

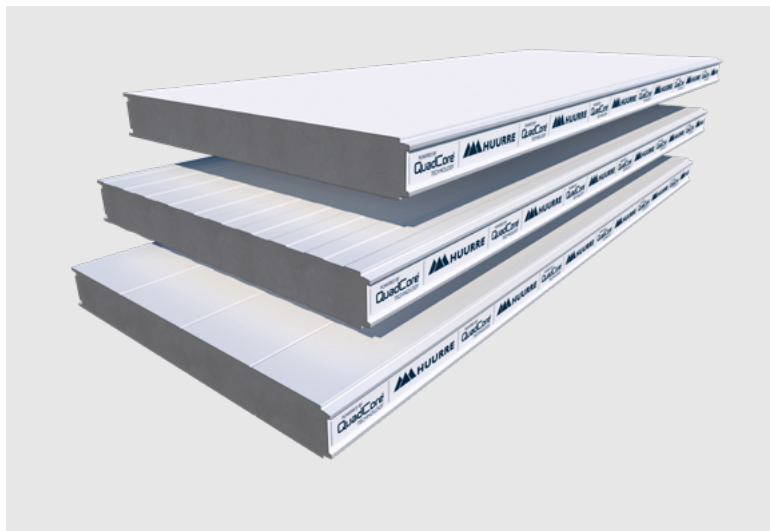
HI-QuadCore 2.0 F



High performance cold storage panel, with new QuadCore® insulating core

POWERED BY
QuadCore™
TECHNOLOGY

- ▶ High thermal insulation, resulting in a thermal transmittance of just 0.08 W/m²K (230mm thick panel).
- ▶ The HI-QuadCore 2.0 F range of panels is FM Approved certified, demonstrating limited fire spread and contribution in the event of a fire, meaning that special protection such as sprinklers may not be required, provided that occupancy permits.
- ▶ No water absorption, maintains its performance throughout its useful life, and it is not affected by biological agents.
- ▶ High air and water tightness of its joint, accredited by tests.



HI-QuadCore 2.0 F

High thermal performance panel for cold storage



Description and applications

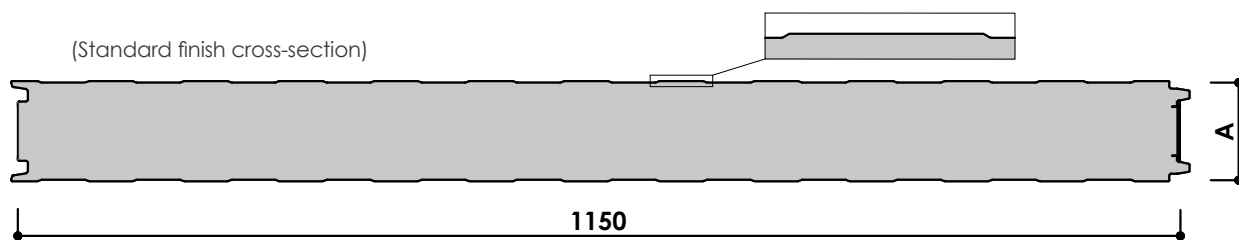
Cold storage panel with metal faces and rigid QuadCore® insulating core, which provides one of the best thermal insulation on the market, high level of fire protection and great durability.

Certified panel for use both indoors and outdoors, designed for applications that require a high degree of insulation: food industry, cold roomms, laboratories, clean rooms, etc.

The fire performance of the entire range of HI-QuadCore 2.0 F panels is certified by FM Approvals under standard FM 4880, FM 4881 and FM 4882.



Dimensions, mass and thermal properties



Useful width		1,150 mm (1,120 mm, check availability)							
Manufacturing lenght	Standard	2.0 to 13.5 m							
	Special	13.5 to 18 m (special transport)							
Type of joint		FJ - FS							
Declared thermal conductivity		0.019 W/mK (considering an aged core)							
Total thickness (A)	60	80	100	125	150	175	200	230	(mm)
Mass²	10,89	11,69	12,49	13,49	14,49	15,49	16,49	17,69	(kg/m ²)
Thermal transmittance^{1,2}	0.34	0.24	0.19	0.15	0.13	0.11	0.10	0.08	(W/m ² K)
Thermal resistance²	3.28	4.33	5.38	6.70	8.01	9.33	10.64	12.22	(m ² K/W)

NOTES: (1) Declared values corresponding to the HI-QuadCore 2.0 F panel manufactured in Huurre.

(2) For 0.5/0.5mm (int/ext) steel sheets, FJ joint and 1.150 mm width.

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QuadCore® features



High thermal efficiency

The QuadCore® insulating core has a high thermal performance, with an aged thermal conductivity of just 0.019W/mK.



High level of protection to fire

The QuadCore® core has a higher fire performance, providing a better protection in case of fire.



High environmental sustainability

The use of Huurre's range of HI-QuadCore panels can enable reduce operational energy loss and reduces associated transport emissions.



High durability

By not absorbing moisture, the functional performance of the QuadCore® core does not diminish over time, offering its high durability.

Components

Panel facings

Cold profiled sheet from structural steel coil type S220GD, of certified quality, hot galvanized according to EN 10346 and EN 10169. Standard sheet thicknesses: 0.5/0.5 mm (interior/exterior).

It is essential to respect the orientation of the panel faces: outer face with transparent film, inner face with blue film.

Insulating core

Rigid QuadCore foam, injected continuously, through a process that does not release HCFC-type gases.

Finishes

Manufacture with four finishing options: standard in slightly corrugated finish, or smooth, semi-smooth or micro-profiled. Semi-smooth profiling on panels with a width of 1,120mm is not available.

Leak-tight of the joints

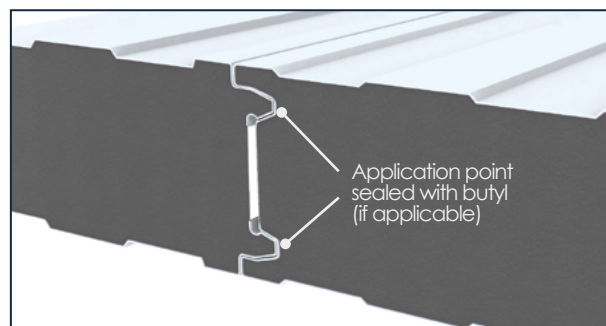
The air and water tightness of the joint between HI-QuadCore 2.0 F panels is solved without the need for a polyethylene gasket in the longitudinal joints. This solution has been tested according to standards EN 14509:2014, EN 12114:2000 and EN 12865:2002. Report 21/24754-1195 results in:

- **Air permeability***: 0.000 m³/h · m² at 50 Pa

- **Water permeability***: CLASS A - 1,800 Pa

(*) Valid values for thicknesses equal to or greater than 80mm

In the case of negative temperature chambers, it will be necessary to seal the interior joint between panels with butyl (or equivalent product) at least on the face with the highest temperature in order to avoid the permeability of water vapor through the joint.





Usage tables (daN/m²)

The HI-QuadCore 2.0 F panel is suitable for use in walls, roofs and external façade cladding applications, thanks to its high rigidity, impact resistance and enhanced durability. For load span tables and further information, please contact our technical department.

Fire performance

Fire reaction classification

EUROCLASS B-s1,d0

B: Very limited contribution to fire and will not lead to flashover¹

s1: Little or no smoke production

d0: No flaming droplets / particles

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

Reaction to fire is determined according to UNE-EN 13501-1:2019 standard.

The HI-QuadCore 2.0 F panel has been assessed in accordance with the AVCP 1 system pursuant to Regulation (EU) No 305/2011 (CPR), and holds a certificate of performance issued by the notified body EFACTIS France (No. 1812), based on the assessment of factory production control, including initial inspection and ongoing surveillance, in accordance with certificate No. 1812-CPR-2395.

Fire reaction classification for floors

HI-QuadCore 2.0 F panels have an Bfl-s1 fire reaction classification for use in flooring, in accordance with standard EN 13501-1:2018.

This classification indicates that the material makes a very limited contribution to the fire and has low smoke emission (s1), meeting the most stringent fire safety requirements for flooring.

FM Approvals international certification

The HI-QuadCore 2.0 F range of panels is FM APPROVED certified in accordance with the following standard, which means high performance and limited spread in the event of fire.



FM 4880 Class 1* Fire resistance of building panels or interior finishing materials.

FM 4881 Class 1* External wall systems.

FM 4882 Class 1* Areas sensitive to fumes, for indoor and outdoor use.

(*) Subject to installation conditions and coatings. Please consult our technical department.

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Energy loss through the enclosure

The following table gives the energy losses through the enclosure (W/m^2), depending on the HI-QuadCore 2.0 F panel thickness and the temperature gradient between its two faces.

Panel thickness (mm)		60	80	100	125	150	175	200	230
U ($W/m^2 \text{ } ^\circ C$)		0.34	0.25	0.20	0.15	0.13	0.11	0.10	0.08
Temperature gradient between the two sides of the enclosure ($^\circ C$)	10	3.36	2.41	1.92	1.53	1.27	1.09	0.95	0.83
	15	5.04	3.61	2.87	2.29	1.91	1.63	1.43	1.24
	20	6.71	4.82	3.83	3.05	2.54	2.18	1.90	1.65
	25	8.39	6.02	4.79	3.82	3.18	2.72	2.38	2.07
	30	10.07	7.23	5.75	4.58	3.81	3.27	2.86	2.48
	35	11.75	8.43	6.70	5.35	4.45	3.81	3.33	2.89
	40	13.43	9.64	7.66	6.11	5.09	4.36	3.81	3.31
	45	15.11	10.84	8.62	6.87	5.72	4.90	4.28	3.72
	50	16.78	12.04	9.58	7.64	6.36	5.45	4.76	4.14
	55	18.46	13.25	10.54	8.40	6.99	5.99	5.24	4.55
	60	20.14	14.45	11.49	9.16	7.63	6.53	5.71	4.96
	65	21.82	15.66	12.45	9.93	8.26	7.08	6.19	5.38
	70	23.50	16.86	13.41	10.69	8.90	7.62	6.66	5.79
	75	25.18	18.07	14.37	11.45	9.53	8.17	7.14	6.20
	80	26.85	19.27	15.33	12.22	10.17	8.71	7.62	6.62

NOTE: In blue, the recommended losses through the enclosure in negative cold storage ($6 W/m^2$)
In yellow, the recommended losses through the enclosure in positive cold storage ($8 W/m^2$)

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.

	Rural without pollution	Outdoor environment						Indoor environment					
		Urban/ Industrial		Marine			Resistance		Non-aggressive environments		Aggressive and/ or very humid environments	Resistance Indoor corrosion category	
		Moderate	Severe	Between 3 and 20 km	< 3 km ⁽¹⁾	Mixed	Outdoor corrosion category	UV	Low humidity	Medium humidity			
E5001	✗	✗	✗	✗	✗	✗	NA	NA	✓	✗	✗	!	
Polyester 25 μ	✓	✓	!	!	✗	✗	!	!	✓	✗	Ai3 ²	CPI2	
Polyester plus 25 μ	✓	✓	!	✓	✗	✗	RC3	RUV2	✓	✓	Ai3	CPI3	
PVDF 35 μ	✓	✓	!	✓	!	!	RC4	RUV4	✓	✓	Ai3	CPI4	
HDX 55 μ	✓	✓	✓	✓	✓	!	RC5	RUV4	✓	✓	Ai3	CPI4	
PET 50 μ	✗	✗	✗	✗	✗	✗	NA	NA	✓	✓	Ai5	CPI5	
INOX	✗	✗	✗	✗	✗	✗	NA	NA	✓	✓	Ai5	Exc ²	
INOX PVC + PET	✗	✗	✗	✗	✗	✗	NA	NA	✓	✓	Ai6	Exc ²	

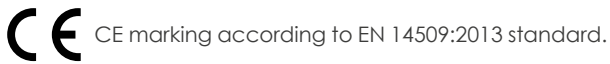
✓ Suitable coating ✗ Unsuitable coating ! Consult HUURRE IBÉRICA ⁽¹⁾ Consult for distances <300m ⁽²⁾ Check conditions
(NA) Not applicable (Exc.) Excelente. For other coatings, consult our Technical Department.

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Quality and manufacturing standards

HI-QuadCore 2.0 F panel certifications



Additional features

Resistance to biological agents

HUURRE's HI-QuadCore 2.0 F panels, thanks to the closed structure of the insulating core, are resistant to attack by fungi, moulds and other deteriorating biological agents.

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

Water absorption

The hybrid QuadCore® 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 QuadCore® insulating core contains 7.90% postconsumer recycled plastic (rPET) in its formulation.

This is equivalent to the reuse of approximately 105 1.5-litre rPET plastic bottles per cubic metre (m³) of insulating core manufactured, based on an average weight of 31 g per standard non-reusable bottle.



Guaranteed and certified quality

HUURRE's Integrated Quality Management System, in accordance with ISO 9001, is certified by AENOR and IQNet (certificate ER-0947/1998).

HUURRE's Environmental Management System, in accordance with ISO 14001, and the Occupational Health and Safety System, in accordance with ISO 45001, are certified by AENOR and IQNet (certificates GA2003/0091 and ES-SST-0035/2010 respectively).

The Compliance Management System, in accordance with ISO 37301:2021, is certified by Advanced Certification Ltd.

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