFICATIONS

		Plasmafrost Item 3	Plasmafrost Item 4
Outer Dimensions WLxDxH)	mm	950 x 1490 x 1890	
Outer dimensions with open arm (WxDxH)	mm	1300 x 1490 x 1890	
Volume	l	250	
450/400 ml bag capacity	N.	24	
1.000 ml bag capacity	N.	12	
Daily freezing cycles	N.	10	
Weight	Kg	660	690
Refrigerated shelves/Contact plates	N.	3	4
Shelf dimensions (WxD)	mm	550 x 590	
Through hole		Optional	
Operating Temperature	°C	-75 °C	
Voltage	V / Hz	230 V – 50 Hz	
Noise level (*)	Db(A)	< 62	
Maximum power input	A	16	12
Thermal dissipation	Kcal/h	3000	4000
1st Stage Refrigerant Gas		R452a	
2nd Stage Refrigerant Gas		R23	
Temperature	°C	10 ~ 32	
Relative humidity	%	30 ~ 80	

List of Accessories

Supplementary PT 100 probe with 3 calibration points

Chart recorder with microprocessor

Through hole diam. 23 mm with rubber cap

Class A PT 100 probe with 3 calibration points (-25°C; -30°C; -35°C)

Supplementary probe PT 100 class A (three wires)

Canon I-Sensys lbp252DW printer

Class A PT 100 probe with 3 calibration points (-60°C; -70°C; -80°C)

Cryogenic gloves

SMARTFREEZER® EVO

AUTOMATED CRYOPRESERVATION DEVICE



Fully automated system - Cherry Picking



Single machine-user interface for vial loading / unloading



Storage compartment (dewar). Buffer disk to ensure manual sample recovery in a short time in the event of failure



Internal barcode for control without human interaction



Touch-screen PC for easy workflow and handling



Control panel separated from robot for redundancy safety



External barcode for use identification or loading / unloading request code reading

CARATTERISTICHE TECNICHE

	SMARTFREEZER® EVO	
	V 180.10	V 180.20
Storage capacity (No.)	19.170 + 201 ⁽¹⁾	11.430 + 201
Type of vials (ml)	0,5 / 1	2
Vial identification	Bar code / Dot code	
Vial loading/unloading time (s/vial)	20	
Outer dimensions (mm)	1460x890x1980 ⁽²⁾	
Working temperature range	From -180°C to -155°C	
Dry system	Yes ⁽³⁾	
Cooling system	Liquid nitrogen	
Voltage (V)	230Vac, 50Hz	
Power absorbed (VA)	500	
LN ₂ Consumption (l/day)	from 15 a 20 ⁽⁴⁾	
Backup temperature	Auto-backup ⁽⁵⁾	
Uninterruptible power supply	Yes	
Pneumatic backup system	Yes	
Remote alarm	Yes ⁽⁶⁾	
Outputs	Ethernet RS485	

1) 19.170 + 201 vials contained in the first disc, buffer disc.

2) Cover on the top of the machine for external automation required for installation. Height after installation is 2650 mm for v180.10, v180.20.

3) A device that produces dry air with an extremely low dew point.

4) This consumption value is only related to Smartfreezer® EVO, this value does not take into account LN2 leaks due to the customer's pipeline or to the mobile cylinder sometimes used to recharge Smartfreezer® EVO.

5) The temperature can be maintained for at least 48 hours without the supply of liquid nitrogen.

6) Normally closed / normally open dry contacts (230 Vac / 1A max).

DIFFERENT STORAGE CAPACITIES

Volume	0.5 ml	1.4 ml	2.0 ml
Vial height (mm)	26.4	44.0	38.0
Vial height with cap (mm)	29.8	52.3	47.8
Internal diameter (mm)	6.5	6.5	10.6
External diameter (mm)	8.5	8.5	12.6
2D coded	Yes	Yes	Yes
Linear barcode	Optional	Optional	Optional
Naked-eye readable	No	No	No
Threading type	Internal	Internal	Internal
Smartfreezer® EVO compatible model	V.180.10	V.180.10	V.180.20
Smartfreezer® EVO capacity	19170 + 201	19170 + 201	11430 + 201

AS

AG

STERIL

AIC

Angelantoni Life Science (ALS) is a world leader in the supply of refrigeration equipment and in the design of technological solutions in the biomedical sector, constantly engaged in innovation and safety, both biological and environmental.

AS brand provides for a wide range of refrigerators cabinets, ultra-low temperature freezers, blood banks refrigerators, freezers to preserve blood components, mortuary prefabricated rooms, stability tests and plant growth chambers, refrigerators and freezers for COVID-19 vaccines.

AG brand supplies standardized brine chilling units for pharmaceutical and chemical applications or pharma process, manual or automated solutions allow to reach -70°C for special walk-in chambers and shelters to storage vaccines or other farmaceutical products.

STERIL brand provides for equipment able to meet any product protection need, as well as the product, operator and environment safety requirements, for any level of concentration and for any kind of substance (horizontal and vertical laminar flow cabinets, biohazard and cytostatic safety cabinets, laminar flow pass boxes with UV, sanitized hydrogen peroxide pass boxes, weighing, sampling and dispensing cabinets and isolators designed in accordance with the latest international standards (GMP).

AIC brand provides Waster, and an automated treatment system for hospital and contaminated waste.



Angelantoni Plants



 **HeraScientific**
L I F E S C I E N C E



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