

HI-PIRM F / HI-PIR F COLD STORAGE PANEL, MAXIMUM THERMAL EFFICIENCY AND CERTIFIED FIRE SAFETY







Exceptional thermal insulation, resulting in a thermal transmittance of just 0.11 W/m²K, accredited and certified.

Fire safety certified "FM Approved" by FM GLOBAL, without the need for sprinklers and without height limit (HI-PIRM F panel).

High mechanical strength performance, suitable for outside use in earthquake zones, with hurricane risk or severe hail impact.

Wide range of coatings (PET, polyester and HDX etc) to ensure a high durability.

Does not absorb water and maintains its performance throughout its lifetime and is not affected by biological agents.

Excellent joint leak-tightness, accredited by tests.

Technical sheet HI-F cold storage panel | Date: 08/01/18 | Rev: 4.0



DESCRIPTION AND APPLICATIONS

Cold-storage sandwich panel, with metal faces and rigid insulation core, for applications that require a **high degree of insulation**: **food and agricultural industry, cold stores, laboratories, etc.**

Excellent reaction to fire, certified CLASS 1 by <FM GLOBAL>, (HI-PIRM F panel).

PIR or **PIRM** (polyisocyanurate) foam may be used as the insulating core.

Available in various **steel thicknesses**, with **coatings** suitable for contact with foodstuffs.

High mechanical performance certified by laboratory tests.



DIMENSIONS, WEIGHT AND THERMAL PROPERTIES

↓	1150	
Useful width	1,150 mm 1,120 mm (check availability)	

				-			-	
Manufacturing Longth	Standard 2.0 to 13.5 m							
Manufacturing length	Special 13.5 to 18 m (special transport)							
Type of joint	FJ FS							
Thermal conductivity			0.0195 W,	/mK				
Declared thermal conductivity ¹	0.0217 W/mK (considering an aged core)							
Insulating core density	40 ± 5 kg/m ³							
Total thickness (A)	60	80	100	125	150	175	200	(mm)
Weight	10.93	11.73	12.53	13.53	14.53	15.53	16.53	(kg/m²)
Thermal transmittance ¹ (PIR / PIRM)	0.38	0.27	0.22	0.17	0.14	0.12	0.11	(W/m²K)
Thermal resistance ² (PIR / PIRM)	2.72	3.64	4.56	5.71	6.87	8.02	9.17	(m²K/W)

NOTES: (1) Thermal transmittance determined according to UNE-EN 14509 standard, considering the effect of ageing of the insulating core, and certified by the AENOR "N" stamp.

(2) For 0.5/0.5 mm sheets (int/ext).



COMPONENTS

Insulating core

Rigid polyisocyanurate foam (PIR or PIRM), continuous injection by a process that does not release HCFCs.

LEAK-TIGHTNESS AND JOINT TYPES

Wall facings

Cold-profiled S220GD structural hot-galvanised steel sheet with certified quality according to EN 10346 and EN 10169. Standard sheet thicknesses: 0.5 mm and 0.6 mm.

The HI-F panel is available with two types of joints, both with double tongue and groove and flexible polyethylene joint which guarantees the best water tightness with a simple and fast assembly.

FJ joint

The FJ joint is certified by APPLUS as not requiring additional silicon sealing (under the permeability parameters indicated). Water-tightness accredited in laboratory tests (according to the EN 14509, EN 12114 and EN 12865 standards, certified "N" stamp and Applus report 12_570-1818):

Permeability to air: 0.013 m³/h m² at 50 Pa Permeability to water: CLASS A* - 1,200 Pa

(*) CLASS A: For demanding applications with heavy rainfall and strong winds.

FS joint

The FS joint has been designed with the aim of adding an additional external sealing seam which can be applied once the panel installation is completed. The FS joint also allows the application of butyl seal at its interior during the assembly stage.





sealing	Positive cold storage	Negative cold storage				
FJ joint	-	Butyl in interior joint, silicone in exterior joint				
FS joint	Silicone in exterior joint	Butyl in interior joint, silicone in exterior joint				

MECHANICAL STRENGTH PROPERTIES

The HI-F panel is ideal for use as an exterior enclosure for façades because of its high rigidity, impact strength and durability.

Certified earthquake resistance

The HI-F panel has been accredited and certifed by CSTB for uses in high seismicity risk areas through intense full-scale structural tests. Certificate number 2/11-1477.

Certified hurricane resistance

<FM GLOBAL> has issued the <FM Approved>* certification to the HI-PIRM F panel used as an exterior façade (according to ANSI 4881 standard),validating and certifying its suitability, even in areas with high risk of hurricanes ("H" zones) and with the possibility of severe hail impacts (class "S").

(*) Subject to installation conditions.





USAGE TABLES (daN/m²)

The tables below indicate **the maximum admissible distance between supports (m)** depending on panel thickness (mm) and the characteristic downward load (without weighting) distributed uniformly (daN/m²). The tables are calculated **according to the European Standard EN 14509, for SLS and ULS**. Please consult us for upward loads.

Downward load (daN/m²)

SINGLE	Thickness	50	75	100	125	150	175	200
SPAN	60	5,40	4,51	3,59	2,87	2,40	2,06	1,80
	80	6,67	5,60	4,82	3,86	3,22	2,77	2,42
	100	7,83	6,59	5,71	4,84	4,04	3,46	3,04
L (m)	125	8,86	7,23	6,27	5,61	5,07	4,34	3,80
	150	9,48	7,75	6,71	6,00	5,48	5,07	4,56
	175	10,00	8,17	7,07	6,33	5,77	5,34	5,00
	200	10,42	8,51	7,37	6,59	6,01	5,56	5,21

		Downward load (daN/m ²)									
ck	ness	50	75	100	125	150	175	200			
6()	6,13	4,79	3,60	2,88	2,40	2,06	1,80			
80)	7,16	5,85	4,83	3,87	3,23	2,77	2,42			
10	0	8,07	6,59	5,65	4,83	4,03	3,45	3,02			
12	5	8,87	7,24	6,26	5,59	5,05	4,33	3,79			
15	0	9,49	7,61	6,70	5,99	5,47	5,06	4,56			
17	5	10,51	8,56	7,41	6,63	6,06	5,61	5,24			
20	0	10,97	8,95	7,74	6,93	6,33	5,81	5,48			
20	0	10,97	8,95	7,74	6,93	6,33		5,81			

Support width = 50mm Support width > 50mm Consult HUURRE for other support widths. $1 daN/m^2 \approx 1 kp/m^2$

Tables for light coloured panels. Consult for dark panel. Minimum external temperature considered -10°C.

REACTION TO FIRE

Reaction to fire according to European legislation

EUROCLASS B,s1,d0

- **B:** Hardly inflammable¹
- s1: Very limited smoke production
- **d0:** No inflammable dripping

best classification
possible for an organic
type material.

Reaction to fire is determined according to UNE-EN 13501 standard (report AFITI-LICOF 2843T15-3 R1 and N stamp).

Reaction to fire according to <FM GLOBAL> standards (only for HI-PIRM F panel).

<FM APPROVED> CLASS 1, according to FM Approval Standards 4880 and 4881.



The test programme certifies² the buyer the integrity of façades or walls and interior ceilings with HI-F panels, of any height, for the most demanding fire protection requirements in fire protection.

(2) Subject to installation conditions.



EXAMPLES OF ENERGY LOSS THROUGH THE ENCLOSURE

The following table gives the energy losses through the enclosure (W/m^2) , depending on the HI-F panel thickness and the temperature gradient between its two faces.

			Panel thickness (mm)									
		60	80	100	125	150	175	200				
U (W/m	2 °C)	0,38	0,27	0,22	0,17	0,14	0,12	0,11				
Ð	10	3,80	2,70	2,20	1,70	1,40	1,20	1,10				
	15	5,70	4,05	3,30	2,55	2,10	1,80	1,65				
en (°(20	7,60	5,40	4,40	3,40	2,80	2,40	2,20				
Ve Te	25	9,50	6,75	5,50	4,25	3,50	3,00	2,75				
eh	30	11,40	8,10	6,60	5,10	4,20	3,60	3,30				
c b C	35	13,30	9,45	7,70	5,95	4,90	4,20	3,85				
eni	40	15,20	10,80	8,80	6,80	5,60	4,80	4,40				
idié	45 50	17,10	12,15	9,90	7,65	6,30	5,40	4,95				
5 T T		19,00	13,50	11,00	8,50	7,00	6,00	5,50				
0,0	55	20,90	14,85	12,10	9,35	7,70	6,60	6,05				
ce:	60	22,80	16,20	13,20	10,20	8,40	7,20	6,60				
fac	65	24,70	17,55	14,30	11,05	9,10	7,80	7,15				
9 Q Q	70	26,60	18,90	15,40	11,90	9,80	8,40	7,70				
<u></u>	75	28,50	20,25	16,50	12,75	10,50	9,00	8,25				
Te	80	30,40	21,60	17,60	13,60	11,20	9,60	8,80				

NOTE In blue, the recommended losses through the enclosure in negative cold storage (max. 6 W/m²). In yellow, the recommended losses through the enclosure in positive cold storage (max. 8 W/m²).

		OUTDO	OR EN	VIRONA	AENT		INDOC	OR ENVIR	RESISTANCE		
	RURAL		URBAN / INDUSTRIAL		MARINE			NON-AGRESSIVE ENVIRONMENTS			
	WITHOUT POLLU- TION	Moderate	Severe	Between 3 and 20 km	< 3 km ¹	Mixed	Low humidity	Medium humidity	AND/OR VERY HUMID ENVIRON- MENTS	CORROSION	UV
E5001	X	X	X	X	X	X	\checkmark	X	X	NA	NA
Polyester, 25µ	\checkmark	\checkmark	ļ		X	X	\checkmark	\checkmark	Ai3	Good	Good
ΗDX 55μ	\checkmark	\checkmark	\checkmark		\checkmark	ŀ	\checkmark	\checkmark	Ai3	Excellent	Very good
ΡVDF 35μ	\checkmark	\checkmark	ļ					\checkmark	Ai3	Very good	Excellent
ΡΕΤ 50μ	X	X	X	\mathbf{X}	X	X	\checkmark		Ai5	Excellent ³	NA
STAINLESS STEEL ²	\mathbf{X}	X	X	\mathbf{X}	X	X	\checkmark	\checkmark	Ai5	Excellent ³	NA
STAINLESS STEEL A49OPP ²	\mathbf{X}	X	X	X	X	X	\checkmark	\checkmark	Ai6	Excellent ³	NA
Suitable	X	Unsui	itable	l C	heck w	ith HUUR	RE N	A Not ap	plicable		
(1) For <300m, check (2) Only available for a useful width of 1,150 mm (3)Consult conditions											

AVAILABLE COATINGS





MANUFACTURING QUALITY AND STANDARDS

Guaranteed and certified quality.

The HUURRE Comprehensive Quality Management System, which is in accordance to the ISO 9001 standard, is audited and certified by AENOR and IQNet (ER-0947/1998 certification).

HI-PIR F and HI-PIRM F panel certifications



CE marking according to UNE-EN 14509 standard



Product certified with the "N" quality assurance stamp of AENOR. (Certified to 020/003372 for PIR and 020/003373 for PIRM).



Avis Technique d'Application CSTB - HI-F TECHNIQUE 2/16-1770.

HI-PIRM F panel certifications



<FM Approved> by <FM GLOBAL> (Standard 4880), which guarantees the fire safety of the HI-PIRM panel, without height limit and without sprinklers.



<FM Approved> by <FM GLOBAL> (Standard 4881), which guarantees the aptitude of the HI-PIRM F panel to be used outside, in areas with the risk of hurricanes and severe hail impacts.

(*) Subject to installation conditions.

OTHER FEATURES

Resistant to biological agents

Due to the closed structure of the insulating core, the HUURRE HI-F panels are immune to attacks by fungi, moulds and other harmful biological agents.

They are, therefore, the best choice for applications that require a high degree of hygiene and healthy conditions (agrofood sector, laboratories, etc.).

Water absorption

The insulating core of the panel does not absorb water and thus maintains its performance throughout its lifetime. For this reason, they can be installed in adverse weather conditions.

Sustainability

Both the steel and their metallic and organic coatings are free of SVHC (Substances of Very High Concern), in conformity with the requirements of the European REACH regulation.

The insulating core of the panel is injected using a process that does not release HCFC type gases.

The HUURRE Environmental Management System (ISO 14001) and the Health and Safety in the Workplace System (OHSAS) are certified by AENOR and IQNet (certifications GA-2003/0091 y ES-SST-0035/2010 respectively).

Warranty

The HUURRE HI-F panel has a warranty of up to 25 years for its functional features and up to 35 years for its coatings. Conditions apply.

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