Life Science

It's in your hands.

Cryotherm®
life science

BIOSAFE® - Systems

An Overview of our Life Science Family.
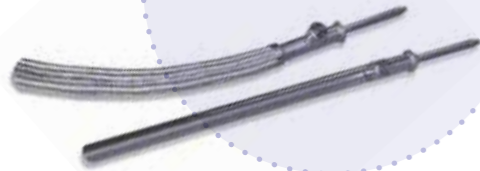
Cryotherm® life science

BIOBANKING
° Conceptual Design
° Engineering
° IQ / OQ
° ...

▶ p. 8

BIOBANKING
Transferlines

▶ See Brochure

APOLLO®
Nitrogen Storage Vessel
50 - 350 l capacity

▶ S.36

BIOSAFE® ALPHA
Aluminum Nitrogen
Storage & Transport Vessel
6 - 25 l capacity.

▶ p. 34

BIOSAFE® MARATHON
Dry shipping vessel
up to 500 vials, 2 ml

▶ p. 32

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

▶ p. 28

Excellence in Biorepository

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

▶ p. 10

BIOSAFE® Longtime / Narrow Neck Series
500 - 800 - 1800 - 2400
up to 120.000–
vials, 2 ml

▶ p. 14

BIOSAFE® smart
The digital brain of
your biobank

▶ p. 9

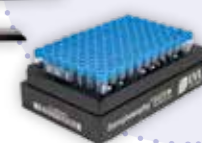### BIOSAFE® Rack-System
Standardised and
individual design

▶ p. 20

BIOSAFE® iTrack
Intelligent sample
management
software

▶ p. 23

2

3

www.cryotherm.de | www.cryotherminc.com | +49 (0)2741 - 95 85 0 | sales@cryotherm.de
● ● ● | Made in Germany

Introduction

Our Life Science Portfolio.

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® / VENUS cryogenic storage containers, made of stainless steel or aluminum for the storage of large, but also small sample quantities.
- 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.
- BIOSAFE® GO is the practical and ergonomic workbench for the safe loading of your biological samples into ampoules, boxes, racks, etc.

NEW

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 down to -160°c		77031520
Cryo-Protective Shield and Goggles		
Cryo-protective sign and inspection Glass **4**	head protection signs of vulcanized fibre foam padded dimensions: (WxH) 460 x 190 mm	77031452
Safety goggles with side protection **3**		0794189
Schild		
"Wear eye protection" **6**	Adhesive Foil Ø 20 cm Symbol	78210204
"Wear hand protection" **7**	Adhesive Foil Ø 20 cm Symbol	78210205

Cryo-Protective Equipment Full Set

Description	Item No.
Incl. Cryo-Gloves **1**, Cryo-Apron **4**, Cryo-Protective sign **5** and 2 warning Signs **6** + **7**	78400851

Cryo-Gloves, waterproof

Description Hand protection, 5 fingers, down to -160° C	Length	Size	Item No.
Length: ca. 300 mm **1**	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 **2**	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

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.

BIOSAFE® smart
The digital brain of your biobank.

4.0 Monitoring
Clever management of your entire biobank. Even from afar.

Biobanking 4.0

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

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.

-190°C
STATUS ALARM

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

Config-Version	Info.View	Info.Alarm
On-site BIOSAFE® monitoring via color display (included).	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	Includes all features of Smart + including Messenger function via encrypted SMS and / or eMail. optional: Item no. 78216678

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life science

All Advantages at a Glance

All Advantages at a Glance

NEW
now available
for the
BIOSAFE® 120

Our BIOSAFE® systems 120 to 420 are optimised for maximum capacity with minimised external dimensions. The large, thermodynamically optimised, 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.

Distinctive & sophisticated:
Ergonomic lifting and swivelling 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.

Optimised storage capacity
by utilising space-saving high efficiency categorisation 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.

BIOSAFE® 120 - 220 - 420
Ideal for routine work with biological-medical samples.

BIOSAFE® 120 - 220 - 420
Smart rack system for vials 2 ml in cryoboxes.

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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

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	[max./up to]	288	512	832
and 2 ml vials				1.500
Baxter 4R9955 bag 500 ml	[max./up to]	144	240	480
and 2 ml vials		500	1.500	500
Hemofreeze Gambro Z2003 bag 500 ml	[max./up to]	75	150	270
and 2 ml vials		750	500	500

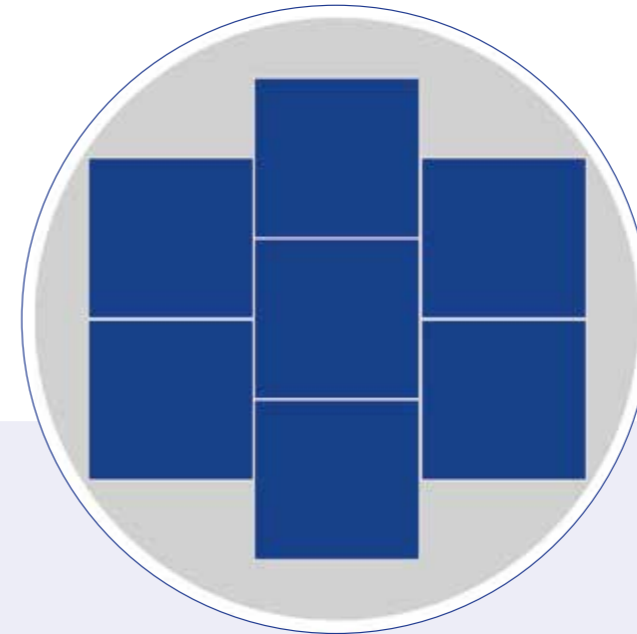*) for 2ml vials in Cryotherm drawer system

BIOSAFE® 120
Storage capacity: up to 7,000 vials

- 7 smart racks à 570 x 140 x 136 mm, 10 levels, item no. 78221976 for smart rack per pc.
- suitable for cryoboxes, 10 x 10 pieces, item no. 78212859
- or cryoboxes, 9 x 9 pieces, item no. 78214364
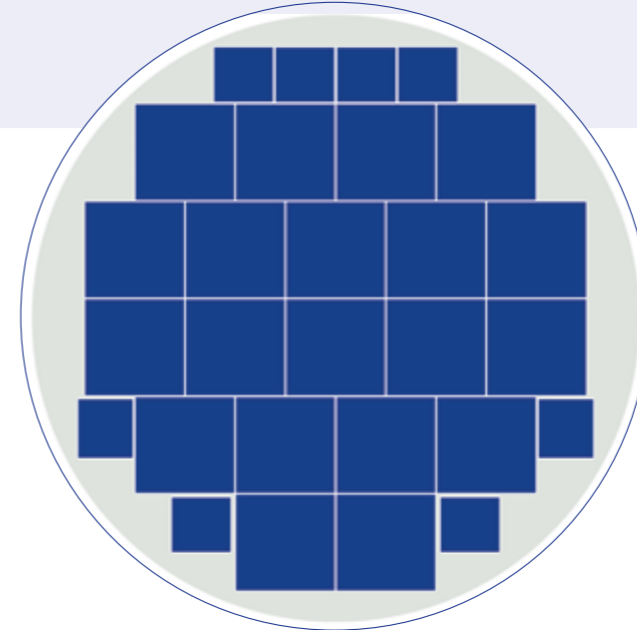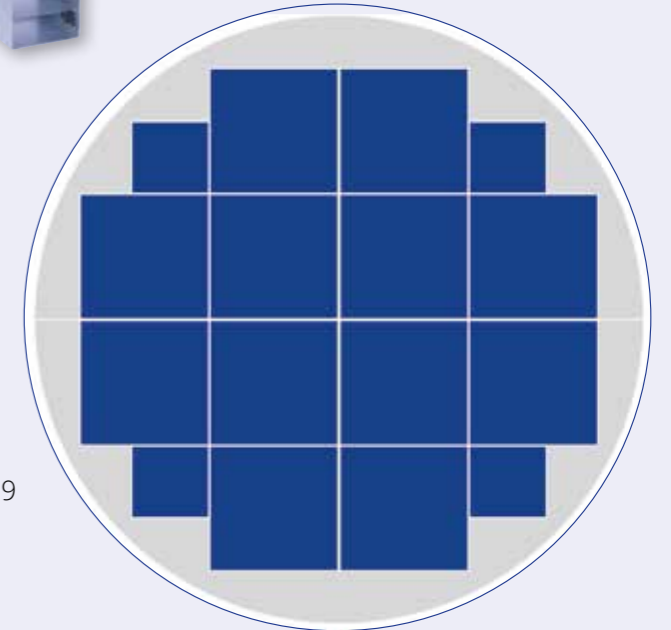
Smart rack including cryobox

BIOSAFE® 220
Storage capacity: up to 13,000 vials

- 12 smart racks à 570 x 140 x 136 mm, 10 levels, item no. 78221976 for smart rack per pc.
- suitable for cryoboxes, 10 x 10 pieces, item no. 78202859
- 4 smart racks à 570 x 84 x 78 mm, 10 levels, item no. 78222196 for smart rack per pc.
- suitable for cryoboxes, 5 x 5 pieces, item no. 78202839

BIOSAFE® 420
Storage capacity: up to 22,000 vials

- 20 smart racks à 570 x 140 x 136 mm, 10 levels, item no. 78221976 for smart rack per pc.
- suitable for cryoboxes, 10 x 10 pieces, item no. 78202859
- 8 smart-Racks à 570 x 84 x 78 mm, 10 levels, item no. 78222196 for smart rack per pc.
- suitable for cryoboxes, 5 x 5 pieces, item no. 78202839

All Advantages at a Glance

BIOSAFE® MD-smart

picture of new
BIOSAFE® 800

Cryogenic facilities with > 100 freezers
© Photo Fraunhofer IBMT, Dr. Obergrießer

Our BIOSAFE® systems 500 to 2400 are optimised for maximum capacity with minimum consumption. In the range of 500 litres to 2400 litres 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.

© Photo:

BioKryo GmbH
Leben bewahren.

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The safe bank. The long-term storage BIOSAFE® series.

Our Narrow Neck BIOSAFE® Stainless Steel Series.

Cryotherm®
life science

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 optimised 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.

Technical Data

Longtime stotage BIOSAFE®		500	800	1800	2400
Neck diameter	[mm]	450	520	830	830
LIN Capacity under platform	[l]	50	117	290	300
Weight, empty	[kg]	320	570	1.200	1.300
Diameter, outside	[mm]	890	1.058	1.500	1.650
Diameter, inside / carousel	[mm]	795	966	1.346	1.500
Total height, closed	[mm]	1.014	1.380	2.100	2.100
Total height, opened	[mm]	1.314	1.800	2.100	2.100
Installation altitude	[mm]	800	800	915	915
Caster diameter	[mm]	80	80	100	100
Evaporation rate	[%/day]	1,2	0,9	0,8	0,6

Storage Capacities

| Longtime storage BIOSAFE®		500	800	1800	2400
Geometric content	[l]	490	960	1.800	2.400
2 ml vials	[max./up to]	28.280	43.120	91.200	120.000

Automation in the Cryobank

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

BIOSAFE® 500 - 800 - 1800 - 2400

Inventory system for smart racks - vials 2ml in cryoboxes

BIOSAFE® 500
Storage capacity: up to 25.900 vials

- **18 smart racks à 800 x 140 x 136 mm, 14 levels**
  item no. 78221978 for smart rack per pc.
- suitable for cryoboxes 10 x 10 pieces
  dimensions: 53 x 132 x 132 mm
  item no. 78212859
- or cryoboxes 9 x 9 pieces
  dimensions: 53 x 132 x 132 mm
  item no. 78214364
- **2 smart racks à 800 x 84 x 78 mm, 14 levels**
  item no. 78222198 for smart rack per pc.
- suitable for cryoboxes 5 x 5 pieces
  dimensions: 52 x 75 x 75 mm
  item no. 78202839
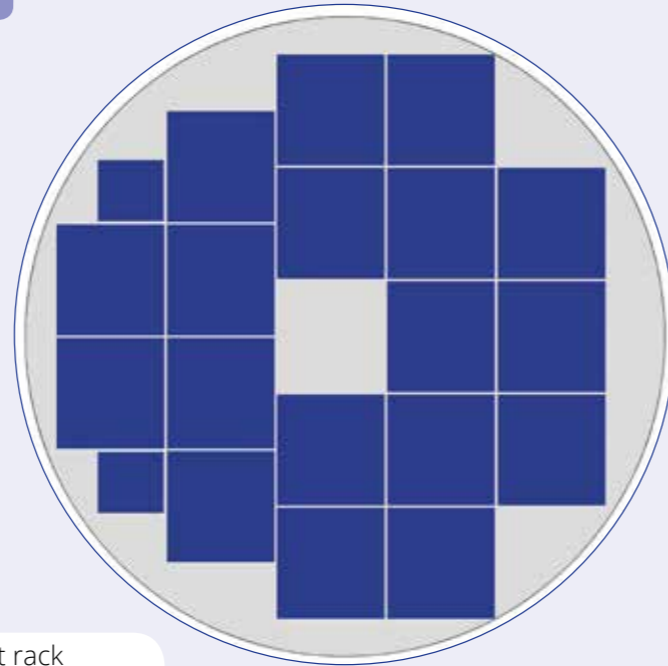
Smart rack
including cryobox

BIOSAFE® 1800
Storage capacity: up to 92.800 vials

- **52 smart racks à 915 x 140 x 136 mm, 16 levels**
  item no. 78221742 for smart rack per pc.
- suitable for cryoboxes 10 x 10 pieces
  dimensions: 53 x 132 x 132 mm
  item no. 78212859
- or cryoboxes 9 x 9 pieces
  dimensions: 53 x 132 x 132 mmm
  item no. 78214364
- **24 smart racks à 915 x 84 x 78 mm, 16 levels**
  item no. 78222199 for smart rack per pc.
- suitable for cryoboxen 5 x 5 pieces
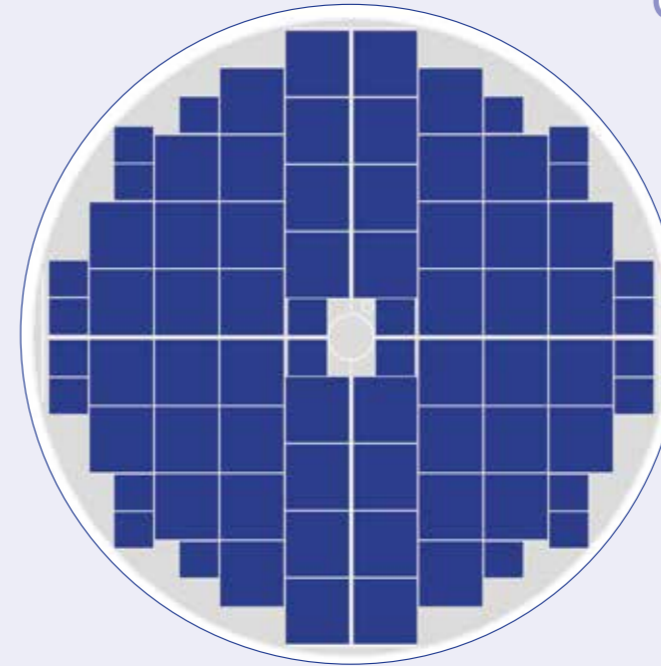 dimensions: 52 x 75 x 75 mmm
  item no. 78202839

BIOSAFE® 800
Storage capacity: up to 40.600 vials

- **26 smart racks à 570 x 140 x 136 mm, 14 levels**
  item no. 78221978 for smart rack per pc.
- suitable for cryoboxes 10 x 10 pieces
  dimensions: 53 x 132 x 132 mm
  item no. 78212859
- or cryoboxes 9 x 9 pieces
  dimensions: 53 x 132 x 132 mm
  item no. 78214364
- **12 smart racks à 800 x 84 x 78 mm, 14 levels**
  item no. 78222198 for smart rack per pc.
- suitable for cryoboxes 5 x 5 pieces
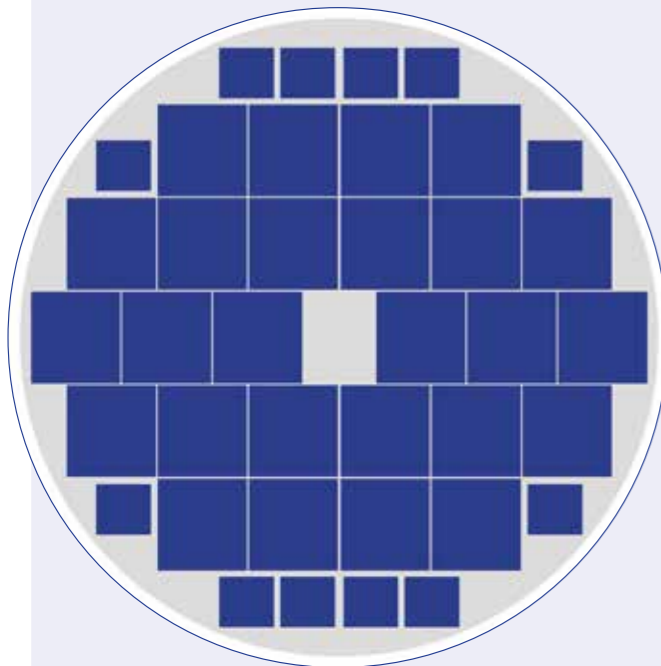 dimensions: 52 x 75 x 75 mm
  item no. 78202839

BIOSAFE® 2400
Storage capacity: up to 120.000 vials

- **68 smart racks à 915 x 140 x 136 mm, 16 levels**
  item no. 78221742 for smart rack per pc.
- suitable for cryoboxes 10 x 10 pieces
  dimensions: 53 x 132 x 132 mmm
  item no. 78212859
- or cryoboxes 9 x 9 pieces
  dimensions: 53 x 132 x 132 mmm
  item no. 78214364
- **28 smart racks à 915 x 84 x 78 mm, 16 levels**
  item no. 78222199 for smart rack per pc.
- suitable for cryoboxen 5 x 5 pieces
  dimensions: 52 x 75 x 75 mmm
  item no. 78202839

Cryotherm®
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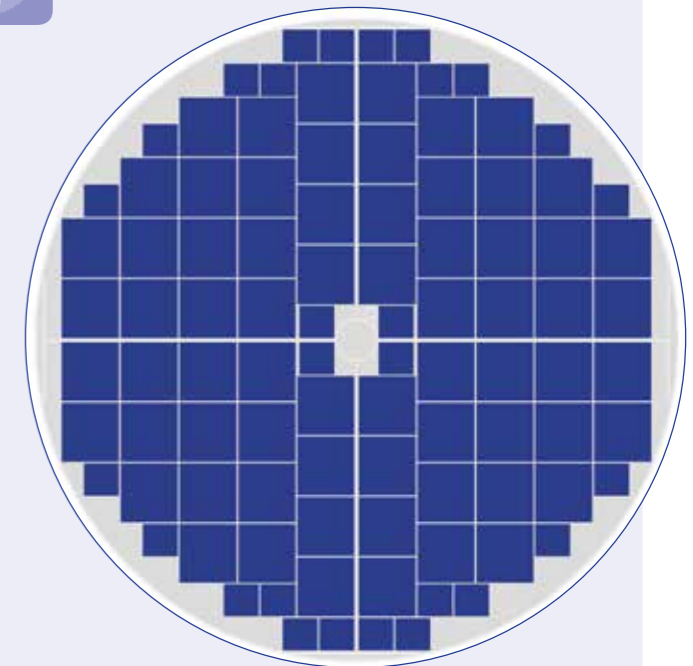
Your needed Packaging

Our various Solutions

For your BIOSAFE® Repository Freezers

GAS PHASE: liquid under the platform; samples immersed in N2 vapours (temperatures around -180°C)

LIQUID PHASE: Samples completely immersed in liquid nitrogen (temperatures around -190°C)

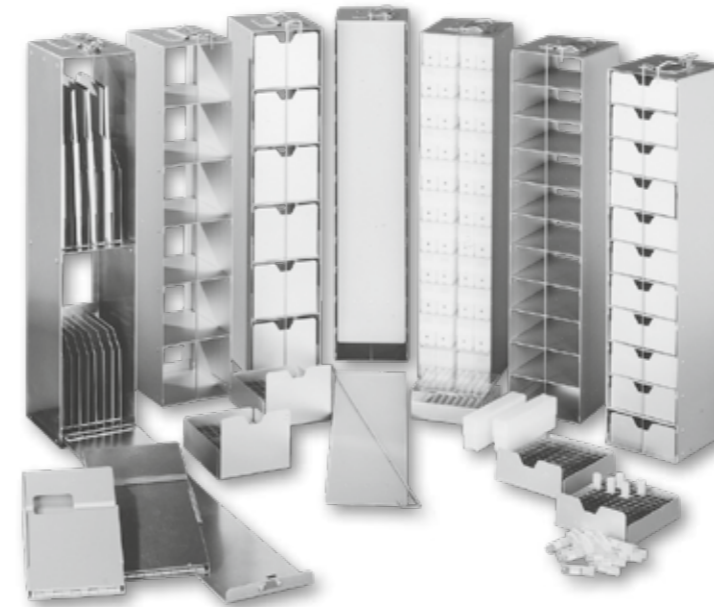**Possibility of both types of cryopreservation through probe length adaptation**

## All Advantages at a Glance

▶ High storage capacity with new High Effiency system
▶ Safety fixation system
▶ Maximum protection for your samples
▶ Variousset heights for flexible use and compatibility with all biorepository freezers
▶ Variable arrangements for setting your own order system
▶ Low tare weight due to sturdy aluminium construction
▶ Transparency by means of sample management system

New High Effiency racks
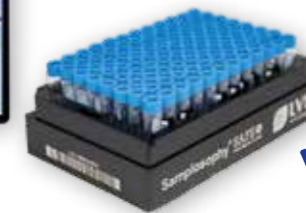
For more information
BIOSAFE® iTrack page 23

Rack of **stainless steel** with **uneven heat distribution:**
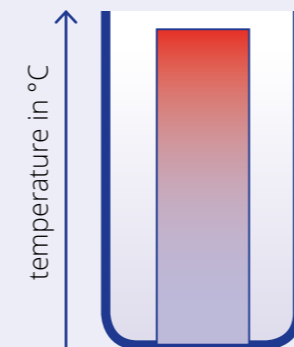
Cryotherm rack of **aluminium** with **even heat distribution:**

temperature in °C

Cryo vessels

For detailed information please regard dedicated brochure for inventory systems.

RACK-SYSTEMS
The Suitable Storage System for Every Biological Sample

BIOSAFE® smart
Order Form.

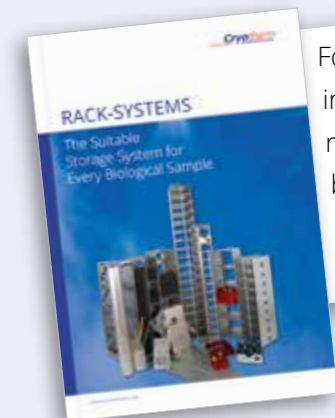## Functional Favorite

> **!** for detailed information of BIOSAFE® smart system please take a look on page 8.

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 electronic lid locking device

BIOSAFE® smart biorepository freezer Sciene line — 230 V

Item no.	Short text	Pcs
78221903	BIOSAFE® 120 SC-smart	
78221906	BIOSAFE® 220 SC-smart	
78221909	BIOSAFE® 420 SC-smart	
78221912	BIOSAFE® 500 SC-smart	
78223148	BIOSAFE® 800 SC-smart	
78223480	BIOSAFE® 1800 SC-smart	
78221924	BIOSAFE® 2400 SC-smart	

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

Item no.	Short text	Pcs
78221879	BIOSAFE® 120 MD-smart	
78221882	BIOSAFE® 220 MD-smart	
78221885	BIOSAFE® 420 MD-smart	
78221888	BIOSAFE® 500 MD-smart	
78223145	BIOSAFE® 800 MD-smart	
78223473	BIOSAFE® 1800 MD-smart	
78221600	BIOSAFE® 2400 MD-smart	

BIOSAFE® smart OPTIONS

Item no.	Short text
78216677	BIOSAFE®-view Info
78216678	BIOSAFE®-view InfoAlarm
78220035	MODBUS for BIOSAFE® smart
78216670	Network switch 8x
78216671	Network switch 24x
78222361	Temperatur sensor for BIOSAFE® smart (additional)
78222353	Battery backup 24VDC for BIOSAFE® smart

BIOSAFE® 120/220/420/500/800 Main accessories

Item no.	Short text
78202845	Rollerbase for CHRONOS® 120
78202830	Transport aid for CHRONOS® 220/420/500/800
78206965	Low temperature booster for BIOSAFE® 120
78207914	Low temperature booster for BIOSAFE® 220
78206876	Low temperature booster for BIOSAFE® 420

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

sales@cryotherm.de   **+49 (0)2741 - 95 85 0**

BIOSAFE® iTrack

Your intelligent Sample Management.

Smart Sample Management.

Cryotherm®
life science

Tracking your Cryogenic Samples

Example of 2D Scanner
Not included in delivery.

BIOSAFE® iTrack is a central database that can manage your stored samples based on their storage position. It can easily be adapted to the individual needs of your biobank. The necessary basic information and additional user defined information is linked to each sample. This information may be different data templates, logistics information or process data.

All Advantages at a Glance

- ° User friendly storage management
- ° FDA 21 CFR Part 11 compliance
- ° Sample based temperature logging
- ° Highest degree of data encryption for your sensitive data
- ° Developed, tested and documented according to ISO 13485, ISO 62304, IEC 62366
- ° User-defined storage structures/layouts
- ° Comprehensive storage level access rights
- ° Barcode scanner and RFID support
- ° User-defined sample data templates
- ° Visualisation of storage locations and containers
- ° Single/Multiple sample check in/out
- ° Single/Multiple sample data modification
- ° Comprehensive reporting PDF
- ° Comprehensive data Exports PDF/CSV

- ° Multiple IDs possible
- ° Windows based system
- ° Multi-site/multi database support
- ° 2D Flatbed scanner support
- ° Lab OS Web Access /Customer requests
- ° Electronic signatures ("A face four eyes check" feature)

Item Numbers

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

BIOSAFE® iTrack sales	
Item no.	
☐ 78223030	BIOSAFE® iTrack software installation fee (one-off payment)
☐ 78216916	BIOSAFE® iTrack Premium* Software installation fee (one-off payment)
☐ 78216917	BIOSAFE® iTrack Premium* Software installation fee with Webaccess (one-off payment)
☐ 78216918	BIOSAFE® iTrack Webaccess optional (one-off payment)
☐ 78217135	BIOSAFE® iTrack Premium Plus 3 year Software installation fee (one-off payment)
☐ 78217136	BIOSAFE® iTrack Premium Plus 5 year Software installation fee (one-off payment)
☐ 78217137	BIOSAFE® iTrack Premium Plus 3 year Webaccess optional (one-off payment)
☐ 78217138	BIOSAFE® iTrack Premium Plus 5 year Webaccess optional (one-off payment)
☐ 78217140	BIOSAFE® iTrack Premium CAL client access licence (one CAL for up to 5 user)
☐ 78217142	BIOSAFE® iTrack Premium Additional User
☐ 78217143	BIOSAFE® iTrack Training
☐ 78217144	BIOSAFE® iTrack Template Editor

* The Premium version also includes service assistance. Remote maintenance by telephone or remote access are limited to a maximum monthly hourly rate of three hours within the contract period.

BIOSAFE® GO

Ideal for safe handling of your samples.

NEW

Cryotherm®
life science

All Advantages at a Glance

BIOSAFE® GO is the practical and ergonomic workbench for the safe further processing of your biological samples in ampoules, boxes, racks, etc. Optimal for the the transport of large sample volumes from one container to another other container in a cryobank, e.g. relocation.

- Sample handling and transport of two horizontal towers in cryogenic N2 gas phase
- Vacuum insulated storage container mounted on a stainless steel transport cart
- Two separately opening lid halves
- Additional opening with plug for level measurement
- Temperature booster made of aluminum for low temperatures in the working chamber
- Movable sample handling table
- LN2 filling device with ball valve and 1.5 m insulated filling hose connection
- Two accesses for T-probes and mounting options for temperature logger

Technical Data

BIOSAFE® GO		
Geometrical capacity	[l]	191
LN2 capacity	[l]	72
Operating pressure	[bar]	0
Weight empty	[kg]	115
Weight full (N2)	[kg]	173
Opening (length x witdh)	[mm]	1.030 x 350
Inner length x width x height	[mm]	1.030 x 350 x 529
Storage height	[mm]	326
Filling height	[mm]	200
Total lenght x width x height	[mm]	1.340 x 600 x 1.057
Evaporation rate	[l/h]	2,5
Castor diameter	[mm]	125
With 2 lids, ball valve 3/8", safety relief valve 5 bar, insulated decanting hose length 1.5m and transport stopper DN50	**Item no.**	**78223611**

© Photo: CREAPHARM BIOSERVICES

CREAPHARM BIOSERVICES

BIOSAFE® VENUS

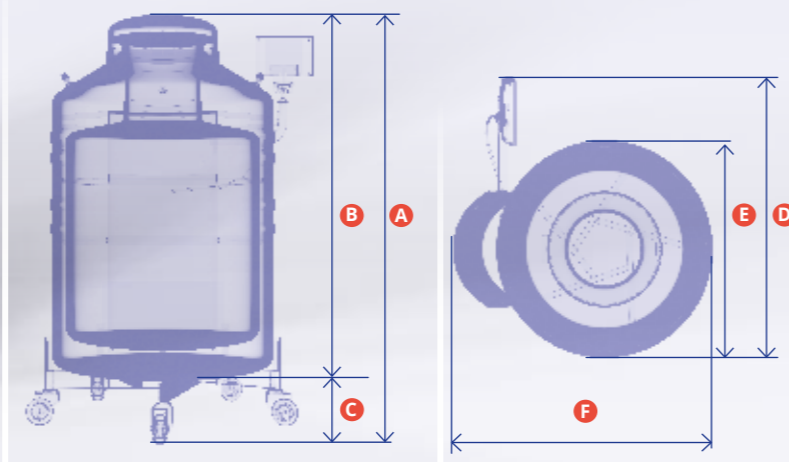## The safe Storage for your Samples.

NEW
early 2022

All Advantages at a Glance

The safe aluminum storage vessel.
Ideal for biological-medical samples..
▶ For up to 6,000 samples 2 ml vials in gas or liquid phase
▶ Storage capacity for straws on request
▶ Storage capacity for bags on request

Table for dimensions

Technical Data

BIOSAFE® VENUS			150	180
Neck diameter		[mm]	216	216
Weight, empty (as delivered, with rack system and BIOSAFE® smart electronics)		[kg]	96	105
Weight, full (in real operation with LIN, max.)		[kg]	192	245
Total height	A	[mm]	1.100	1.215
Height of vessel	B	[mm]	950	1.065
Height of roller base	C	[mm]	140	140
Diameter, outside	E	[mm]	678	678
Depth max.	F	[mm]	840	840
Width max.	D	[mm]	820	820
Daily evaporation		[%/day]*	0,79	0,54
Static holding time 💧		[days]*	148	181
Static holding time ☁		[days]*	13	13

*) 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.

Folding lid item no. 78217562

Insulation plug item no. 78217561

Smart-rack system for a comfortable and safe acces to your samples

Individual numbering for clear placement

Storage Capacities

BIOSAFE® VENUS		150		180	
💧 Liquid phase / ☁ Gas phase		💧	☁	💧	☁
Nominal volume	[l]		120		175
Racks (aluminum)	[piece]	6	6	6	6
Number of levels usable	[quantity]	8	7/8	10	9/10
2 ml cryogenic vials in 10x10 boxes	[up to]	4.800	4.200	6.000	5.400
Size of cryogenic boxes 10x10 (hxwxd)	[mm]	132 x 132 x 53		132 x 132 x 53	
0,25 ml straws	[up to]	on request			
0,5 ml straws	[up to]	on request			
25 ml bags	[up to]	on request			

Further vessel sizes and accessories upon request.

Dedicated inventory system & accessories for the VENUS

Cryoboxes for 2 ml vials:
für 9x9   item no. 78214364
für 10x10 item no. 78212859

Drawer for goblets
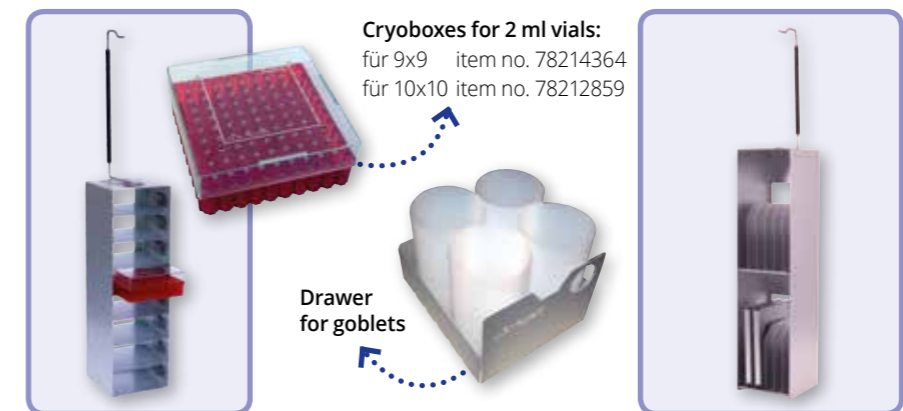
Smart rack for vials
VENUS 150 item no. 78217554
VENUS 180 item no. 78217555

Rack for goblets
VENUS 150 item no. 78217556
VENUS 180 item no. 78217557

Smart rack for bags
VENUS 150 item no. 78217558
VENUS 180 item no. 78217559

Cryo-Gloves
Length: ca. 400 mm
item no.
Size S: 78400843
Size M: 78400180
Size L: 78400887
Size XL: 78400856

Eye protection
item No. 77031452
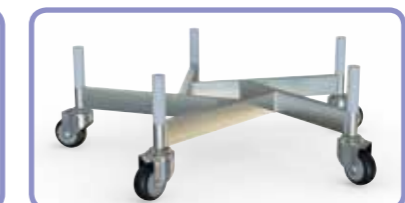
Roller base
Ø 687 mm (interior), height 140 mm
item no. 78217560

☁ Gas phase storage
Your samples are stored in the gas phase, without contact to liquid nitrogen. The usable levels secure the storage in gas phase.

💧 Liquid phase storage
Your samples are stored up to 100% in the liquid phase at temperatures down to -196°c.

Functional Favorite – BIOSAFE® smart for VENUS

for detailed information of BIOSAFE® smart system please take a look on page 8.

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

NEW early 2022

All from one source

Further information concerning APOLLO® series from page 36.

BIOSAFE® VENUS

With the BIOSAFE® smart for the Venus series, an automatic refill system can be connected conveniently, easily and safely.

For the nitrogen supply, the APOLLO® series is available.

Item Numbers

Our BIOSAFE® VENUS vessels are available in capacities from 150 to nearly 180 litres.

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

BIOSAFE® VENUS Vessel Options

	Item no.		Quantity
☐	78224110	BIOSAFE® VENUS 150 storage container SC incl. smart, roller base, connecting hose 1.5 m for APOLLO® (biorepository unit without rack system)	
☐	78224111	BIOSAFE® VENUS 180 storage container SC incl. smart, roller base, connecting hose 1.5 m for APOLLO® (biorepository unit without rack system)	
☐	78217554	BIOSAFE® VENUS 150 smart rack for ampoules 2ml (without cryoboxes), VENUS suitable for up to 6 racks, 8 levels (single item number)	
☐	78217555	BIOSAFE® VENUS 180 smart rack for ampoules 2ml (without cryoboxes), VENUS suitable for up to 6 racks, 10 levels (single item number)	
☐	78217556	BIOSAFE® VENUS 150 smart rack for goblets with drawers (without goblets), suitable for VENUS 4 goblets per level, for up to 6 racks per VENUS (single item number)	
☐	78217557	BIOSAFE® VENUS 180 smart rack for goblets with drawers (without goblets), suitable for VENUS 4 goblets per level, for up to 6 racks per VENUS (single item number)	
☐	78217558	BIOSAFE® VENUS 150 smart rack for cassettes, VENUS suitable for 9 cassettes per rack, 2 levels, for up to 6 racks per VENUS (single item number)	
☐	78217559	BIOSAFE® VENUS 180 smart rack for cassettes, VENUS suitable for 9 cassettes per rack, 2 shelves, for up to 6 racks per VENUS (single item number)	

Further container sizes and accessories upon request.

BIOSAFE® VENUS Extensive accessories

	Item no.		Quantity
☐	78217560	Roller base for BIOSAFE® VENUS 150/180 (re-order reference)	
☐	78212859	Cryobox (10x10, for 100 ampoules) with Cryotherm label, (single item number)	
☐	78214364	Cryobox (9x9, for 81 ampoules) with Cryotherm label, (single article number)	
☐	78212792	Transparent goblet, without lid, Ø 65 m (single article number)	
☐	78216992	Set of 20 transparent goblets, without lid, Ø 65 m (set item number)	
☐	78216990	Set of 5 transparent goblets with 11 coloured inserts, lid, Ø 65 mm (set item number)	
☐	77031488	Cassette for bags (single article number)	
☐	78217561	Insulation plug, interior (reorder reference)	
☐	78217562	Hinged cover (reorder reference)	

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

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NEW early 2022

Datalogger for temperature recordings, with GPS on request.

All Advantages at a Glance

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

▶ For up to 500 samples, 2 ml vials
▶ For up to 6 bags 500 ml
▶ Liquid nitrogen can not go out
▶ Low temperatures up to -190 C°
▶ **Optional:** Tight, closed inner container according to UN3373 available (leakage protection)

certified **CE MED 93/42** according to class 2a

Storage Capacities

| BIOSAFE® MARATHON		25
☁ **Dry-Shipper**		
Total volume	[l]	25,0
Number of racks	[piece]	1
Dimension of the hybrid racks (HxWxD)	[mm]	297x133x142
2 ml vials	[up to]	500
bags up to 500 ml	[up to]	6

Other dry shipper sizes and accessories on request.

Hybrid rack for bags / vials
Item no. 78223756

¹⁾ Bags require protective cassettes. Capacity deviations are possible depending on the manufacturer.

Suitable accessories
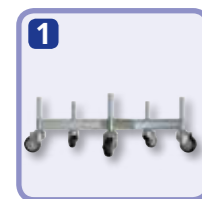
1
Roller base for MARATHON 25 item no. 78224116

2
Robust, lightweight protective packaging MARATHON 25 item no. 78217502
Height: 810 mm
Wide: 520 mm
Depth: 520 mm

Blue protective cap item no. 78217562 **3**

Extensive safety equipment from page 6

4 Plug with convection barrier Item No. 78223718

3 and 4 included in the initial scope of delivery

Cryotherm® *life science*

Technical Data

The BIOSAFE® MARATHON 25 is **lockable and sealable*.**

BIOSAFE® MARATHON		25
☁ **Dry-Shipper**		
Amount of nitrogen absorbed	[l]	9,5
Neck diameter	[mm]	210
Height of sample space	[mm]	305
Total height, without data logger	[mm]	705
Weight, empty, without racks	[kg]	15,0
Weight, full, without racks	[kg]	22,0
Diameter, outer	[mm]	394
Static holding time ☁	[days]*	>10

*⁾ 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.

*⁾ not included in the scope of delivery

Item numbers

We supply various equipment variants and a wide range of accessories for your BIOSAFE® MARATHON

BIOSAFE® MARATHON		
✗ **Item no.**		Quantity
☐ 78223636	BIOSAFE® MARATHON 25 MD DRYSHIPPER	
☐ 78223756	Hybrid-Rack	

Other container sizes on request.

BIOSAFE® MARATHON 25 Extensive accessories		
✗ **Item no.**		Quantity
☐ 782241162	Roller base **1**	
☐ 782224119	Robust, lightweight protective packaging **2**	
☐ 78223695	Tight, closed inner container according to UN3373 for sensitive samples	
☐ 78217562	Blue protective cap **3** (reorder reference)	
☐ 78223718	Plug with convection barrier **4** (reorder reference)	

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

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ALPHA

Unpressurised Vessel Series for small Amounts of nitrogen.

NEW early 2022

All Advantages at a Glance

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

SMALL, COMPACT AND STURDY.
▶ Available in three sizes with a capacity of approx. 6, 10 & 25 litres
▶ Comprehensive accessories

Technische Daten

Storage Capacity ALPHA		5	10	25
Net capacity	[l]	6	10	25
Daily evaporation	[l/Day]*	0,12	0,12	0,12
Static holding time	[Days]*	50	83	208
Weight, empty	[kg]	5	6,2	10,5
Weight, full (filled with LIN)	[kg]	9,7	13,9	31,6
Total height	[mm]	468	528	700
Neck tube diameter	[mm]	50	50	50
Inner diameter	[mm]	231	231	296
Outer diameter	[mm]	300	300	396

*) 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.

Suitable accessories

Cryo-Gloves
Length: 400 mm
Item No.
Size S: 78400843
Size M: 78400180
Size L: 78400887
Size XL: 78400856

Protection shield
Item No. 77031452

Roller base for ALPHA 25
item no. on request

ALPHA

Order form

Cryotherm® *life science*

Our ALPHA lines are available from 6 to 25 litres capacity.

Item Numbers

We supply various equipment variants and a wide range of accessories for your ALPHA.

ALPHA Lines		
☑ **Item no.**		**Quantity**
☐ 78224172	ALPHA 5, pressureless transport/storage vessel for liquid nitrogen	
☐ 78224173	ALPHA 10, pressureless transport/storage vessel for liquid nitrogen	
☐ 78224174	ALPHA 25, pressureless transport/storage vessel for liquid nitrogen	

Other container sizes on request.

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

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APOLLO®
Your ideal Storage and Transport Vessel for liquid Nitrogen.

APOLLO®
Components and Flow chart.

Cryotherm®
life science

All Advantages at a Glance

Best in it's class!
Evaporation rate for e.g.
APOLLO® 200: Only 0.6% per day!

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.: 07794111

Safety glasses with side protection

Item No.: 07794189

Transfer hose 1,5 m

Item No.: 79229957

Phase separator G 3/8" complete

Item No.: 79404217

(everything included)

digital level indicator **NEW**

Applications

APOLLO®

compatible
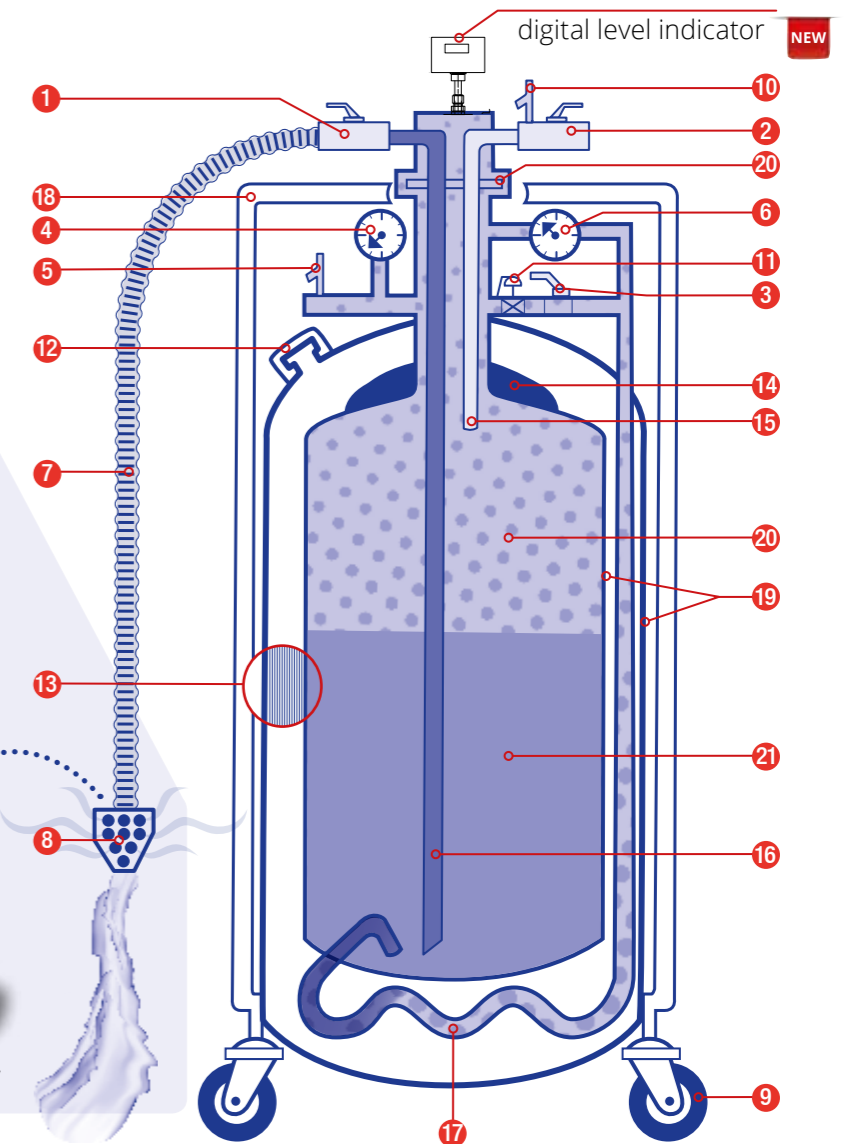
- Analysers
- Cryogenic mills
- Cryogenic saunas
- Freezers
- Biobanks
- BIOSAFE®
- ...

Essential Construction Elements and Equipment

❶ Extraction valve
❷ Exhaust and overflow valve
❸ Pressure build-up valve
❹ Pressure gauges
❺ Safety valve
❻ Analog level indicator (opt.)
❼ Filling hose
❽ Phase separator
❾ Castors
❿ Pressure regulator (opt.)
⓫ Pressure build-up regulator (opt.)

⓬ Vacuum sealing and safety valve
⓭ Superinsolation
⓮ Absorbents (long-term vacuum protection) and special getters
⓯ Exhaust and overflow line
⓰ Sampling line
⓱ Pressure build-up line
⓲ Chassis and protective frame
⓳ Indoor and outdoor vessel
⓴ Gaseous nitrogen
㉑ Liquid nitrogen

Economical. Easy-to-use. Secure.

Extensive Accessories.

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

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

1

2

3

4 for a fixed connection of an APOLLO® urgently required!

For dimensions see table.

Exhaust Filling removal UNF 3/4"

G

A **B** **E** **C**

D **F**
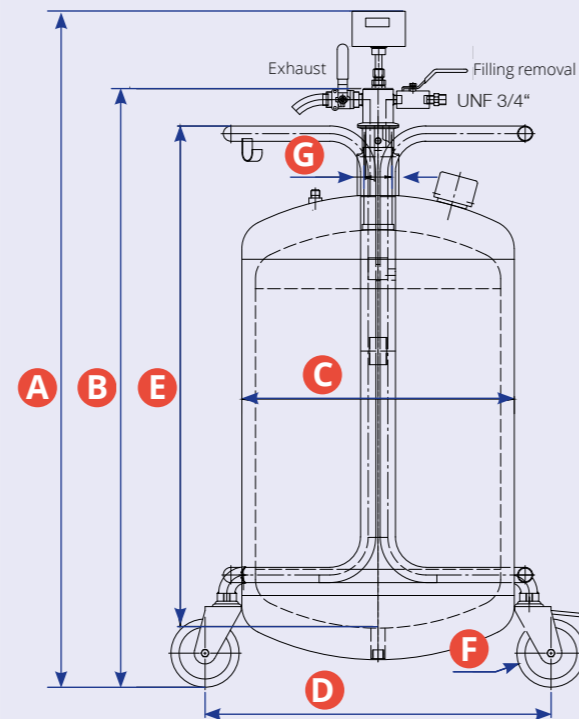
Technical Data

Vessel made Stainless steel		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
Approval mark		CE	CE	CE	CE0035	CE0035
Geometrical capacity	[l]	49,4	98,8	149,15	199,5	348,7
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 incl. digital level ind. **A**	[mm]	905	1,240	1,580	1,350	1,785
Total height until siphon **B**	[mm]	765	1,100	1,440	1,170	1,650
Diameter, outer **C**	[mm]	500	500	500	700	700
Total width **D**	[mm]	650	650	650	800	800
Depth of immersion **E**	[mm]	585	920	1,220	910	1,350
Castor diameter **F**	[mm]	125	125	125	160	160
Neck diameter **G**	[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.

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

▶ For USA, 1,5 bar:

8 ASME
SETTING THE STANDARD

Accessories

6

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

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

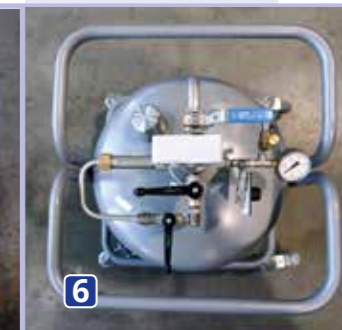**7**

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

Standard with analog display **only** APOLLO® 50

Standard with digital display APOLLO® 100-350

5 **6**

Item Numbers

APOLLO® liquid nitrogen vessel	50	100	150	200	350
with **5** analog / **6** digital display	**5** 78202700	**6** 78223344	**6** 78223345	**6** 78223346	**6** 78223347
ASME Stamp 1,5 bar **8**	78221094	78220960	78221095	78221811	78221812
Options for APOLLO® line					
Forklift pockets **7**	78203083	78203083	78203083	78203975	78203900
Set of castors, antimagnetic	78200474	78200474	78200474	78203992	78203992

Optional: Analog / digital display (different from standard), other container sizes and special containers on request.

55 YEARS

1964 - 2019

Excellence
in Engineering

Cryotherm GmbH & Co. KG

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Version 2091

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