

# Life Science

It's in your hands.



## Excellence in Biorepository



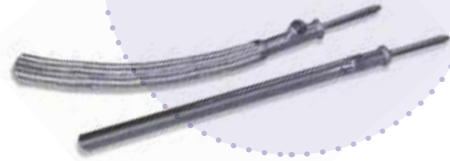
**BIOBANKING**

- Conceptual Design
- Engineering
- IQ / OQ
- ...

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**BIOBANKING**  
Transferlines

▶ See Brochure



**APOLLO® Nitrogen Storage Vessel** 50 - 350 l capacity

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**BIOSAFE® ALPHA**  
Aluminum Nitrogen Storage and Transport Vessel  
10 - 25 l capacity

▶ p. 28



**BIOSAFE® MARATHON**

Dry shipping vessel up to 612 vials, 2 ml.

▶ p. 25

**BIOSAFE® VENUS**

For small to medium sample volumes up to 6,000 vials, 2 ml.

▶ p. 20



**BIOSAFE® Wide Neck Series**  
120 - 220 - 420  
up to 23.000-vials, 2 ml

▶ p. 8



**BIOSAFE® Narrow Neck Series**

500 - 800 - 2400  
up to 120.000-vials, 2 ml

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**BIOSAFE® smart**  
The digital brain of your biobank

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**BIOSAFE® iTrack**  
Intelligent sample management software

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**BIOSAFE® Rack-System**

Standardized and individual design

▶ See Brochure



Cryopreservation using cryogenic liquefied nitrogen is an established and reliable practice in science, research, medicine, environmental research and engineering. The safe cooling down to -190°C in the gas phase as well as the inert atmosphere allow for optimal freezing and storage of valuable medical and biological samples and materials.

Cryotherm, a leading supplier of storage, transfer and transport systems, has been a renowned manufacturer of cryogenic technology products and services for more than 55 years.

BIOSAFE® by Cryotherm has long been synonymous with superior quality and safety. Experience, technology and our know-how make it easy for you to decide on BIOSAFE®. Advancing into the future with recent cutting-edge developments, we have expanded our BIOSAFE® line-up with new life science products.

Our BIOSAFE®-systems consist of:

- ▶ BIOSAFE® Cryogenic storage vessels; to freeze and store large quantities of samples.
- ▶ BIOSAFE® smart, a level controller device and container monitoring system for reliable supply of cryogenic liquefied nitrogen
- ▶ BIOSAFE® VENUS – an aluminum container series for small to medium sample volumes.
- ▶ BIOSAFE® MARATHON – a dry shipping container for safe transport of your biological samples.

<b>BIOSAFE® - Systems</b> An overview of our life science family.	2 - 3
<b>Safety equipment</b> Your safety is our priority.	6 - 7
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# Safety equipment

Your safety is our priority.



## Body Protection



Cryo-Aprons	Beschreibung	Artikelnr.
length: approx. 920 mm, for protection from cryogenic fumes and splashes for temperature range to -160 °C		77031519
length: approx. 1380 mm, for protection from cryogenic fumes and splashes for temperature range to -160 °C		77031520
Cryo-Protective Shield and Goggles		
head protection shield of vulcanized fibre foam padded dimensions: (WxH) 460 x 190 mm	inspection Glass	77031519
Schild		
"Wear eye protection" <b>6</b>	Adhesive Foil Ø 20 cm Symbol	78210204
"Wear hand protection" <b>7</b>	Adhesive Foil Ø 20 cm Symbol	78210205



## Cryo-Protective Equipment Full Set



Description	Item No.
Incl. Cryo-Gloves <b>1</b> , Cryo-Apron <b>3</b> , Cryo-Protective Shield <b>4</b> and 2 Warning Signage <b>5</b>	78400851

## Cryo-Gloves, waterproof



Description Hand protection, 5 fingers, down to -160° C	Length	Size	Item No.
Length: ca. 300 mm <b>1</b>	Wrist	S	78400613
Length: ca. 300 mm	Wrist	M	78213086
Length: ca. 300 mm	Wrist	L	77031450
Length: ca. 300 mm	Wrist	XL	78400823
Length: ca. 400 mm <b>2</b>	Forearm	S	78400843
Length: ca. 400 mm	Forearm	M	78400180
Length: ca. 400 mm	Forearm	L	78400887
Length: ca. 400 mm	Forearm	XL	78400856
Length: ca. 500 mm	Elbow	M	78400899
Length: ca. 500 mm	Elbow	L	77031451
Length: ca. 500 mm	Elbow	XL	78211327



# BIOSAFE® 120 - 220 - 420

Our secure BIOSAFE® wide neck storage vessel series.

## All Advantages at a Glance



Our BIOSAFE® systems 120 to 420 are optimized for maximum capacity with minimized external dimensions. The large, thermodynamically optimized, vacuum-insulated lid that comes with an attractive design makes it possible to access stored materials in just seconds.

Filling of samples takes place through the wide neck opening in the freely accessible storage compartment. The solid construction, made of polished, stainless steel, ensures maximum life time and a low evaporation rate. A combined vacuum closure and safety device for the vacuum chamber provides additional security.

# BIOSAFE® 120 - 220 - 420

Our secure BIOSAFE® wide neck storage vessel series.

## All Advantages at a Glance



### Distinctive & sophisticated:\*

Ergonomic lifting and swiveling mechanism / Low, user-friendly vessel height

**Ahead of the market:**  
Our integrated BIOSAFE® smart control for level control and vessel monitoring

**Double the safety!**  
Mechanically and (optional) electronically lockable lid

**TOP accessibility** to your samples, ideal for frequent usage

**Well-thought-out:**  
Depending on the vessel size, high nitrogen reserves below the shelf floor will last several days.

**Optimized storage capacity** by utilizing space-saving high efficiency categorization systems

**High storage capacity** for up to 23,100 samples, 2 ml vials

**Low evaporation rates**

Smooth surfaces, that are **easy to disinfect** - even on top of the lid.



\* available for BIOSAFE® 220 / 420

# BIOSAFE® 120 - 220 - 420

Ideal for routine work with biological-medical samples.

## Storage Capacities



Wide-neck BIOSAFE®		120	220	420
Geometric content	[l]	151	251	420
2 ml vials	[max./up to]	7.000	13.000	23.100
Baxter 4R9951 bag 50 ml and 2 ml vials	[max./up to]	288	512	832
Baxter 4R9955 bag 500 ml and 2 ml vials	[max./up to]	144	240	480
Hemofreeze Gambro Z2003 bag 500 ml and 2 ml vials	[max./up to]	75	150	270
		750	500	500

## Technical Data



Wide-neck BIOSAFE®		120	220	420
Neck diameter	[mm]	514	664	854
LIN Capacity under platform	[l]	21	35	57
Weight, empty	[kg]	100	175	225
Diameter, outside	[mm]	560	710	900
Diameter, inside	[mm]	514	664	854
Total height, closed	[mm]	1.045	1.070	1.070
Total height, opened	[mm]	1.140	1.180	1.190
Installation altitude	[mm]	625	625	625
Caster diameter	[mm]	-	80	80
Evaporation rate	[%/day]	2,3	2,0	1,5



# BIOSAFE® 500 - 800 - 2400

Our Narrow Neck BIOSAFE® series



## All Advantages at a Glance



picture of new BIOSAFE® 800



Cryogenic facilities with > 100 freezers

Our BIOSAFE® systems 500 to 2400 are optimized for maximum capacity with minimum consumption. In the range of 500 liters to 2400 liters and more, the containers can be easily loaded via the side-mounted vessel neck and the smooth-running carousel. Smooth-running castors ensure the mobility of our BIOSAFE® storage vessels and provide even more flexibility.

# BIOSAFE® 500 - 800 - 2400

Our Narrow Neck BIOSAFE® Stainless Steel Series.

## All Advantages at a Glance



### Zero-gravity lid technology

A convenient spring supported lid lets you open BIOSAFE® with one hand and zero effort.

### Engineered for Excellence

Made in Germany to the highest standards for medical devices (MDD 93/42 EEC), BIOSAFE® features design and materials that are optimized for aseptic environments.

### Double the safety!

Mechanically and (optional) electronically lockable lid.

### Ahead of the market: Integrated BIOSAFE® smart-control

provides level control and vessel monitoring

### Best in its class!

Store up to 120,000 2 ml samples in just one BIOSAFE® vessel. Unbeatable amount!

### TOP-Handling:

Smooth carousel for quick and safe usage.

### Sophisticated ergonomics.

Convenient steps, handles and a user-friendly low operating height ensure safe and comfortable handling.

### More than just safe

Numerous options for redundant vessel monitoring for GMP-compliant applications.



# BIOSAFE® 500 - 800 - 2400

Our Narrow Neck BIOSAFE® Stainless Steel Series.

## Storage capacities



Narrow neck BIOSAFE®	500	800	2400
Geometric content [l]	490	960	2.400
2 ml vials [max./up to]	28.280	43.120	120.000
Baxter 4R9951 bag 50 ml [max./up to]	1.080	on request	on request
<b>and</b> 2 ml vials	650	on request	on request
Baxter 4R9955 bag 500 ml [max./up to]	480	on request	on request
<b>and</b> 2 ml vials	1.300	on request	on request
Hemofreeze Gambro Z2003 bag 500 ml [max./up to]	288	on request	on request
<b>and</b> 2 ml Ampullen	1.300	on request	on request

## Technical Data



Narrow neck BIOSAFE®	500	800	2400
Neck diameter [mm]	450	520	830
LIN Capacity under platform [l]	50	117	300
Weight, empty [kg]	320	570	1.300
Diameter, outside [mm]	890	1.058	1.650
Diameter, inside / carousel [mm]	795	966	1.500
Total height, closed [mm]	1.014	1.380	2.100
Total height, opened [mm]	1.314	1.800	2.100
Installation altitude [mm]	800	800	915
Caster diameter [mm]	80	80	100
Evaporation rate [%/day]	1,2	0,9	0,6



picture of a BIOSAFE® 8800, with a capacity of 2 mio. vials 2 ml for individual cryobanking project



Connect your Biobank,  
be it in Berlin, Atlanta or Shanghai...

Smart. Stable. Steady.

**Biobanking 4.0**

**100 % in control**

Thanks to optional electromechanical locking, your samples are protected against access. Twofold access control via RFID transponder and PIN code. Logs all activities according to GMP FDA CRF 21 part 11.

**Big Data**

From monitoring to recording to evaluation of the sample cycle - Let data speak.

**Touch Screen**

Intuitive multifunctional 8.8" panel with colored touch display. Bright and functional.

**Conversion Kit\***

Your existing BIOSAFE® repository freezer can be updated with new BIOSAFE® smart. Item no. 78221956

\* Cryotherm verifies feasibility.

**Best durability**

Protected by a sturdy glass panel, ideal for aseptic and medical environments.



**Extensive special equipment**

Various options for linking components such as gas bypass, UPS battery, lid lock, additional temperature sensors and much more.

**Select your Software-Package**

**Smart Config-Version**

On-site BIOSAFE® monitoring via color display (included).

**Smart+ Info.View**

On-site and remote monitoring of BIOSAFE® including secure data analysis and transfer, with the ability to connect up to 254 BIOSAFE® units in up to 10 cryobanks.  
optional: Item no. 78216677

**Smart+ messenger Info.Alarm**

Includes all features of Smart + including Messenger function via encrypted SMS and / or eMail.

optional: Item no. 78216678



## The one-stop Biobank



### 55 YEARS Ice cold experience

For over 55 years we have been working closely with scientists and researchers.

### On-site consultation

Our experts are looking forward to consult with you!

### Excellence in Engineering

Your Turnkey Biobank: Everything in one full package!



### Service / 24/7 hotline and maintenance

Always close to our customers.

### 4.0 Monitoring

Clever management of your entire biobank. Even from afar.

### BIOSAFE® smart

The digital brain of your biobank.

## Tracking your Cryogenic Samples



### Storage

With BIOSAFE® iTrack you give your samples a digital CV, tracking every step from initial storage to removal of your biological samples in your BIOSAFE®.

iTrack PREMIUM The good-is-better package	iTrack PLATIN The all-in support package
iTrack samples DataBase Explorer as with Web Access (interconnectivity) and Sample Data Management <ul style="list-style-type: none"> <li>for integration of 1D 2D scanners 2D flatbed scanners</li> <li>for up to five users</li> <li>Support during the contract period during normal business hours</li> </ul>	iTrack samples DataBase Explorer like iTrack Premium with 24/7 support <ul style="list-style-type: none"> <li>Guaranteed IT service within 24 hours, platinum documentation, installation reports Installations-reports</li> <li>Change/Update-Reports</li> <li>Validation Support</li> </ul>
One-time installation fee	
iInstallation fee Item number: 78216916	Installation fee Item number: 78216917
Annual service charge (optional) Item number: 78216918	Annual service charge (optional) Item number: 78216918

unique



## Functional favorite



BIOSAFE® smart is an on-site vessel monitoring system with the following abilities:

- Level control and monitoring, automatic filling and temperature display
- Monitoring and evaluation of alarms and events
- Data analysis and transfer according to GMP FDA CRF 21 Part 11
- Double access control via RFID transponder and PIN code
- Temperature monitoring with up to 3 temperature sensors
- Visual and audible alarm on the display
- Forwarding of alarms and temperature
- Other optional equipment: battery backup, warm gas by-pass, software with alarms and messenger

✉ [sales@cryotherm.de](mailto:sales@cryotherm.de)

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🗨 Your Sales Manager

## Notes



### BIOSAFE® smart



### Medical Device according to MDD 93/42/EWG

<input checked="" type="checkbox"/> Item Number	Kurztext	Stk
<input type="checkbox"/> 78221903	BIOSAFE®smart120	
<input type="checkbox"/> 78221906	BIOSAFE®smart220	
<input type="checkbox"/> 78221909	BIOSAFE®smart420	
<input type="checkbox"/> 78221912	BIOSAFE®smart500	
<input type="checkbox"/> 78221918	BIOSAFE®smart1000	
<input type="checkbox"/> 78221924	BIOSAFE®smart2400	

<input checked="" type="checkbox"/> Item Number	Kurztext	Stk
<input type="checkbox"/> 78221879	BIOSAFE®smart120 MD	
<input type="checkbox"/> 78221882	BIOSAFE®smart220 MD	
<input type="checkbox"/> 78221885	BIOSAFE®smart420 MD	
<input type="checkbox"/> 78221888	BIOSAFE®smart500 MD	
<input type="checkbox"/> 78221894	BIOSAFE®smart1000 MD	
<input type="checkbox"/> 78221600	BIOSAFE®smart2400 MD	

### Software Options

<input type="checkbox"/> 78216677	BIOSAFE® smart+ (Info.View)
<input type="checkbox"/> 78216678	BIOSAFE® smart+ messenger (Info.Alarm)

Flyer info: Exemplary illustration. Special equipment possible.  
At smart + messenger, additional costs for sms can arise. Changes and availability of the special equipment reserved.





## All Advantages at a Glance



The safe aluminum storage and transport vessel. Ideal for biological-medical samples.

- ▶ for up to 6,000 samples 2 ml vials in gas or liquid phase
- ▶ for up to 44,880 sequins 0,25 ml
- ▶ for up to 400 bags 25 ml



## Storage capacities



BIOSAFE® VENUS aluminum series	20	45
<b>Liquid phase</b>		
Net capacity [l]	21,5	40
Stainless steel canisters [piece]	6	10
Diameter canister [mm]	38	73
Height canister [mm]	120 / 280	280
Layers [Quantity]	1 / 2	2
2 ml cryogenic vials (on vial holders) [up to]	180	1200
5 ml cryogenic vials (on vial holders) [up to]	90	600
0,25 ml sequins [up to]	1.560 / 3.120	16.400
0,5 ml sequins [up to]	720 / 1.440	7.300

Further vessel sizes and accessories on request.

### Sample protection

A hinged lid prevents floating (for plastic canisters, available for BIOSAFE® VENUS 20).



All canisters are numbered, can additionally be provided with tags for individualized labels / codes. The practical hooks allow hanging onto the container neck.

## Suitable accessories up to VENUS 45



Different colors and numbering for easier sample storage.



**Cup set with 11 colorful inserts**  
Ø 65 mm  
Item No.: 78216990



**Transparent cup without lid**  
Ø 35 mm / piece  
Item No.: 78212840  
Ø 35 mm / Set (20 St.)  
Item No.: 78216987  
Ø 65 mm / Stück  
Item No.: 78212792



**1 Vial Holder**  
for up to 6 vials 2 ml or  
up to 3 vials 5 ml  
Item No.: 78216991

**2 Lifter**  
Item No.: 78216989

### Storage of sequins in Visiotubes (Ø 12 mm)



for VENUS 150/180

## Technical Data



BIOSAFE® VENUS	20	45	150	180
Neck diameter [mm]	50	120	215	215
Weight, empty [kg]	13	24	42	56
Weight, full [kg]	30,4	57	136	195
Diameter, outside [mm]	388	468	586	683
Total height [mm]	660	710	962	1028
Daily evaporation [l/day]*	0,10	0,3	0,75	0,8
Static holding time [days]*	216	144	194	217
Static holding time [days]*	-	-	29	25

\* The daily evaporation rate and the static holding time were determined at 20 degrees Celsius, 1013 hectopascal, with the vessel standing still, lid closed and without accessories. These are nominal values that may change depending on the use and age of the container.

## Storage Capacities



BIOSAFE® VENUS aluminum series	150	180
<b>Liquid phase / Gas phase</b>		
Net capacity [l]	116	172
Number of racks made of aluminum [piece]	6	6
Number of levels [Quantity]	8	7
2 ml cryogenic vials in 10x10 boxes [up to]	4.800	4.200
Size of cryogenic boxes 10x10 (HxWxD) [mm]	133 x 133 x 51	133 x 133 x 51
0,25 ml sequins [up to]	33.660	22.440
0,5 ml sequins [up to]	12.240	8.160
25 ml bags [up to]	330	264

Further vessel sizes and accessories upon request.

## Suitable accessories up to VENUS 180



**Visiotubes**  
Item No.: 78216988



**Eye protection**  
Item No.: 78212792



**Caster base up to VENUS 45**  
Item No.: 78216985

**up to VENUS 180**  
Item No.: 78216986



### Gas phase storage

Your samples are stored in the gas phase, without contact to liquid nitrogen. Corresponding racks ensure storage in the gas phase



### Liquid phase storage

Your samples are stored up to 100 percent in the liquid phase at temperatures down to -196 degrees C.



### Our comfortable clip closure system

Every cryogenic box on each level can be easily inserted and removed.

# BIOSAFE® VENUS

with telemonitoring system.



## Your „Plus“ for sample monitoring.



With this „PLUS“ to your BIOSAFE® VENUS series you get the advantage of digital on-site monitoring of your samples. A clear, oval display offers you a monitoring system with temperature and level indicator, with RS485 interface for reports, and analog output 4-20 mA.



## BIOSAFE® VENUS COMFORT

The COMFORT version provides all the advantages of „PLUS“ with the addition of an automatic refill system.

Nitrogen levels and temperature are controlled by probes and solenoids, that control the nitrogen supply of e.g. APOLLO®.



Our BIOSAFE® VENUS Plus and Comfort series are available for a vessel capacity of 75 - 180 l.



# BIOSAFE® VENUS

Order Form.

## Item Numbers



Our BIOSAFE® VENUS vessels are available in capacities from from 20 l to nearly 180 liters.

For your BIOSAFE® VENUS we supply various equipment options and extensive accessories.

### BIOSAFE® VENUS Vessel Options

<input checked="" type="checkbox"/> Item Number		Quantity
<input type="checkbox"/> 78216926	BIOSAFE® VENUS 20 with 6 canisters, stainless steel, 1 level	
<input type="checkbox"/> 78216927	BIOSAFE® VENUS 20 with 6 canisters, stainless steel, 2 levels	
<input type="checkbox"/> 78216930	BIOSAFE® VENUS 45 with 10 canisters, stainless steel, 2 levels	
<input type="checkbox"/> 78216931	BIOSAFE® VENUS 45 PLUS with 10 canisters, stainless steel, 2 levels, level gauge and temperature display	
<input type="checkbox"/> 78216940	BIOSAFE® VENUS 150 with 6 aluminum racks for 2 ml cryogenic vials (in liquid phase)	
<input type="checkbox"/> 78216941	BIOSAFE® VENUS 150 PLUS with 6 aluminum racks for 2 ml cryogenic vials (in liquid phase)	
<input type="checkbox"/> 78216942	BIOSAFE® VENUS 150 COMFORT with 6 aluminum racks for 2 ml cryogenic vials (in liquid phase)	
<input type="checkbox"/> 78216943	BIOSAFE® VENUS 150 COMFORT with 6 aluminum racks for 2 ml cryogenic vials (in gas phase)	
<input type="checkbox"/> 78216944	BIOSAFE® VENUS 180 with 6 aluminum racks for 2 ml cryogenic vials (in liquid phase)	
<input type="checkbox"/> 78216945	BIOSAFE® VENUS 180 PLUS with 6 aluminum racks for 2 ml cryogenic vials (in liquid phase)	
<input type="checkbox"/> 78216946	BIOSAFE® VENUS 180 COMFORT with 6 aluminum racks for 2 ml cryogenic vials (in liquid phase)	
<input type="checkbox"/> 78216947	BIOSAFE® VENUS 10 COMFORT with 6 aluminum racks for 2 ml cryogenic vials (in gas phase)	

Further container sizes and accessories upon request.

### BIOSAFE® VENUS Extensive accessories

<input checked="" type="checkbox"/> Item Number		Quantity
<input type="checkbox"/> 78216985	Caster base for up to BIOSAFE® VENUS 45, made of aluminum, with 3 fixation parts	
<input type="checkbox"/> 78216986	Caster base for up to BIOSAFE® VENUS 180, made of aluminum, with 3 fixation parts	
<input type="checkbox"/> 78212840	Transparent cup, without lid, can be ordered per item, Ø 35 mm (for BIOSAFE® VENUS 20)	
<input type="checkbox"/> 78216987	Set of 20 transparent cups, without lid, Ø 35 mm (for BIOSAFE® VENUS 20)	
<input type="checkbox"/> 78212792	Transparent cup, without lid, can be ordered per piece, Ø 65 mm (for BIOSAFE® VENUS 45)	
<input type="checkbox"/> 78216992	Set of 20 transparent cups, without lid, Ø 65 mm (for BIOSAFE® VENUS 45)	
<input type="checkbox"/> 78216990	Set of 5 transp. cups with 11 colorful inserts, lid, Ø 65 mm (for BIOSAFE® VENUS 45)	
<input type="checkbox"/> 78216989	Lifters, per piece, for vessels with 2 levels	

▶ Our extensive security equipment can be found on pages 6 and 7.



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# BIOSAFE® MARATHON

For the safe shipment of your samples.



## All Advantages at a Glance



The safe aluminum dry shipping container for your biological-medical samples.

- ▶ for up to 612 samples, 2 ml vials
- ▶ for up to 9,840 sequins 0,25 ml
- ▶ for up to 42 bags 25 ml\*
- ▶ for up to 6 bags of 500 ml\*



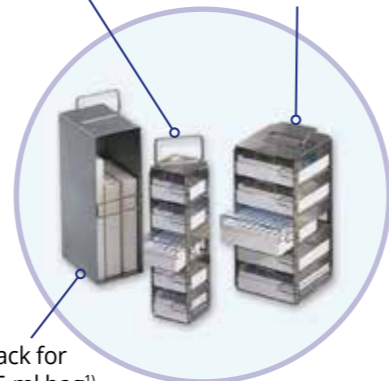
## Storage capacities



BIOSAFE® MARATHON	Aluminum series	5	15	20
☁ Dry-Shipper				
Net capacity		6,5	15	20,6
Number of canisters made of stainless steel	[piece]	2	2	1*
Diameter canister	[mm]	41	71	div.
Height canister	[mm]	280	280	div.
Levels	[quantity]	2	2	div.
2 ml cryogenic vials	[up to]	84	252	612
5 ml cryogenic vials	[up to]	42	126	306
0,25 ml sequins	[up to]	1.040	3.280	9.840
0,5 ml sequins	[up to]	400	1.320	4.380

\* Classification rack. \*\* Assembling bags for MARATHON 20 optional. Further vessel sizes and accessories upon request

Rack for 25 boxes with 2 ml vials



Rack for 25 ml bag<sup>1)</sup>

<sup>1)</sup> Bag requires protective cassettes. Capacity deviations are possible depending on the manufacturer.

Cassettes with different closures sealings



## Suitable accessories up to MARATHON 20



**Caster base for MARATHON 20**  
Item No.: 78216985  
(including 3-piece fixation set)



**Protective packaging- MARATHON 5**  
Item No.: 78216993  
**MARATHON 10**  
Item No.: 78216994  
**MARATHON 20**  
Item No.: 78216995



**T°Tracker**  
Item No.: 78216952  
For your temperature monitoring



**Cryo-Protective Shield**  
Item No.: 78212792

# BIOSAFE® MARATHON

**Cryotherm®**  
life science

## Technical Data



BIOSAFE® MARATHON		5	15	20
Neck diameter	[mm]	50	80	215
Weight, empty, without racks	[kg]	7,5	12,2	14,2
Weight, full, without racks	[kg]	11,3	20,4	20
Diameter, outside	[mm]	248	308	356
Total height, without data logger	[mm]	550	576	575
Daily evaporation	[l/Tag]*	0,12	0,22	0,69
Static holding time ☁	[Tage]*	37	46	9

\* The daily evaporation rate and the static holding time were determined at 20 degrees Celsius, 1013 hectopascal, with the vessel standing still, lid closed and without accessories. These are nominal values that may change depending on the use and age of the container.

The BIOSAFE® MARATHON series is **lockable**.



## Item Numbers



Our BIOSAFE® MARATHON-vessels are available in capacities from 5 liters to nearly 20 liters.

For BIOSAFE® VENUS we supply various equipment options and extensive accessories.

### BIOSAFE® MARATHON Vessel options

<input checked="" type="checkbox"/> Item Number		Quantity
<input type="checkbox"/> 78216949	BIOSAFE® MARATHON 5 with two canisters, stainless steel, 2 layers	
<input type="checkbox"/> 78216950	BIOSAFE® MARATHON 15 with two canisters, stainless steel, 2 layers	
<input type="checkbox"/> 78216951	BIOSAFE® MARATHON 20 with 1 rack, 5 layers, for a total of 500 samples for 2 ml vials	
<input type="checkbox"/> 78216953	BIOSAFE® MARATHON 20 with 1 rack for bags	

Further vessel sizes and accessories upon request.

### BIOSAFE® MARATHON Extensive accessories

<input checked="" type="checkbox"/> Item Number		Quantity
<input type="checkbox"/> 78216985	Caster base for BIOSAFE® MARATHON 20, made of aluminum, with 3 fixing parts	
<input type="checkbox"/> 78216952	Data logger for recording temperature for BIOSAFE® MARATHON series	
<input type="checkbox"/> 78216953	Protective packaging for BIOSAFE® MARATHON 5	
<input type="checkbox"/> 78216954	Protective packaging for BIOSAFE® MARATHON 15	
<input type="checkbox"/> 78216955	Protective packaging for BIOSAFE® MARATHON 20	
<input type="checkbox"/> 78216962	Rack, 5 levels, for a total of 125 samples 2ml vials (in box system 75x75x51 mm)	
<input type="checkbox"/> 78212840	Transparent cup, without lid, can be ordered per piece, Ø 35 mm (goblet Ø 35, for BIOSAFE® VENUS 20)	
<input type="checkbox"/> 78216987	Set of 20 transparent cups, without lid, Ø 35 mm (for BIOSAFE® VENUS 20)	
<input type="checkbox"/> 78212792	Transparent cup, without lid, can be ordered per piece, Ø 65 m (VENUS 45)	
<input type="checkbox"/> 78216992	Set of 20 transparent cups, without lid, Ø 65 m (for BIOSAFE® VENUS 45)	
<input type="checkbox"/> 78216990	Set of 5 transp. cups with 11 colorful inserts, lid, Ø 65 mm (for BIOSAFE® VENUS 45)	
<input type="checkbox"/> 78216989	Lifter, per piece, for containers with 2 layers	

▶ Our comprehensive safety equipment can be found on pages 6 and 7.

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+49 (0)2741 - 95 85 0



# ALPHA

Unpressurized vessel series for small amounts of nitrogen.

## All Advantages at a Glance



Safe and lightweight aluminum storage and transport vessel for liquid nitrogen.

SMALL, COMPACT AND STURDY.

- ▶ Equipped as standard with 50 mm flange
- ▶ Available in the three most common sizes with a capacity of 10, 20 & 25 liters
- ▶ Extensive accessories

## Technical Data



Storage Capacity ALPHA (aluminum series)	10	20	25
Net capacity [l]	12,2	21,5	26
Daily evaporation [l/Day]*	0,18	0,18	0,2
Static holding time [Days]*	67	119	130
Weight, empty [kg]	7,5	11	13,5
Weight, full [kg]	17,3	28,3	34,6
Total height [mm]	584	605	669
Inner height bottom to neck [mm]	530	535	612
Flange diameter [mm]	50	50	50
Outer diameter [mm]	308	388	388

\*) The daily evaporation rate and the static holding time were determined at 20 degrees Celsius, 1013 hectopascal, with the vessel standing still, lid closed and without accessories. These are nominal values that may change depending on the use and age of the container.



Auxiliary handle for safe pouring of liquid nitrogen.

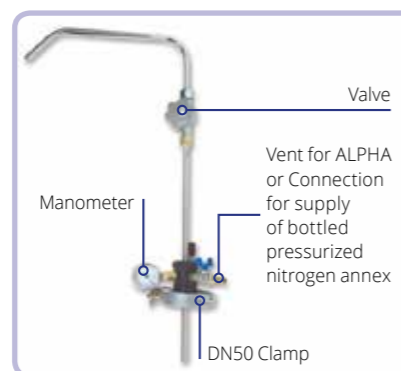
## Accessories available up to ALPHA 25



**Auxiliary Handle**  
For ALPHA 10  
Item No.: 78216996  
For ALPHA 25  
Item No.: 78216997



**Tipcart**  
Für ALPHA 20  
Item No.: 78216998  
For ALPHA 25  
Item No.: 78216999



**DL3 Extraction attachment**  
Item No.: 78217000

# ALPHA

Order form.

## Item Numbers



Our BIOSAFE® ALPHA series is available with a vessel capacity of 10 to 25 liters.

For your ALPHA, different configurations are available and extensive accessories are offered.

### ALPHA Vessel options

<input checked="" type="checkbox"/> Item number		Quantity
<input type="checkbox"/> 78216920	ALPHA 10, unpressurized transport / storage vessel for liquid nitrogen	
<input type="checkbox"/> 78216921	ALPHA 20, unpressurized transport / storage vessel for liquid nitrogen	
<input type="checkbox"/> 78216922	ALPHA 25, unpressurized transport / storage vessel for liquid nitrogen	

### BIOSAFE® ALPHA Extensive accessories

<input checked="" type="checkbox"/> Item number		Quantity
<input type="checkbox"/> 78216985	Caster base for ALPHA 10 - 25, made of aluminum, with 3 fixation parts	
<input type="checkbox"/> 78216996	Additional handle for safe pouring for ALPHA 10	
<input type="checkbox"/> 78216997	Additional handle for safe pouring for ALPHA 20 and 25	
<input type="checkbox"/> 78216998	Tipcart for ALPHA 20	
<input type="checkbox"/> 78216999	Tipcart for ALPHA 25	
<input type="checkbox"/> 78217000	Extraction attachment for low withdrawal quantities, pressure build-up by natural evaporation	

▶ Our comprehensive safety equipment can be found on pages 6 and 7.



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Plug for ALPHA series



Safety valve

DN 50 mm flange



## All Advantages at a Glance



**Best in it's class!**  
Evaporation rate for e.g. APOLLO® 200: Only 0,6%!

**A ball valve** for comfortable view: „Open or close“

**Safety measures** at eye level

**Ideal operating height** and user-friendly fittings (ball valves)

**High stability** for secure and smooth transport

**Time savings** through increased uptime for your application

**Robust protective frame** for safe transport

**Higher service life** with the following advantages: Savings in transport and handling costs

**High quality design** made of corrosion-resistant stainless steel

**Low maintenance**

**Large, stable and smooth-running wheels** (Ø 125-160 mm) without sharp edges

**Great mobility** through compact design

**Long-term vacuum protection** through high-quality adsorption and getter materials



## Including Accessories



### Gloves



Item No.: 70794111

### Safety glasses with side protection



Item No.: 77031520

### Transport plug



Item No.: 78202417

## Applications

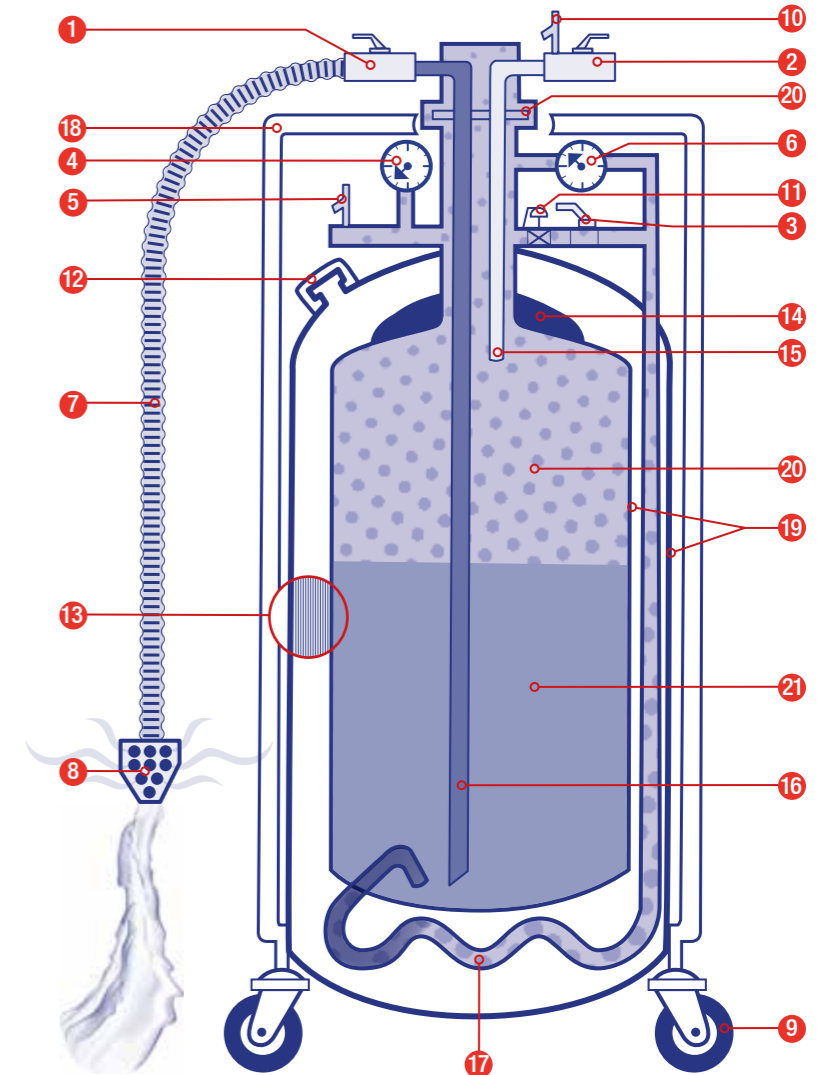
### APOLLO®



compatible

- ▶ Analysers
- ▶ Cryogenic mills
- ▶ Cryogenic saunas
- ▶ Freezers
- ▶ Biobanks
- ▶ BIOSAFE®

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## Essential Construction Elements and Equipment



- |                                |   |
|--------------------------------|---|
| 1 Extraction valve             | 12 Vacuum sealing and safety valve                              |
| 2 Exhaust and overflow valve   | 13 Superinsulation  |
| 3 Pressure build-up valve      | 14 Absorbents (long-term vacuum protection) and special getters |
| 4 Pressure gauges              | 15 Exhaust and overflow line                                    |
| 5 Safety valve                 | 16 Sampling line  |
| 6 Level indicator              | 17 Pressure build-up line                                       |
| 7 Filling hose                 | 18 Chassis and protective frame                                 |
| 8 Phase separator              | 19 Indoor and outdoor vessel                                    |
| 9 Castors                      | 20 gaseous nitrogen   |
| 10 Pressure regulator          | 21 liquid nitrogen  |
| 11 Pressure build-up regulator |   |



### Standard equipment

- Integrated safety device on the vessel neck
- Vacuum seal and safety device
- Smooth-running castors and transport protection frame
- Level and pressure gauge
- EK lift with exhaust and overflow valve
- Integrated pressure build-up
- Filling hose (1.5 m) with phase separator
- Transport plug **1** with safety
- Cold protection gloves **2** and safety glasses **3** with side protection

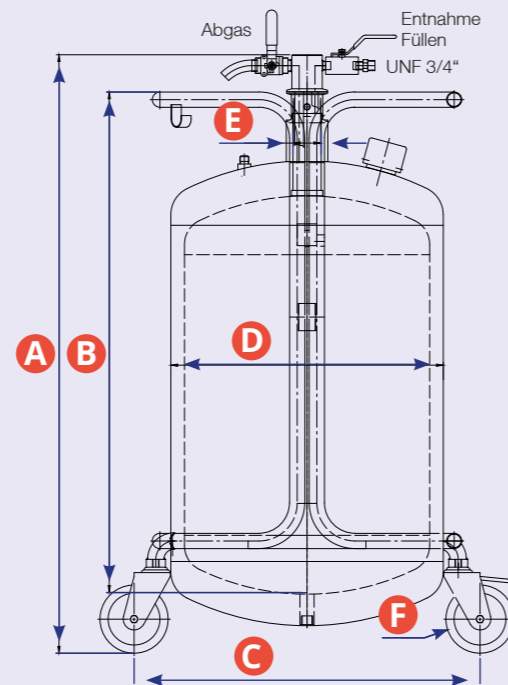


for a fixed connection of an APOLLO® urgently required!



Our APOLLO® -Series is available with a capacity of 50 to 350 liters

For dimensions see table.



### Technical Data



Vessel name		APOLLO® 50 1,3 bar	APOLLO® 100 1,3 bar	APOLLO® 150 1,3 bar	APOLLO® 200 2,0 bar	APOLLO® 350 2,0 bar
Vessel material		Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Approval mark		CE	CE	CE	CE0035	CE0035
Geometrical capacity	[l]	49,5	99,2	149,5	198,5	348
Operating overpressure	max. [bar]	1,3	1,3	1,3	2,0	2,0
Weight, empty	[kg]	44	62	79	100	160
Weight, full LIN	[kg]	85	145	204	266	450
Stat. evaporation rate LIN	[%/day]	2	1,2	1	0,6	0,5
Total height	<b>A</b> [cm]	80	114	146	117	165
Diameter, outer	<b>D</b> [cm]	50	50	50	70	70
Total width	<b>C</b> [cm]	65	65	65	80	80
Depth of immersion	<b>B</b> [mm]	58,5	92	122	91	135
Castor diameter	<b>F</b> [mm]	125	125	125	160	160
Neck diameter	<b>E</b> [mm]	50	50	50	50	50
Siphon connection		KF 50	KF 50	KF 50	KF 50	KF 50

Upon request the APOLLO® series is also available for other types of gas.

### Options

- Pressure build-up regulator (Item No. 78202710)
- Pressure reduction regulator (Item No. 78203080)
- Double extraction liquid side (Item No. 79415416)
- Double extraction gas side (Item No. 78203081)
- Triple extraction liquid side (Item No. 79418082)
- Triple extraction gas side (Item No. 78203082)
- Safety spacer **4** (Item No. 78206124)
- Level indicator, capacitive, battery
- Forklift pockets **7**
- Set of castors, antimagnetic

Further options available upon request.



### Item Numbers



APOLLO® liquid nitrogen vessel	50	100	150	200	350
with analog display <b>5</b>	78202700	78202701	78202702	78202748	78202749
with digital display <b>6</b>	78216837	78216836	78216838	78216839	78216840
ASME Stamp 1,5 bar <b>8</b>	78221094	78220960	78221095	78221811	78221812
<b>Options for APOLLO® line</b>					
Forklift pockets <b>7</b>	78203083	78203083	78203083	78203975	78203900
Set of castors, antimagnetic	78200474	78200474	78200474	78203992	78203992

\*) Further vessel dimensions and custom vessels available upon request.

### Accessories



**6**



The **digital display** – the capacitive level indicator for your APOLLO®

- ▶ Display and probe in one device
- ▶ Easy to use
- ▶ High precision

**7**



Practical **forklift pockets** facilitate the handling of your APOLLO®

▶ Our APOLLO® series complies with the European Pressure Equipment Directive 2014/68 / EU

▶ For USA, 1,5 bar:

**8**





Notes 

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**55**  
YEARS  
1964 - 2019

**Excellence  
in Engineering**

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**Your local contact person:**



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