FRIGINOX
LE FROID PROFESSIONNEL

Area:
Item:
Models: MX 3S TS7-2 / MX 3SX TS7-2 / SXP 3cS TS7-2
Approval and remarks:

BLAST CHILLERS AND COMBINED ROLL-IN BLAST CHILLER / FREEZERS

Range "Touch Screen 7-2"

MX 3S TS7-2 / MX 3SX TS7-2
SXP 3cS TS7-2

Short description

- MX 3S TS7-2 and MX 3SX TS7-2 for blast chilling. Combined operation in option.
- SXP 3cS TS7-2 for combined chilling and freezing operation.
- Controlled by touch controls located on the front of the equipment, 1.5 m above the floor.
- “End of cycle” light on the front.
- External and internal finish made of 304 stainless steel.
- Top in treated steel.
- Door closing device with inside antipanic release.
- Rising hinges. Right door hinge (left on request, refer to the “Options and accessories” paragraph).
- Scraper seal on the bottom of the door.
- Front frame has an anti-condensation system.
- Lateral inside trolley guides.
- 20 mm insulated floor covered with 304 stainless steel with ramp.
- The equipment is supplied dismantled, components pre-fitted. Evaporator, fans, electrical box and control fitted on the cold block panels. All the wiring has already been done. The rest of the panels are supplied dismantled.
- Panel insulation with injected polyurethane foam, 80 mm thick, without CFC, HCFC or HFC.

Main specifications

CAPACITIES

MODELS	BLAST CHILLING +63 to +10 °C core temp.		BLAST FREEZING +63 to -18 °C core temp. within 4 h 30 min. **OR** +20 to -18 °C core temp.
	Within 110 min.	Within 85 min.	
MX 3S TS7-2	**240 kg**	210 kg	110 kg**
MX 3SX TS7-2	330 kg	**240 kg**	140 kg**
SXP 3cS TS7-2	/	/	**100 (P)**

** Option combined operation.
(P) ... kg/h of uncooked shaped 250 g French sticks from +20 °C to -18 °C.
Refer to the “Load capacity” paragraph below.

ELECTRONIC CONTROL

- 7" ergonomic touch screen.
- Large keys with user-friendly operation of the various functions.
  Main functions:
  - Immediate start of chilling or freezing.
  - Chilling and freezing with the possibility of changing the operating mode to food probe or Timer, Hard or Soft.
  - Possibility of saving up to 40 cycles modified by the user.
  - Manual defrosting with automatic control of time.

  Auxiliary functions:
  - Pre-chilling, ice cream hardening, ventilated drying, raw fish sanitation, thawing, multi-timer cycles, customizable multi-phase cycles.
  - Options: multi-probe cycles.
- Possibility of changing the operating settings.
- Stop of ventilation when the door is opened.
- Ventilation reduction after the cycle.
- Temperature maintaining after the cycle (adjustable temperature).
- Sound signalling of start of cycle.
- Sound and visual signalling at end of cycle, with remote report possible.
- Sound and visual signalling of alarms with possible remote report.
- Possibility of offsetting a STOP control (when the cycle is finished).
- Temperature display in °C or °F.
- Language of the interface can be changed (7 languages).
- Saving of HACCP alarms.
- Protected access for maintenance (+ diagnostics of the status of the equipment).
- USB recording of HACCP data:
  - Recording capacity: 1 month.
  - Creating file .csv type, loadable on USB key supplied.
  - USB port on the front with tight protective cap.
  - Data reading on PC via USB key using a spreadsheet program such as Excel®.
  - Assembled and wired in factory.
- MODBUS connection (RS485) possible.

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MULTI-POINT FRIGIPROBE

- Made up of a food probe in 304 L stainless steel, fitted with 3 temperature sensors. The number of sensors enables the thermal centre of the product to be found easily.
- The Frigiprobe ensures:
  - the display of the product core temperature thanks to its “intelligent” 3 points measuring process,
  - the automatic stopping of the cycle as soon as the core temperature of the product is reached.
- Frigiprobe calibration thanks to the electronic control.

REFRIGERATING EQUIPMENT

- For class A1 refrigerants (other fluids, see options).
- Not supplied:
  - liquid solenoid valve,
  - expansion valves,
  - inlet/outlet piping from evaporator banks to outside of equipment.

  See options for factory supply and installation.
- One refrigerating evaporator with two anti-corrosion treated banks.
- Six fans of diameter 300 mm mounted on a pivoting stainless steel panel to facilitate the maintenance. 304 stainless steel fan discharge casing and guard, protected steel for motor and impeller.
- Air flow: 22 470 m^3/h.
- De-icing by means of 304 stainless steel electrical resistances and forced operation of the fans (de-icing carried out with door closed), with manual start and automatic stop. Safety thermostats.

The following needs to be provided for:

- complete remote condensing unit with “pump down” control,
- electrical box for the condensing unit,
- liquid solenoid valve,
- two expansion valves, one for each refrigeration coil (take this into account when selecting expansion valves),
- a drier,
- evaporator banks connection pipes.

HYGIENE

- Easy maintenance.
- Rounded internal corners (radius 12 mm).
- Internal fittings easy removable without any tools.
- 33 mm wide door magnetic gaskets with a special anti-dirt and anti-impact rounded profile, removable without any tools.
- Sealed control panel.
- Complies with the standards in force.

LOAD CAPACITY

Refer to the capacities table, page 1.
The capacities are stated according to the AFNOR ACD40-003 agreement “INSTITUTIONAL CATERING EQUIPMENT - REFRIGERATING EQUIPMENT …” with 1.8 kg of mashed potatoes per GN 1/2 container with membrane seal, and two GN 1/2 containers per GN 1/1 format.

OTHER TEMPERATURES AND TIMES POSSIBLE, CONTACT US.

TROLLEY CAPACITY

Quantity of standard trolleys

GN 1/1	3
GN 2/1	1

600 x 400	2 (1)
	2 (2)
600 x 800	1 (1)
	1 (2)
800 x 1000	1 (1)

Rolling base 620 x 420	3

(1) Without rubber stop in the trolley edges
(2) With rubber stop in the trolley edges

Quantity of oven trolleys

BRAND	QUANTITY	FORMAT	MODEL
ROSINOX	2 (4)	GN 1/1	NKS 201
	1	GN 2/1	KKS 202
ELOMA	1	GN 1/1	20-11
	1	GN 2/1	20-21
RATIONAL (2020)	1	GN 1/1	iCP-iCC 20-11
	1	GN 2/1	iCP-iCC 20-21
CONVOTHERM	2 (3)	GN 1/1	20.10
	1	GN 2/1	20.20
ELECTROLUX	2 (3)	GN 1/1	922010
MKN	1	GN 1/1	HDECOD201
	1	GN 2/1	HDECOD202
HOUNÖ	1	GN 1/1	Trolley 1.20

(3) Trolleys with carrying handle removed and 90° rotation outside of the blast chiller / freezer.
(4) 90° rotation outside of the blast chiller / freezer.

Because of possible unexpected changes on ovens, check the trolley dimensions.

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CONSTRAINTS

Electrical
The electrical power supply must conform to the regulation in force.
We recommend fitting an all-pole circuit-breaker coupled to a quick-trip circuit-breaker (30 mA maxi).
Provide for an all-pole switch close to the equipment.
• Equipment supplied with 3 m long cable.

Draining of the de-icing water
• Manual evacuation of de-icing water on the floor.
Provide for
• A free evacuation on floor trap nearby.
• A duct in front of the unit door.

Floor
• Like all floor-standing refrigerating equipment, in the event of daily operation for periods greater than:
  - 12 hours in blast chilling,
  - 8 hours in blast freezing
  or more than 5 days per week, an additional thermal insulation under the blast chiller / freezer will be required to prevent floor freezing. This must be done according to best working practices applied to negative temperature cold room floors.
• Equipment installed in upstairs floors: take into account the risk of condensation under the floor.

Installation
Provide for
• A place correctly ventilated.
• The ambient temperature should be between +15 °C and +43 °C taking into account the condensing unit's heat emission. Ventilate the premises if the temperature is greater than +43 °C.
• A flat, horizontal and smooth floor.
• A minimum space of 70 mm around the equipment.
• Keep away from sources of heat (cookers, etc.) and exposure to the sun.
• A space sufficient for a correct opening of the door.
• For pass through version with a cold room, the blast chiller / freezer should slope towards the kitchen and there must be a floor trap or a duct near the door, on the kitchen side.
• Equipment embedding in the floor possible, see drawings. State on order.

Supply
Dimensions of the largest non-packaged elements (mm):
  - L-shaped cold block (L x H x D): 1200 x 2170 x 650,
  - door (L x H x D): 1100 x 1940 x 200.

Remote condensing unit
To select the condensing unit, refer to the "Technical specifications" paragraph.
Recommended connections between the remote condensing unit and the equipment:
  - include supply of liquid solenoid valve, expansion valves and evaporator banks inlet/outlet piping,
  - for condensing unit fitted with an anti-short cycle delay on the compressor, connection of the liquid solenoid valve cut-in electric power supply during the anti-short cycle delay of the compressor. 2-wires cable (1.5 mm² - 230 V),
  - for condensing unit fitted with a power reduction device or with several compressors, connection of the power reduction control on the electronic control "End of cycle" signal. 2-wires cable (1.5 mm² - 230 V).

OPTIONS AND ACCESSORIES

☑

☐ **R452A or R448A or R449A expansion valves, solenoid valve and piping.**
Delivered and assembled, for equipment without condensing unit:
  - for blast chiller,
  - for combined blast chiller/freezer and SXP (expansion valves fitted with M.O.P. -20°C).

☐ **Other refrigerants for version without condensing unit,** CO2, A2L class fluid (R455A / R454C / ...), etc...(please make enquiries with us).

☐ **De-icing water drip tray(s).**
Tray(s) under evaporators with runoff heating element.
Pre-drilled panels for Ø 32 mm drain tube(s), see "Dimensions" diagram, item (B).

☐ **Combined** chilling and freezing **operation.**

☐ **Left door hinge.**
Warning: change of side for the cold block and the control panel, see drawings.

☐ **Equipment supplied assembled.**

☐ **Pass through.**
State the position of the control panel, for left or right hinged door, see drawings.

☐ **Auxiliary control panel** for pass through version, with STOP button to stop the equipment once the cycle is finished.

☐ **Straight access ramp** for version embedded in the floor.

☐ **Key locking.**

☐ **1 or 2 additional Frigiprobes** connected to the electronic control.
For controlling the core temperature and triggering the end of the cycle.

☐ **1, 2, 3 or 4 temperature indicators with food probe.**
For displaying the core temperature of different products.
Warning: doesn't operate the electronic control.

☐ **FRIGIcloud.**
Secure remote access to the equipment via Wi-fi, via a cloud, 24/7 (see associated data sheet).

☐ **Trolleys 20 or 22 levels, GN 1/1.**

☐ **Trolleys 20 or 22 levels, GN 2/1.**

☐ 304 stainless steel wire **trays, GN 1/1** (530 x 325).

☐ 304 stainless steel wire **trays, GN 2/1** (650 x 530).

☐ **Other voltages and frequencies** (contact us).

Remarks related to the installation

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TECHNICAL SPECIFICATIONS

MODELS		MX 3S TS7-2 (ESG) standard	MX 3SX TS7-2 (ESG) 85 minutes	SXP 3cS TS7-2 (ESG) standard
VOLTAGE (50 Hz)		3 P 400 V + N + E		
ELECTRICAL RATING POWER (Watt)		6.8	6.8	6.8
ELECTRICAL POWER DURING CYCLE (kW)		2.0	2.0	2.0
ELECTRICAL POWER DURING DE-ICING (kW)		6.8	6.8	6.8
REFRIGERANT		Class A1 (3)	Class A1 (3)	Class A1 (3)
BLAST CHILLING ONLY REFRIGERATING CAPACITY AT THE FOLLOWING EVAPORATION TEMPERATURES (kW)	0 °C	22.0 (1)	29.8 (1)	-
	-10 °C	16.0 (1)	20.2 (1)	-
	-20 °C	10.2 (1)	13.1 (1)	-
OPTION COMBINED OPERATION AND SXP MODELS REFRIGERATING CAPACITY AT THE FOLLOWING EVAPORATION TEMPERATURES (kW)	-10 °C	18.1 (2)	22.0 (2)	-
	-20 °C	12.2 (2)	15.0 (2)	16.8 (2)
	-40 °C	4.0 (2)	5.3 (2)	6.3 (2)
AVERAGE CONSUMPTION PER CYCLE (kWh) (excluding remote condensing unit)	Chilling	3.9	3.0	-
	Freezing	8.8 (2)	8.8 (2)	2.0
NET WEIGHT (kg)		350	350	350

Rated refrigerating power required at the equipment to select an independent remote condensing unit (condensing unit selection system, no real operation). Suction overheat 10 °K and subcooling 3 °K.

(1) Blast chilling only.
Operating range of the independent remote condensing unit. Evaporation T°: +10 °C to -30 °C.
Possibility of freezing occasionally, with loading reduced quantities (maximum 1/4 of the loading capacity, to be verified by test) and if the specifications of the refrigeration installation permit it, refer to the instructions manual for limitations.

(2) Option combined operation and SXP models.
Operating range of the independent remote condensing unit. Evaporation T°: -10 °C to -45 °C.

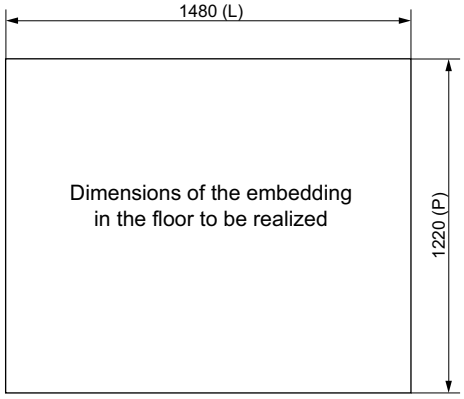
Condensing unit ambient temperature to be determined according to location and installation.
The condensing unit's refrigerating power must be greater than the various values specified above.

(3) See options.

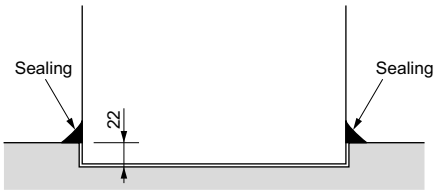
Advise:
In case of important temperature difference summer / winter, relating to high power condensing units and particularly the low temperature units, provide for a power reduction device on the unit (several compressors and/or frequency variation, etc.).
In this case, also provide for on the suction line, a double standpipe device, on the feed vertical tubes, to ensure the oil return.
The pressure drop in the refrigeration tubes must be taken into account for remote condensing unit selection.

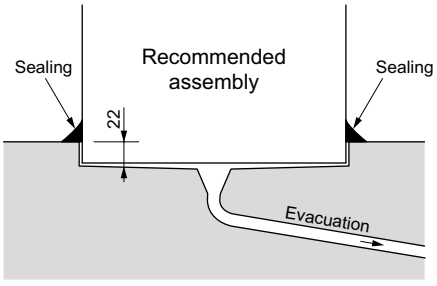
ESG: without condensing unit.

EMBEDDING IN THE FLOOR (state on order)

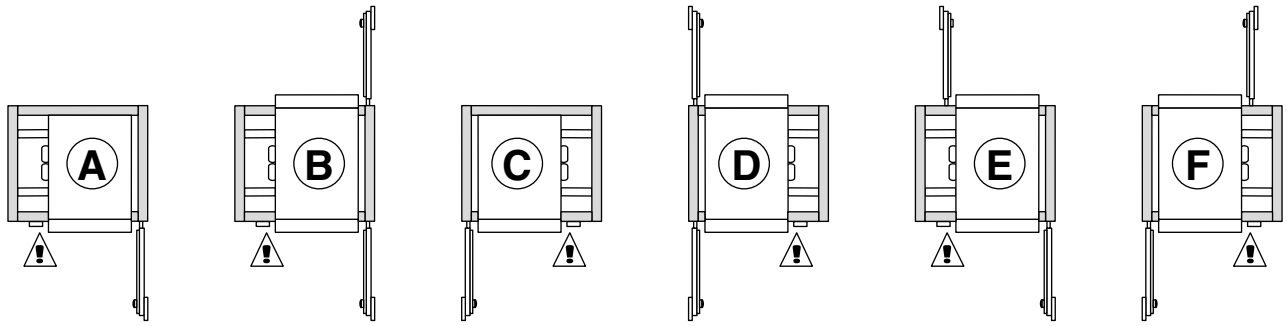


(L) Width
(P) Depth



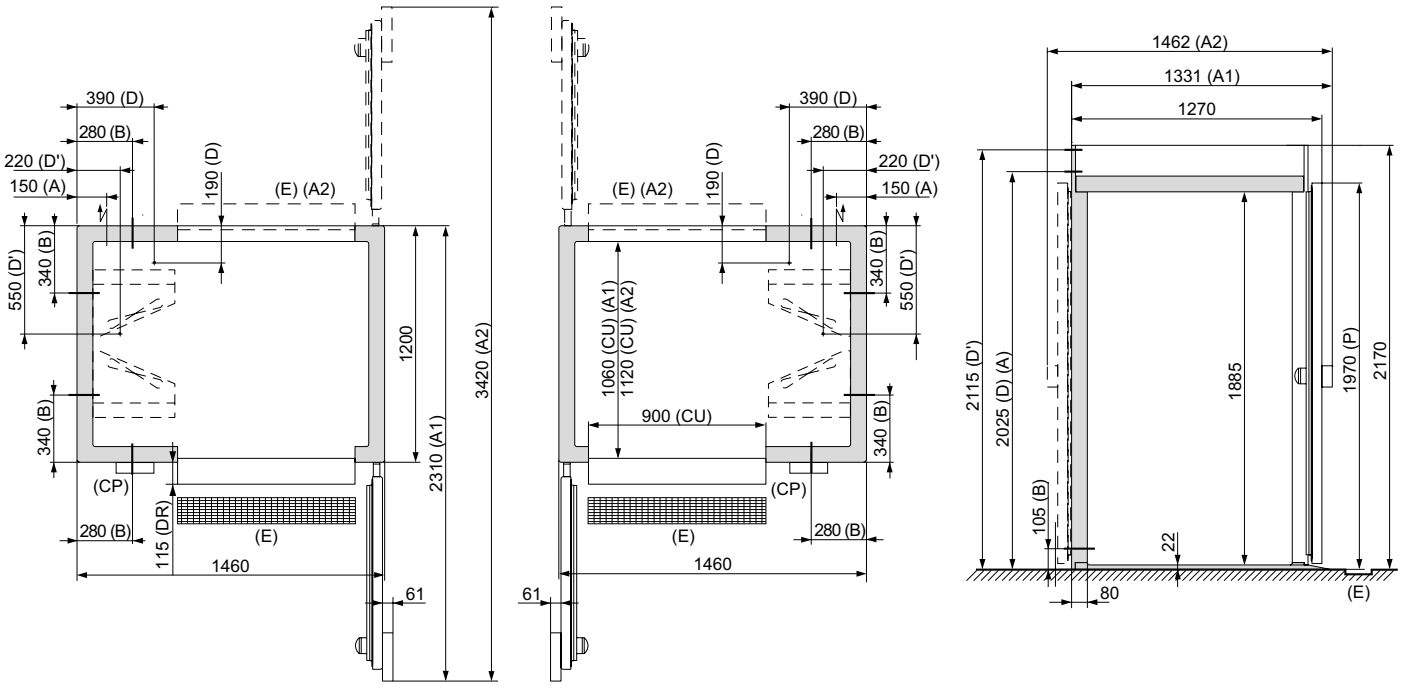


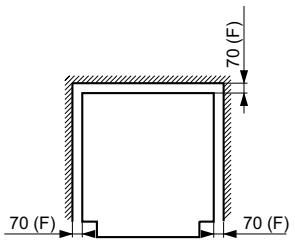
POSSIBLE DOOR OPENING (state on order)



⚠ Position of the control panel

DIMENSIONS





(A) Electrical power supply
(B) Pre-drilling for de-icing water runoff
(D) Liquid line 5/8"
(D') Suction line 1" 1/8
(CP) Control panel
(E) Duct
(F) Distance from the wall
(CU) Useful
(P) Door height compared with the floor
(DR) Ramp proud
(A1) Single access
(A2) Pass through