ice cream machines

ICE group

2015

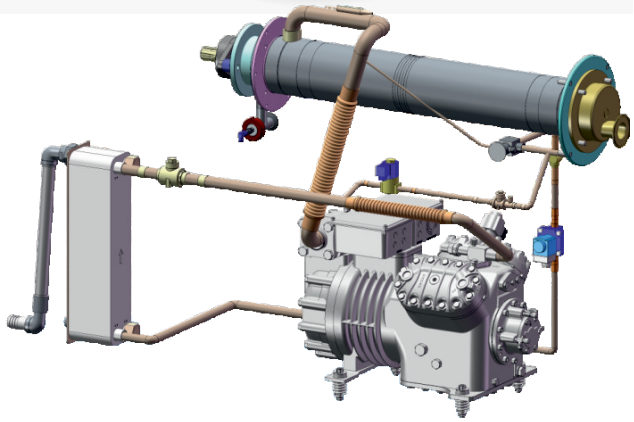
FROSTO 700 HYBRID* – automatic continuous freezer

Edition March 2015

EUROPEAN COMMUNITY PRODUCT

-CE standard
-worldwide accessible components and spare parts
-hygiene, safety and easy operation standards!

EUROPEAN COMMUNITY PRODUCT



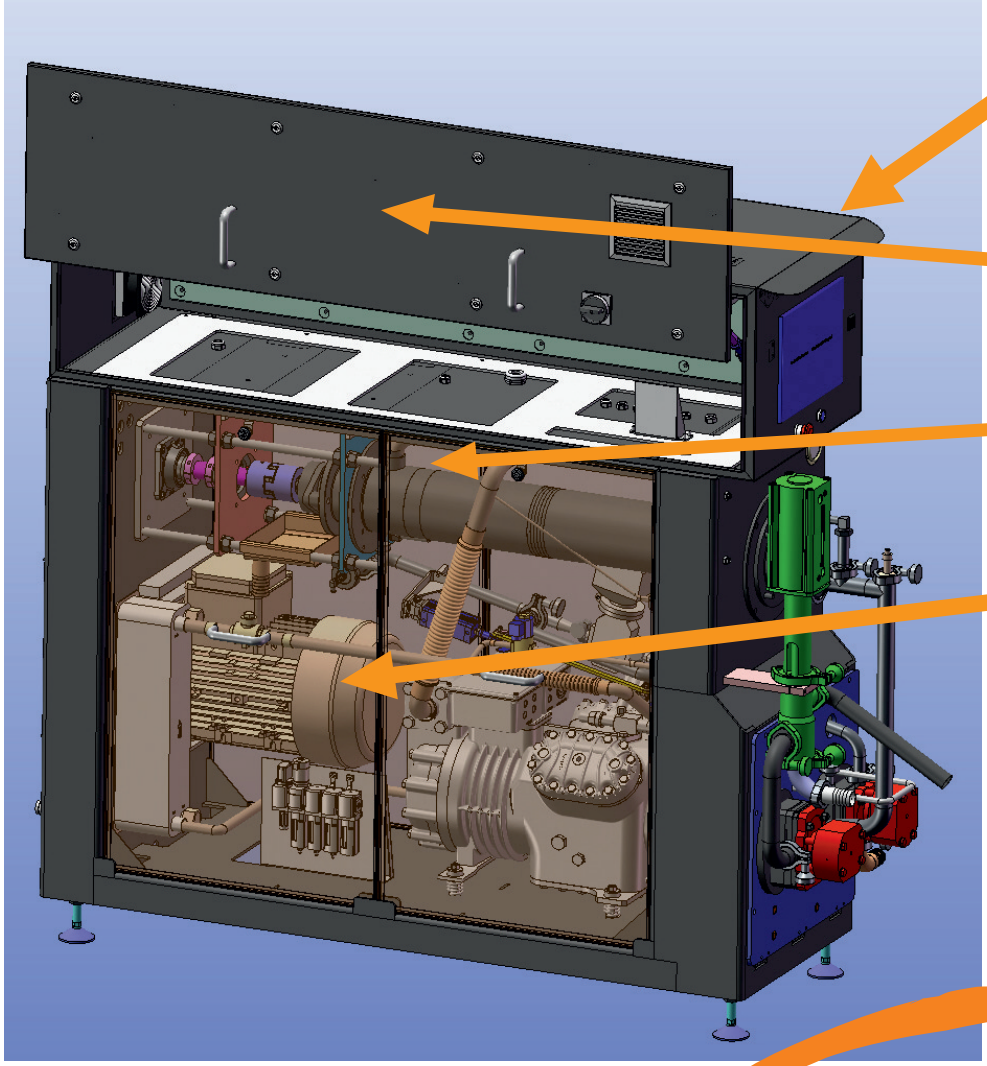
FROSTO 700 HYBRID at a glance:

- fully automatic working mode with regard to production, diagnosing and cleaning
- easy to operate – using a controller with touch screen panel makes operating the panel very easy
- large cylinder = better overrun and ice cream stability
- meets the highest hygienic standards
- overrun from 10 to 130%
- wide range of capacities: 130-700 L/H
- reasonable and foreseeable spare parts' costs
- efficient system resulting in very small ice cream losses on start-up and while stopping production

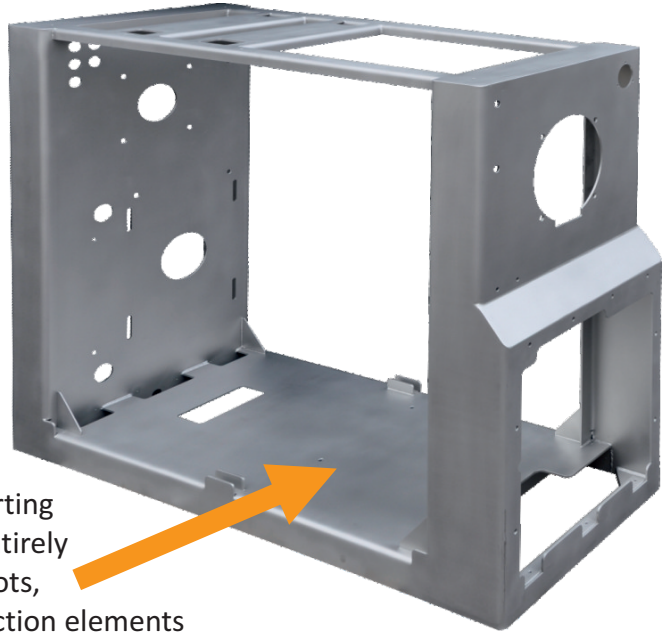
***Hybrid** is a result of a combination of two key cooling components, i.e. semi-hermetic Bitzer compressor and Alfa-Laval plate heat exchanger which gives an optimal value of price in relation to components' quality and saves operating costs.

FROSTO 700 HYBRID – automatic continuous freezer

Construction



- control box built in the frame
  - safe location preventing damages and water flooding
  - easy access for service purposes
  - large dimensions with good ventilation parameters
  - integrated control panel
- Innovative system of electrical box side door opening upwards facilitates machine operators work and saves production area.
- easy access to particular sub-assemblies for control and maintenance
- removable side covers resulting in **space savings** in the production room



- Extremely hygienic self-supporting frame construction is made entirely from stainless steel without slots, dead ends or covered construction elements

ALL STAINLESS STEEL / NO ALUMINIUM
technology related to all machine metal elements

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FROSTO 700 HYBRID – automatic continuous freezer

2015

EQUIPMENT / FACILITY

	EQUIPMENT / FACILITY:	STANDARD	OPTION
1	touch screen panel 5,7"/7" panoramic, full color	✱	
2	touch screen panel 10"/9" panoramic, full color		✱
3	cooling unit with semi-hermetic Bitzer compressor and plate-exchanger water-freon of Alfa Laval	✱	
4	manometer of high freon pressure	✱	
5	automatic capacity control	✱	
6	overrun control by means of electronic air regulator	✱	
7	automatic overrun control by means of flowmeter		✱
8	two lobe pumps with rotors covered with food grade rubber	✱	
9	automatic CIP facility		✱
10	by-pass valve (manualy operated)	✱	
11	automatic start and stop with automatic by-pass valve operated from touch-screen panel		✱
12	frequency inverter on dasher drive	✱	
13	pressure indication	✱	
14	ice cream outlet temperature sensor with parameters displayed by touch screen panel		✱

1

AB PV component 6"

Siemens KTP 700 PN

touch screen panel 5,7"/7" panoramic, full color STANDARD ✱

2

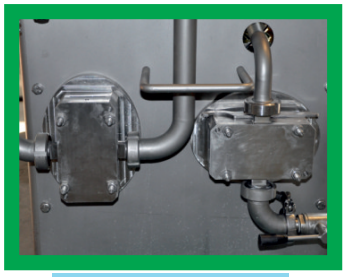
AB panel view plus compact 1000

Siemens panel basic basic KTP 900

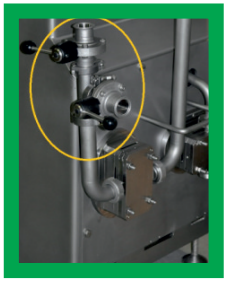
touch screen panel 10"/9" panoramic, full color OPTION ✱

STANDARD ✱

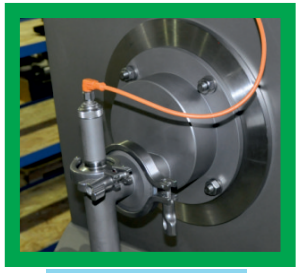
electronic air regulator



pumps with rotors



manualy operated by-pass valve



pressure sensor

EQUIPMENT / FACILITY:

6
overrun control by means of electronic air regulator

7
automatic overrun control by means of flowmeter

8
two lobe pumps with rotors covered with food grade rubber

9
automatic CIP facility

10
by-pass valve

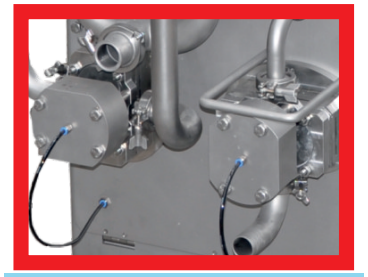
11
automatic start and stop with automatic by-pass valve operated from touch-screen panel

13
pressure indication

14
additional ice cream outlet temperature sensor

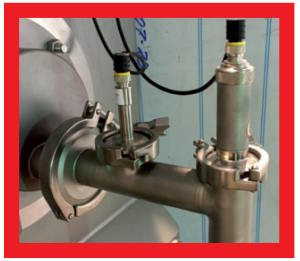
OPTION ✱

air flowmeter



pneumatic covers for pumps

automatic by pass valve



pressure and temperature sensor

FROSTO 700 HYBRID – automatic continuous freezer

Steering and control system

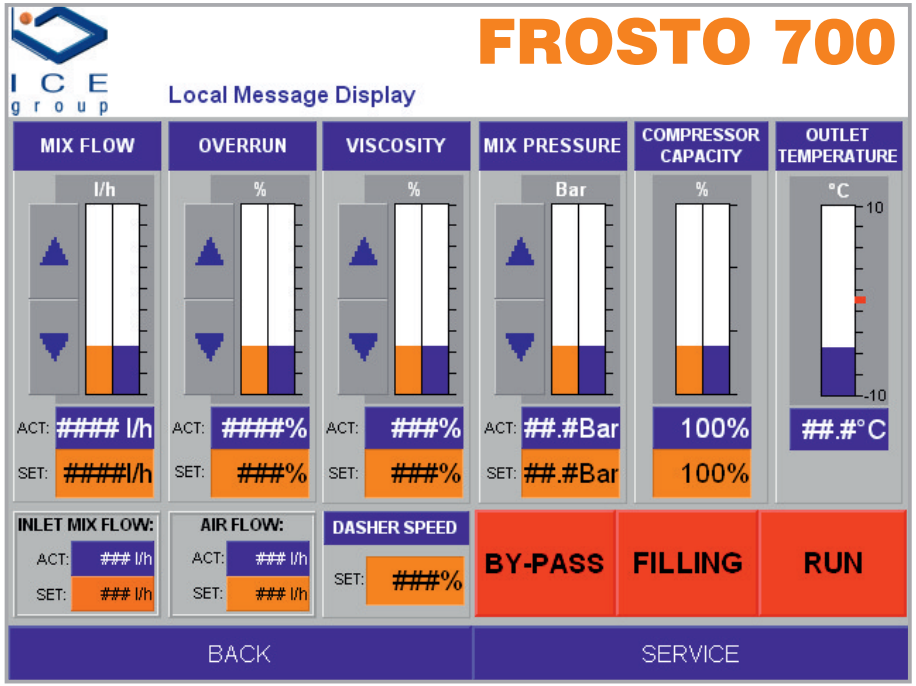
easy to operate – using a controller with touch screen panel makes operating the panel very easy.

Functions displayed and controlled on the control panel:

- **turn on / off cylinder filling** (with ice cream);
- **turn on / off automatic work**;
- **bypass valve switching**; ✱ option
- **overrun control**;
- **capacity control** (by means of mix flowmeter);
- **pressure indication**;
- **freezing level** – automatic hot gas turning on and protection from dasher freezing;
- error and emergency messages;
- **cleaning program** – cyclic pump and dasher work during CIP cleaning; ✱ option
- parameters connected with **proper work of compressor**, i.e. oil temperature, low and high freon pressure;
- detection of **safety switches** of the compressor and other drives, emergency switch;
- setting any number of **work options** – **recipes** with the possibility to enter the name of the particular product, containing any necessary information concerning work parameters – capacity, freezing, overrun, ice cream temperature.

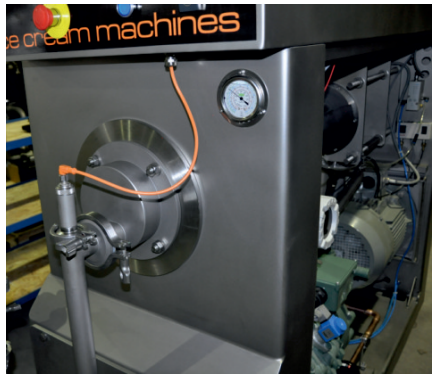
automatic start and stop ✱ option

- efficient system resulting in **very small ice cream losses** on start-up and while stopping production by using an automatic pneumatically operated by-pass valve



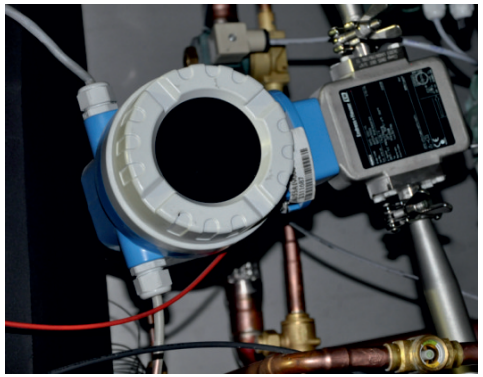
touch screen for food industry applications, controller prepared for work with modem – possibility to diagnose and change parameters over the Internet (TELESERVICE)

✱ standard



pressure indication

✱ standard



mix flowmeter

✱ option

modem for teleservice

FROSTO 700 HYBRID – automatic continuous freezer

Steering and control system

overrun control by means of electronic air regulator ✱ standard

- based on electronic air regulator, regardless of the way the ice cream mix is supplied (directly from tanks or with the help of a centrifugal pump)
- air supplied through an air filters group allowing its proper purity and better microbiology

air filters group

electronic air regulator

automatic overrun control ✱ option

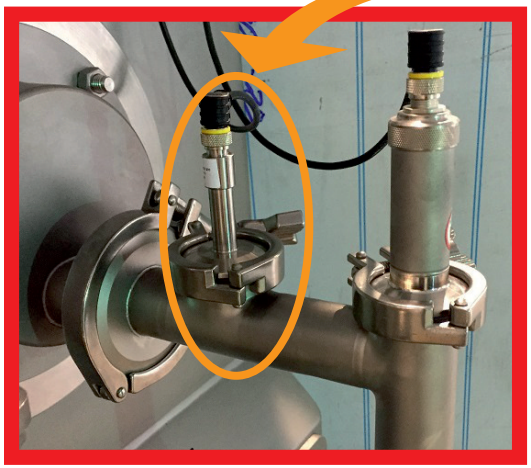
- based on air flowmeter
- shorter start-up, less losses
- faster and more precise reaction to work parameters changes

air flowmeter

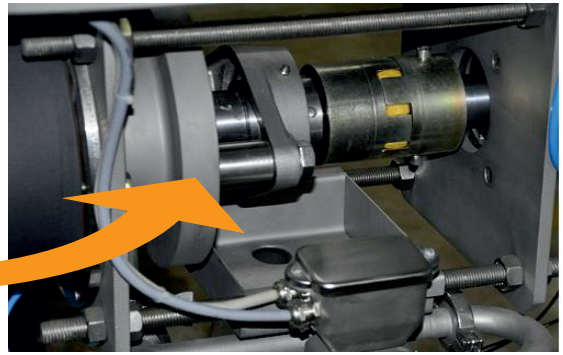
automatic freezing control ✱ standard

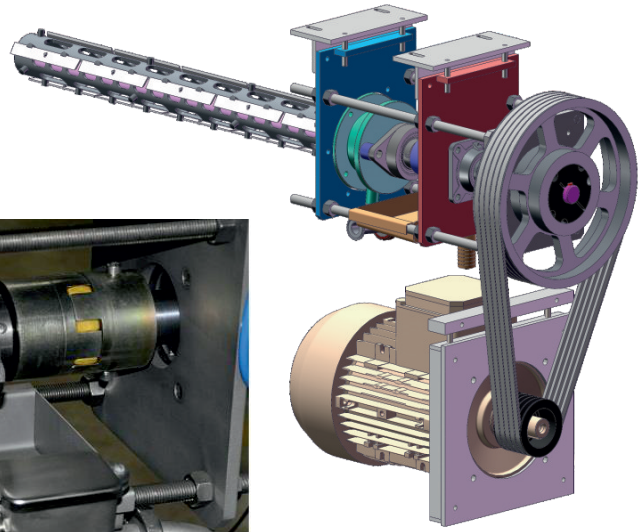
- based on dasher current measurement – very sensitive system, freezing sustained thanks to **intelligent hot gas injection system**

ice cream outlet temperature ✱ option **sensor with parameters displayed by touch screen panel**



connection with dasher through metal-rubber clutch, double bearings very durable solution



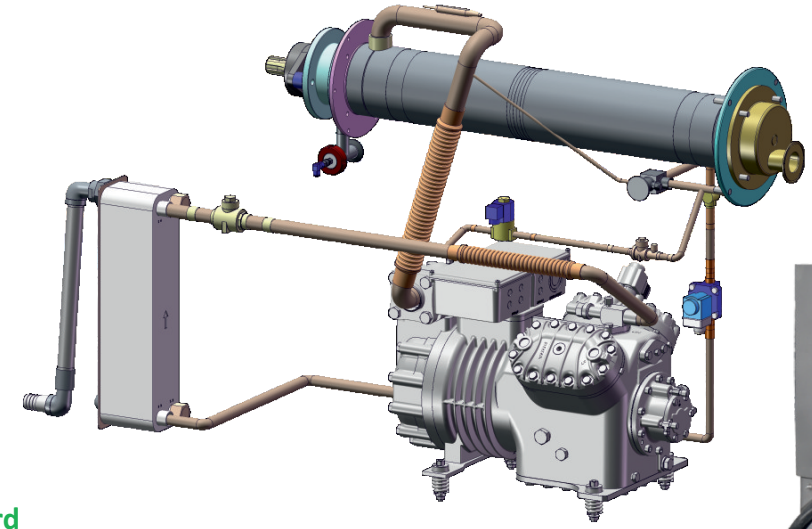


FROSTO 700 HYBRID – automatic continuous freezer

Cooling section

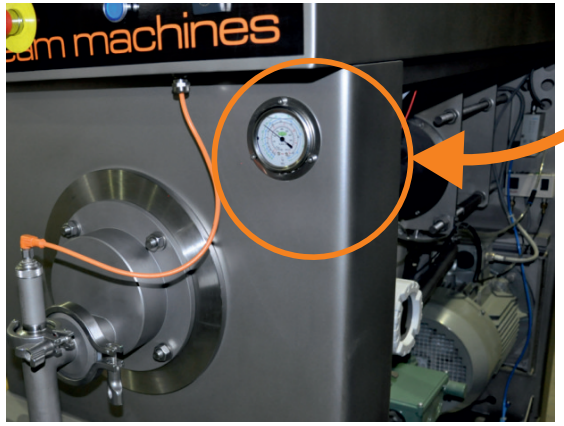
cooling unit with semi-hermetic compressor and plate-exchanger water-freon of Bitzer make ✱ standard

- cooling unit based on semi-hermetic compressor and plate-exchanger (condenser) of capacity allowing actuating and work on full capacity with cooling water temperature of even 25°C
- **economical solution regarding energy and freon consumption**



manometer of high freon pressure ✱ standard

- high freon pressure sensors in machine front side, showing basic parameters of the cooling unit, connected with cooling water flow and proper work of the expansion valve



standard belts – no surprises or hidden exploitation costs

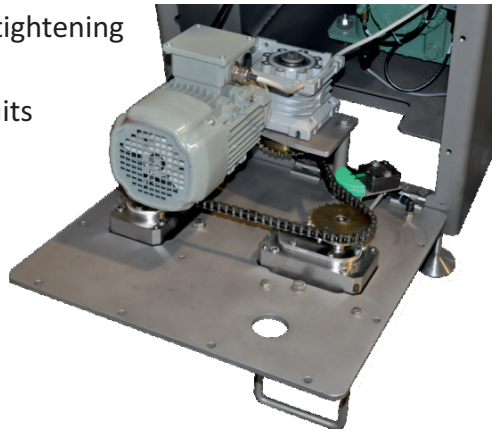
frequency inverter on dasher drive ✱ standard

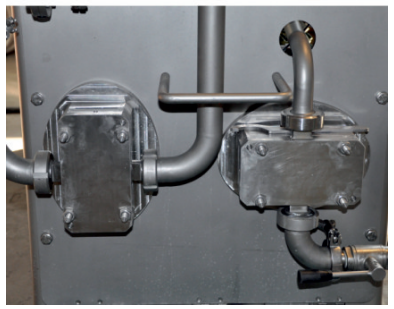
- ensures dasher's proper work, fluent start and stop and changeable work speed, depending on capacity
- in case of work with small capacities the ice cream structure is not disintegrated
- dasher driven by wedge belts and bearing shaft in separate part of the housing

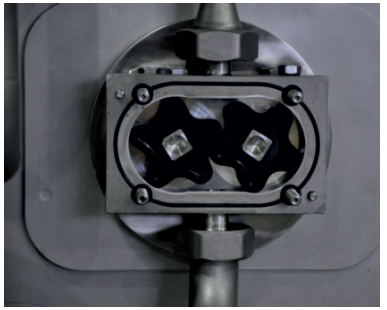
FROSTO 700 HYBRID – automatic continuous freezer

Pumps

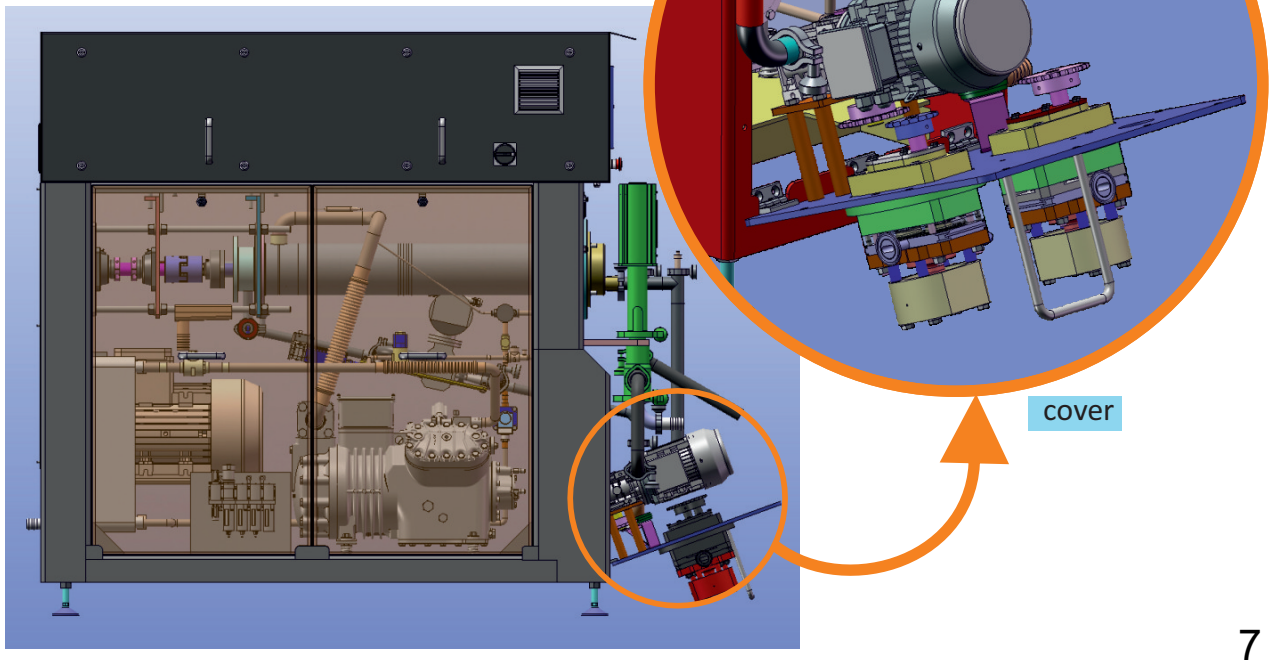
two lobe pumps with rotors covered with food grade rubber ✱ standard







- rotors' surface covered by a **layer of rubber**, ensuring self-tightening effect, even in case of slight wear
- possibility of work with sorbet masses based on natural fruits – **small strawberry or raspberry seeds are not a problem**
- **no problem with metal particles** in ice cream (rotors are not damaged even in extreme situation, e.g. if a metal element goes through the pump)
- **easy to clean**
- using frequency inverters of the ice cream pump drive allows **full control over the capacity and ice cream pressure inside cylinder**, work with different kinds of ice cream mixes in a wide scope of overrun
- reasonable exploitation costs
- easy to service and exchange
- openable cover on which the pumps and drive are mounted. This innovative solution significantly facilitates conducting the diagnosis and maintenance works



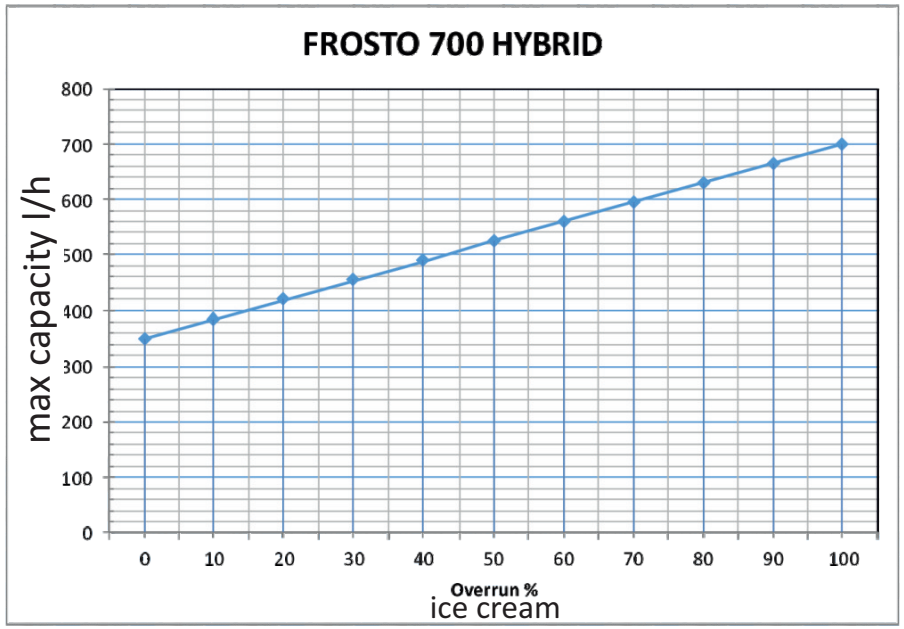
full-flow pump bypass (enables CIP cleaning) ✱ option

- independent cleaning program,
- pneumatically operated bypass can be fitted on standard pump. A special front cover moves back from rotors allowing product and cleaning or sterilizing fluids to pass through the pump with a minimum pressure drop.

FROSTO 700 HYBRID – automatic continuous freezer

Technical data and dimensions

Dimensions	Length	Width	Height	Weight
FROSTO 700 l/h	1180 mm	690 mm	1850 mm	~1000 kg



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		Frosto 700 Hybrid		
Maximum capacity	INPUT – ice cream mix	350 l/h (mix)		
	OUTPUT at 100% overrun	700 l/h (ice cream)		
	Example capacities with lower overrun rates: at 80% overrun	630 l/h (ice cream)		
	at 60% overrun	560 l/h (ice cream)		
	at 40% overrun	490 l/h (ice cream)		
	at 20% overrun	420 l/h (ice cream)		
Minimum working capacity with 100% overrun		150 l/h (ice cream)		
Ice cream overrun		**30-130%** (depending on of ice cream recipe)		
Touch screen panel		Allen Bradley or Siemens make		
Type of condenser		Plate-heat exchanger of Alfa-Laval make		
Type of pumps		two rotary APV/Crepaco-style lobe pumps with rubber-coated rotors with pneumatic system of covers moving for CIP washing for rotary pumps (additional option – see pricing table)		
Type of compressor		**semi-hermetic, Bitzer make piston compressor**, Model 4GE-23Y, **cooling capacity 30 HP** (for work parameters -30°C evaporation and +30°C condensation)		
Maximum pressure inside cylinder - factory settings		8 Bar *Attention: reaching the max. pressure turns the Frosto freezer OFF in emergency mode. There is a possibility of changing the maximum pressure from service screen.*		
Cooling system components		Honeywell, Danfoss		
Pneumatic components		Festo		
Air flow meter		Vögtlin Instruments		
Ice cream mix flow meter		Endress Hauser		
Electric components		Schneider Electric, Allen Bradley, ABB, SEW		
Supply Voltage (standard; other on request, at a charge)		3x400V, ~50Hz		
Power installed: - dasher - mix / ice-cream pump - compressor		21 kW 7,5 kW 1,5 kW 12 kW	Water consumption : - well water (ice water) (max 5°C) - tap water (max 15°C) - tower water (max 26°C)	 1,0 m^3/h 2,5 m^3/h 4,7 m^3/h
Ice cream mix inlet recommended pressure		0,2 – 1 Bar		
Refrigerant		R404A, R507		
Width / Length / Weight		~700 mm / ~1880 mm / ~1750 mm		
Net weight		~900 kg		