FRIOSTAR
ICE TECHNOLOGIES
www.friostar.it
ITALY

icelab

SMART ICE BAGGING SYSTEM

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Friostar has been specialized for over 40 years in the design and installation of plant and machinery for production, storage and packaging of ice, in all its forms.

The consolidated experience in the international arena, reliability and a high degree of technical skills allow us to offer an efficient and precise design, using the most cutting-edge tools and materials.

icelab

is an innovative system for semi-automatic storage and packaging of ice, suitable to produce bags of ice in small and medium quantities.

SYSTEM OPERATION

Ice makers are installed on top of ICE LAB and the ice fills the deposit without the need of any operator.

When ready to pack, simply place a bag under the output hopper and press the pedal. The quantity of ice previously set on the touch panel will be automatically dosed.
The filled bag will be closed by an operator with a sealer and stored in a cold room. In the larger version, the bag is opened and filled automatically, ready to be sealed.

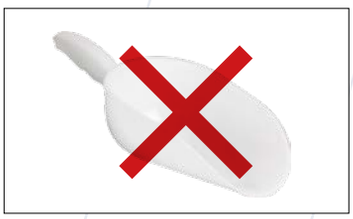
APPLICATIONS

- **Packed ice factories**
- **Fish centers**
- **Camping and Marine**
- **Vending machines**
- **Beverage producers and distributors**
- **Discos**
- **Food and process industries**

BENEFITS

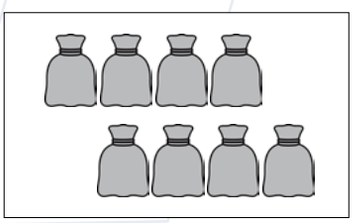
**Packaging in standing position for better comfort of the operator.
No bending over for collecting the ice required**

No contact between operator and ice



Ice packaging compliant with HACCP rules and without risk of contamination

Packaging speed more than 8 bags per minute



Compliant for contact with food
(REG.EU 1935/2004 &
FDA FOOD CONTACT)

ENERGY SAVING

Ice is not water!
Ice is made of water
but its intrinsic value is the electricity needed to produce it.

Any machine to produce 1 kg of ice needs almost 3 kg/liters of water and the remaining 2 kg/liters are usually discarded. It is drinking water, usually treated and above all cold, therefore it is a precious product for which a lot of electricity has already been used.
In order to optimize costs and resources, as well as protect the environment, it is therefore of fundamental importance to implement every possible action to reduce waste, both of water and electricity, increasing the energy efficiency of the entire plant.
Through the ICE LAB technology we can recover the waste water and reintroduce it into the production circle, so that every liter of incoming water becomes ice, creating a circular economy system.
In the same way, ICE LAB has the ability to use the cold coming from ice scraps and melt water to recover more electricity.
The exclusive hermetic storage system also allows optimal storage by minimizing melting and avoiding ice deterioration.

FEATURES

- Suitable for any existing ice maker, even an existing one
- MODULAR SYSTEM gradually expandable with additional ice making modules
- Coating with materials suitable for contact with food
- The ice is always in contact with food plastic surfaces to avoid any deformation of the ice cube
- The transfer of ice to the packaging takes place slowly to avoid any damage to the product and increase its quality
- Sealed environment to avoid any external contamination
- Self-supporting structure without the need to build additional structures to support the ice makers
- ICE LAB is completely water resistant so as to always have a clean and dry laboratory
- Design to minimize deformation and breakage of the ice cubes
- PLUG & PLAY monobloc system
- ICE LAB Can be installed in any environment without any masonry work
- Equipped with an exclusive system to prevent water from falling into the deposit
- System for separating ice flakes and depositing ice cubes only
- Suitable for outdoor installations
- Perfect washability of all surfaces in contact with ice
- ICE LAB is ready for use and can be repositioned at any time

CONFIGURATIONS

Module	Storage capacity	N° of ice makers that can be installed	Average ice production	External dimensions	Installed power	Power supply
ICE LAB 1	**1000 kg**	**2 file x 3 levels = 6**	**1200 kg/24h**	**cm 400 x 145 x 190h**	**1.5 Kw**	**400V 3N 50Hz**
ICE LAB 2	**2000 KG**	**4 file x 3 levels = 12**	**3000 kg/24h**	**cm 400 x 200 x 230h**	**1.5 Kw**	**400V 3N 50Hz**
ICE LAB 3	**3000 KG**	**8 file x 3 levels = 24**	**4800 kg/24h**	**cm 600 x 200 x 230h**	**2 Kw**	**400V 3N 50Hz**

Upon request	• **Double deposit with shared dosing unit to pack 2 types of ice** • **Structure without insulation in case of installation of the system in an existing isolated room** • **Visually controlled dosing system where precision is not required** • **Single-phase 230 V power supply**

OPTIONAL EQUIPMENT

Recycling of waste water	In the event that a reverse osmosis system is installed, this system allows the recovery of the waste water and its reuse for the production of ice, with an energy recovery of over 20% compared to a standard configuration.
Reuse of melt water	The dissolving water, together with the discarded flakes is collected in a suitable tank.
Pre-cooling of the production water	The water is pre-cooled in order to both reduce the temperature difference of the ice generator and increase productivity.
ICE 4.0. The only Industry 4.0 technology applied to ice production	ICE LAB allows digital connection to Industry 4.0 technologies with the possibility of accessing to financial incentives. With the Friostar Ice 4.0 system, it is possible to check the operation and performance of the system, in particular: daily consumption of electricity and water; amount of ice produced per day; amount of packaged ice per day; number of bags produced; hours spent on packaging. Thanks to these measurements, the user is able to calculate the daily cost of each kilogram of ice produced.
Production control	Within the ICE 4.0 package it is possible to monitor the performance of each ice maker and establish a performance trend, as well as identify which ice maker is in block or with low performance.
Ice drying system	High-performance system that allows the sub-cooling and drying of the ice cube before packaging.
Automatic bag opening	System that allows the opening of the bag below the outlet hopper, without the need to manually position the bag and thus speeding up packaging.
Volumetric doser	Volume dispenser that allows to speed up packaging.
Washing and sanitizing system	System that allows automatic washing and sanitizing of the entire deposit. Thanks to the PLC with TOUCH panel (HMI with SIEMENS technology) it is possible to set the dosage of the detergent, the subsequent rinsing and dosage of the sanitizer, in compliance with the HACCP regulations.
Integrated water treatment system	Complete system with softener and reverse osmosis filters.
Vending machine	Possibility of controlling the ice dosage with prepaid systems with rechargeable magnetic key.
COMPLEMENTARY EQUIPMENT	• Continuous welding machine • Dater for production lot and expiry date • Printer • Storage trolleys

Extraction with worm screw with variable pitch made of food plastic material

Interlocked access door for cleaning and maintenance operations

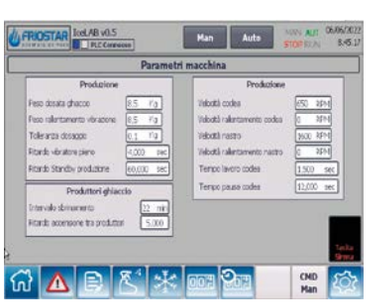
Removable bulkheads in transparent polycarbonate

Inspection hatch for ice area

Output hopper in AISI 304 stainless steel with pedal operated adjustable support surface

Weight control with load cell

System automation integrated with Siemens technology and compliant with INDUSTRY 4.0



Siemens touch panel for control and regulation of all the operating parameters

Service shower for storage washing

FRIOSTAR SRL Via Impastato, 10 - 47922 Rimini - ITALY - Tel +39 0541 1741548