

# *ilShinBioBase*

e u r o p e



***Ultra low temperature freezers***  
***eco-friendly dual cooling***

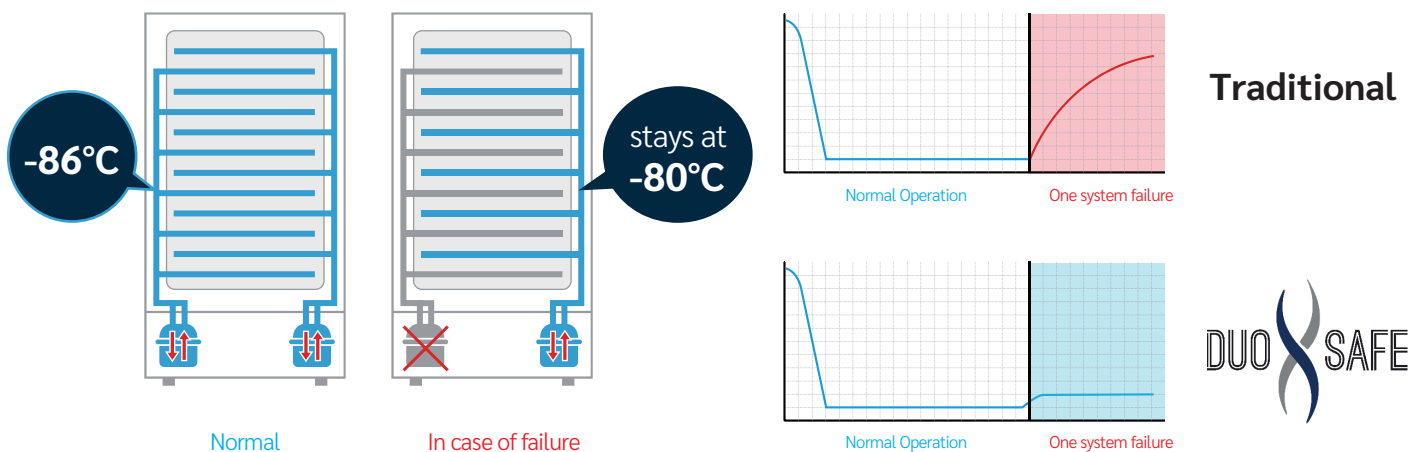
DUO  SAFE

We at ilShin Biobase Europe are proud to serve many laboratories and bio-banks all over Europe with our high quality Ultra Low Temperature storage solutions. Our long history with development and production of ULT freezers started in 1988 and since then our highly skilled engineers, QC staff and our R&D department engineers ensure the newest technology and best possible quality in our products.

With the Duo-Safe freezer technology we are market leader in offering the most reliable ULT freezers in the market today. A full redundant -86°C freezer gives peace of mind for everyone whom is responsible for the valuable samples within their institute, bio-bank or pharmaceutical / biotech company. If an error in one of the refrigeration systems occurs the other system maintains the temperature of your samples at -86°C until the service job has been done by service engineers from one of our local dealers. Which, of course, have been trained to offer the best possible back-up for your ilShin Biobase Duo-Safe freezers.



After the freezers arrive in our European warehouse in The Netherlands, all freezers are tested in our climatic controlled test area by our well experienced QC department to double check if all parameters and temperature values are as they meant to be.



### No worries, no hassles in any emergency

Two independent cooling mechanisms which operate together.

In case of a system failure to one of the compressors, the other compressor maintains -80°C.

This unique refrigeration system is standard on both the normal as the DS series freezers.

Compressors, the heartbeat of the ilShin Biobase Europe -86°C freezers

With the use of Secop SLVE compressors, which are produced in Europe, our Ultra Low Temperature freezers have undergone a transition from DUO-SAFE refrigeration technology with industry standard energy consumption to very low energy consumption still with DUO-SAFE technology safety features. This combination makes the ilShin Biobase Europe ULT freezers a winner for your storage demands at Ultra Low Temperatures:

The energy consumption for all our models are now below 10 kWh / 24h and noise level went down with 8 dBA.

An inverter compressor is constantly running at variable speed (between 2200 and 4500 RPM), this approach has several advantages over a conventional refrigeration compressor;

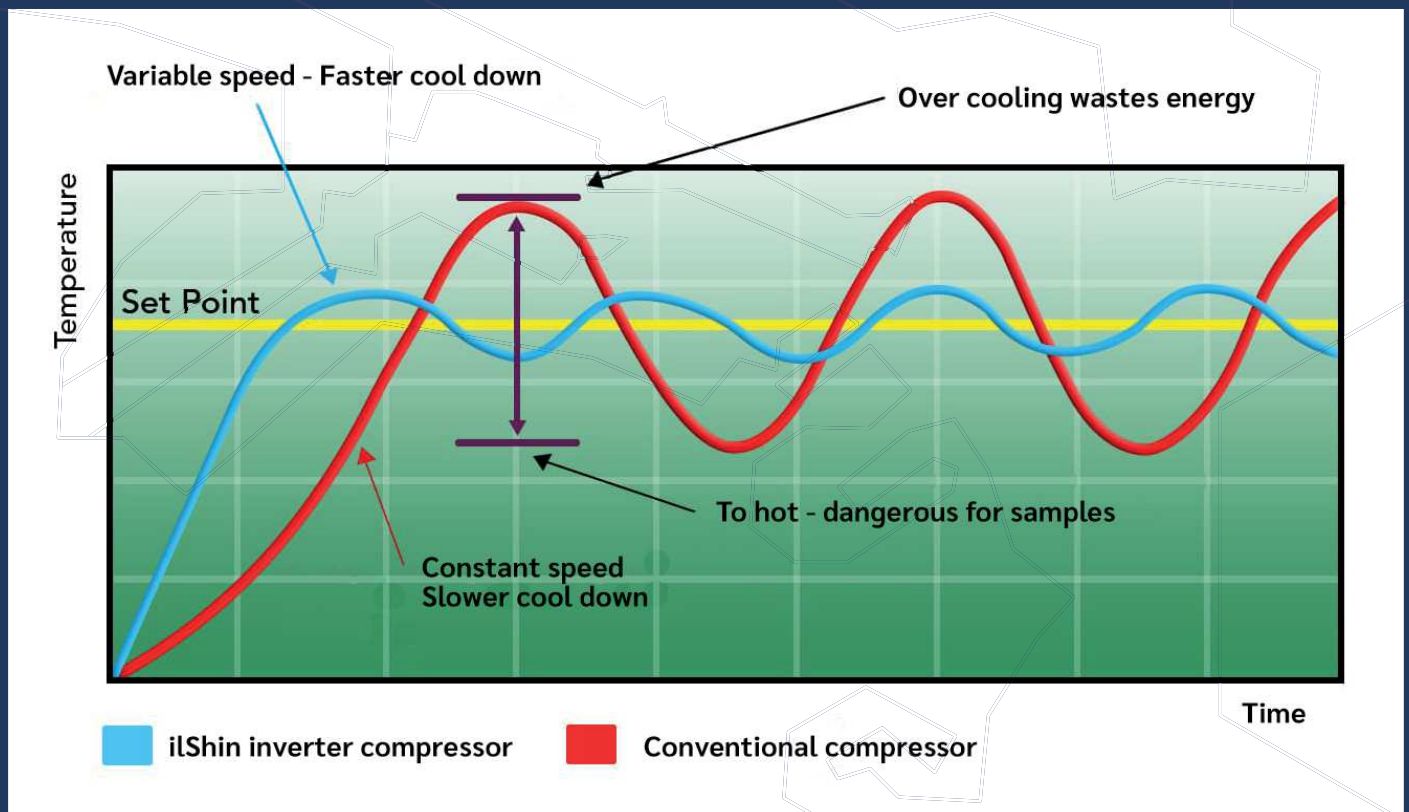
- Temperature control is more accurate
- Energy level is 40% lower compared to conventional compressors
- Lower carbon footprint

### Temperature control:

A compressor compresses refrigerant using a piston that moves inside a cylinder. The movement of the piston creates a space where refrigerant is sucked in. After entering the cylinder, the refrigerant is compressed and sent out to start the refrigeration cycle.

Conventional compressors always operate at maximum speed to cool the ultra low freezer as much as possible, even if it's not needed. This wastes energy and causes excessive piston movement. On the other hand, an inverter compressor can adjust its speed based on how much cooling is required. During cooler times, the compressor can move slower and use less energy.

Starting a compressor uses a lot of energy. However, an inverter compressor running at lower speeds means the compressor won't need to turn on and off as often. This results in using less energy and the compressor will last longer.



### Energy level:

Using inverter compressors decreases the amount of electricity to be used with 40%; compared to conventional compressors. Nowadays everybody is looking for ways to save on energy consumption for budget and environmental reasons. With the ilShin Biobase Europe Duo-Safe freezers you can have low energy consumption and a very high safety level for your valuable samples with our redundant refrigeration system. Best of both worlds.

### Lower carbon footprint:

Obviously with a lower energy consumption and the usage of only natural refrigerants; the carbon footprint of the ilShin Biobase Europe Duo-Safe freezer is another great example why these freezers are the best option when you consider a freezer for long-term storage of your valuable samples in a save and energy efficient way. A nice side effect is that the noise level is 45 dBa (which is comparable with a household freezer).

# Touchscreen control



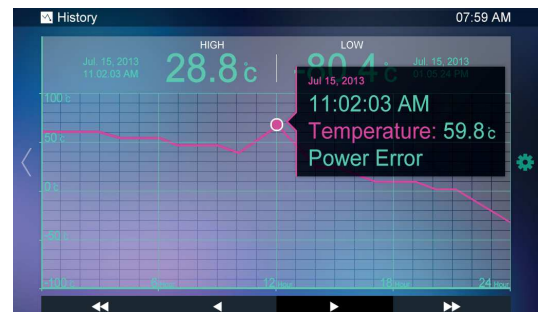
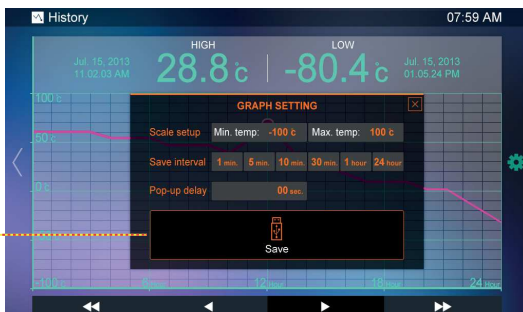
Control the whole freezer with only one finger.  
Alarms, graphs, settings and an inventory system. You can all control it with the tip of your finger

## Data review by touch & scroll



### Graph

- Review on the screen over 43,000 hours past trend.
- USB download of data is available.



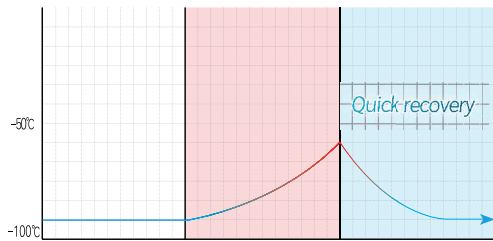
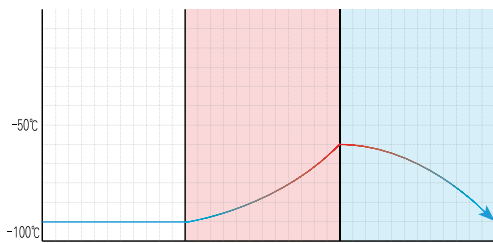
# Better protection and lower energy consumption! POWERFUL INSULATION



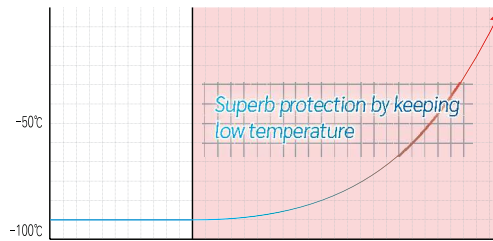
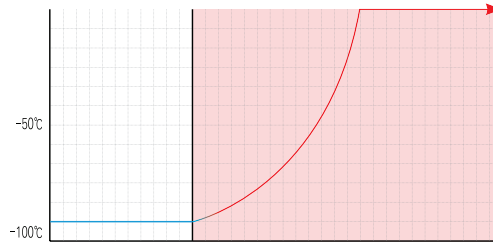
Improved insulation

Combination of VIP and PU provides better insulation that enables fast recovery of chamber temperature.

Temperature change before and after door open/close



Temperature variation during power off



< Other Company Product >



## Don't get bothered by loud noise anymore LOW NOISE STRUCTURE



\*Designed for low noise

Comfortable work environment is provided.  
Noise level is as low as a home refrigerator.

**Low noise below 45 dB(A)**



**130mm**

# Specifications Duo-Safe Pro

## -86°C Duo-Safe Pro series



Model	DF8517P	DF8520P	DF8524P	DF8530P
Capacity	484 liters	605 liters	730 liters	830 liters
Ext. Dimensions (WxDxH mm)	880 x 957 x 1980	1030 x 957 x 1980	1170 x 957 x 1980	1170 x 985 x 1980
Int. Dimensions (WxDxH mm)	600 x 643 x 1288	750 x 643 x 1288	889 x 643 x 1288	889 x 725 x 1288
Temperature Range (°C)	-20°C ~ -95°C			
Insulation	130 mm Non CFC, foamed in place polyurethane with VIP			
Electrical	220-240V   50/60Hz			
Certification	ISO9001 / ISO14001 / ISO13485 / CE / KGMP / ETL			
Energy consumption	8.7 kWh	8.9 kWh	9.1 kWh	9.4 kWh
Peak variation from setpoint	+0.6°C/-3.0°C	+0.8°C/-3.2°C	+1.2°C/-3.6°C	+0.2°C/-3.5°C
Average stability at -80°C	1.05°C	1.15°C	1.25°C	0.75°C
Weight (kg)	307	340	370	399
Inner Doors	4	4	2	2
Compartment height (mm)	300	300	300	300
Shelves	3	3	3	3
Max load shelve	45 kg	45 kg	45 kg	45g
Controller	Microprocessor	Microprocessor	Microprocessor	Microprocessor
Display	LCD Touch Screen	LCD Touch Screen	LCD Touch Screen	LCD Touch Screen
Temperature sensor	Pt-1000	Pt-1000	Pt-1000	Pt-1000
Refrigeration system	Dual-cooling	Dual-cooling	Dual-cooling	Dual-cooling
Compressors	2 pcs Secop SLVE	2 pcs Secop SLVE	2 pcs Secop SLVE	2 pcs Secop SLVE
Refrigerant	Natural	Natural	Natural	Natural
Vacuum release port	2 (1 auto, 1 manual)	2 (1 auto, 1 manual)	2 (1 auto, 1 manual)	2 (1 auto, 1 manual)
Access port	2 (top and left side)	2 (top and left side)	2 (top and left side)	2 (top and left side)
2" Cryo Boxes	20 boxes x 16 racks	20 boxes x 20 racks	20 boxes x 24 racks	25 boxes x 24 racks
3" Cryo Boxes	12 boxes x 16 racks	12 boxes x 20 racks	12 boxes x 24 racks	15 boxes x 24 racks
2" Boxes/Freezer	368* boxes	460* boxes	552* boxes	690* boxes

\*Order our new type of racks (6-6-6-5 configuration) for maximum storage capacity

# Specifications Duo-Safe



## -86°C Duo-Safe Series

Model	DF8517	DF8520	DF8524	DF8530
Capacity	484 liters	605 liters	730 liters	830 liters
Ext. Dimensions (WxDxH mm)	880 x 957 x 1980	1030 x 957 x 1980	1170 x 957 x 1980	1170 x 985 x 1980
Int. Dimensions (WxDxH mm)	600 x 643 x 1288	750 x 643 x 1288	889 x 643 x 1288	889 x 725 x 1288
Temperature Range (°C)	-20°C ~ -95°C			
Insulation	130 mm Non CFC, foamed in place polyurethane with VIP			
Electrical	220-240V   50/60Hz			
Certification	ISO9001 / ISO14001 / ISO13485 / CE / KGMP / ETL			
Energy consumption	8.7 kWh	8.9 kWh	9.1 kWh	9.4 kWh
Peak variation from setpoint	+0.6°C/-3.0°C	+0.8°C/-3.2°C	+1.2°C/-3.6°C	+0.2°C/-3.5°C
Average stability at -80°C	1.05°C	1.15°C	1.25°C	0.75°C
Weight (kg)	307	340	370	399
Inner Doors	4	4	2	2
Compartment height (mm)	300	300	300	300
Shelves	3	3	3	3
Max load shelve	45 kg	45 kg	45 kg	45kg
Controller	Microprocessor	Microprocessor	Microprocessor	Microprocessor
Display	Led digital	Led digital	Led digital	Led digital
Temperature sensor	Pt-1000	Pt-1000	Pt-1000	Pt-1000
Refrigeration system	Dual-cooling	Dual-cooling	Dual-cooling	Dual-cooling
Compressors	2 pcs Secop SLVE	2 pcs Secop SLVE	2 pcs Secop SLVE	2 pcs Secop SLVE
Refrigerant	Natural	Natural	Natural	Natural
Vacuum release port	2 (1 auto, 1 manual)	2 (1 auto, 1 manual)	2 (1 auto, 1 manual)	2 (1 auto, 1 manual)
Access port	2 (top and left side)	2 (top and left side)	2 (top and left side)	2 (top and left side)
2" Cryo Boxes	20 boxes x 16 racks	20 boxes x 20 racks	20 boxes x 24 racks	25 boxes x 24 racks
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\*Order our new type of racks (6-6-6-5 configuration) for maximum storage capacity

TFT LCD 7" Touch Screen  
Control panel  
Smart Microprocessor control

Heated pressure relief valve.  
This device enables the  
operator to open the door  
within 60 seconds after the  
last opening.



Anti-explosion door lock  
Autorelief system (open  
& close) works in case  
of high pressure formed  
inside of chamber. Key  
set is provided for locking  
function.

Powerful insulation

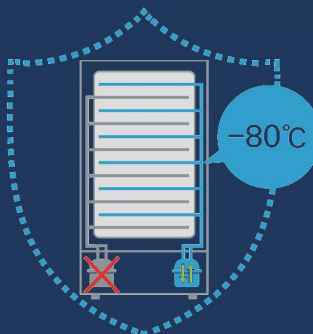
High pressure injected  
POLYURETHANE with  
130mm thickness  
keeps temperature  
less than 3°C between  
chamber inside and  
outer wall.



Standard two door  
configuration for  
model DF8524 and  
DF8530

Inner door for each  
shelf

HDPE inner doors  
minimize cold air loss.



Duo-Safe system  
(Combination of single  
compressor operation mode)

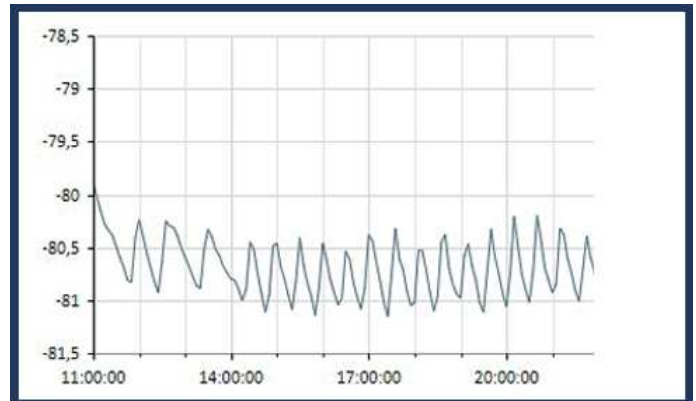
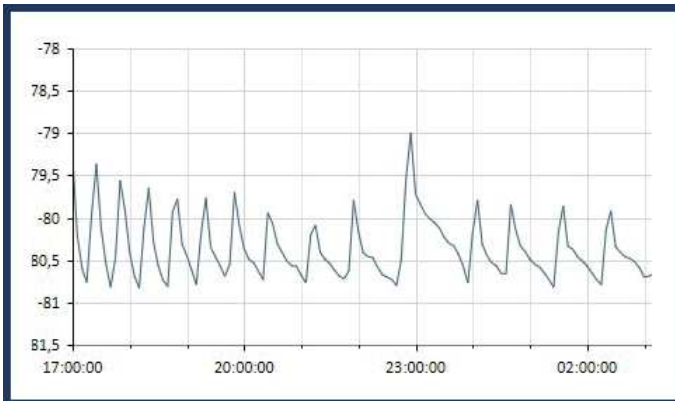
Even with failure of one  
compressor, temperature is  
still maintained at 80°C. Fast  
pull down to -90°C and energy  
efficient ECO mode.

Inverter compressors with  
low energy consumption,  
natural refrigerants, low noise  
level and high temperature  
uniformity and stability.

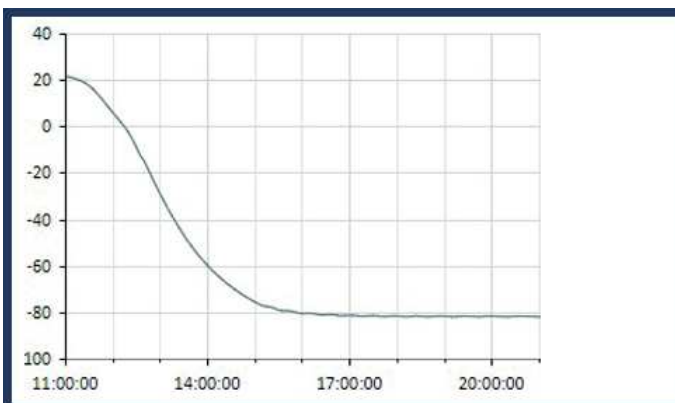


# Temperature performance

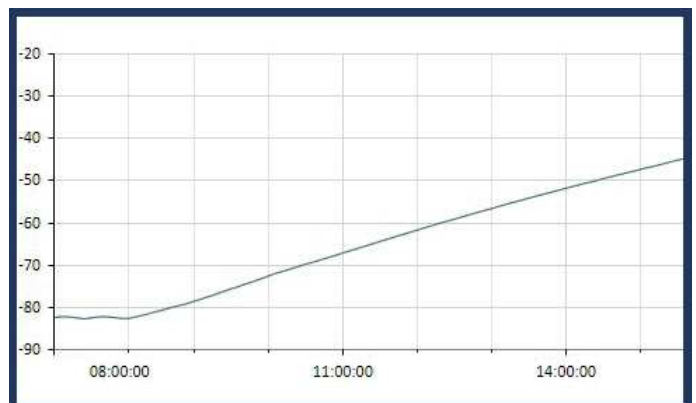
## Stability tests



## Cool-down curve



## Warm-up curve



# Accessories

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Storage racks: side opening \*(SO) or sliding shelves

Item NO.	Boxes Size	Quantity	Purpose
UR0068	2"	20	*(SO) Upright Freezer 8517, 8520. 8524
UR0069	3"	12	
UR0070	2"	25	*(SO) Upright Freezer 8530
UR0071	3"	15	
UR1068	2"	20	Upright Freezer 8517, 8520. 8524
UR1069	3"	12	Upright Freezer 8517, 8520. 8524
UR1070	2"	25	Upright Freezer 8530
UR1071	3"	15	Upright Freezer 8530



Storage Box & Divider

Series NO.	Boxes Supplied
POP02	2" Polypropylene
POP03	3" Polypropylene
PP0060-9	2" Cardboard 81 cell
PP0060-10	2" Cardboard 100 cell
PP0061-9	3" Cardboard 81 cell
PP0061-10	3" Cardboard 100 cell



Security Finger Print & Card Access Control System

Series NO.	Description
SCA0002	Enhanced security by fingerprint and access card key to improve D.A.S function.



CO2 / LN2 Back-up

Series NO.	Description
LCU070	CO <sub>2</sub> back-up system with battery and temperature display
LCU071	LN <sub>2</sub> back-up system for protection of samples from emergency situation (black out, temperature drop)



IQ/OQ Documents

Series NO.	Description
IQOQ100	factory filled in IQ/OQ protocol package DF series



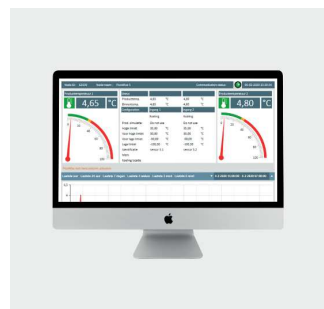
Chart Recorder

Series NO.	Description
CH0067	Temperature recorder. 24/7 day circular chart recorder



Safety Glove

Series NO.	Description
GL0005	Protection from frost bite Size: M/L/XL



Temperature monitoring system

Series NO.	Description
DS0119	Wireless sensor based emergency protection by giving alarms by email and sms



# Factory installed options

Beside the accessories shown on the page before, there are a couple of special options which are available. These options can not be ordered afterwards. Although they are standard, they have to be build in separately, in the factory.

Finger print and card access control system as shown on the page before. This system guarantees that only those who are authorized can open the freezer

Stainless steel interior.  
If needed, the whole interior (including shelves and inner doors) can be executed in Stainless steel



Water/air cooling  
Truly an unique combination available upon request.  
This way you get the most efficient cooling system possible

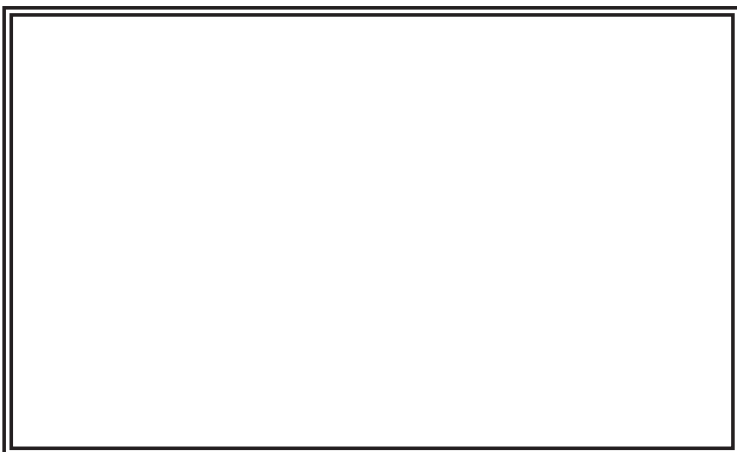
# ***ilShinBioBase***

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***“Ultra low temperature is in our DNA”***



***Local distributor:***



***Find out more at: [www.ilshinbiobase-europe.com](http://www.ilshinbiobase-europe.com)***

***Maxwellstraat 11 - 6716BX - Ede - The Netherlands***