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1. Product identification

Panels: HI-F, HI-CT, HI-XT, HI-ST, HI-AWP, HI-FK

2. Composition

The self-standing, insulating sandwich panel is made up of two galvanised steel pre-lacquered faces, or stainless steel, with a rigid polyisocianurate (PIR / PIRM/ QuadCore) foam core.

Use of the product:

- **HI-F/FK Panel**
  For wall and ceiling claddings, on steel structures and on steel or aluminium ceiling supports. The longitudinal connection is executed by means of double tongue and groove. Fixed to the structure using "Chinese" and "Japanese" accessories.
- **HI-CT Panel**
  For roof claddings with the ribs on the direction of the slope and fixed on steel, concrete and wooden structures. The longitudinal connection is executed by means of tongue and groove joints of the inner face and the panel is fastened to the structure by its lateral half-ribs. Once the panels joined, the installation is complemented with press-ft flashing to cover the screws. Screws will be those required for the structure and the thickness of the panel.
- **HI-XT Panel**
  For roof cladding, with the ribs in the direction of the slope and fixed on steel, concrete or wooden structures. The longitudinal connection is executed by means of tongue and groove joints of the inner face and by overlapping the lateral wave with without foam to the wave with foam of the adjacent panel. The panel is fastened to the structure by the upper part of all the waves or the half of them. The screws will be those suitable for the environment, the thickness of the panel and the nature of the support.
- **HI-ST/AWP Panel**
  For facade cladding and interior walls in horizontal or vertical position, on steel, concrete or wooden structures. It is indispensable to observe the exterior and inner faces position. The longitudinal joining is done by means of tongue-and-groove of the inner face and coating of the fixings by the flange of the adjacent panel. The screws will be those suitable for the environment, the thickness of the panel and the nature of the support.

3. Maintenance

Prior to the maintenance instructions, it must be taken into account that the expected durability of the product can only be ensured by the appropriate choice of panel coating depending on the environment where it will be installed. In the technical sheets of each type of panel there is a table of utilization of the different coatings.

3.1. Aspects to be observed before and during the installation

1. The storage of the products in the worksite can not exceed the term of one month from its delivery.

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2. Store the packages on a flat, ventilated surface with a maximum slope of 10°.
3. Do not exceed the number of panels stored in the stack. Maximum 2 stacked packages.
4. It is recommended to store the panels in a covered place. If it is not possible, protect them with nontransparent waterproof fabrics. Based on the information provided by the sheet supplier, the integrity of the pre-coated coating on panels stored inside the package can not be guaranteed for more than 3 months in zones A and B defined by the supplier's guarantee. In case of exposure of the package to condensation by humidity or direct exposure to the sun this term can be reduced.
5. During installation avoid damaging the panel surface. Remove any metal chips in contact with the surface of the panel as soon as possible and before it rusts, because it could stain the panel. We recommend removing these particles with air to avoid scratches on the surface of the organic coating.
6. Remove the protective film (if any) immediately as the panels are fixed to the structure.
7. Protect the cut edges of the panel and finishes from oxidation.
8. Check that there is no possibility of galvanic pairs causing corrosion of steel.
9. It is recommended to ground the panels and the supporting structure to avoid the accumulation of static electricity.

These instructions also apply to metal sheets and flashings.

3.2. Aspects to take into account during the use of the product

3.2.1. Cleaning

The panel must be cleaned with clean water and in the sense of the slope. If necessary, a soapy solution with neutral pH based on 10% of household detergent and water can be used. The maximum application temperature of the water is 30 °C and in case of using pressurized machine it should be adjusted below 20 bar.

Before proceeding to the cleaning of the whole surface, make a small test with the product in a little visible area to discard any aesthetic damage.

In the case of stains attached to the panel surface, especially when recent, it is often sufficient to carefully rub the stain (with a measured pressure) with a damp cloth.

Sealants and mastics that may be adhered to the surface during installation may be cleaned with a moist cloth soaked with a 15% alcohol in water solution. Care must be taken to wash the surface with clean water immediately after the performance. Never apply the solution directly to the surface, always with a cloth.

Whenever possible, remove dirt before it has dried on the surface. This is especially important in the case of bitumen or tar.

In the case of **ROOF PANELS**,

to guarantee the durability of the roof, it must have a minimum slope of 5% in the absence of overlaps and 7% with overlaps. To ensure proper maintenance of the building, it must have roof access systems to allow access to:

- Clean the bottom of the gutters and remove leaves, moss, earth, etc. near the gutter outlets.
- Clean the areas of the roof where foreign elements accumulate.

In the case of **AGRO-FOOD INDUSTRY**, in addition:

- Use cleaning agents with neutral PH between 4 and 9.
- Plan the cleaning according to the concentration, application pressure and contact time of the product indicated in the data sheet of the cleaning product manufacturer. In general terms, it is recommended that the contact time between the agent and the panel is less than 30 minutes.
- Avoid the use of chlorinated products and abrasive substances for the cleaning of pre- acquered steel panels.
- After application, always rinse abundantly and immediately with clean water.

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En **GENERAL**:

- ▸ The use of cleaning agents at a stronger concentration than that recommended, may damage the surfaces coating.
- ▸ After applying cleaning agents, wash immediately with plenty of clean water.
- ▸ Avoid organic solvents and abrasive cleaning agents for cleaning pre-lacquered steel.
- ▸ Excessive cleaning or too much pressure when cleaning can cause damage to the panel.

3.2.2. Mould removal

The organic coating on the steel sheets has been specially formulated to resist the growth of mould; in most areas of Europe this should not be a problem. Even so, some environments are particularly conducive to the growth of mould, for example, humid, dark and wooded environments or swampy areas. In these areas mould can grow even on inert materials like glass.

Mould can be removed by treating the affected surface with a solution of the products listed below (by weight). Before using the first three products, you should consult the manufacturer's safety data sheet.

Good quality household detergent or registered cleaning product	0,5 %
Trisodium phosphate	3,0 %
5% solution of sodium hypochlorite	25,0 %
Clean, fresh water	71,5 %
	100,0 %

Before applying the aforementioned solution, clean the pre-lacquered steel sheet as indicated in the cleaning section of this document. Then, apply the mixture to the areas affected by mould. Apply by spraying or with a rag using little pressure and leave for 24 hours. Rinse treated areas with clean, cold water.

3.2.3. Treatment of corrosion around the cut edges of the sheet

The possible appearance of corrosion in the cuts of the sheet or in areas where the pre-lacquered sheet has been modified on site (cuts or perforations), should be protected against as follows:

1. Cut or polish the affected areas with oxide. In the case of polishing/sanding the affected area, sand until the metallic colour of the sheet is visible and stop immediately so as not to damage the sheet.

2. Clean the cut/sanded area with air and/or clean cold water and then dry it.

3. Apply a layer of anti-corrosive primer to the cut edges or to the sanded area (only on the area where the steel is visible). Consult the manufacturer of the sheet's organic coating for the recommended anti-corrosive primer.

4. Once the first layer of primer has dried, apply a second layer of the same product in the same area as the previous application, but extending the product to the adjacent areas and onto the original coating of the sheet.

5. Apply acrylic polyurethane paint to the modified area. Bear in mind that, even if the affected area is painted with the same colour as the original sheet, the colour of the two areas may vary during the useful life of the panel.

These recommendations are for those areas where corrosion is specific and due to the sheet being cut. If the corrosion is extensive or appears in areas where the sheet has not been cut, please contact Kingspan | Teczone.

3.2.4. Retouching of sheet metal paint

In the case of specific damage to the organic coating of the sheet (scratches, chips, etc.) where the substrate (steel) can be seen and when there is no corrosion of the sheet, proceed as indicated below:

1. Clean the affected area and its surroundings.

2. Apply acrylic polyurethane paint to the affected area with a fine brush, covering only the damaged area with paint and not the original coating of the sheet. Bear in mind that, even if the affected area is painted with the same colour as the original sheet, the colour of the two areas may vary during the useful life of the panel.

3.2.5. Painting recommendations

Our pre-lacquered sheet supplier recommends the following paint procedure:

A) If the paint is damaged and the zinc coating is visible:

1. Clean the surface
2. Apply a light primer coat of polyurethane-epoxy
3. Apply acrylic polyurethane paint over the primer coat. Bear in mind that, even if the affected area is painted with the same colour as the original sheet, the colour of the two areas may vary during the useful life of the panel.

B) If painting over pre-lacquered paint:

1. Clean the surface
2. Apply acrylic polyurethane Paint

3.3. Annual inspections

Maintenance inspections shall be carried out during the lifespan of the panel in order to identify any accidental degradation of the protective coatings. If degradation is detected, the necessary maintenance must be provided as soon as possible to ensure continuity of the coating.

In the case of roof panels and cover, take precautions so as not to cause chips or deterioration to the sheet coatings during access and maintenance tasks.

Care should be taken not to carry out any work near the panel that could cause punctures or deterioration of the sheet metal coating.

Listed below are the inspections that must be carried out during the lifetime of the building. Inspections should be annual, except in cases in which environmental conditions require said frequency to be increased.

The actions marked with an asterisk must also be carried out immediately after the construction of the building.

4. Check / action

The state of the seals and finishes should be inspected continuously in stores and agri-food premises. Damage to the seals must be repaired immediately before any long-term contact of the surfaces with water and/or cleaning agents can damage them.

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Check	Action
Blocked gutters and roof areas where foreign objects accumulate The accumulation of leaves, sand, etc. on the roof can cause pools of water to form and these, in turn, may cause overflows and growth of moss or rust on the sheet.	▸ Clean channels and downpipes. ▸ Check that the water flows normally again over the covering (panel, finishes, gutters, etc.). ▸ Check that the steel sheet has not been damaged. ▸ In case of mould growth, consult section 3.2.2. of this document. ▸ In case of rust, consult section 3.2.3. of this document.
Accumulated dirt on exterior areas of the building's envelope where rainwater does not reach	▸ Clean these areas. Consult section 3.2.1. of this document.
Mould growth	▸ In case of mould growth, consult section 3.2.2. of this document.
Specific defects in the painting* Specific defects from scratches or chips on the sheet, localized corrosion, etc. should be repaired so that the problem doesn't worsen and become difficult to repair.	▸ In case of scratches or small chips where the substrate of the sheet is not visible, no corrective action is necessary. ▸ In case of scratches or small chips where the substrate of the sheet is visible, repair the defect according to section 3.2.4. of this document. ▸ In the case of the appearance of rust on the sheet, consult section 3.2.3. of this document. ▸ In the case of the rust being extensive, contact the department of HUURRE IBERICA.
Appearance of metal chips due to perforation of the sheet by rivets, screws and other fastenings* Chips can rust and stain the finish of the sheet.	▸ Remove the chips by suction and brushing to avoid scratching the surface of the organic coating.
Appearance of metal chips due to perforation of the sheet by rivets, screws and other fastenings* Chips can rust and stain the finish of the sheet.	▸ Replace the defective screws. ▸ In case of rust on the sheet, proceed according to section 3.2.3 of this document.
Appearance of rust on cut sheet edges Check the cut sheet edges, finishes, panels, covering panel overlaps, etc. If rust is ignored in these areas, it may increase and cause irreparable damage.	▸ In the case of the appearance of rust on the cut edges of the sheet, consult section 3.2.3. of this document.
Sealing of joints* Check the state of the seals between the joints of the panels, between the sheet and the panel in the overlaps, between two panels, etc.	▸ Reseal if any defects are found.
State of finishes	▸ Assess the state of the finishes and their functionality.

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