



Kingspan

Solutions for refrigerated spaces
With QuadCore® thermal insulation



POWERED BY
QuadCore®
TECHNOLOGY


Kingspan®

POWERED BY

QuadCore[®]

TECHNOLOGY

$$\lambda = 0.019 \text{ W/mK}$$



Kingspan[®]

* The guarantee indicated corresponds to the thermal insulation value, requiring individual judgment for each project

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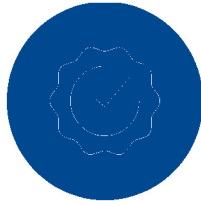
Advantages of the deep freezing and cold store system

KS1150 TF, TC, TL and NC QuadCore® thermally insulated panel system



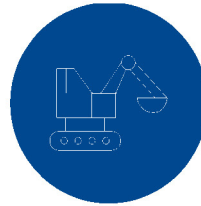
High quality

A reliable nano cell thermal insulator foam, which provides a fireproof and hygienic solution.



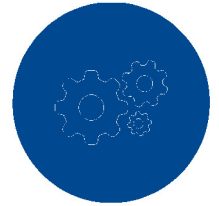
A safe choice

It meets the current and future statutory requirements and standard specifications.



The liberty of choice

Applicable to various supporting structures (steel, concrete).



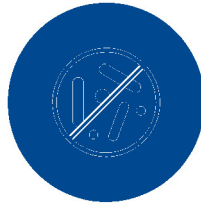
System level solution

Various accessories are available on request, in order to help and speed up the installation process.



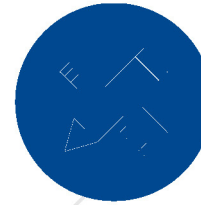
Outstanding fire resistance

With QuadCore® thermal insulation, it is suitable for achieving **EI60** fire safety, and the fire protection rating of these panels is **B-s1, d0** in addition. The product is rated according to FM4882, i.e. it releases very little smoke.



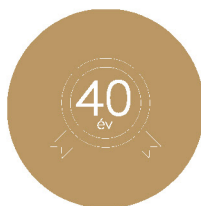
Hygiene above all

The surface of the panels is hygienically safe, resists moisture, and precludes the development of toxic mold and bacteria colonies. In terms of environmental load, the structure is sustainable and contains 100% recyclable QuadCore® thermal insulation core.



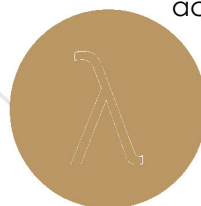
Perfect joints

The thermal characteristics of the factory panel joints are excellent and are suitable for the installation of vapour barrier and hygienically safe seals. Kingspan's thermally regulated systems are capable of ensuring an air permeability below 0.5 m³/h/m² @ 50 Pa, provided installation takes place according to Kingspan's recommendations.



40-year guarantee

Separately judged for every project, Kingspan guarantees for 40 years that the sandwich panel fitted with QuadCore® thermal insulation core will retain their thermal insulation and fire protection capabilities, as well as the mechanical properties of thermal insulation core.



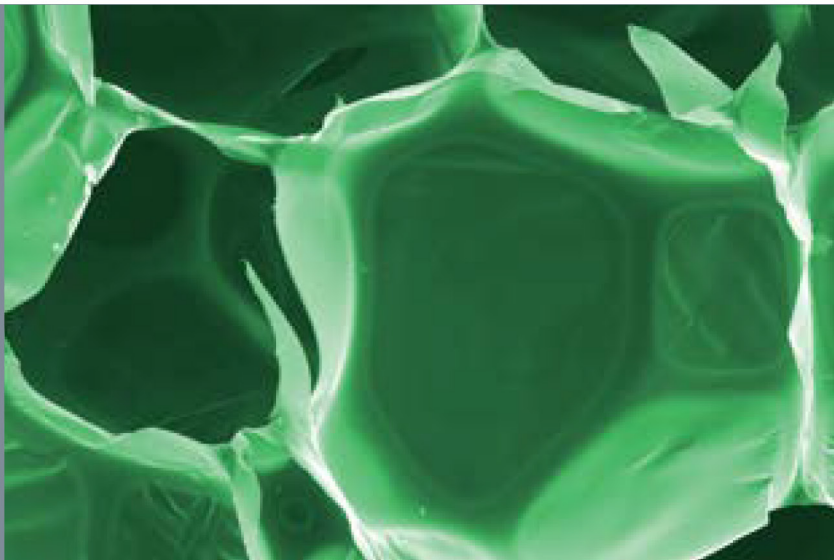
First class thermal insulation

The revolutionary QuadCore® thermal insulation foam is a new generation, nanotechnology hybrid thermal insulation system, whose thermal conductivity factor is:
 $\lambda = 0.019 \text{ W/mk.}$

Thermal technological features

The solid sandwich panels containing QuadCore® thermal insulation core, developed by Kingspan are **rated to have excellent and constant thermal insulation characteristics throughout their lifecycles**. The key to their efficiency is that an insulation of favourable thermal properties is an integrated element of the panel system, **guaranteeing an excellent U-value**.

- ♦ Appropriately insulated Kingspan panels ensure complete vapour and air tightness, enabling the use of the system in environments of regulated atmosphere.
- ♦ Thanks to the nano-sized cells and the special, environmentally friendly gas filling, the QuadCore® thermal insulation core is air, and as such it is impenetrable by moisture and has excellent structural properties.

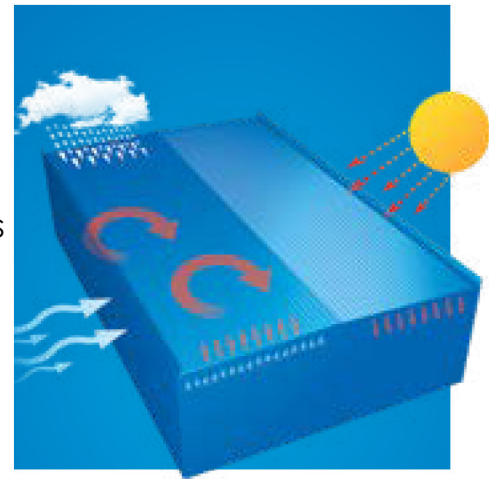


- ♦ The thermally insulated factory joints ensure excellent thermal insulation characteristics. With the help of the appropriate seals, there is no air gap (or a thermal bridge) along the joint.
- ♦ A lower heat loss (gain) significantly reduces operational energy demand and cost.

The thermal and structural properties of the Kingspan thermally insulated panels, as well as the wide range of panel thicknesses available make the **KS1150 TL, TC** and **NC** panels uniquely suitable for application in any area of use – e.g. refrigerated spaces, freezers, food processing, where thermally regulated environments are required (house-in-house design).

Determining the minimal required panel thickness from the energy perspective

In case of refrigerated spaces, the temperature difference between the outer and inner surfaces of the panels play important roles in the energy planning phase of the building. The following chart shows that if we know the thermal conditions on each side of the panel, it is possible to determine a minimum panel thickness to keep the heat loss taking place through the panel to a suitable minimum. The chart recommends a solution for a heat flow of 10W/m² that also considers the aspect of economical operation. If the boundary panels of the cold store also serve as external partition walls, then it must also be taken into account that the surfaces exposed to solar irradiation may heat up to 65-80°C, generating significant temperature differences, therefore



far thicker panels will be required. With the help of extra outer covers (screening), this temperature range may be significantly reduced. The high temperature gradient will also generate substantial mechanical stress within the panel, which must also be taken into account upon determining the load bearing capacity and the necessary number of fixation points of the panel. Upon planning such buildings, we recommend consultation with Kingspan's Technical Customer Service.

The thermal insulation requirement chart for cold store panels as a function of temperature conditions.

QuadCore® thermal insulation foam (declared thermal conductivity factor Lambda-value: 0.0019 W/mK)											
Panel thickness (mm)	40	50	60	70	80	100	120	150	170	180	200
U value (average) [W/m ² K]	0.475	0.380	0.317	0.271	0.238	0.190	0.158	0.127	0.112	0.106	0.095
Temperature difference [°C]											
10	4.75	3.80	3.17	2.71	2.38	1.90	1.58	1.27	1.12	1.06	0.95
15	7.13	5.70	4.75	4.07	3.56	2.85	2.38	1.90	1.68	1.58	1.43
20	9.50	7.60	6.33	5.43	4.75	3.80	3.17	2.53	2.24	2.11	1.90
25	11.88	9.50	7.92	6.79	5.94	4.75	3.96	3.17	2.79	2.64	2.38
30	14.25	11.40	9.50	8.14	7.13	5.70	4.75	3.80	3.35	3.17	2.85
35	16.63	13.30	11.08	9.50	8.31	6.65	5.54	4.43	3.91	3.69	3.33
40	19.00	15.20	12.67	10.86	9.50	7.60	6.33	5.07	4.47	4.22	3.80
45	21.38	17.10	14.25	12.21	10.69	8.55	7.13	5.70	5.03	4.75	4.28
50	23.75	19.00	15.83	13.57	11.88	9.50	7.92	6.33	5.59	5.28	4.75
55	26.13	20.90	17.42	14.93	13.06	10.45	8.71	6.97	6.15	5.81	5.23
60	28.50	22.80	19.00	16.29	14.25	11.40	9.50	7.60	6.71	6.33	5.70
65	30.88	24.70	20.58	17.64	15.44	12.35	10.29	8.23	7.26	6.86	6.18
70	33.25	26.60	22.17	19.00	16.63	13.30	11.08	8.87	7.82	7.39	6.65
75	35.63	28.50	23.75	20.36	17.81	14.25	11.88	9.50	8.38	7.92	7.13
80	38.00	30.40	25.33	21.71	19.00	15.20	12.67	10.13	8.94	8.44	7.60
85	40.38	32.30	26.92	23.07	20.19	16.15	13.46	10.77	9.50	8.97	8.08
90	42.75	34.20	28.50	24.43	21.38	17.10	14.25	11.40	10.06	9.50	8.55
95	45.13	36.10	30.08	25.79	22.56	18.05	15.04	12.03	10.62	10.03	9.03
100	47.50	38.00	31.67	27.14	23.75	19.00	15.83	12.67	11.18	10.56	9.50

The values in the chart are those of the heat flow calculated using the following formula: $D = \lambda \times \Delta t / Q$, where D is the thickness of thermal insulation [mm], λ is the thermal conductivity factor [W/mK], Δt is the temperature difference between the outer surfaces of the panel, Q is the value of the heat flow [W/m²]. The recommended maximum heat loss in case of thermal insulation of cold store wall structures is $Q = 10$ W/m². (See: IACSC Code of Practice for the Design of Coldstore Envelopes)

Thermally insulated panels – fire resistance classification

Fire resistance testing for non-loadbearing external boundary walls is performed according to the MSZ EN 1364-1 standard. The purpose of the test is to test the fire retardant capability of the material in the structural sample used in the test.

Fire resistance requirements

The fire resistance rating of the products depends on the fire safety tests conducted according to the corresponding test standards. The determination of fire resistance is described in the MSZ EN 13501-2 standard (Fire classification of construction products and building elements. Part 2: Classification using data from fire resistance tests, excluding ventilation services) and its value contains specific properties:



Fire characteristics	
R	Load-bearing capacity
E	Integrity
I	Thermal insulation
W	Heat radiation

EU fire safety rating

Fire behaviour characteristics	
S	In accordance with the MSZ EN ISO 11925 - 2 standard: 30 sec flame retardation Vertical propagation along the edge of the sample after 60 sec ≤ 150 mm According to the MSZ EN 13828 standard: No lateral propagation along the edge of the sample
Requirements concerning smoke emission	
S₁	In accordance with the MSZ EN 13823 standard: SMOGRA ≤ 30 m ² /s ² TSP600 s ≤ 200 m ²
Requirements concerning dripping while burning	
D₀	In accordance with the MSZ EN 13823 standard: No dripping while burning within a duration of 600 seconds

Reaction to fire classification is described in the MSZ EN 13501-1 standard (Fire classification of construction products and building elements. Part 1: Classification using data from reaction to fire tests). Six primary classes are defined, of which class "A1" marks the best fire resistance performance – usually attributed to inorganic materials – and class "F" includes materials that easily catch fire from small flames as well. A supplementary classification order is provided for **smoke emission** and **dripping while burning**. Based on these criteria, the classification of Kingspan's thermally insulated panels is: **B-s1,d0**.

Reaction to fire

Panel type	Core thickness [mm]	Reaction to fire
KS1150 TF wall panel	40, 50	-
	60, 70, 80	EI15
	100, 120	EI20
KS1150 TC cold store wall panel	40, 50	-
	60, 70, 80	EI15
	100, 120, 150, 170, 200	EI20
KS1150 TL/NC cold store wall panel (labyrinth joint)	100, 120, 150, 170, 180	EI30
	200	EI60



Refrigerated storage

The energy costs of operating deep freezing store rooms represent a significant fraction of general costs. Thanks to their favourable thermal insulation and excellent energy efficiency parameters, Kingspan's cold store panels significantly reduce energy consumption and minimise building operation costs.

Where can Kingspan panels be used?



Fruit and vegetable processing



Various food processing plants



Abattoirs and meat processing.



Poultry processing plants



Fishing products – facilities



Areas of regulated atmosphere



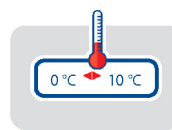
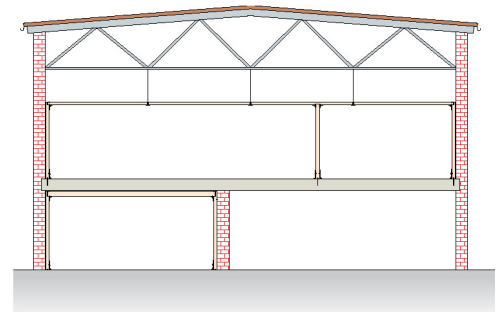
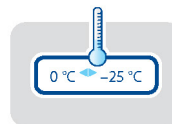
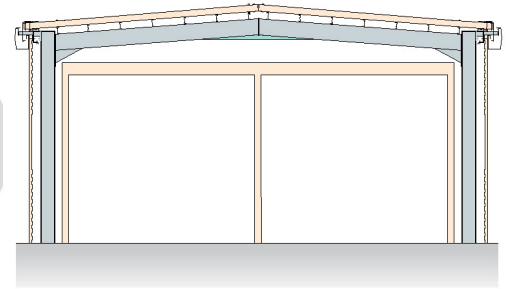
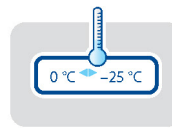
Ice cream and dairy production plants

Cold store applications

Temperature range:
0 °C to -40 °C

Application during reconstruction of existing buildings

Temperature range:
0 °C to +12 °C, and
0 °C to -40 °C



Technical data of panels

Type	Panel geometry	External coating	Inner side coating	QuadCore® thermal properties U (W/m²K)	D Thickness (mm)	Weight kg/m²
KS1150 TC		Polyester Spectrum PVDF Foodsafe INOX	Polyester INOX Foodsafe	-	50	10.24
					60	10.64
					80	11.04
					100	11.44
					120	11.84
					150	12.64
					170	13.44
					200	14.64
KS1150 TL/NC		Polyester Spectrum PVDF INOX Foodsafe	Polyester INOX Foodsafe	0.18	100	12.64
				0.15	120	13.44
				0.12	150	14.64
				0.11	170	15.44
				-	(180)3	15.84
				0.09	200	16.64

Loading chart for KS1000/1150 TC/TL/NC panels - ceiling

Maximum values for evenly distributed load (kN/m²)

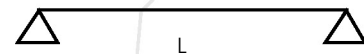
"L" span [m]	Panel thickness (mm)						
	40	50	60	70	80	100	120
2.000	1.22	1.80	2.42	3.07	3.73	4.04	4.05
2.500	0.68	1.07	1.50	1.95	2.43	3.21	3.22
3.000	0.39	0.65	0.95	1.27	1.62	2.28	2.66
3.500	0.22	0.40	0.61	0.84	1.10	1.66	2.03
4.000	0.11	0.24	0.39	0.57	0.76	1.18	1.57
4.500	-	0.14	0.25	0.38	0.52	0.85	1.21
5.000	-	0.07	0.15	0.25	0.36	0.61	0.90
5.500	-	-	0.09	0.16	0.25	0.44	0.67
6.000	-	-	0.04	0.10	0.16	0.32	0.50
6.500	-	-	-	0.05	0.10	0.23	0.37
7.000	-	-	-	-	0.06	0.16	0.27
7.500	-	-	-	-	-	0.10	0.20
8.000	-	-	-	-	-	0.06	0.14

Remarks:

- the values of the chart must be compared to the permanent and occasional loads above the own weight of the panel.
- the maximum allowable strain both for brief as well as prolonged loads is L/200,
- the values of the chart are valid when the temperature gradient of the panel falls between 0 °C and the temperature value given in the chart below,
- the chart considers the temperature a constant load (i.e. it considers the effects of creeping as well),
- the basis of the calculation of the chart's value are provided by the Box/Box profile values,
- all values and calculations in the chart comply with the specifications of EN 14509:2013.

Maximum allowable deformation	L/200
Temperature gradient	20 °C
Outer sheet thickness, t _n (mm)	0.6
Inner sheet thickness, t _n (mm)	0.4

Structural frame – freely supported beam



Loading chart for KS1000/1150 TC/TL/NC panels - ceiling

Maximum values for evenly distributed load (kN/m²)

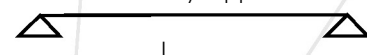
"L" span [m]	Panel thickness (mm)					
	100	120	150	170	180	200
2.000	4.03	4.05	4.04	4.03	4.03	4.02
2.500	2.65	3.22	3.21	3.20	3.19	3.19
3.000	1.72	2.50	2.65	2.64	2.64	2.63
3.500	1.14	1.73	2.26	2.25	2.24	2.24
4.000	0.76	1.21	1.96	1.95	1.95	1.94
4.500	0.52	0.86	1.47	1.72	1.72	1.71
5.000	0.35	0.62	1.10	1.47	1.53	1.52
5.500	0.24	0.45	0.84	1.13	1.29	1.37
6.000	0.17	0.33	0.64	0.89	1.02	1.25
6.500	0.12	0.25	0.50	0.70	0.81	1.04
7.000	0.09	0.19	0.40	0.56	0.65	0.85
7.500	0.06	0.15	0.32	0.45	0.53	0.69
8.000	0.05	0.12	0.26	0.37	0.44	0.58

Remarks:

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- the chart considers the temperature a constant load (i.e. it considers the effects of creeping as well),
- the basis of the calculation of the chart's value are provided by the Box/Box profile values,
- all values and calculations in the chart comply with the specifications of EN 14509:2013.

Maximum allowable deformation	L/200
Temperature gradient	50 °C
Outer sheet thickness, t _n (mm)	0.5
Inner sheet thickness, t _n (mm)	0.5

Structural frame – freely supported beam



Loading chart for KS1150 TC/TL/NC panels - sidewall

Maximum values for evenly distributed load (kN/m²)

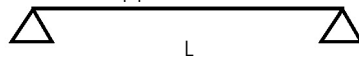
"L" span [m]	Panel thickness (mm)						
	40	50	60	70	80	100	120
2.000	1.12	1.70	2.33	2.99	3.68	4.14	4.16
2.500	0.62	1.01	1.44	1.90	2.39	3.17	3.33
3.000	0.36	0.62	0.92	1.25	1.60	2.20	2.65
3.500	0.21	0.39	0.60	0.84	1.11	1.62	1.95
4.000	0.13	0.25	0.41	0.58	0.78	1.22	1.49
4.500	0.07	0.16	0.28	0.41	0.56	0.90	1.18
5.000	0.04	0.11	0.19	0.29	0.41	0.67	0.95
5.500	-	0.07	0.13	0.21	0.30	0.51	0.76
6.000	-	0.05	0.09	0.15	0.22	0.39	0.60
6.500	-	-	0.07	0.11	0.17	0.31	0.47
7.000	-	-	0.05	0.08	0.13	0.24	0.37
7.500	-	-	-	0.06	0.10	0.19	0.30
8.000	-	-	-	-	0.07	0.15	0.24

Remarks:

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- ♦ the maximum allowable strain both for brief as well as prolonged loads is L/200,
- ♦ the values of the chart are valid when the temperature gradient of the panel falls between 0 °C and the temperature value given in the chart below,
- ♦ the chart considers the temperature a constant load (i.e. it considers the effects of creeping as well),
- ♦ the basis of the calculation of the chart's value are provided by the Minibox/Minibox profile values,
- ♦ all values and calculations in the chart comply with the specifications of EN 14509:2013.

Maximum allowable deformation	L/200
Temperature gradient	20 °C
Outer sheet thickness, t _n (mm)	0.6
Inner sheet thickness, t _n (mm)	0.4

Structural frame – freely supported beam



Loading chart for KS1150 TC/TL/NC panels - sidewall

Maximum values for evenly distributed load (kN/m²)

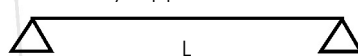
"L" span [m]	Panel thickness (mm)					
	100	120	150	170	180	200
2.000	4.09	4.16	4.16	4.16	4.16	4.16
2.500	2.55	3.33	3.33	3.33	3.33	3.33
3.000	1.62	2.39	2.77	2.77	2.77	2.77
3.500	1.03	1.61	2.38	2.38	2.38	2.38
4.000	0.65	1.10	1.85	2.08	2.08	2.08
4.500	0.41	0.74	1.34	1.78	1.85	1.85
5.000	0.24	0.50	0.97	1.33	1.52	1.66
5.500	0.13	0.33	0.71	0.99	1.15	1.47
6.000	0.06	0.21	0.51	0.75	0.87	1.14
6.500	-	0.13	0.37	0.56	0.66	0.89
7.000	-	0.07	0.26	0.42	0.51	0.69
7.500	-	-	0.18	0.31	0.38	0.54
8.000	-	-	0.12	0.23	0.29	0.42

Remarks:

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- ♦ the chart considers the temperature a constant load (i.e. it considers the effects of creeping as well),
- ♦ the basis of the calculation of the chart's value are provided by the Minibox/Minibox profile values,
- ♦ all values and calculations in the chart comply with the specifications of EN 14509:2013.

Maximum allowable deformation	L/200
Temperature gradient	50 °C
Outer sheet thickness, t _n (mm)	0.5
Inner sheet thickness, t _n (mm)	0.5

Structural frame – freely supported beam



Loading chart for KS1150 TC/TL/NC panels - sidewallMaximum values for evenly distributed load (kN/m²)

"L" span [m]	Panel thickness (mm)					
	100	120	150	170	180	200
2.000	2.60	2.64	2.67	2.69	2.70	2.71
2.500	2.03	2.06	2.08	2.10	2.11	2.12
3.000	1.66	1.68	1.70	1.71	1.72	1.73
3.500	1.08	1.42	1.44	1.45	1.45	1.46
4.000	0.84	1.18	1.33	1.34	1.35	1.35
4.500	0.44	0.61	0.92	1.10	1.10	1.11
5.000	0.31	0.42	0.63	0.79	0.87	0.99
5.500	0.22	0.31	0.45	0.56	0.62	0.75
6.000	0.17	0.23	0.33	0.41	0.46	0.55
6.500	0.13	0.18	0.25	0.31	0.35	0.42
7.000	0.10	0.14	0.20	0.25	0.27	0.32
7.500	0.08	0.11	0.16	0.20	0.21	0.26
8.000	0.07	0.09	0.13	0.16	0.17	0.21

Remarks:

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- ♦ the maximum allowable strain both for brief as well as prolonged loads is L/200,
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- ♦ the chart considers the temperature a constant load (i.e. it considers the effects of creeping as well),
- ♦ the basis of the calculation of the chart's value are provided by the Box/Box profile values,
- ♦ all values and calculations in the chart comply with the specifications of EN 14509:2013.

Maximum allowable deformation	L/200
Temperature gradient	50 °C
Outer sheet thickness, t _n (mm)	0.6
Inner sheet thickness, t _n (mm)	0.4

Structural frame – freely supported beam

**Loading chart for KS1150 TC/TL/NC panels - sidewall**Maximum values for evenly distributed load (kN/m²)

"L" span [m]	Panel thickness (mm)					
	40	50	60	70	80	100
2.000	1.76	2.02	2.13	2.25	2.37	2.60
2.500	1.20	1.59	1.67	1.76	1.85	2.03
3.000	0.86	1.22	1.38	1.45	1.52	1.66
3.500	0.62	0.91	1.17	1.23	1.29	1.41
4.000	0.54	0.79	1.05	1.14	1.20	1.31
4.500	0.35	0.53	0.73	0.85	0.98	1.08
5.000	0.27	0.42	0.58	0.69	0.79	0.96
5.500	0.21	0.33	0.46	0.57	0.65	0.82
6.000	0.16	0.26	0.38	0.48	0.55	0.69
6.500	0.13	0.21	0.31	0.41	0.47	0.59
7.000	0.11	0.17	0.25	0.34	0.40	0.51
7.500	0.09	0.14	0.21	0.29	0.35	0.44
8.000	0.07	0.12	0.18	0.24	0.31	0.39

Remarks:

- ♦ the values of the chart must be compared to the permanent and occasional loads above the own weight of the panel.
- ♦ the maximum allowable strain both for brief as well as prolonged loads is L/200,
- ♦ the values of the chart are valid when the temperature gradient of the panel falls between 0 °C and the temperature value given in the chart below,
- ♦ the chart considers the temperature a constant load (i.e. it considers the effects of creeping as well),
- ♦ the basis of the calculation of the chart's value are provided by the Minibox/Minibox profile values,
- ♦ all values and calculations in the chart comply with the specifications of EN 14509:2013.

Maximum allowable deformation	L/200
Temperature gradient	50 °C
Outer sheet thickness, t _n (mm)	0.5
Inner sheet thickness, t _n (mm)	0.5

Structural frame – freely supported beam



Important information for using the loading charts

The charts only consider a product specification and an installation condition. In the following cases, request our individual calculation or advice:

- ♦ outer layers of panels of other thickness (inside and outside)
- ♦ other strain limit (e.g. L/150 or L/100 instead of L/200)
- ♦ other temperature gradient (e.g. warmer outer space than +20 °C)

The charts consider the so-called 'shielded' designs or those protected from external environmental effects – solar radiation and wind – using other means (house-in-house system). If the cover panels of the cooling space also function as external cladding, neither the loading charts of the present material, nor those in Kingspan's general documents may be used, as they do not consider the effects of extreme temperature loads (temperature gradients up to 80-100 °C). In such cases, the possibility of 'freely supported beam' type designs is strongly restricted.

Contact Kingspan's Technical Customer Service for individual structural calculations and further information.

Operating instructions



Calculating the load capacity of cold store panels considers the own weight of the panels and the periodical workloads upon assembly and subsequent maintenance. It is not possible to directly mount or suspend ventilation equipment or similar devices on the wall or suspended ceiling panels.

The person(s) performing the work/maintenance may not step over the panels without using supplementary spreader elements and the surface of the panels may not be used for purposes of material movement and storage.

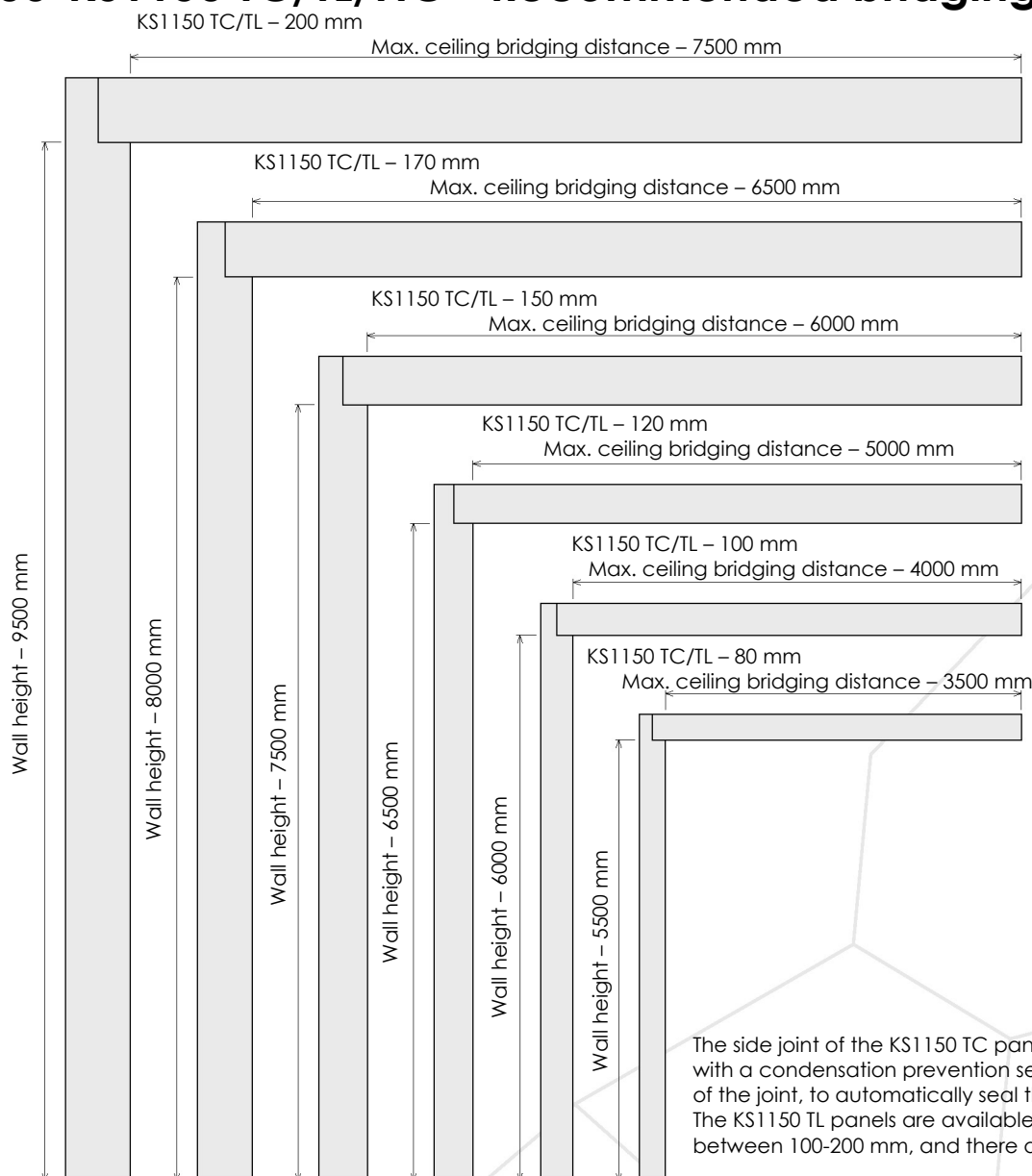
For information on applicable tools and methods, consult our Technical Customer Service.

Considerations regarding air pressure change

Upon cooling and defrosting large quantities of food stored in airtight space, the shrinkage and expansion of the confined air significantly changes the air pressure. Sudden pressure changes may damage the system of thermally insulated "boxes", and in extreme cases (e.g. in case of separate boxes) may even cause the collapse of the system. Because of this – especially for panels of spaces of sub-zero temperatures – pressure relief valves must be built in the walls or the ceiling. The number and dimensioning of the required valves must be determined by experts.



KS1000-KS1150 TC/TL/NC - Recommended bridging distances



Remarks

The loading data are valid in the following conditions:

Sidewalls

KS1000/1150 TF and TC panels with thicknesses of 60, 70, 80 and 100 mm

- ◆ Temperature difference between the two surfaces of the panels: 20 °C
- ◆ Maximum allowable deformation: L/150
- ◆ Internal distributed load (internal pressure) – 0.30 kN/m²

KS1000/1150 TC/TL/NC panels with thicknesses of 120, 150, 170 and 200 mm

- ◆ Temperature difference between the two surfaces of the panels: 50 °C
- ◆ Maximum allowable deformation: L/150
- ◆ Internal distributed load (internal pressure) – 0.30 kN/m²

The factory-made side joint of the KS1000/1150 TL panels is fitted with a vapour barrier seal, which should be removed during installation and replaced with a locally applied sealant (e.g. low-expansion PUR foam). The KS1000/1150 TC/NC panels have no seal in their joints, application of local sealant upon installation is recommended.

Suspended ceiling

KS1000/1150 TF/TC panels with thicknesses of 60, 70, 80 and 100 mm

- ◆ Temperature difference between the two sides of the panels: 20 °C
- ◆ Maximum allowable deformation: L/200
- ◆ Loads: own weight of the panel, 0.90 kN concentrated load at the middle of the span, 0.25 kN/m² distributed load over the entire surface

KS1150 TC/TL/NC panels with thicknesses of 120, 150, 170 and 200 mm

- ◆ Temperature difference between the two sides of the panels: 50 °C
- ◆ Maximum allowable deformation: L/200
- ◆ Loads: own weight of the panel, 0.90 kN concentrated load at the middle of the span, 0.25 kN/m² distributed load over the entire surface

Kingspan collision protection solutions

Our SafeDefence products help protect your building and colleagues



The Kingspan SafeDefence protection systems have been produced using high-performance polymer technology, thanks to which the protection of the tangible and intangible property of its employees is ensured. This technology allows some components to reset into their original state following deformation. Thanks to molded in colour design, no paint is peeled off it, resulting in aesthetic and/or hygienic damage.

KSPPost

Highly impact resistant plastic posts anchored into the floor, building corners, door sills, walls and surfaces



KSP Post-H Dimensions [mm]	
Diameter	Height
110	1000
110	1500
110	2000
110	2500
170	1000
170	1500
170	2000
170	2500

KSP Post-S Dimensions [mm]	
Diameter	Height
70	266
100	430
100	530
120	430
120	530
120	800
180	430



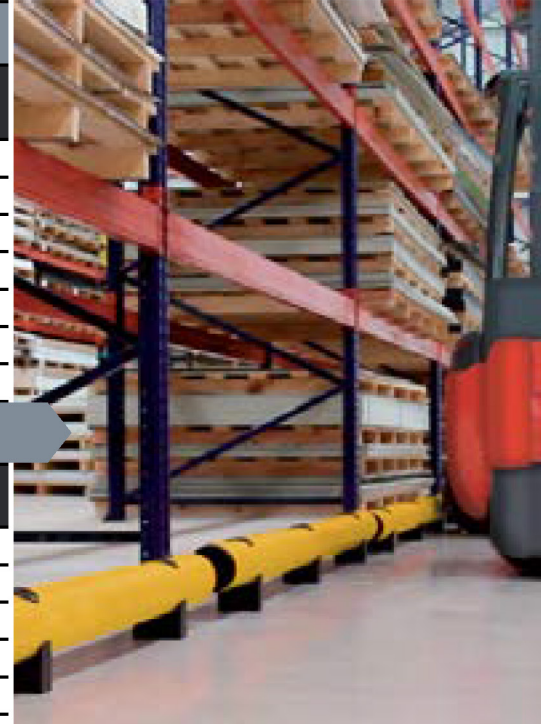
KPSBarrier

Highly impact resistant horizontal plastic elements anchored into the floor, for the protection of walls, posts, doors and road shoulders, and as guide rails for docking gates.



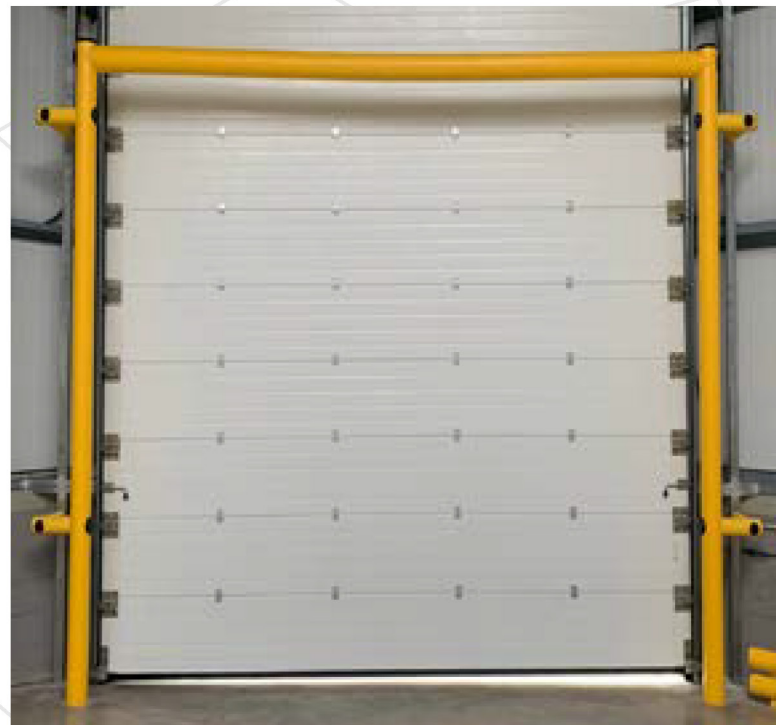
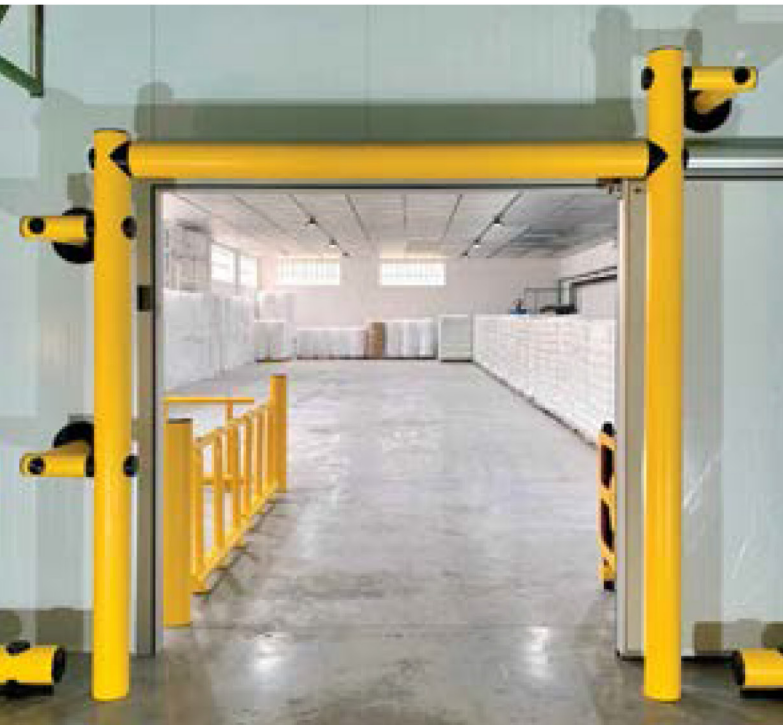
KSP Barrier-D Dimensions [mm]				
Diameter Lower Upper		Length	Fixation points	Height
70	70	500 /1000	2	230
70	70	1 500/2000	3	230
100	100	500 /1000	2	300
100	100	1 500/2000	3	300
120	120	500 /1000	2	340
120	120	1 500/2000	3	340

KSP Barrier-S Dimensions [mm]				
Diameter		Length	Fixation points	Height
70		500 /1000	2	125
70		1 500/2000	3	125
100		500 /1000	2	155
100		1 500/2000	3	155
100		2500	4	155
120		500 /1000	2	175
120		1 500/2000	3	175
120		2500	4	175



KPS Goalpost

Highly impact resistant plastic energy dissipation frame anchored into the floor, for the protection of doors and gates. Selectable dimensional range (W x H): between 1500x2500 - 3900x5000 mm.



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OPENING



Production data:



Door leaf

- ◆ 80 mm thick
- ◆ Galvanised steel, with 25 µm RAL 9002 colour polyester (PES) coating with protective film
- ◆ 40 kg/m³ factory PUR/PIR thermal insulation
- ◆ Curved sealing profile for sealing the gap between the door leaf and the door frame, and the two door leaves
- ◆ Lower sealing profile for sealing the gap between the door leaf and the threshold
- ◆ Asymmetrical division of the door leaf is possible



Door frame

- ◆ Fitted to the free span
- ◆ Galvanised steel, with 25 µm RAL 9002 colour polyester (PES) coating with protective film
- ◆ 40 kg/m³ factory PUR/PIR thermal insulation
- ◆ Adapted to the installation requirements:
 - single sided frame for conventional masonry walls
 - two-sided frame, for thermally insulated panel wall



Hinges and locking devices

- ◆ The hinges are supplied by Fermod – the French market leader for assemblies in cold storage technology
- ◆ Hinges lifting upon opening
- ◆ The manufacturer of the locking devices is STUV – the German market leader for fittings of cold store doors
- ◆ Safety lock with key
- ◆ Door adjustment without disassembly



Standard dimensional range

- ◆ Min. 600 x 1800 mm (single leaf)
600+600 x 1800 mm (double leaf)
- ◆ Max. 1500 x 2700 mm (single leaf)
1200+1200 x 2900mm (double leaf)

SLIDING

Production data



Door leaf

- ◆ 80 mm thick
- ◆ Galvanised steel, with 25 µm RAL 9002 colour polyester (PES) coating with protective film
- ◆ 40 kg/m³ factory PUR/PIR thermal insulation
- ◆ Curved sealing profile for sealing the gap between the door leaf and the frame
- ◆ Lower sealing profile for sealing the gap between the door leaf and the threshold



Door frame

- ◆ Fitted to the free span
- ◆ Galvanised steel, with 25 µm RAL 9002 colour polyester (PES) coating with protective film
- ◆ 40 kg/m³ factory PUR/PIR thermal insulation
- ◆ Adapted to the installation requirements:
 - One sided or two sided double frame – depending on the door size – thermally insulated panel for walls
 - Single sided frame for conventional masonry walls



Fittings

- ◆ The supplier is Fermod – the French market leader for assemblies in cold storage technology
- ◆ The sealing profile on the door leaf seals the gap by sinking to the frame upon closing
- ◆ Leaf guides fixed to the floor
- ◆ Door adjustment without disassembly



Standard dimensional range

- ◆ Min. 1000 x 2000 mm
- ◆ Max. 3100 x 3400 mm



OPENING

Production data:



Door leaf

- ◆ 100 mm thick
- ◆ Galvanised steel, with 25 µm RAL 9002 colour polyester (PES) coating with protective film
- ◆ 40 kg/m³ factory PUR/PIR thermal insulation
- ◆ Curved sealing profile for sealing the gap between the door leaf and the door frame
- ◆ Lower sealing profile for sealing the gap between the door leaf and the threshold



Door frame

- ◆ Fitted to the free span
- ◆ Galvanised steel, with 25 µm RAL 9002 colour polyester (PES) coating with protective film
- ◆ 40 kg/m³ factory PUR/PIR thermal insulation
- ◆ Adapted to the installation requirements:
 - single sided frame for conventional masonry walls
 - two-sided frame, for thermally insulated panel wall



Fittings

- ◆ The supplier is Fermod – the German market leader for assemblies in cold storage technology
- ◆ Hinges lifting upon opening
- ◆ Safety lock with key
- ◆ Door adjustment without disassembly



Standard dimensional range

- ◆ Min. 600 x 1800 mm
- ◆ Max. 1500 x 2700 mm



SLIDING

Production data:**Door leaf**

- ◆ 100 mm thick
- ◆ Galvanised steel, with 25 µm RAL 9002 colour polyester (PES) coating with protective film
- ◆ 40 kg/m³ factory PUR/PIR thermal insulation
- ◆ Curved sealing profile for sealing the gap between the door leaf and the door frame
- ◆ Lower sealing profile for sealing the gap between the door leaf and the floor or the threshold

**Door frame**

- ◆ Fitted into the opening
- ◆ Galvanised steel, with 25 µm RAL 9002 colour polyester (PES) coating with protective film
- ◆ Locally applied polyurethane insulation, density: 40 kg/m³
- ◆ Single-sided or double frame, depending on the door size
- ◆ Adapted to the assembly requirements
- ◆ It is fitted with a heating filament in order to prevent steam condensation

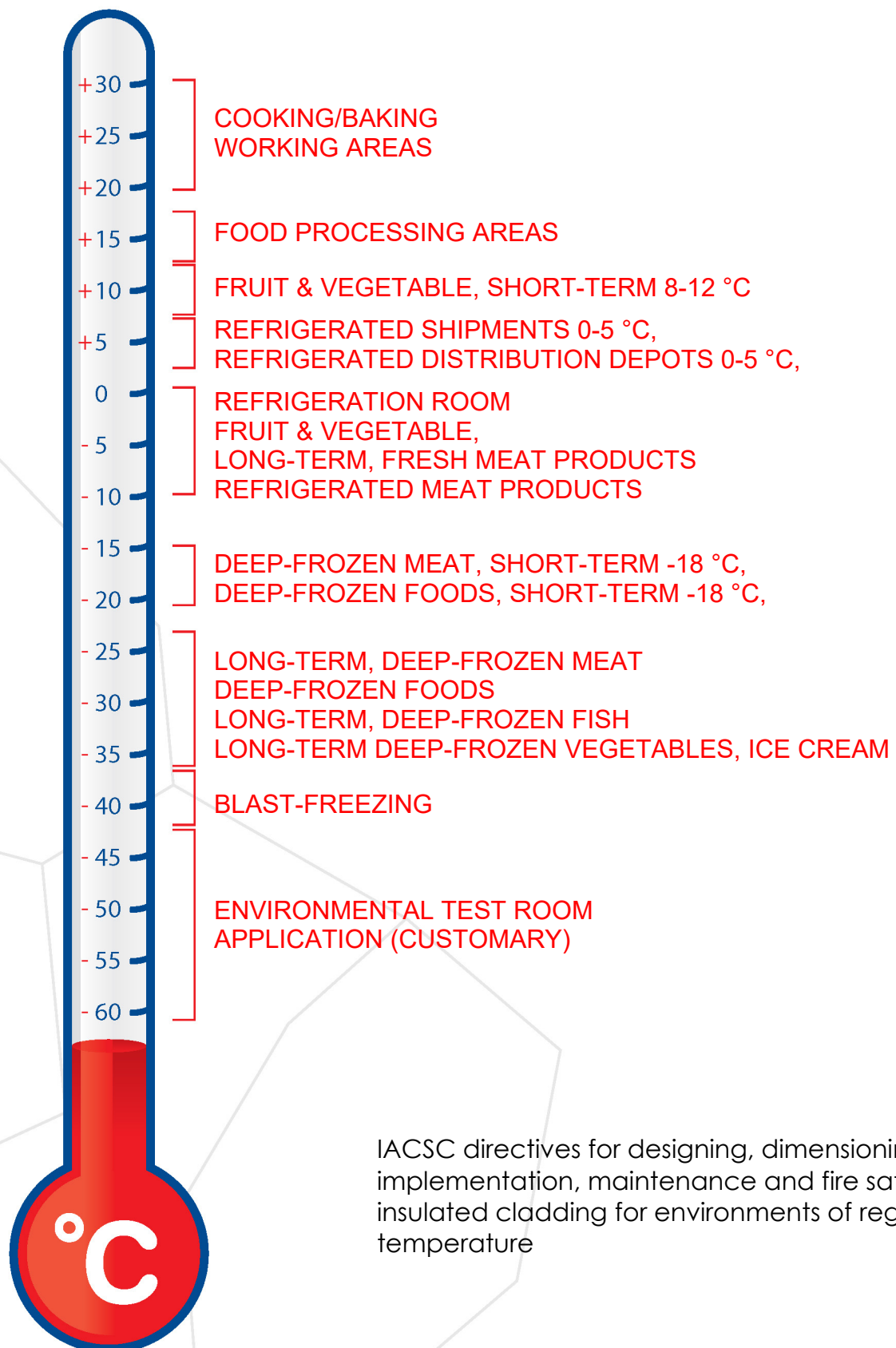
**Fittings**

- ◆ The supplier is the French Fermod – the market leading player for assemblies in cold storage technology
- ◆ The door seals the opening as it sinks into the frame
- ◆ Sealing clamps fitted to the floor
- ◆ Door adjustment without disassembly

**Standard dimensional range**

- ◆ Min. 1000 x 2000 mm
- ◆ Max. 3000 x 3300 mm

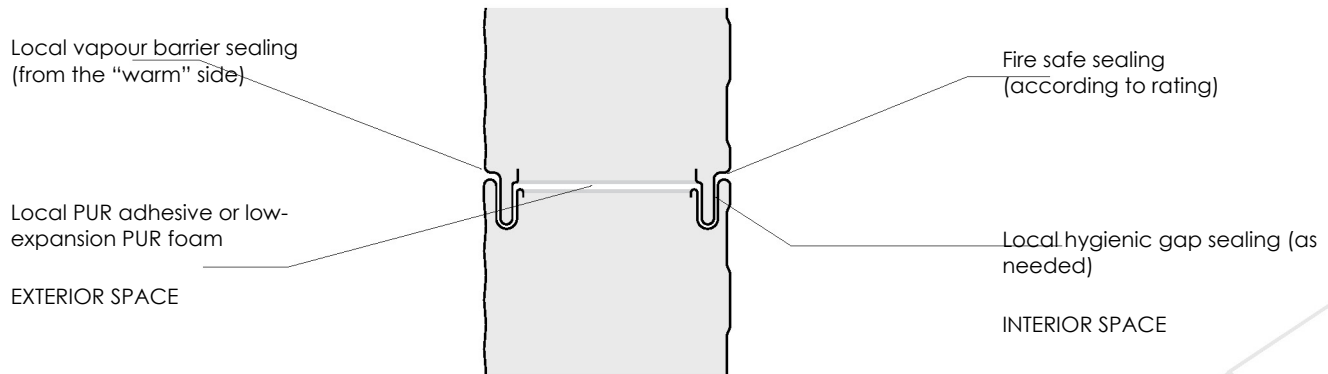




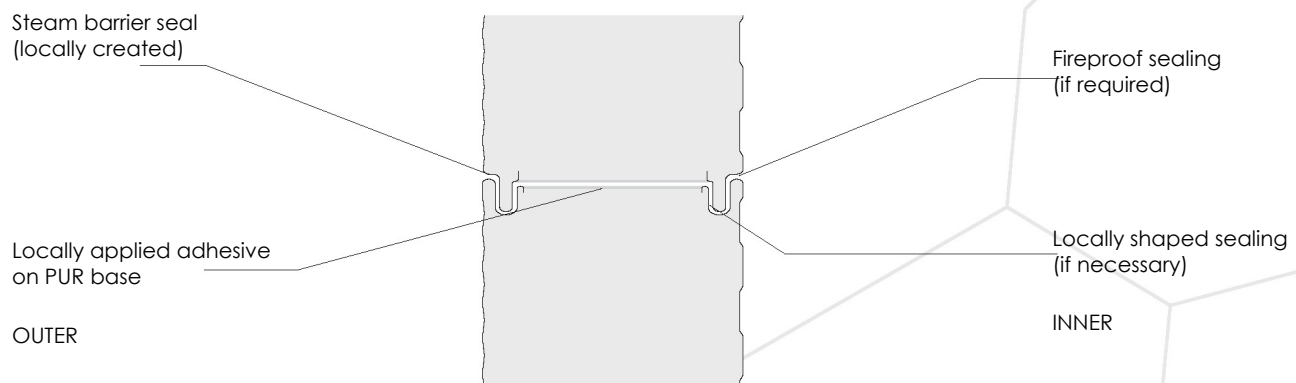
IACSC directives for designing, dimensioning, implementation, maintenance and fire safety of insulated cladding for environments of regulated temperature

Factory fitting of panels – sidewall and suspended ceiling panels

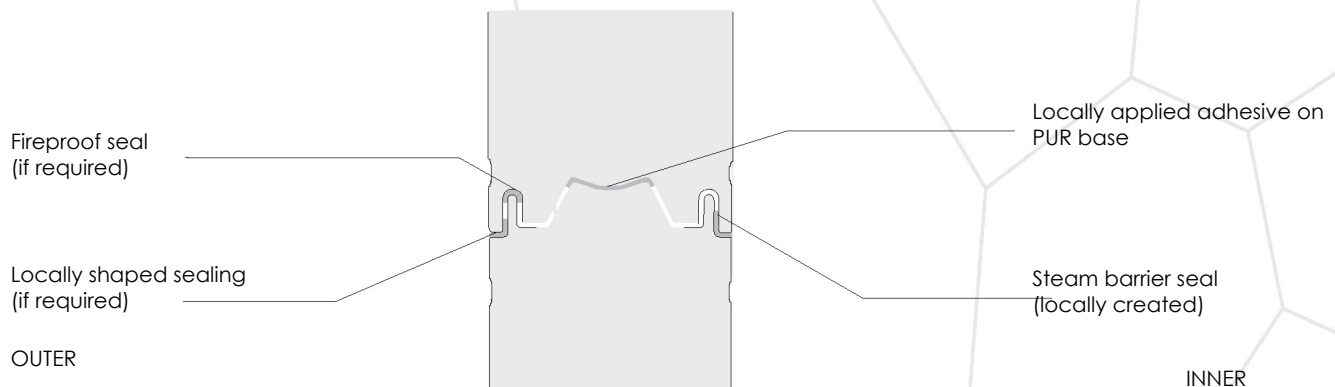
Factory connection - KS1000/1150 TC



Factory connection - KS1000/1150 NC



Side joint - KS1000/1150 TL





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package



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Design consultancy,
individual
dimensioning
recommendations

“ ”

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info@kingspan.hu

If you need help concerning any of the questions below, please contact us.

- ☐ Selection of project-specific products and accessories
- ☐ Structural dimensioning of the sandwich panels, individual load-bearing capacity charts
- ☐ Dimensioning of fixing elements (types and quantities)
- ☐ Assistance for thermal technological dimensioning
- ☐ Consultancy for vapour barrier and airtight solutions
- ☐ Data provision for acoustic requirements
- ☐ Professional support from manufacturer for fire protection compliance



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12/2020

