



DEEP  
ULT  
SHOCK  
FREEZERS

SMART FREEZING PROCESS  
PHARMA INDUSTRY





**Thalheimer Kühlung GmbH**  
Member of  
Thalheimer Holding AG

Thalheimer Kühlung GmbH & Co. KG. Was established in Germany in 1948. Initially the company specialized in Medical Cold / Refrigerated equipment and utilities. Having thrived in this field it moved on to produce well-designed custom made various products that were well received in German and European markets. The company progressively grew in diversified outputs and ascending revenues. The company's acclaimed reputation reached the Middle East, Africa and Central Asia.

In appreciation of its reputation and craftsmanship, Thalheimer was elected in 2009 to join the ThalSa Group stationed in Dubai, U.A.E.

Having joined the group, Thalheimer propelled to broader international fame and reputation. In its present status, the company is expanding its facilities to meet an expected increased demand for its products and to enjoy sustained improvement in quality, productivity and export.

Thalheimer has excuted projects in 92 countries worldwide and established well structured sales and service network over those territories.

# Our Missions

- Behind every achievement there is a human touch and talent.
- Continued improvement.
- Diversification & innovation.
- Encouraging multi-disciplinary team work.

**Commitments stems from:**

- Self confidence
- Adopting best technology
- Adherence to standards and strict quality control
- Shoulder responsibility, flexibility and efficiency

# Foreword



Thalheimer Kühlung was established in 1948 to manufacture various cooling equipments, cold rooms, refrigerators and ice makers for brewery and catering business. Having succeeded in that field, our company started producing new products ever since.

In the 1960s Thalheimer introduced the first medical cooling equipment that was designed and added to the product's portfolio. Having joined Thalheimer Kühlung in the late 1960s we soon decided to direct the company towards the healthcare environment rather than the popular air conditioning that relates more to comfort and less to the health of people.

At that time the development of cold hygienic blood bank refrigerators was being given top priority since donated blood had to be looked after in two crucial ways: safe way of storing and the best method of dispensing.

In the 1970s we developed refrigerators for the use in laboratory, pharmaceutical and pathology fields subsequently Thalheimer was in a capable position to fulfill all refrigeration requirements for Medical use in hospitals, universities and research institutions. The growing experience in manufacturing cooling systems allowed Thalheimer to develop ultra-low temperature freezers (down to -90°C) in addition to all requirements of industrial, commercial cold rooms and refrigerated warehouses.

We are also proud of our renown excellence in the design, manufacture and supply of state-of-the-art forensic requirements including

mortuaries of various types and sizes. We have designed and offered complete solution for forensic establishment that full filled the particular requirement and specifications of different clients in Germany and Europe.

Each product incorporates the latest technology, German precise workmanship and cost effectiveness. All built-in materials and components are of the highest quality. As a result, our equipment have the lowest noise level, easy to clean and offer hygienic satisfaction. Our ability to satisfy all demands of our customers regarding color, size, surface materials and modes of servicing indicates our particular strength.

We do not neglect special requirements; we find answers. Our company can provide you not only with a complete Medical refrigeration solution system but also with the constant supply of spare parts, installation and maintenance service and training courses.

The motto of our company is (conviction precedes persuasion); thus we are convinced of the excellent quality of our work, and aspire to see this conviction shared with our customers.

We hope that this brochure will convince you of our genuine workmanship and look forward to be of service to you.

**Dr. Sohayb Al-Niaimi**  
Chief Executive Officer

www.thalheimer-kuehlung.com

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# Introduction

Thalheimer produce All types of Deep, Ultra low Temperature and Shock freezers in two categories upright (Vertical standing) and chest freezers(Horizontal).

The net capacity (inner volume) is in general between 85L till 800 L.

Many biological samples like DNA, RNA, Proteins, cell extracts, or reagent require long preservation time. To reduce the risk of sample damage, they need extremely low preservation temperature down to -85°C.

Different methods are applied to store samples in the freezers and the typical storage way used for ULT is using polymers or micro tubes. Those micro tubes are arranged in a box of capacity 64, 81 or 100 and these boxes are made of cardboard or polymer.

In general the time required to cool down the inner chamber of the ULT freezer from ambient temperatures to the selected set temperature of -80°C to -85°C is mainly depending on the type of insulation, the efficiency of the compressor system as well as the installed metal shelves within the freezer. Thalheimer's unit CRYO Series and Shock freezers are able to cool down within 3 to 3.5 hours.

Usually the power consumption of the ULT freezer is not low and it increases with the size/capacity of the unit, moreover the frequent opening of the door as well as the number of samples stored in the chamber affect the power consumption as well.

All type of our freezers are considered as the lowest energy consumption unit in the market due to the efficient insulation system, and the low energy consumption refrigeration system used as well as having the lowest noise level. The units are tested in the most extreme conditions through a special designed climatic chamber for a significant period of time prior to its dispatch to the client.

Each freezer will be delivered with its own QC certificate and temperature graph, showing the results of the quality tests.





ULT FREEZER -85°C

Freezers -40°C to -85°C



# Ultra-Low temperature Freezer

## Deep Freezer

## Shock Freezer







***Thalheimer***

Made in Germany

since 1948

## GENERAL OVER VIEW

Thalheimer has innovated the new technology and production of Deep, Ultra Low Temperature Freezer and shock freezer down to – 85°C in cooperation with specialist in the fields of electronics and thermodynamics.

All units are complied with UNI EN 61010-1/A2 (CEI 66-5), CEI EN 61326-1, Regulations on safety for laboratory equipment and ISO 9001:2008 certified manufacturer.

Different models and sizes have been pre-designed and considered as standard models offered by Thalheimer.

We have three models within the range of Deep and Ultra Low Temperature Freezers: horizontal, vertical and under counter units. Thalheimer produce different sizes from the above models and those are in the range of 85L for the under counter till 800 L which is considered as the biggest standard model.

For Shock freezer, Thalheimer offers very wide range of models starting from 100 Lit till 800 Lit for different applications of laboratory and Hospital/Medical use as well as for Research and Development institutes and Pharmaceutical industries.

Thalheimer always offer custom made design with different sizes and model based on our client's requirement and expectation.

## STRUCTURE

- External cabinet made of zinc-plated and/or enameled steel sheets, or, upon request, SI 304 stainless steel satin finish.
- Insulation in non-CFC, non-HCFC foamed polyurethane
- Internal casing in AISI 304 (or AISI 316 upon request) stainless steel, with polished external BA finish for maximum resistance and cleanliness; LIFETIME WARRANTY ON STEEL PARTS
- Triple-step seal in silicone rubber for greatest prevention against air loss and ice formation; gaskets with almost unlimited durability.
- Gasket heating by means of the refrigerant pipes on the overheated-steam side; the safest solution against ice formation, more reliable and with greater energy saving (in fact, it does not use additional sources of heat like electric resistances, etc.)
- Complete reheating compensation valve to equalize internal and external pressure after opening and closing the door: greatly facilitates being able to open the door after it has been opened not long ago.
- Four internal stainless steel shelves, standard in vertical models
- Insulated doors (in vertical models) with 20-mm. polyurethane foam, to minimize cold loss when the external door is opened;
- Insulation panels (in horizontal models) with 20-mm. polyurethane foam, to minimize cold loss when the external door is opened;
- Highly ergonomic closing handle (in vertical models) to facilitate closing: just one hand and minimum force applied
- Locking handle with self-raising hinges (in horizontal models) for maximum ease when closing and maximum operator safety.
- Lock and key for all locks
- Pivoting wheels for maximum freezer maneuverability inside the laboratory
- Insulation with CFC- and HCFC-free polyurethane resin foamed on site, with an average thickness above 140 mm
- Lock with transponder/badge available (optional); the PK (Personal Key) device comes complete with badge reader, management electronics, stabilized power supply at 12 Vdc 3 A and microelectronic security pistons. It is integrated with the closing system.



ULT FREEZER -85°C

## REFRIGERATION

The refrigeration system for ULT and Shock freezers is fully sealed; it uses a cascade circuit with innovative components and fluids to obtain, together, maximum cooling reliability and performance; it has 2 silent, airtight compressors (value Leq dB (A) < 55); with a high refrigeration capacity, furnished with magneto-thermal protection and pressure gauge to monitor maximum condensation pressure (MR): full reliability and no failures in the 1st stage; immediate identification by the user with recovery ability. The condenser surface (air with thermal return above 2,610 Watt, with room T +25°C) is very large (with tubeless-execution exchangers) to endure even the most severe environmental and work conditions and to reduce power consumption.

The expansion of the refrigerating fluids is obtained through capillary tubes; the expansion occurs in fixed exchangers; the evaporating surfaces are made of: copper coils (thermally) connected to the entire external peripheral surface of the internal casing for horizontal freezers, and evaporation trays in AISI 304 stainless steel – placed inside the internal chamber for vertical freezers; both solutions guarantee high refrigeration capacity, very fast cooling (reduced pull down and recovery times), and elevated uniformity of the internal temperature.

The whole thermal fluid dynamics circuit is built to provide maximum functionality (efficiency, reliability) and facilitate maintenance operations. The refrigerants being used are non-toxic, non-flammable, non-explosive and environmentally friendly (maximum respect for the environment): HC free, CFC free, HCFC free (ODP = OZONE DEPLETION POTENTIAL = 0).

The freezers at -40°C have the same construction characteristics as those of the -85°C, with the exception of the second compressor system in cascade.

## VOLTAGE STABILIZER

4,000-VA voltage regulation, capable of compensating the fluctuations of the utility power supply ( $\pm 15\%$ ), protecting the compressors and guaranteeing a long useful life.





## CONTROL SYSTEM

All our controllers (with touch panel), are developed, programmed and produced in-house. Thalheimer Soft Engineering division which is a member of Thalheimer group of companies is specialized in electronic and program research, development and production of all PLCs and controllers. All controllers are designed with a technology based on microprocessor ARM9, Dual Core, similar to those applied in smart-phones.

The system is designed to control, record, supervise with full traceability of all requested parameters and events. It features full connectivity to the environmental and very safe during the operational process with an easy access.

The system consist of 2 monitoring kit with two independent RTD Pt 100  $\Omega$  (class A) sensors; one for the regulation and one for the temperature alarm and for automatic recording of the temperature and the alarms; The recording is being done in real time for all functions which are being automatically recorded on the SD card and USB port.

The SD Card and USP port are located in the front panel near to the touch screen, and the user can easily download the required data of thermal recording as well as updating the software whenever needed.

The controller works based on Linux operation system and which is an on – board computer. It has a graphic interface with TFT touch screen display

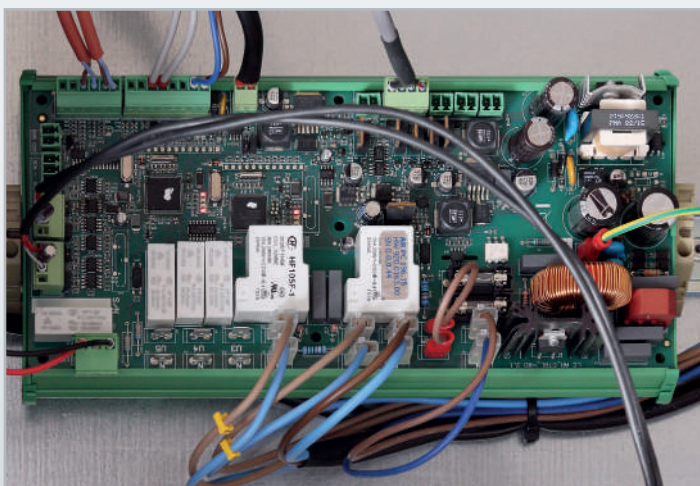
The microprocessor has significant high capacity of memory RAM, with a friendly used interface having full access on reading and managing the operation by means of USB, SIM, Wi-Fi, Ethernet wired, and RS485 port with ModBus protocol.

Above all, the Wi-Fi connection makes the unit visible through the LAN line of the hospital or of the industrial laboratory.

Using any PC work station that is connected in the same network where the freezer unit is linked, you can easily browse and get connected to the freezer control system. This can be accessed by typing the IP address of the unit. Moreover you can access the controller through the internet by accessing the static IP address of the institute network in which the controller of the freezer is connected

Any recording requirement are being designed and managed through our updated controller with which you can have the possibilities to scan bar codes for inventory purposes as well as detect and record the identification of the operator using the unit at each action. All data can be transferred from the controller to any PC using windows software.

The data recording system and software of our controller has been developed to be complied with most evolved standards as, GMP, JACIE, FACT etc.



## ACCESS CONTROL / MAINTENANCE

The controller of our units has an access code. It is designed with the possibility to use an electronic key (alphanumeric code customized by the user) to put together with an electrical lock for a controlled door opening, or as optional equipment, to use a badge or transponder (or finger pass, with the finger print storage).

The easily designed software management of the controller makes it very simple and friendly to the user with self-explanatory process and guidance.

All data in the controller can be safely accessed remotely through the IP address which enables the user to download all data related to the status of the unit, the authorized maintenance technician can also change or modify the parameters remotely.

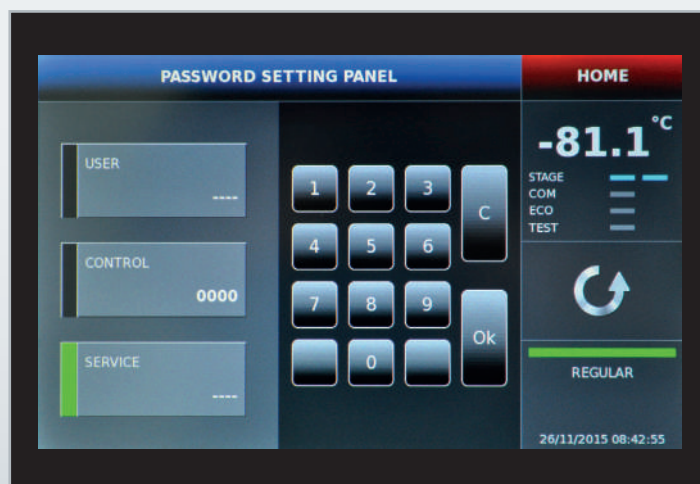
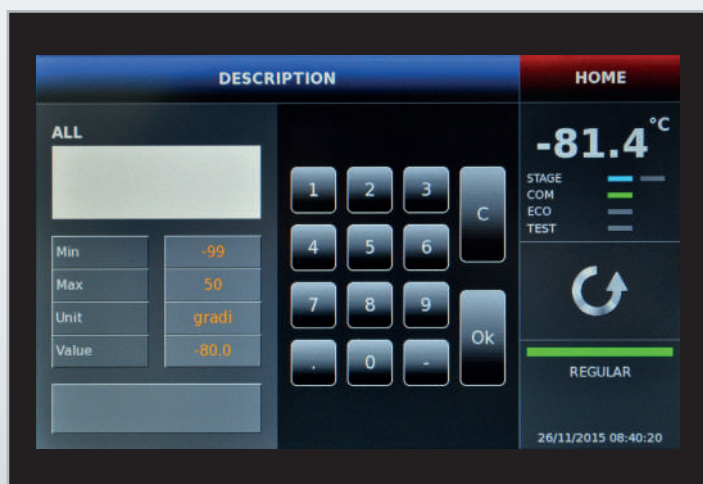
## ALARMS

The alarm system is managed totally with an independent microprocessor and electronic board. Usually the user get visual and acoustic alarm during the following faults:

- Power failure
- Door opening for a long time, total opening time are all recorded in the memory
- High condenser pressure
- Low Battery
- Damaged probe
- Long working time of the compressors
- High condenser's temperature
- Blocked / dirty condenser ventilation
- Low temperature / High temperature in the inner chamber
- In case of Shock freezer / alarm for product reaching temperature

## DISASTER RECOVERY

In case the CPU is damaged for any reason, the unit will remain functioning remotely, with the exception of data visualization, and in such case the freezer continues working with average on/off times recorded before the failure.



## ENVIRONMENTAL ADAPTABILITY

The condenser ventilation system is being managed separately by means of a sensor; having such advance feature, it allows the condenser fan to change the mode of operation speed based on the ambient condition.

## GSM MODULE

This is an optional feature which enables the alarm system to send trouble shooting SMS to a pre-defined mobile phone number. It is also possible to have different phone number for different levels of trouble shooting and messages.

## BAR CODE READER

This is an optional feature which can be incorporated in the control system to scan a bar code of the product for inventory use.

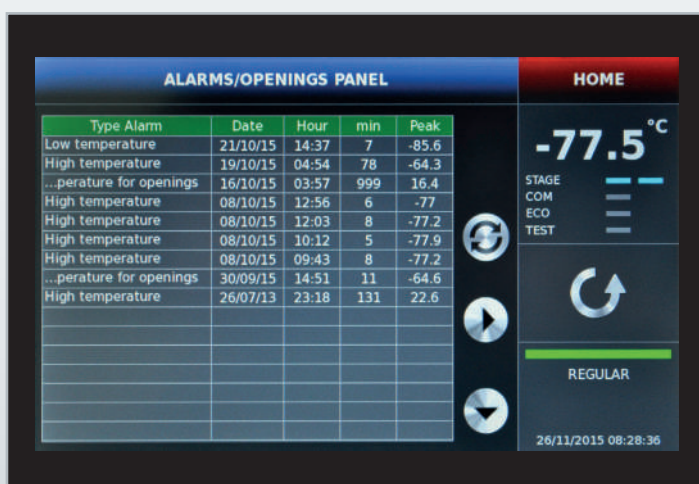
## ENERGY SAVING CONTROL

ECO MODE allows raising the temperature set during night.

ENERGEY SAVING MODE raise, automatically and for a temporarily period, the temp set point once the compressors usage has reached its pre-defined limit. This automatic activation of energy saving operation maintains the energy consumption and usage of the compressors to the minimum and in a most economical way. The set point will be re-set back automatically after a defined period of time so as the unit will work in a normal energy mode.

It has been calculated that we can save an energy consumption of 15% compared to the normal freezers working without the above features.

All our controllers are made to accept future updating in software as well as modification of its features to match and get complied to all standard and requirement in health sector.









ULTRA LOW TEMPERATURE FREEZERS  
CRYO Series  
TEMPERATURE -85°C





## VERTICAL FREEZER CABINET

CRYO 85 / CRYO 125 / CRYO 250 / CRYO 350

### Technical features:

INTERNAL FRAME: AISI 304 stainless steel (AISI 316 on request) with polished external BA finish for best resistance and cleanliness;

EXTERNAL FRAME: zinc-plated and pre-painted steel sheet (AISI 304 stainless steel on request) satin finish;

THERMAL INSULATION: non-CFC, non-HCFC PU foam, thickness 140 mm;

SEALING GASKET: Triple silicone rubber (prevention against air leaks);

GASKET HEATING: frost formation prevention by means of the "hot gas" recirculation coils; high reliability and energy saving (it does not use additional power by electric heaters);

COMPENSATION VALVE: for internal/external pressure compensation, to facilitate door open/close

### Options:

Internal AISI 316 surfaces  
External AISI 304 o AISI 316 surfaces  
Rack/Cak/COS  
Additional shelves  
Kit back up CO2 (24Vac/50Hz)  
Kit back up LN2 (24Vac/50Hz)  
Opening door by transponder personal key  
Electrical key  
Temperature recorder  
Printer (Strip Chart)  
GSM Port  
Emergency plant CO2 (12Vac/25Hz) with temperature independent regulator  
Additional PT100 probe (free contacts for external data management system: data logger wireless etc.)  
Data logger wireless +software/hardware (temperature management Spy KW)  
Voltage stabilizer  $\pm 35V (\pm 15\%)$   
IQ/QQ/ecc.  
Internal - external hole

### CRYO Series -85°C Ultra Low Temperature FREEZER

VERTICAL MODELS -85°C	CRYO 85	CRYO 125	CRYO 250	CRYO 350
External dimensions ( W x D x H )	cm 97 x 58 x 78	cm 80 x 79 x 132	cm 80 x 79 x 188	cm 85 x 78 x 199
Internal dimensions ( W x D x H )	cm 42 x 35 x 58	cm 50 x 45 x 54	cm 50 x 45 x 111	cm 60 x 45 x 128
Set Point	-80°C	-80°C	-80°C	-80°C
Working range	-40°C -85°C	-40°C -85°C	-40°C -85°C	-40°C -85°C
Capacity (litres)	85	125	250	351
Pre painted steel closed doors	1	1	1	1
Shelves/inner doors	2 / 1	2 / 2	4 / 4	4 / 4
Weight Kg	100	200	260	260
Internal surfaces standard	AISI 304 stainless sheet	AISI 304 stainless sheet	AISI 304 stainless sheet	AISI 304 stainless sheet
External surfaces standard	Prepainted steel	Prepainted steel	Prepainted steel	Prepainted steel
Insulation thickness	130 mm	140 mm	140 mm	140 mm
Key Lock	✓	✓	✓	✓
4 wheels (2 with brake)	✓	✓	✓	✓
Controller Touch panel	✓	✓	✓	✓
N°2 PT100 probe (-40°C/-130°C Class A)	✓	✓	✓	✓
RS485, USB Port and SD Card	✓	✓	✓	✓
V.I.P. (vacuum insulation panel)	✓	✓	✓	✓
N.° inox drawers H 100 mm	NO	(✓) 4	(✓) 8	(✓) 8
N.° inox drawers H 200 mm	NO	(✓) 2	(✓) 4	(✓) 4
Water condenser	NO	NO	✓	✓





CRYO 125

CRYO 250

CRYO 350

CRYO 85



## VERTICAL FREEZER CABINET

CRYO 500 / CRYO 600 / CRYO 700 / CRYO 800

### Technical features:

INTERNAL FRAME: AISI 304 stainless steel (AISI 316 on request) with polished external BA finish for best resistance and cleanliness;

EXTERNAL FRAME: zinc-plated and pre-painted steel sheet (AISI 304 stainless steel on request) satin finish;

THERMAL INSULATION: non-CFC, non-HCFC PU foam, min. thickness 140 mm;

SEALING GASKET: Triple silicone rubber (prevention against air leaks);

GASKET HEATING: frost formation prevention by means of the "hot gas" recirculation coils; high reliability and energy saving (it does not use additional power by electric heaters);

COMPENSATION VALVE: for internal/external pressure compensation, to facilitate door open/close

### Options:

Internal AISI 316 surfaces  
External AISI 304 o AISI 316 surfaces  
Rack/Cak/COS  
Additional shelves  
Kit back up CO2 (24Vac/50Hz)  
Kit back up LN2 (24Vac/50Hz)  
Opening door by transponder personal key  
Electrical key  
Temperature recorder  
Printer (Strip Chart)  
GSM Port  
Emergency plant CO2 (12Vac/25Hz) with temperature independent regulator  
Additional PT100 probe (free contacts for external data management system: data logger wireless etc.)  
Data logger wireless software/hardware (temperature management Spy KW)  
Voltage stabilizer  $\pm 35V (\pm 15\%)$   
IQ/QQ/ecc.  
Water condenser  
Internal - external hole

### CRYO Series -85°C Ultra Low Temperature FREEZER

VERTICAL MODELS -85°C	CRYO 500	CRYO 600	CRYO 700	CRYO 800
External dimensions (W x D x H)	cm 97 x 96 x 184	cm 106 x 90 x 199	cm 106 x 100 x 199	cm 110 x 103 x 199
Internal dimensions (W x D x H)	cm 70 x 65 x 111	cm 80 x 59 x 128	cm 80 x 69 x 128	cm 85 x 73 x 130
Set Point	-80°C	-80°C	-80°C	-80°C
Working range	-40°C -85°C	-40°C -85°C	-40°C -85°C	-40°C -85°C
Capacity (litres)	505	604	706	806
Pre painted steel closed doors	1	1	1	1
Shelves/inner doors	4 / 4	4 / 4	4 / 4	4 / 4
Weight Kg	320	330	350	450
Internal surfaces standard	AISI 304 stainless sheet	AISI 304 stainless sheet	AISI 304 stainless sheet	AISI 304 stainless sheet
External surfaces standard	Pre-painted steel	Pre-painted steel	Pre-painted steel	Pre-painted steel
Insulation thickness	140 mm	140 mm	140 mm	140mm
Key Lock	✓	✓	✓	✓
4 wheels (2 with brake)	✓	✓	✓	✓
Controller (Touch panel)	✓	✓	✓	✓
N°2 PT100 probe (-40°C/-130°C Class A)	✓	✓	✓	✓
RS485, USB Port and SD Card	✓	✓	✓	✓
V.I.P. (vacuum insulation panel)	✓	✓	✓	✓
N.° inox drawers H 100 mm	(✓) 8	(✓) 8	(✓) 8	(✓) 8
N.° inox drawers H 200 mm	(✓) 4	(✓) 4	(✓) 4	(✓) 4

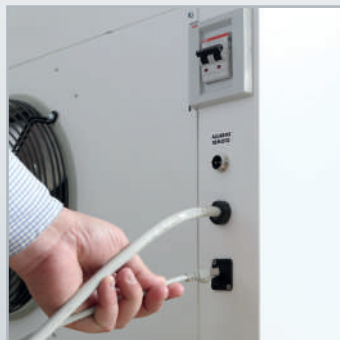
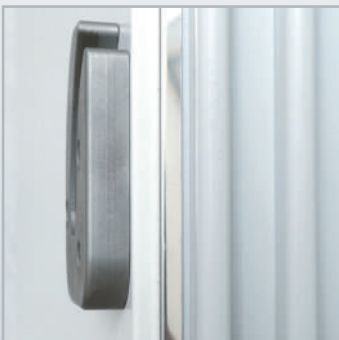


CRYO 500

CRYO 600

CRYO 700

CRYO 800



## VERTICAL FREEZER CABINET – DOUBLE DOOR

CRYO 350-2D / CRYO 500-2D

CRYO 600-2D / CRYO 700-2D

### Technical features:

INTERNAL FRAME: AISI 304 stainless steel (AISI 316 on request) with polished external BA finish for best resistance and cleanliness;

EXTERNAL FRAME: zinc-plated and pre-painted steel sheet (AISI 304 stainless steel on request) satin finish;

THERMAL INSULATION: non-CFC, non-HCFC PU foam, min. thickness 140 mm;

SEALING GASKET: Triple silicone rubber (prevention against air leaks);

GASKET HEATING: frost formation prevention by means of the "hot gas" recirculation coils; high reliability and energy saving (it does not use additional power by electric heaters);

COMPENSATION VALVE: for internal/external pressure compensation, to facilitate door open/close;

### Options:

Internal AISI 316 surfaces

External AISI 304 or AISI 316 surfaces

Rack/Cak/COS

Additional shelves

Kit back up CO2 (24Vac/50Hz)

Kit back up LN2 (24Vac/50Hz)

Opening door by transponder personal key

Electrical key

Temperature recorder

Printer (Strip Chart)

GSM Port

Emergency plant CO2 (12Vac/25Hz)

with temperature independent regulator

Additional PT100 probe

(free contacts for external data management system: data logger wireless etc.)

Data logger wireless software/hardware

(temperature management Spy KW)

Voltage stabilizer  $\pm 35V (\pm 15\%)$

IQ/QQ/ecc.

Water condenser

Internal - external hole

### CRYO Series -85°C Ultra Low Temperature FREEZER

VERTICAL DOUBLE DOOR MODELS -85°C	CRYO 350-2D	CRYO 500-2D	CRYO 600-2D	CRYO 700-2D
External dimensions ( W x D x H )	cm 97 x 80 x 199	cm 97 x 97 x 199	cm 106 x 100 x 199	cm 110 x 103 x 199
Internal dimensions ( W x D x H )	cm 72 x 46 x 109	cm 72 x 65 x 109	cm 82 x 69 x 109	cm 85 x 73 x 130
Set Point	-80°C	-80°C	-80°C	-80°C
Working range	-40°C -85°C	-40°C -85°C	-40°C -85°C	-40°C -85°C
Capacity (litres)	354	505	604	704
Pre painted steel closed doors	2	2	2	2
Shelves/inner doors	4 / 4	4 / 4	4 / 4	4 / 4
Weight Kg	290	320	330	450
Internal surfaces standard	AISI 304 stainless sheet	AISI 304 stainless sheet	AISI 304 stainless sheet	AISI 304 stainless sheet
External surfaces standard	Prepainted steel	Prepainted steel	Prepainted steel	Prepainted steel
Insulation thickness	140 mm	140 mm	140 mm	140 mm
Key Lock	✓	✓	✓	✓
4 wheels (2 with brake)	✓	✓	✓	✓
Controller (touch panel) ST	✓	✓	✓	✓
N°2 PT100 probe (-40°C/-130°C Class A)	✓	✓	✓	✓
RS485, USB Port and SD Card	✓	✓	✓	✓
V.I.P. (vacuum insulation panel)	✓	✓	✓	✓
N.° inox drawers H100 mm	(✓) 8	(✓) 8	(✓) 8	(✓) 8
N.° inox drawers H200 mm	(✓) 4	(✓) 4	(✓) 4	(✓) 4



CRYO 350-2D

CRYO 500-2D

CRYO 600-2D

CRYO 700-2D



# HORIZONTAL FREEZER CABINET

CRYO 110-H / CRYO 170-H / CRYO 230-H

## Technical features:

INTERNAL FRAME: AISI 304 stainless steel (AISI 316 on request) with polished external BA finish for best resistance and cleanliness;

EXTERNAL FRAME: zinc-plated and pre-painted steel sheet (AISI 304 stainless steel on request) satin finish;

THERMAL INSULATION: non-CFC, non-HCFC PU foam, thickness 140 mm;

SEALING GASKET: Triple silicone rubber (prevention against air leaks);

GASKET HEATING: frost formation prevention by means of the "hot gas" recirculation coils; high reliability and energy saving (it does not use additional power by electric heaters);

COMPENSATION VALVE: for internal/external pressure compensation, to facilitate door open/close;

## Options:

Internal AISI 316 surfaces

External AISI 304 o AISI 316 surfaces

Rack/Cak/COS

Kit back up CO2 (24Vac/50Hz)

Kit back up LN2 (24Vac/50Hz)

Emergency plant CO2 (12Vac/25Hz)

with temperature independent regulator

Opening door by transponder personal key

Electrical key

Temperature recorder

Printer (Strip Chart)

GSM port

Additional PT100 probe

(free contacts for external data management system: data logger wireless etc.)

Data logger wireless software/hardware

(temperature management Spy KW)

Voltage stabilizer  $\pm 35V (\pm 15\%)$

IQ/QQ/ecc.

Internal - external hole

## CRYO Series -85°C Ultra Low Temperature FREEZER

HORIZONTAL MODELS -80°C	CRYO 110-H	CRYO 170-H	CRYO 230-H
External dimensions ( W x D x H )	cm 90 x 100 x 124	cm 90 x 100 x 124	cm 150 x 86 x 124
Internal dimensions ( W x D x H )	cm 55 x 40 x 50	cm 63 x 48 x 55	cm 115 x 40 x 50
Set Point	-80°C	-80°C	-80°C
Working range	-40°C -85°C	-40°C -85°C	-40°C -85°C
Capacity (litres)	110	170	230
Pre painted steel closed doors	1	1	1
Shelves/inner doors	-	-	-
Weight Kg	130	140	290
Internal surfaces standard	AISI 304 stainless sheet	AISI 304 stainless sheet	AISI 304 stainless sheet
External surfaces standard	Pre-painted steel	Pre-painted steel	Pre-painted steel
Insulation thickness	175 mm	140 mm	175 mm
Key Lock	✓	✓	✓
4 wheels (2 with brake)	✓	✓	✓
Controller (Touch panel)	✓	✓	✓
N°2 PT100 probe (-40°C/-130°C Class A)	✓	✓	✓
RS485, USB Port and SD Card	✓	✓	✓
Water condenser	NO	NO	✓

## HORIZONTAL FREEZER CABINET

CRYO 330-H / CRYO 480-H / CRYO 700-H

CRYO 110-H  
CRYO 170-H  
CRYO 230-H  
CRYO 330-H  
CRYO 480-H  
CRYO 700-H



### CRYO Series -80°C Ultra Low Temperature FREEZER

HORIZONTAL MODELS -80°C	CRYO 330-H	CRYO 480-H	CRYO 700-H
External dimensions ( W x D x H )	cm 150 x 86 x 124	cm 195 x 88 x 112	cm 256 x 86 x 117
Internal dimensions ( W x D x H )	cm 123 x 48 x 55	cm 122 x 52 x 75	cm 180 x 50 x 78
Set Point	-80°C	-80°C	-80°C
Working range	-40°C -85°C	-40°C -85°C	-40°C -85°C
Capacity (litres)	330	480	702
Pre painted steel closed doors	1	1	1
Shelves/inner doors	-	-	-
Weight Kg	300	350	440
Internal surfaces standard	AISI 304 stainless sheet	AISI 304 stainless sheet	AISI 304 stainless
External surfaces standard	Pre-painted steel	Pre-painted steel	Pre-painted steel
Insulation thickness	140 mm	140 mm	140 mm
Key Lock	✓	✓	✓
4 wheels (2 with brake)	✓	✓	✓
Controller (Touch panel)	✓	✓	✓
N°2 PT100 probe (-40°C/-130°C Class A)	✓	✓	✓
RS485, USB Port and SD Card	✓	✓	✓
Water condenser	✓	✓	✓









DEEP FREEZER  
FREZO Series  
-30°C to -50°C





## VERTICAL FREEZER CABINET

FREZO 85 / FREZO 125

FREZO 250 / FREZO 350

### Technical features:

INTERNAL FRAME: AISI 304 stainless steel (AISI 316 on request) with polished external BA finish for best resistance and cleanliness;

EXTERNAL FRAME: zinc-plated and prepainted steel sheet (AISI 304 stainless steel on request) satin finish;

THERMAL INSULATION: non-CFC, non-HCFC PU foam, thickness 140 mm;

SEALING GASKET: Triple silicone rubber (prevention against air leaks);

GASKET HEATING: frost formation prevention by means of the "hot gas" recirculation coils; high reliability and energy saving (it does not use additional power by electric heaters);

COMPENSATION VALVE: for internal/external pressure compensation, to facilitate door open/close;

REFRIGERATION: The cooling system is completely sealed, using single with one hermetic compressor, noise (<60 dB (A)), high cooling capacity, equipped with magneto-thermal protection and maximum pressure of condensation, the surfaces of aircooled condensers are very large with running tubeless heat exchangers to meet the most severe environmental

conditions and work. The expansion of refrigerants is obtained through capillary tubes and takes place in fixed exchangers. The refrigerants used are non-toxic, non-flammable, nonexplosive and ecological (maximum respect for the environment) HC free, CFC free, HCFC free (ODP = 0 Ozone Depletion POTENTIAL).

### Options:

Internal AISI 316 surfaces  
External AISI 304 o AISI 316 surfaces  
Rack/Cak/COS  
Additional shelves  
Kit back up CO2 (24Vac/50Hz)  
Kit back up LN2 (24Vac/50Hz)  
Emergency plant CO2 (12Vac/25Hz)  
with temperature independent regulator  
Opening door by transponder personal key  
Electrical key  
Temperature recorder  
Printer (Strip Chart)  
Additional PT100 probe  
GSM Port  
Data logger wireless software/hardware (temperature management Spy KW)  
Voltage stabilizer  $\pm 35V (\pm 15\%)$   
IQ/QQ/ecc.  
Internal - external hole

### FREZO Series -30°C to -50°C Deep freezers

VERTICAL MODELS FREZO Series	FREZO 85-UC	FREZO 125	FREZO 250	FREZO 350
External dimensions ( W x D x H )	cm 97 x 58 x 78	cm 80 x 79 x 132	cm 80 x 79 x 188	cm 85 x 78 x 199
Internal dimensions ( W x D x H )	cm 42 x 35 x 58	cm 50 x 45 x 54	cm 50 x 45 x 111	cm 60 x 45 x 128
Set Point	-40°C	-40°C	-40°C	-40°C
Working range	-30°C -50°C	-30°C -50°C	-30°C -50°C	-30°C -50°C
Capacity (litres)	85	125	250	351
Pre painted steel closed doors	1	1	1	1
Shelves/inner doors	2 / 1	2 / 2	4 / 4	4 / 4
Weight Kg	100	200	260	260
Internal surfaces standard	AISI 304 stainless sheet	AISI 304 stainless sheet	AISI 304 stainless sheet	AISI 304 stainless sheet
External surfaces standard	Prepainted steel	Prepainted steel	Prepainted steel	Prepainted steel
Insulation thickness	130 mm	150 mm	140 mm	140 mm
Key Lock	✓	✓	✓	✓
4 wheels (2 with brake)	✓	✓	✓	✓
Controller (Touch panel)	✓	✓	✓	✓
N°2 PT100 probe (-40°C/-130°C Class A)	✓	✓	✓	✓
RS485, USB Port and SD Card	✓	✓	✓	✓
V.I.P. (vacuum insulation panel)	✓	✓	✓	✓
N.° inox drawers H 100 mm	NO	(✓) 4	(✓) 8	(✓) 8
N.° inox drawers H 200 mm	NO	(✓) 2	(✓) 4	(✓) 4
Water condenser	NO	NO	✓	✓



FREZO 85  
FREZO 125  
FREZO 250  
FREZO 350

FREZO 85



## VERTICAL FREEZER CABINET

FREZO 500 / FREZO 600

FREZO 700 / FREZO 800

### Technical features:

INTERNAL FRAME: AISI 304 stainless steel (AISI 316 on request) with polished external BA finish for best resistance and cleanliness;

EXTERNAL FRAME: zinc-plated and prepainted steel sheet (AISI 304 stainless steel on request) satin finish;

THERMAL INSULATION: non-CFC, non-HCFC PU foam, min. thickness 140 mm;

SEALING GASKET: Triple silicone rubber (prevention against air leaks);

GASKET HEATING: frost formation prevention by means of the "hot gas" recirculation coils; high reliability and energy saving (it does not use additional power by electric heaters);

COMPENSATION VALVE: for internal/external pressure compensation, to facilitate door open/close;

REFRIGERATION: The cooling system is completely sealed, using single with one hermetic compressor noise (<60 dB (A)), high cooling capacity, equipped with magneto-thermal protection and maximum pressure of condensation, the surfaces of aircooled condensers are very large with running tubeless heat exchangers to meet the most severe environmental conditions and work. The expansion of refrigerants is obtained through capillary tubes and

takes place in fixed exchangers. The refrigerants used are non-toxic, non-flammable, nonexplosive and ecological (maximum respect for the environment) HC free, CFC free, HCFC free (ODP = 0 Ozone Depletion POTENTIAL).

### Options:

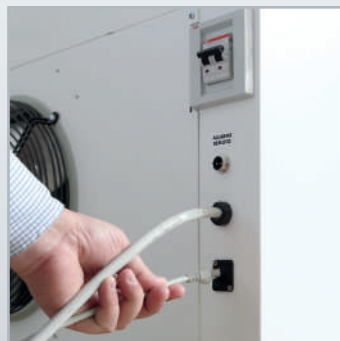
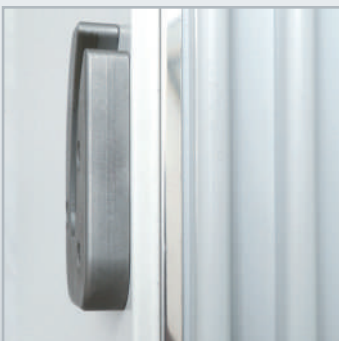
Internal AISI 316 surfaces  
External AISI 304 o AISI 316 surfaces  
V.I.P. (vacuum insulation panel)  
Rack/Cak/COS  
Additional shelves  
Kit back up CO2 (24Vac/50Hz)  
Kit back up LN2 (24Vac/50Hz)  
Emergency plant CO2 (12Vac/25Hz)  
with temperature independent regulator  
Opening door by transponder personal key  
Electrical key  
Temperature recorder  
Printer (Strip Chart)  
Additional PT100 probe  
GSM Port  
Data logger wireless software/hardware (temperature management Spy KW)  
Voltage stabilizer  $\pm 35V$  ( $\pm 15\%$ )  
IQ/QQ/ecc.  
Water condenser  
Internal - external hole

### FREZO Series -30°C to -50°C Deep freezers

VERTICAL MODELS FREZO Series	FREZO 500	FREZO 600	FREZO 700	FREZO 800
External dimensions ( W x D x H )	cm 97 x 96 x 184	cm 106 x 90 x 199	cm 106 x 100 x 199	cm 110 x 103 x 199
Internal dimensions ( W x D x H )	cm 70 x 65 x 111	cm 80 x 59 x 128	cm 80 x 69 x 128	cm 85 x 73 x 130
Set Point	-40°C	-40°C	-40°C	-40°C
Working range	-30°C -50°C	-30°C -50°C	-30°C -50°C	-30°C -50°C
Capacity (litres)	505	604	706	806
Pre painted steel closed doors	1	1	1	1
Shelves/inner doors	4 / 4	4 / 4	4 / 4	4 / 4
Weight Kg	300	300	310	400
Internal surfaces standard	AISI 304 stainless sheet	AISI 304 stainless sheet	AISI 304 stainless sheet	AISI 304 stainless sheet
External surfaces standard	Prepainted steel	Prepainted steel	Prepainted steel	Prepainted steel
Insulation thickness	140 mm	140 mm	140 mm	140 mm
Key Lock	✓	✓	✓	✓
4 wheels (2 with brake)	✓	✓	✓	✓
Controller (Touch panel)	✓	✓	✓	✓
N°2 PT100 probe	✓	✓	✓	✓
RS485, USB Port and SD Card	(✓) 8	✓	✓	✓
N.° inox drawers H 100 mm	(✓) 4	(✓) 8	(✓) 8	(✓) 8
N.° inox drawers H 200 mm	✓	(✓) 4	(✓) 4	(✓) 4



FREZO 500  
FREZO 600  
FREZO 700  
FREZO 800



## VERTICAL FREEZER CABINET – DOUBLE DOOR

FREZO 350-2D / FREZO 500-2D

FREZO 600-2D / FREZO 700-2D

### Technical features:

**INTERNAL FRAME:** AISI 304 stainless steel (AISI 316 on request) with polished external BA finish for best resistance and cleanliness;

**EXTERNAL FRAME:** zinc-plated and prepainted steel sheet (AISI 304 stainless steel on request) satin finish;

**THERMAL INSULATION:** non-CFC, non-HCFC PU foam, min. thickness 140 mm;

**SEALING GASKET:** Triple silicone rubber (prevention against air leaks);

**GASKET HEATING:** frost formation prevention by means of the "hot gas" recirculation coils; high reliability and energy saving (it does not use additional power by electric heaters);

**COMPENSATION VALVE:** for internal/external pressure compensation, to facilitate door open/close;

**REFRIGERATION:** The cooling system is completely sealed, using single with one hermetic compressor noise (<60 dB (A)), high cooling capacity, equipped with magneto-thermal protection and maximum pressure of condensation, the surfaces of aircooled condensers are very large with running tubeless heat exchangers to meet the most severe environmental conditions and work. The expansion of refrigerants is obtained through capillary tubes and

takes place in fixed exchangers. The refrigerants used are non-toxic, non-flammable, nonexplosive and ecological (maximum respect for the environment) HC free, CFC free, HCFC free (ODP = 0 Ozone Depletion POTENTIAL).

### Options:

Internal AISI 316 surfaces  
External AISI 304 o AISI 316 surfaces  
V.I.P. (vacuum insulation panel)  
Rack/Cak/COS  
Additional shelves  
Kit back up CO2 (24Vac/50Hz)  
Kit back up LN2 (24Vac/50Hz)  
Emergency plant CO2 (12Vac/25Hz)  
with temperature independent regulator  
Opening door by transponder personal key  
Electrical key  
Temperature recorder  
Printer (Strip Chart)  
Additional PT100 probe  
GSM Port  
Data logger wireless software/hardware (temperature management Spy KW)  
Voltage stabilizer  $\pm 35V$  ( $\pm 15\%$ )  
IQ/QQ/ecc.  
Water condenser  
Internal - external hole

### FREZO Series -30°C to -50°C Deep freezers

VERTICAL MODELS FREZO Series	FREZO 350-2D	FREZO 500-2D	FREZO600-2D	FREZO 700-2D
External dimensions ( W x D x H )	cm 97 x 80 x 199	cm 97 x 97 x 199	cm 106 x 100 x 199	cm110x103x199
Internal dimensions ( W x D x H )	cm 72 x 46 x 109	cm 72 x 65 x 109	cm 82 x 69 x 109	cm 85 x 73 x 130
Set Point	-40°C	-40°C	-40°C	-40°C
Working range	-30°C -50°C	-30°C -50°C	-30°C -50°C	-30°C -50°C
Capacity (litres)	354	505	604	704
Pre painted steel closed doors	2	2	2	2
Shelves/inner doors	4 / 4	4 / 4	4 / 4	4 / 4
Weight Kg	290	320	330	450
Internal surfaces standard	AISI 304 stainless sheet	AISI 304 stainless sheet	AISI 304 stainless sheet	AISI 304 stainless sheet
External surfaces standard	Prepainted steel	Prepainted steel	Prepainted steel	Prepainted steel
Insulation thickness	140 mm	140 mm	140 mm	140 mm
Key Lock	✓	✓	✓	✓
4 wheels (2 with brake)	✓	✓	✓	✓
Controller (Touch panel)	✓	✓	✓	✓
N°2 PT100 probe	✓	✓	✓	✓
RS485, USB Port and SD Card	✓	✓	✓	✓
N.° inox drawers H 100 mm	(✓) 8	(✓) 8	(✓) 8	(✓) 8
N.° inox drawers H 200 mm	(✓) 4	(✓) 4	(✓) 4	(✓) 4





FREZO 350-2D

FREZO 500-2D

FREZO 600-2D

FREZO 700-2D



## HORIZONTAL FREEZER CABINET

FREZO 110-H / FREZO 170-H / FREZO 230-H

### Technical features:

INTERNAL FRAME: AISI 304 stainless steel (AISI 316 on request) with polished external BA finish for best resistance and cleanliness;

EXTERNAL FRAME: zinc-plated and pre-painted steel sheet (AISI 304 stainless steel on request) satin finish;

THERMAL INSULATION: non-CFC, non-HCFC PU foam, min. thickness 140 mm;

SEALING GASKET: Triple silicone rubber (prevention against air leaks);

GASKET HEATING: frost formation prevention by means of the "hot gas" recirculation coils; high reliability and energy saving (it does not use additional power by electric heaters);

COMPENSATION VALVE: for internal/external pressure compensation, to facilitate door open/close;

### Options:

Internal AISI 316 surfaces

External AISI 304 o AISI 316 surfaces

Rack/COS

Kit back up CO2 (24Vac/50Hz)

Emergency plant CO2 (12Vac/25Hz)

with temperature independent regulator

Kit back up LN2 (24Vac/50Hz)

Opening door by transponder personal key

Electrical key

Temperature recorder

Printer (Strip Chart)

GSM Port

Additional PT100 probe

(free contacts for external data management system: data logger wireless etc.)

Data logger wireless software/hardware

(temperature management Spy KW)

Voltage stabilizer  $\pm 35V (\pm 15\%)$

IQ/QQ/ecc.

Internal - external hole

### FREZO Series -30°C to -50°C Deep freezers

HORIZONTAL MODELS FREZO Series	FREZO 110/H	FREZO 170/H	FREZO 230/H
External dimensions ( W x D x H )	cm 90 x 75 x 124	cm 90 x 75 x 124	cm 150 x 75 x 124
Internal dimensions ( W x D x H )	cm 50 x 40 x 50	cm 63 x 48 x 55	cm 115 x 40 x 50
Set Point	-40°C	-40°C	-40°C
Working range	-30°C -50°C	-30°C -50°C	-30°C -50°C
Capacity (litres)	110	170	230
Pre painted steel closed doors	1	1	1
Shelves/inner doors	-	-	-
Weight Kg	130	140	290
Internal surfaces standard	AISI 304 stainless sheet	AISI 304 stainless sheet	AISI 304 stainless sheet
External surfaces standard	Pre-painted steel	Pre-painted steel	Pre-painted steel
Insulation thickness	175 mm	140 mm	175 mm
Key Lock	✓	✓	✓
4 wheels (2 with brake)	✓	✓	✓
Controller (Touch panel)	✓	✓	✓
N°2 PT100 probe (-40°C/-130°C Class A)	✓	✓	✓
RS485, USB Port and SD Card	✓	✓	✓
Water condenser	NO	NO	✓

## HORIZONTAL FREEZER CABINET

FREZO 330-H / FREZO 480-H / FREZO 700-H

FREZO 110-H

FREZO 170-H

FREZO 230-H

FREZO 330-H

FREZO 480-H

FREZO 700-H



### FREZO Series -30°C to -50°C Deep freezers

HORIZONTAL MODELS FREZO Series	FREZO 330/H	FREZO 480/H	FREZO 700/H
External dimensions ( W x D x H )	cm 150 x 75 x 124	cm 195 x 88 x 112	cm 256 x 86 x 117
Internal dimensions ( W x D x H )	cm 124 x 49 x 55	cm 122 x 52 x 75	cm 180 x 50 x 78
Set Point	-40°C	-40°C	-40°C
Working range	-30°C -50°C	-30°C -50°C	-30°C -50°C
Capacity (litres)	330	480	702
Pre painted steel closed doors	1	1	1
Shelves/inner doors	-	-	-
Weight Kg	300	350	440
Internal surfaces standard	AISI 304 stainless sheet	AISI 304 stainless sheet	AISI 304 stainless sheet
External surfaces standard	Pre-painted steel	Pre-painted steel	Pre-painted steel
Insulation thickness	140 mm	140 mm	140 mm
Key Lock	✓	✓	✓
4 wheels (2 with brake)	✓	✓	✓
Controller (Touch panel)	✓	✓	✓
N°2 PT100 probe (-40°C/-130°C Class A)	✓	✓	✓
RS485, USB Port and SD Card	✓	✓	✓
Water condenser	✓	✓	✓

SHOCK FREEZER  
FOR PHARMACEUTICAL INDUSTRY  
TPSU Series range  
Temperature range -40°C to -82°C





# SHOCK FREEZER TPSU SERIES RANGE

## GENERAL TECHNICAL INFORMATION:

Capacity:	Different options as per the table below
Chamber Temp.:	Adjusted in the range between -40°C to -82°C (tolerance $\pm 2,5^{\circ}\text{C}$ )
Body:	Sheet metal zinc-plated RAL 9010
Chamber:	Stainless steel, material 1.4301
Insulation:	150 mm Polyurethane, 0,19Watt/m <sup>2</sup> K acc. DIN 52612
Door:	Hermetic sealed, lockable, chromed joints full door frame heating
Shelf:	Different options as per the table below
Shelf doors:	For better insulation there are additional inner shelf doors
Refrigerator:	Half hermetic compressor, process water cooled on the shock freezer top, shock-free mounted
Evaporator:	High-performance evaporator, with fans to ensure a high and even air circulation
Microprocessor:	Temperature controller, network dependent with digital LED display/ touch panel, alarm signal if chamber temperature is too high with optical and acoustical report, acoustical signal printable

## FEATURES OF OUR NEW CONTROL SYSTEM:

- Power Failure Management Strategies
- Access to the functions through user identification, tracking of the activities and consequent recording of the temperature values.
- Three-point calibration of the cabinet probe and product probe.
- USB communication port for common USB flash drive accessible from the front of the user interface (to allow the upload and the download of the settings and the data recorded by the controller.
- Elegant design, touch-keys/touch panel, flush mounting and ease of use.
- IP65 protection rating.
- Real time clock (to store the HACCP alarms).
- Adaptive defrost management.
- Time-temperature graphic function.
- Strategies for the management of the lack of power supply.
- Overheated condenser alarm management.
- Access to the controller functions is subject to user identification; any activity will be tracked and the temperatures read by the probes will be recorded.
- The device is equipped with power failure management strategies and a simulation function; thanks to a backup module and battery, it is possible to guarantee, for as long as the battery lasts, power to the user interface and the recording of the temperature value measured by a product probe that is electrically independent from the cabinet probe.

# SHOCK FREEZER -82°C



Schockfroster

Modell: TPSU / 100W  
Innentemperatur: -82°C  
Made in Germany  
[www.thelheimer-kuehlung.de](http://www.thelheimer-kuehlung.de)

thelheimer

# SHOCK FREEZER CABINET

## TPSU - 100 / TPSU - 2800

Defrosting:	Automatic defrosting, should be initiated by user, pre-programmable up to 7 days in real time
Cooling-system:	After receiving the defrost end temperature the deep freeze system will switch on automatically. The shock room will be adjusted to the preselected temperature. It depends on the daily usage how often you have to defrost; hereby it's important that the insertion of the deep freeze goods happens fast. Resulting from our many years of experience we know that the deep freeze system (when daily used) should be defrosted within 158 hrs., one defrosting cycle will take up to 36 hrs.
Defrost water:	Will be led away from shock freezer via a condensate pump into the technical room and into a sewage disposal.

## TECHNICAL DATA

Voltage:	400V - 50Hz - 3ph, safeguarding 25 A
Acoustic pressure:	71 dB (A)
Cooling liquid:	1st stage R 449a CFC free 2nd stage R 23 FCF free
Process water:	temperature VL. +8°/+12° RL. +19°
Water pressure:	inlet pressure up to 6 bars/ outlet pressure less than 1 bar
Water flow:	at full performance approx. 500ltr./hr.
Pressure loss:	0.20 bar

## MEASUREMENTS

Equipment control box:	Complete control and steering components, malfunctions, evaporator 1 and 2 step, phase control, temperature control, evaporator-fan-control, will be transferred to the control and steering box optically and acoustically.
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### Overview Thalheimer SHOCK Freezers

MODEL NAME	CAPACITY	AIRFLOW
	Net Freezing volume	Direction
TPSU / 100 UVS	100L	Vertical Upward
TPSU / 125 DVS	125L	Double Sideward Vertical
TPSU / 125 UVS	125L	Vertical Upward
TPSU / 185 UVS	185L	Vertical Upward
TPSU / 280 SLF	280L	One Sideward Horizontal
TPSU / 500 SLF	500L	One Sideward Horizontal
TPSU / 500 UVS	500L	Vertical Upward
TPSU / 600 SLF	600L	One Sideward Horizontal
TPSU / 700 SLF	700L	One Sideward Horizontal
TPSU / 800 SLF	800L	One Sideward Horizontal
TPSU / 1000 UVS	1000L	Vertical Upward
TPSU / 100 UVS-TH	1000L	Vertical Upward
TPSU / 2800 DSLF	2800L	Double Side Vertical



\*TPSU / 500LSF

# PHARMACEUTICAL SHOCK FREEZER /-AND THAWER

## TPSU - 1000UV / UVS-TH

- Defrosting:

Automatic defrosting, should be initiated by user, pre-programmable up to 7 days in real time
- Cooling-system:

After receiving the defrost end temperature the deep freeze system will switch on automatically. The shock room will be adjusted to the preselected temperature. It depends on the daily usage how often you have to defrost; hereby it's important that the insertion of the deep freeze goods happens fast. Resulting from our many years of experience we know that the deep freeze system (when daily used) should be defrosted within 158 hrs., one defrosting cycle will take up to 36 hrs.
- Defrost water:

Will be led away from shock freezer via a condensate pump into the technical room and into a sewage disposal.
- Optional feature:

Shock Freezer / Thawer (downstream processing of biopharmaceutical products )

It is used for downstream processing of bio-pharmaceutical products (proteins). The Shock Freezer / Thawer enables fast, uniform bulk freezing and thawing of Protein or products contained in a variety of containers, (bags, bottles or any size containers) such as single use system (SUS), polycarbonate vessels or polypropylene vessels.
- Loading System:

Our innovative solution gives you the possibility to quickly load the freezer with the help of a trolley. This way the whole tray with the loaded bottles is inserted into the freezer, giving you the chance to freeze the product, in the fastest time, in a considerably short time.

### TECHNICAL DATA

- Voltage:

400V - 50Hz - 3ph
- Power consumption:

7.5 kW
- Input:

3500 Watt
- Heat emission water:

5500 Watt
- Fan performance

(3 fans are installed)
- Air volume inner:

3X 4415 m³/h
- Air speed inner:

3X 7.7 m/s (3X 1.226 m³/s)
- Acoustic pressure:

71 dB (A)
- Cooling liquid:

1st stage R 449a FCKW free  
2nd stage R 23 FCKW free
- Process water:

temperature VL. +8°/+12° RL. +19°
- Water flow:

at full performance approx. 500ltr./hr.
- Water pressure:

inlet pressure up to 6 bars/ outlet pressure less than 1 bar

Overview Thalheimer Shock Freezers		
MODEL NAME	CAPACITY	AIRFLOW
	Net Freezing volume number of chambers	Direction
TPSU / 100 UVS-TH	1000L	Vertival Upward





\*TPSU / 1000UVS-TH



\*LTW-EHY/ED

# HEAT TRANSFER FLUID DEVICE

## HTFD 1000

Description: Due to the importance of having a stable temperature of the cooling water, feeding the Shock Freezer units and for the aim of reaching the maximum freezing performance of Thalheimers Shock Freezers, the Heat Transfer Fluid Device HTFD 1000 has been developed to provide a constant cooling water, with a stable water pressure.

The HTFD 1000 can supply water up to 6 water cooled Shock freezers. It is connected either to the cooling water circuit of the facility or to a water chiller.

The device is equipped with a tank, which is kept constantly to set temperature by a heat exchanger. The advantage is, that the cooling water circuit of the building is only opened when the temperature of the internal tank is rising.

The device consists further of a pump for the circuit to Shock Freezers and other devices to control and to measure pressure and flow for visualizing on a built in Monitor.

Operation: When all installation procedures are followed correctly, the operator should plug in the power supply of the Shock freezer Unit on the operation side and switch on the HTFD 1000 with the right button with the green lights.

By switching off the Shock freezer Unit, the HTFD 1000 unit can be switched off.

## TECHNICAL DATA

Dimensions: (WxDxH)	2059 x 1109 x 1768 MM
Voltage:	230Volt, 50 Hz, 1 ph, 10 A
Connected load:	0,75 kW
Current draw:	3,1 A
Acoustic pressure:	50 dB(A) on 1 meter
Cooling medium:	Propylene Glycol Water

Overview Thalheimer HTFD 1000	
MODEL NAME	DIMENSIONS MM
	Outside (WxDxH)
HTFD 1000	2059 x 1109 x 1768



\*HTFD 1000



## Note





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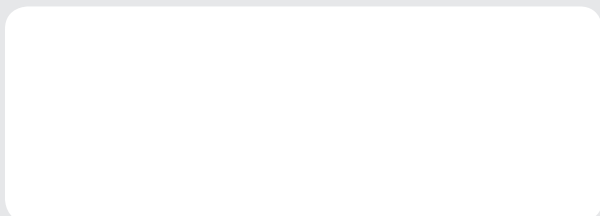
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