

IceCube Series 14

The New Standard
in Computer Controlled
Freezing



SY-LAB

IceCube Series 14

Cryobiology

For many years cold conservation processes and in particular liquid nitrogen freezing, have become firmly established in biological research and medical therapies. Sample material can originate from human or veterinary provenance. Within a wide range of human and veterinary cell lines, typical materials for

user programmed freezing and thawing are stem cells, cord blood and other blood components, bone marrow, tissue cultures, organ parts, skin, spermatozoa, oocytes, embryos and many others. With ongoing research new materials and applications will be published and added in the future. IceCube Series 14 is equipped with the necessary accessories and software to match the challenging tasks of prospective cryoconservation.

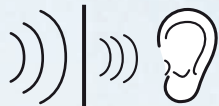


IceCube 14M

IceCube 14S

Silent

low noise solenoid-operated valve



The New IceCube Freezers Series 14

SY-LAB presents its new series of freezers fitted with the latest EDP components which includes a touch screen monitor as the central control element. This concept is the product of over 30 years of experience in refrigeration equipment design and meets the increasing demands of our customers for the most up-to-date quality requirements. The new IceCube 14M Model has all the attributes of the 14S but with a larger 36 litre chamber. All models can be equipped with a noise reduced magnetic valve as an option.

The Hardware Concept

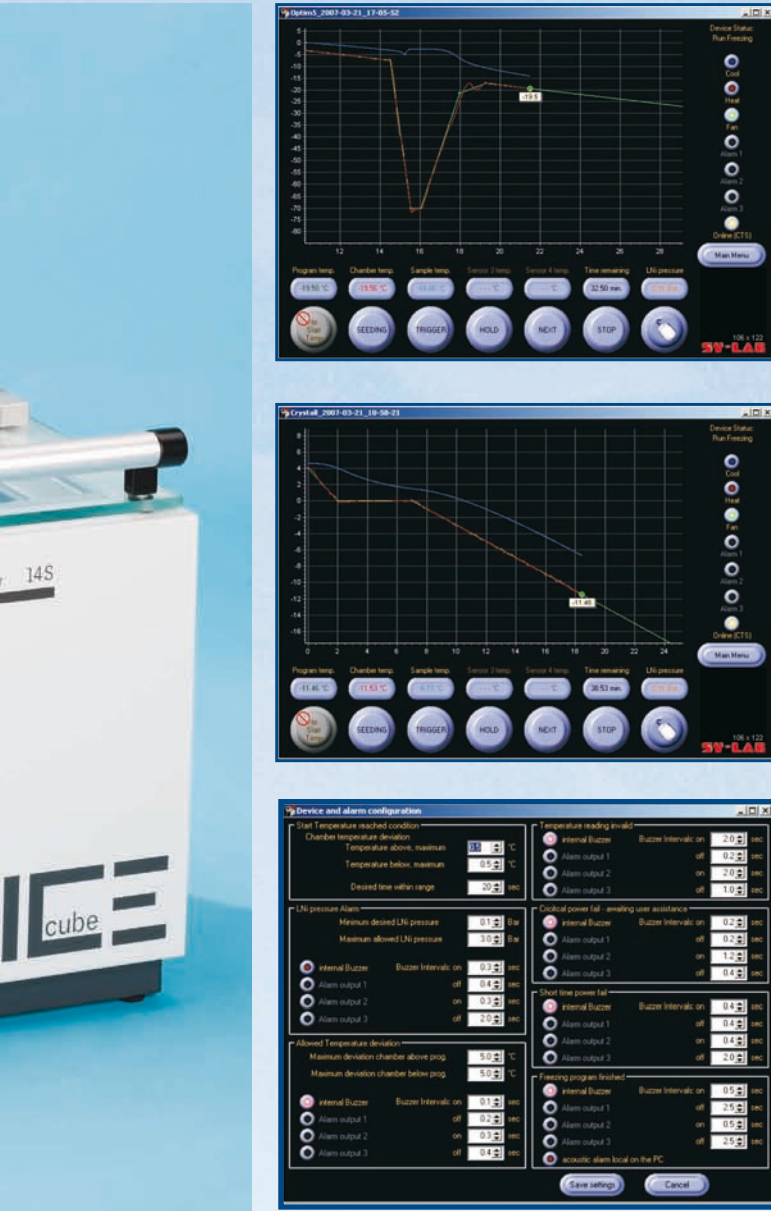
For internal process control a RISC microprocessor device is used. It is connected online to a PC operating under MS Windows®. The PC is compatible with the instrument and is noncritical in size and configuration. Even should the PC malfunction the IceCube Freezer continues its work until the programme has ended. Data input and programme creation as well as data display and administration are carried out through the touch interface or a separate keyboard/mouse. SY-LAB has combined a compact instrument design with state of the art electronics and EDP components.

The Freezing Chamber

Liquid nitrogen is delivered by a pressurised liquid cylinder usually with a capacity between 35 and 240 litres. Liquid Nitrogen is injected into the chamber by means of a turbine wheel. The new hinged and fully transparent chamber lid allows an unhindered view into the chamber to observe the samples. Up to 3 additional Pt-100 thermometers can be connected in addition to the control probes. The LIN¹⁾ intake pressure is permanently displayed and documented as an operating parameter (option). Seeding accessories for different sample containers and a vibrating freezing trigger improve properties at the time of crystallisation and are available on demand. Listed in this brochure are a range of racks and holders, most of which are stackable.

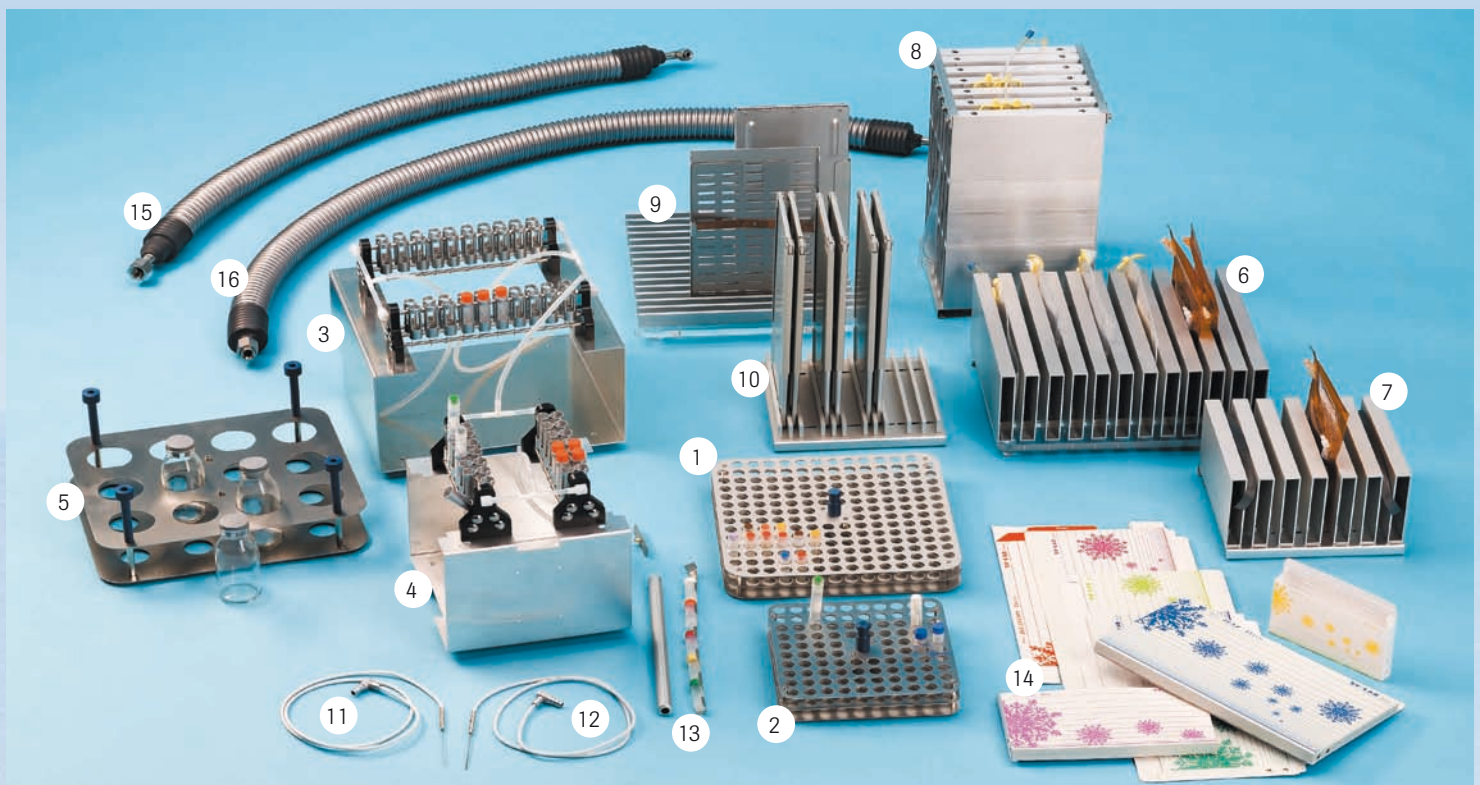
The chambers are suitable for medical cryoconservation (European Medical Product registration available), research and development work and for industrial production.

1) Liquid Nitrogen



Software, Image Display, Data Output

The IceCube operating program runs under MS Windows® XPP or MS Vista®. A practical unlimited number of program steps and programs can be edited, stored and retrieved for operation. Start temperature is selectable, temperature profiles of all thermo probes including the demanded temperature profile are displayed in different colours. The software allows individual setting of control and display parameters and includes a high resolution zoom so that program generation, which includes optimisation against latent heat of fusion, is easy and results in increased cell viability rates. Printout can be carried out at any MS Windows® compatible printer and/or data transfer into a LAN. Restart after mains interruption is programmable, a backup through a UPS is recommended.



item	Cat.No.	Description	Capacity	Total Chamber Capacity	
				14M	14S
1	10-187500	Rack, Vials 1.8/2/5ml	188	564 (5ml) – 1128	
2	13-158500	Rack, Vials 1.8/2/5ml	96		240 (5ml) – 480
3	13-158700	Autoseeding Rack, Vials 1.8/2/5ml	40	40	
4	13-158705	Autoseeding Rack, Vials 1.8/2/5ml	28		28
5	10-167510	Rack, Bottles, 20ml	36	36	
5	13-158480	Rack, Bottles 100ml	12	36	
6	13-158000	Rack Bloodbags, universal, horizontal	11	max. 22	
7	13-158610	Rack Bloodbags, universal, horizontal	6		max. 12
8	13-158015	Rack Bloodbags, universal, vertical	11	11	
	13-158620	Rack Bloodbags, universal, vertical	6		6
9	13-158020	Rack Bloodbags in Metal Cassettes	16	16	
10	13-158600	Rack Bloodbags in Metal Cassettes	11		11
11	13-156880	Temperature Sensor 65 x 1mm		✓	✓
12	13-156885	Temperature Sensor 65 x 1.5 mm		✓	✓
13		Holder Vials „Canes“	5	10-167600 Freezing Holder available	
14	12-201xxx	Cassettes, Special Carton for Bloodbags		Please Ask for Specification List	
15	13-159010	Hose, insulated, 1m		Part of Connection Kit Small	
16	13-159013	Hose, insulated, 1.3m		Part of Connection Kit Large	
17	10-167260	Rack f. Straws 0.25 and 0.5ml	92*	4140 / 2760	
18	13-158510	Rack f. Straws 0.25 and 0.5ml	36*		1620 / 1080
19	10-167285	Straws Distribution Block 14M	92		
20	13-158515	Straws Distribution Block 14S	36		
21	10-187240	Autoseeding Rack, Straws, CBS	33	33	
	13-158552	Autoseeding Rack, Straws, CBS	22		22
	13-158756	Seeding manual, Topplate w. 31 Plugs	31	124	
22	13-158755	Seeding manual, Topplate w. 16 Plugs	16		64
23	13-158750	Click Holder f. Straws with Turnlock	4	124	64

*) for 0.25 ml straws special racks with capacities of 130 (13-158521) or 54 pcs. per layer are available.



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Different Versions for your Laboratory

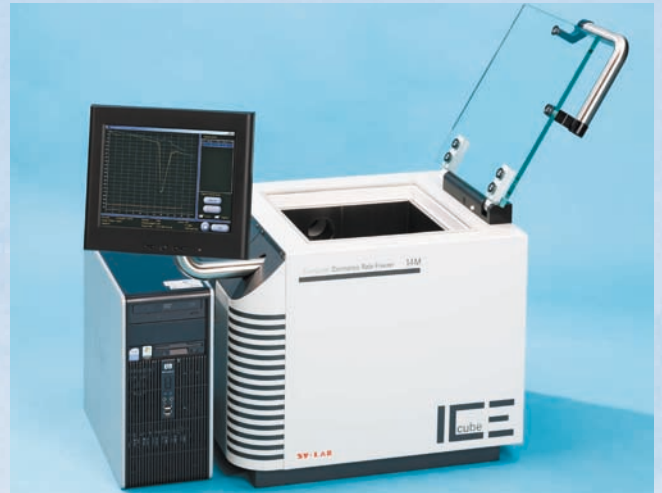
The IceCube Series 14 is offered in 2 different chamber sizes and up to 3 different design variations. Model A complies with a basic and cost saving solution without a touch monitor. Model B of the IceCube Series utilises the full capabilities of the software and the user interface. The touch screen above the console

is in easy reach for the operating personnel. Using a Microtower PC the system needs less bench clearance in today's overcrowded labs.

Model 14S-D includes a wall mountable PC rack which accepts Small Form Factor PCs.



Computerfreezer IceCube 14M-A



Computerfreezer IceCube 14M-B



Computerfreezer IceCube 14S-A



Computerfreezer IceCube 14S-B

Model	Chamber volume(l)	Main Voltage	Order No.
14S-A	16.4	230 V	13-140000
14S-A	16.4	115 V	13-140004
14S-B	16.4	230 V	13-140008
14S-B	16.4	115 V	13-140012
14S-D	16.4	230 V	13-140024
14S-D	16.4	115 V	13-140028
14M-A	36	230 V	13-140040
14M-A	36	115 V	13-140044
14M-B	36	230 V	13-140048
14M-B	36	115 V	13-140052



Computerfreezer IceCube 14S-D

IceCube Series 14



Technical Data - IceCube Series 14

Computer-controlled Freezing System with integrated RISC Mikroprocessor, and LAN compatible PC, selectively with Touch-Screen or Standard LCD Monitor with connection to Liquid Nitrogen (LIN) Supply Container.

Freezing Chamber

stainless, with transparent top opening safety lid, turbulent gas flow, LIN magnetic valve, optional supply pressure monitor, 2 to max. 4 pcs. Pt-100 temperature sensors in shielded 4 conductor measuring technique, heating element, thermofuse, safety switchoff at open chamber lid, automatic and manual Seeding Devices.

Electronics and Data Processing

operation control by independent RISC microcontroller, data acquisition and handling with LAN capable PC, user operation at model B via 12" Touchscreen Colour LCD Monitor, all Windows®-compatible printers adaptable, alarm signals of various events can be transmitted over potential free relais (Option).

	14 M	14 S
Model	A: PC with LCD Monitor; B: PC with Touch Monitor	
Temperature range	+40°C to -180°C (104F bis 292F)	
Cooling rates	0.01 to 60°C/min	
Heating rates	0.01 to max. 15°C/min	
Temperature sensors	Pt-100. 1.5 mm Ø x 65 mm length, or (Option) 1 and 1.5 mm Ø x 65/100/160/200 mm	
Temp. display resolution	0.01°C	
Freezing chamber and capacity		
Chamber dimensions	mm: 297 x 317 x 378 inch: 11.69 x 12.48 x 14.88	mm: 217 x 217 x 348 inch: 8.54 x 8.54 x 13.70
Volume (litre)	36	16,4
Straws 0.25 ml or 0.5 ml	2760	1080
Vials 1.8 – 2 ml	1128	480
Vials 5 ml	564	240
Bloodbags *)	11	6
Bloodbags in metal cassettes *)	16	11
Outer dimensions B x T x H (H with open lid)	mm: 630 x 510 x 550 (860) inch: 24.8 x 20.08 x 21.65 (33.86)	mm: 540 x 420 x 520 (820) inch: 21.26 x 16.54 x 20.47 (32.28)
Supply container/ liquid cylinder	Container with pressure builtup from 0.5 to max. 1.5 bar (7 – 22 psig), hose entry manifold equipped with pressure relief valve, recommended supply container capacity 30 – 240 l	
Pressure sensor (Option)	permanent LIN pressure display and file storage	
AutoSeeding preparation (Option)	second LIN line with magnetic valve for automatic switchon of a seeding rack for vials and/or straws	
Netweight, without PC kg/ lb (avdp)	~ 39/86	~ 29/64
Electric supply	115 – 230 V AC, please specify at order, power consumption 1265 VA	115 – 230 V AC, please specify at order, power consumption 1035 VA
Accessories	various chamber furniture/racks, 3.+4. temperature sensors, temperature sensor flat foil, potential free alarm outputs, vibration element, uninterruptible power supply (UPS), insulated LIN metal hoses, LIN supply vessels, IQ/OQ protocols, noise reduced magnetic valve (solenoid), Protective wear/goggles, aprons, gloves. Medical Product registration: requires technical monitoring and periodic inspection.	

*) dependent from size and/or fill volume

Specifications are subject to change without notice.