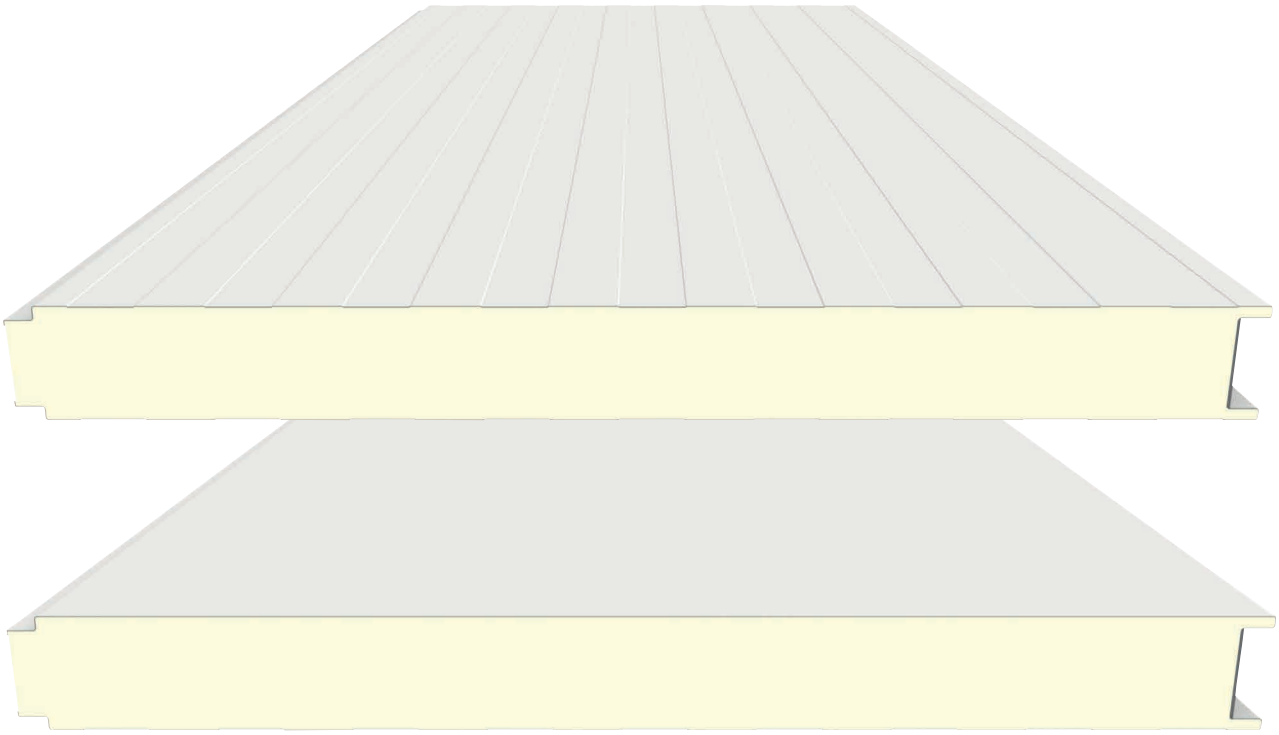
MASTER PANEL

MASTER-FRIGO

Master-Frigo cold-room panels

MASTER-FRIGO panels are continuous production line prefabricated panels, and are composed of two faces of prepainted galvanized steel, bonded to a core of rigid polyurethane (PUR) or polyisocyanurate (PIR) foam, forming a sandwich type element with tongue and groove joints.

MASTER-FRIGO panels are specially designed for use in all types of projects related to the agri-food industry, from transport, handling and storage through to the freezing and deep-freezing of foods.



MASTERPANEL offers various different configurations according to the project they will be used in, and it comes in five different thicknesses, two outer ribbing designs and two inner ribbing designs, as well as a wide range of available colours. Additionally, MASTERPANEL also offers the option of panels manufactured with PIR (polyisocyanurate) self-extinguishing foam with a B-s1, d0 certification under Euroclasses (UNE-EN 13501).

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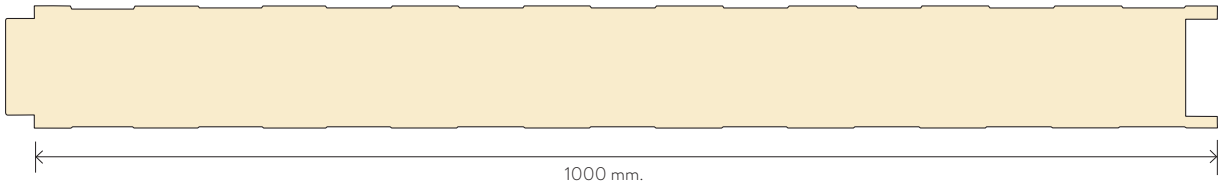
TECHNICAL SPECIFICATIONS

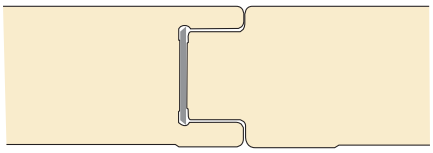
Standard

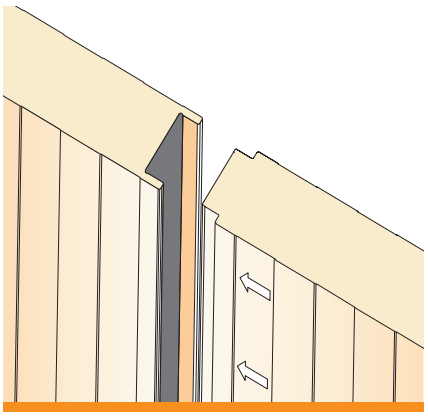
Flat

	Values
Panel thickness	60, 80, 100, 120, 150 mm
Cover Width	1.000 mm.
Length	Up to 16.000 mm. (max. recommended 9,000 mm)
Field of application	Cold room
Outer face thickness	0,4 / 0,5 / 0,6 / 0,7 mm
Inner face thickness	0,4 / 0,5 / 0,6 / 0,7 mm
Coatings (see section on Finishes)	Polyester 25um
	PVDF 25um / 35um
	PU 55um (Granite® HDX/PUPA 55)
	Wood imitation
	PVC 120um (foodsafe)
Outer ribbing	Standard / Flat
Inner ribbing	Standard / Flat
Core type	Polyurethane (PUR)
	Polyisocyanurate (PIR)
Core Density	40 Kg/m^3 (+/- 10%)
Tensile strength	> 0,060 Mpa
Compressive strength	> 0,100 Mpa
Flexural strength	> 0,100 Mpa
Reaction to fire	Cs3d0 / Bs1d0



Joint detail.





Panel thickness	Weight	Thermal transmittance (U-value)		Thermal resistance (R-value)	
mm	kg/m^2	w/m^2 k	Kcal/m^2 h ^{0}C	m^2 k/w	Hr ft^2 ^{0}F/BTU
60	9,94	0,36	0,31	2,76	15,66
80	10,72	0,27	0,23	3,75	21,26
100	11,50	0,21	0,18	4,71	26,73
120	12,28	0,18	0,15	5,67	32,15
150	13,45	0,14	0,12	7,09	40,21

Calculations according to EN14509, measuring the surface resistance according to horizontal flow and omitting the influence of the profiled faces. Losses in bolted connections must be calculated by the designer.

FUNCTIONS AND BENEFITS OF **MASTER-FRIGO** PANELS

- Aesthetically appealing
- Efficient thermal insulation capacity
- High mechanical strength
- Exceptional dimensional stability
- Watertight against water vapor
- Resistant to aggressive environments
- A versatile material that allows any configuration
- Quick to install and easy to maintain (easy to clean)
- Easily removable and can be reused
- Made-to-measure, avoids waste
- Made with recyclable materials

REACTION TO FIRE

AFITI LICOF

C-s3 d0
Nº 3406T18

B-s1 d0
Nº 3066T16

intertek

ASTM E84 (MASTER-PIR) Class A
Flame Spread Index: **20**
Smoke developed index: **300**

TÜV NORD CERT GmbH ISO 9001

CE

Permissible overloads (kg/m²).

Panel thickness mm.	(L) Span distance in cm. Calculations made on 0.50 mm / 0.50 mm panel												
	150	175	200	225	250	275	300	325	350	375	400	450	500
60	413	332	272	225	188	159	135	115	99	85	74	57	
80		471	391	328	278	237	204	176	153	133	117	91	
100				433	371	319	277	241	211	186	164	129	103
120					466	404	352	309	272	241	214	171	138
150						533	469	415	368	328	294	237	194

Evenly distributed pressure overload for 1 span (2 supports).
Calculated for a Service Limit State of deformations L / 200. According to EN14509
Overloads not factored. The designer must carry out the calculations in accordance with the applicable regulations

ASSEMBLY AND ERECTION OF COLD ROOMS

Basic assembly instructions:

- The ground on which the sandwich panels are to be set up should be completely flat, clean and smooth.
- Once the panels are installed, the verticality (walls) and horizontality (ceilings and roofs) should be checked, and any deviations corrected.
- The system of vertical jointing between panels is effected by pressure on the tongue and groove joint, with the panels being brought flush to each other.
- The wall–ceiling junction should be carried out strictly following the instructions provided (see technical details on page 88), with special attention being paid to cuts that are made, when these may be necessary, to create the junction.
- When the joint between panels does not by itself have sufficient capacity to prevent the formation of condensation or ice, a sealant is applied in that area; this could be silicone (for air and water tightness), butyl (for water vapour tightness) or foam injected on site (to reduce the thermal bridge between the panels).
- The fixing of roof panels attached to building structures should be performed using connector rods or guy wires. The building structure must be designed to withstand both its usual loads and those due to the weight of the panels themselves.
- The maximum length of the vertical or horizontal spans, as well as the maximum permissible loads on the panels, should comply with those specified (see table on admissible loads page 39) for the type of panel to be used.
- Refrigerating equipment and accessories must not be directly hung from the panels, but require a separate support system.
- Avoid the use of cutting discs, as these may produce metal shavings which can stick to the panel surfaces and cause oxidation problems. If cutting discs must be used, ensure the complete removal of all metal shavings.
- Check that appropriate screws for the required structure are used.
- Remove the protective plastic film from the panels.
- Ensure that any possible scratches that may occur on the outer face are correctly repaired.
- Check that individual points are properly sealed.

Table of minimum recommended thicknesses for insulation

Type of cold room	Range of temperature °C	Interior cold room			Exterior cold room		
		Floor	Wall	Ceiling	Floor	Wall	Ceiling
Cold store	+15 to +4	NO	60 mm	60 mm	NO	60 mm	60 mm
	+4 to -4	50 mm	60 mm	60 mm	60 mm	80 mm	80 mm
Freezer	-4 to -10	60 mm	80 mm	80 mm	60 mm	80 mm	100 mm
	-10 to -18	80 mm	100 mm	100 mm	80 mm	100 mm	100 mm
	-18 to -26	100 mm	100 mm	100 mm	100 mm	120 mm	120 mm
	-26 to -40	100 mm	120 mm	120 mm	120 mm	150 mm	150 mm
Blast freezer	-40 to -46	120 mm	150 mm	150 mm	120 mm	150 mm	150 mm

MAINTENANCE GUIDELINES FOR COLD ROOM

- The condition and tension of the ceiling fastenings tensors must be checked as well as cleaned every six months.
- The panel surfaces can be washed with a mixture of tap water and a neutral agent, then rinsed with running water and dried.
- Check the water collection channels once a year, ensuring that they are clean and in good condition.
- Check the condition of the sealing elements once a year.

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45
46
70
71
22
23

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