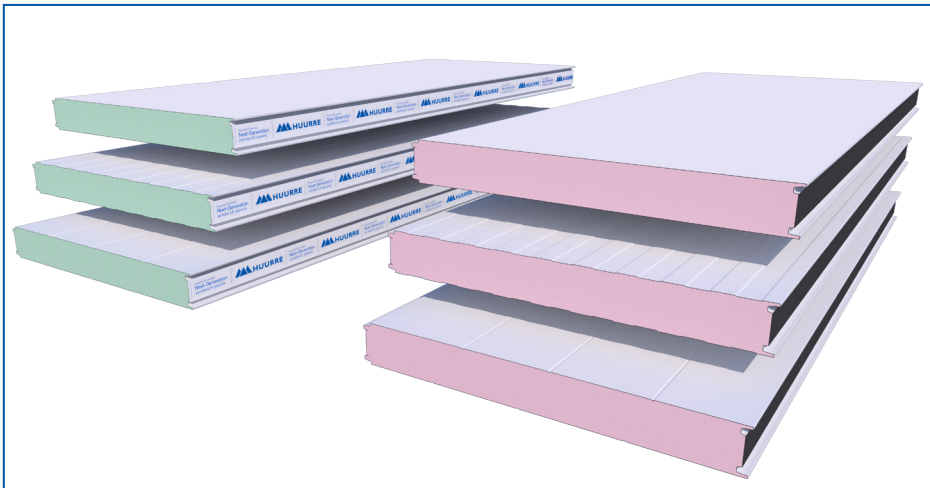
HI-PIRM F / HI-PIR F

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.

Three available finishes (standard, flat and plank), with a 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: 24/11/21 | Rev: 7.1

HI-PIRM F
HI-PIR F

Technical sheet

COLD STORAGE PANEL

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).

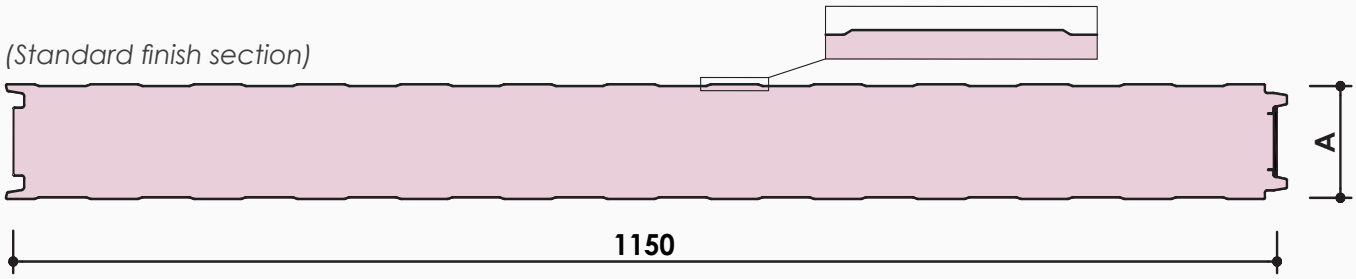
PIR or **PIRM** (polyisocyanurate) foam may be used as the insulating core.

Available in various **steel thicknesses**, with **coatings** suitable for contact with foodstuffs, and three finishing possibilities: **standard** lined profile, **flat** and **plank**.

High mechanical performance certified by **laboratory tests**.

DIMENSIONS, WEIGHT AND THERMAL PROPERTIES

(Standard finish section)



Useful width			1,150 mm | 1,120 mm (check availability)						
Manufacturing length	**Standard**		2.0 to 13.5 m						
	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			PIR: 40 (± 5) kg/m³ | PIRM: 40 (-2/+5) kg/m³						
Total thickness (A)	60	80	100	125	150	175	200	230	(mm)
Weight	10.93	11.73	12.53	13.53	14.53	15.53	16.53	17.79	(kg/m²)
Thermal transmittance[1] (PIR / PIRM)	0.38	0.27	0.22	0.17	0.14	0.12	0.11	0.09	(W/m²K)
Thermal resistance[2] (PIR / PIRM)	2.72	3.64	4.56	5.71	6.87	8.02	9.17	10.55	(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).

HUURRE IBÉRICA, S.A.U.
Ctra. comarcal C-65, km 16 | E-17244 Cassà de la Selva | Girona (Spain)
Tel. (+34) 972 463 085 | Fax. (+34) 972 463 208
M: huurre@huurreiberica.com | W: www.huurreiberica.com

HUURRE

COMPONENTS

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.
It is essential to respect the outer face (transparent film) and the inner side face (blue film).

Insulating core

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

Finishing options

Three finishing options: standard (slightly profiled) finish with 0.5mm sheet, or smooth and semi-smooth with 0.6mm sheet.

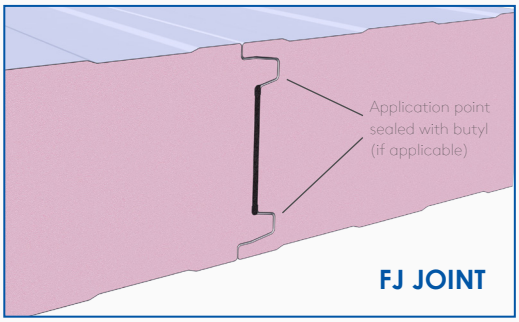
LEAK-TIGHTNESS AND JOINT TYPES

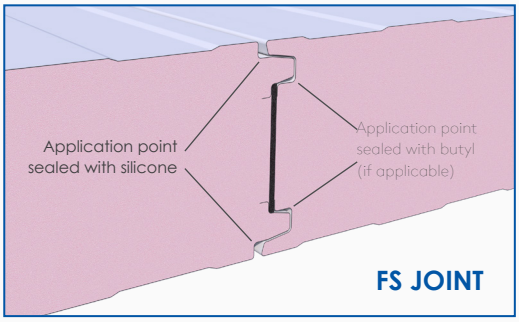
The HI-F panel is available with two types of joints, both with double tongue and groove and flexible polyethylene joint which guarantees the best water tightness with a simple and fast assembly.

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.

Permeability to air: 0.0 $m^3/h\ m^2$ at 50 Pa. Values certified by APPLUS external laboratory according to Standard 12114.
Permeability to water: CLASS A (joints permeable to water at pressures higher than 1,200 Pa). Better classification according to EN 12865, for demanding applications with heavy rain and strong winds.

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.





Recommended sealing	Positive 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 DTA 2/16-1770.

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.

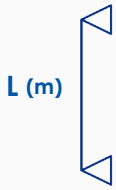
HUURRE

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.

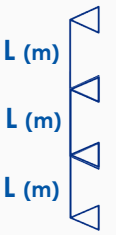
Downward load (daN/m²)

SINGLE SPAN



Thickness	50	75	100	125	150	175	200
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
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
230	9.18	7.49	6.49	5.80	5.30	4.89	4.57

MULTI SPAN



Thickness	50	75	100	125	150	175	200
60	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
100	8.07	6.59	5.65	4.83	4.03	3.45	3.02
125	8.87	7.24	6.26	5.59	5.05	4.33	3.79
150	9.49	7.61	6.70	5.99	5.47	5.06	4.56
175	10.51	8.56	7.41	6.63	6.06	5.61	5.24
200	10.97	8.95	7.74	6.93	6.33	5.81	5.48
230	9.18	7.49	6.47	5.78	5.28	4.88	4.57

Support width = 50mm Support width > 50mm 1daN/m² ≈ 1 kp/m²
Consult HUURRE for other support widths.
Tables for light coloured panels. Consult for dark panel.
Minimum external temperature considered -10ºC.

REACTION TO FIRE

Reaction to fire according to European legislation

EUROCLASS B-s1,d0

B:	Hardly inflammable[1]
s1:	Very limited smoke production
d0:	No inflammable dripping

(1) best classification possible for an organic type material.

Reaction to fire is determined according to UNE-EN 13501 standard (with N stamp certification).

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

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

FM APPROVED

The test programme certifies[2] 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. 230mm thick panel excluded.

HUURRE IBÉRICA, S.A.U.
Ctra. comarcal C-65, km 16 | E-17244 Cassà de la Selva | Girona (Spain)
Tel. (+34) 972 463 085 | Fax. (+34) 972 463 208
M: huurre@huurreiberica.com | W: www.huurreiberica.com

HUURRE

EXAMPLES OF ENERGY LOSS THROUGH THE ENCLOSURE

The following table gives the energy losses through the enclosure (W/m²), 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	230
U (W/m² °C)	0,38	0,27	0,22	0,17	0,14	0,12	0,11	0,09
Temperature gradient between the two faces of the enclosure (°C) 10	3,80	2,70	2,20	1,70	1,40	1,20	1,10	0,90
15	5,70	4,05	3,30	2,55	2,10	1,80	1,65	1,35
20	7,60	5,40	4,40	3,40	2,80	2,40	2,20	1,80
25	9,50	6,75	5,50	4,25	3,50	3,00	2,75	2,25
30	11,40	8,10	6,60	5,10	4,20	3,60	3,30	2,70
35	13,30	9,45	7,70	5,95	4,90	4,20	3,85	3,15
40	15,20	10,80	8,80	6,80	5,60	4,80	4,40	3,60
45	17,10	12,15	9,90	7,65	6,30	5,40	4,95	4,05
50	19,00	13,50	11,00	8,50	7,00	6,00	5,50	4,50
55	20,90	14,85	12,10	9,35	7,70	6,60	6,05	4,95
60	22,80	16,20	13,20	10,20	8,40	7,20	6,60	5,40
65	24,70	17,55	14,30	11,05	9,10	7,80	7,15	5,85
70	26,60	18,90	15,40	11,90	9,80	8,40	7,70	6,30
75	28,50	20,25	16,50	12,75	10,50	9,00	8,25	6,75
80	30,40	21,60	17,60	13,60	11,20	9,60	8,80	7,20

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

AVAILABLE COATINGS

Table of coatings choice to ensure the maximum durability of the panel. CPI1 and RC1 classifications considered suitable for healthy environments, and CPI5 and RC5 suitable for very aggressive environments.

	OUTDOOR ENVIRONMENT								INDOOR ENVIRONMENT			
	RURAL WITHOUT POLLUTION	URBAN/ INDUSTRIAL		MARINE			RESISTANCE		NON-AGRESSIVE ENVIRONMENTS		AGGRESSIVE AND/OR VERY HUMID ENVIRON-MENTS	RESISTANCE
		Moderate	Severe	Between 3 & 20km	< 3km (1)	Mixed	OUTDOOR CORROSION CATEGORY	UV	Low humidity	Medium humidity		INDOOR CORROSION CATEGORY
E5001	☒	☒	☒	☒	☒	☒	NA	NA	☑	☒	☒	!
Polyester 25µ	☑	☑	!	!	☒	☒	!	!	☑	☑	Ai3 (2)	CPI3
Polyester plus 25µ	☑	☑	!	☑	☒	☒	RC3	RUV2	☑	☑	Ai3	CPI3
PVDF 35µ	☑	☑	!	☑	!	!	RC4	RUV4	☑	☑	Ai3	CPI4
HDX 55µ	☑	☑	☑	☑	☑	!	RC5	RUV4	☑	☑	Ai3	CPI4
PET 50µ	☒	☒	☒	☒	☒	☒	NA	NA	☑	☑	Ai5	CPI5
INOX (3)	☒	☒	☒	☒	☒	☒	NA	NA	☑	☑	Ai5	Excellent (2)
INOX PVC + PET (3)	☒	☒	☒	☒	☒	☒	NA	NA	☑	☑	Ai6	Excellent (2)

☑ Suitable coating ☒ Unsuitable coating **NA** Not applicable ! Check with HUURRE IBÉRICA

(1) Please contact us for distances < 300 m (2) Check conditions (3) Only widhts of 1.150 mm

HUURRE

AENOR ER Empresa Registrada UNE-EN ISO 9001 ER-0947/1998 · CERTIFIED QUALITY SYSTEM IQNet · AENOR ER Seguridad y Salud Laboral OHSAS 18001 SST-0035/2010 · AENOR Gestión Ambiental UNE-EN ISO 14001 GA-2003/0091

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)[1].

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

(1) Excluding thickness of 230mm.

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.

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.

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 (ISO 45001) are certified by AENOR and IQNet (certifications GA-2003/0091 y ES-SST-0035/2010 respectively).

Environmental Product Declaration

The panel has an environmental product declaration in accordance with the European standard EN 15804.

HUURRE IBÉRICA, S.A.U.
Ctra. comarcal C-65, km 16 | E-17244 Cassà de la Selva | Girona (Spain)
Tel. (+34) 972 463 085 | Fax. (+34) 972 463 208
M: huurre@huurreiberica.com | W: www.huurreiberica.com