

Hoesch isowand integral®

Installation recommendations



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Hoesch isowand integral®

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You have decided in favour of a product from our Hoesch isowand® range, i.e. for a high-quality industrially fabricated product. Thank you very much! In order to ensure that after completion of the production process, the product will be treated with the same care as in our company, we would like to inform you about the following mandatory handling procedures:

1. Regulations / Guidelines

Among other things, the following must be noted:

- General official approval no. Z-10.4-345 for sandwich panels issued by the building inspection authorities
- Technical information Hoesch isowand integral® (proposed designs)
- Accident prevention regulations issued by the Employers Liability Insurance Association
- Directive for the installation of profiled steel sheets for roofs, walls and ceilings issued by IFBS, Info 8.01
- Information for roofing using profiled steel sheets and strips, issued by Zentralverband des Deutschen Dachdecker-Handwerks
- Structural analysis and laying plans relating to the project

Installation recommendations

2. Unloading

Please check the Hoesch isowand integral® packages on their arrival on site. Any complaints and any evidence of damage must be recorded on the shipping documents and reported without delay to the appropriate ThyssenKrupp Bausysteme sales office.

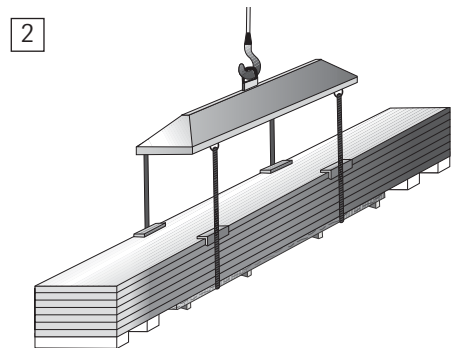
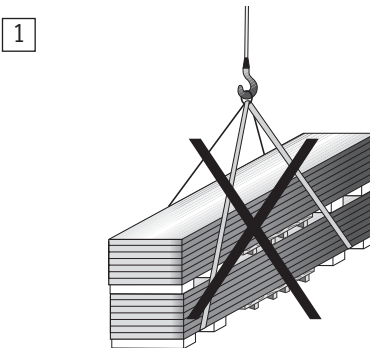
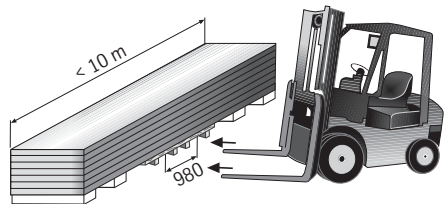
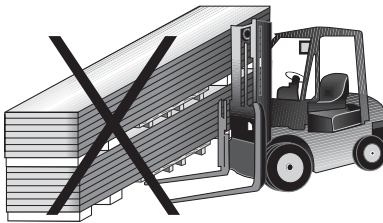
Complaints related to visible damage which are submitted later will not be considered.

Unloading and transport of the packages must be carried out singly, i.e. one at a time. Never unload two or more packages at the same time (pictures 1 + 3)!

When using a fork lift truck for unloading, the fork must be placed beneath the central pallet (picture 2). The maximum package length is 10m for this method of unloading; otherwise a fork extension with an additional fork arm or a spreader bar must be used.

When using a crane for unloading, a spreader bar as well as suitable, sufficiently dimensioned lifting slings (no ropes or chains) should be used. Make sure that the panel edges are well protected (picture 4).

Fasten the slings to the spreader bar so that they hang vertically and can be pulled through in the area of the wooden pallet.



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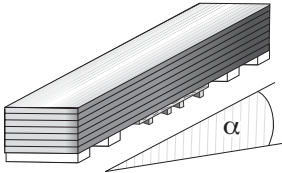
Installation recommendations

3. Storage on site

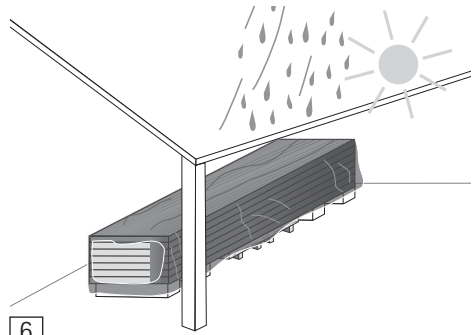
Store the Hoesch isowand integral® panels on a firm, dry and clean base. When the panels are stored outdoors, make sure that they are protected against rain, storms and dirt. The formation of condensate must be avoided. The panels should be stored in a slightly inclined position in order to allow any water that may have entered the package to drain out (picture 5). When Hoesch isowand integral® packages are stored for an extended period of time on site they should be protected by a textile cover and/or stored in a place where they are protected against direct weathering (e.g. under canopies or inside dry buildings, picture 6).

Intermediate storage on the roof structure must be co-ordinated with the works supervisor. For structural reasons, it is important that the packages are always stored above the trusses. Do not pile the packages one on top of the other (picture 7).

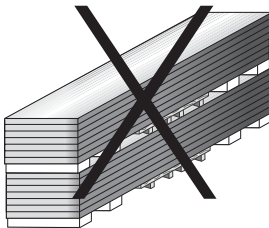
Do not store packages on panels which have been installed already! Secure any packages which have been opened.



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Installation recommendations

4. Preparation for installation work

Before commencing installation work, check that the supporting structure is suitable for the installation of Hoesch isowand integral® panels. Hoesch isowand integral® may be laid on a steel, concrete or wooden supporting structure. Before starting the installation work, the supporting structure must be checked to see whether it is perpendicular, right-angled and even.

According to the official approval issued for Hoesch isowand integral® the minimum width for the intermediate support must be 60 mm and for the end support 40 mm. The customer must be informed of any defects of the supporting structure, which make proper installation of the panels difficult or even impossible, in accordance with VOB.

5. Protective foil (SF)

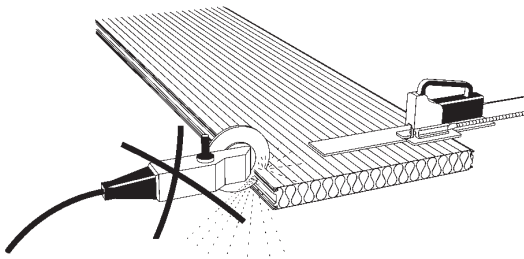
Hoesch isowand integral® panels are provided with a strippable foil to protect them from damage during transport and installation.

Please note!

The foil must be protected against UV radiation and must be pulled off during installation work but not later than six weeks after delivery of the panels to the site. In overlapping areas the protective foil must be removed before commencing installation work.

6. Cutting on site

Only use suitable cutting tools, e.g. a compass saw with fine teeth for the sandwich panels, plate shears and nibbler for other flashings (picture 8).



Any chips must be removed immediately.

Thermal cutting processes (e.g. abrasive cutting machines) must not be used.

Installation recommendations

The "Hoesch isotrim®" cutting tool has proved to be well suited for carrying out cuttings on site. It can be ordered from ThyssenKrupp Bausysteme (part no. Z00-011) (picture 9).

Any cut-outs in panels prepared before the panels are installed must be reinforced appropriately for transport on site.



Hoesch isotrim®

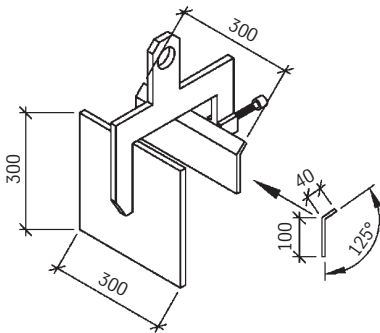
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7. Installation / Fastening

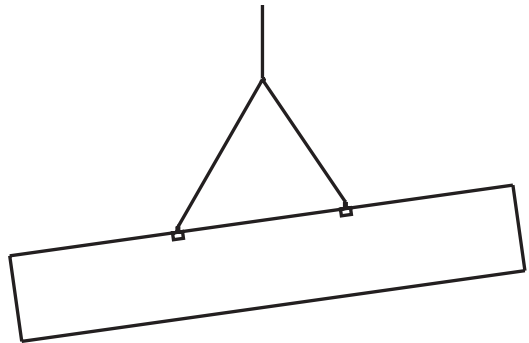
7.1 General / Handling the panels

Short panels may be installed manually but for longer panels it is recommended that suitable aids are used (e.g. vertically holding using a screw clamp (picture 10). For very long elements a spreader bar should be used.

The lifting devices must be secured so that they may not accidentally become undone (e.g. by slip-resistant rubber pads or by an additional sling).



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Installation recommendations

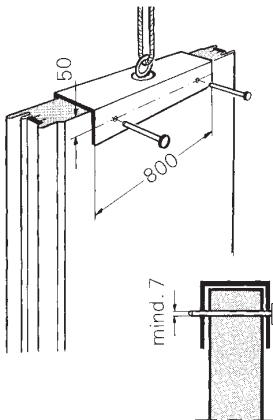
As an alternative, the transport device shown below may be used.

Drill holes for fastening the slings for **vertical transport** will be covered by flashings.

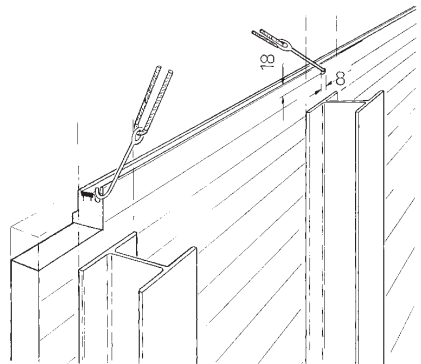
Holes for fastening the slings for **horizontal transport** must only be drilled where they will be covered by the flanges of the supports. These holes must be closed after completion of the installation work.

Marking the supporting structure at intervals of 1000 mm (modular width) ensures exact positioning of the panels in accordance with the laying plan.

In order to prevent the high-quality panels from being damaged, they must be handled with care. It is recommended that clean protective gloves are worn.



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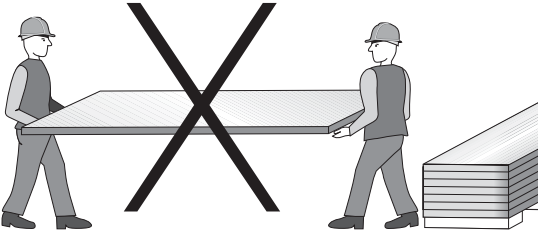


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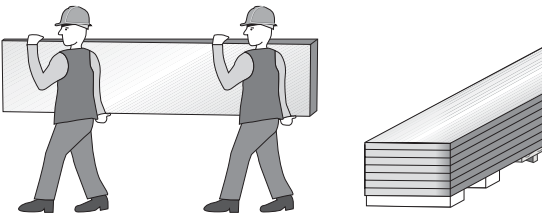
Installation recommendations

When removing single panels from a package, make sure that any distortion, bending and localised loads on the panels are avoided!

The panels should be transported vertically (picture 14 A+B)!



14 A



14 B

Secure any packages that have already been opened to protect them against storm.

7.2 Aligning and checking

The first panel must be exactly aligned and fastened.

It is not possible to correct the position of subsequent panels by realigning the longitudinal joint.

Install the following panels in such a way that the sealing tapes are sufficiently compressed when fastening the panels.

Installation recommendations

7.3 Fastening

Hoesch isowand integral® panels are fastened to the supporting structure using the integral clip, which is not visible on the outside. On the grooved side of the panel, the clip is pressed into the bottom of the groove and then screwed to the supporting structure.

As a result of the geometry of the clip, the inside and the outside steel sheets are kept in place. The dead weight of the wall panels must not be transmitted through the clamped clip or by friction but only through the plinth profiles.

Normally, the integral clip is fastened to the intermediate supports and the end supports using one screw. The structural analysis, however, may determine otherwise.

The following screws should be used:

For steel:

Officially approved corrosion-protected screws with a diameter of 6.3 mm, without a washer, the thread depending on the thickness of the supporting structure but at least $L = 16$ mm.

For wood:

Officially approved corrosion-protected screws with a diameter of 6.5 mm, without a washer; the screw length being determined in accordance with DIN 1052 but at least 60 mm.

Through bolts:

In the area of parapet and eaves, i.e. where the edges of Hoesch isowand integral® will be covered by flashings, the panels may be fastened using 2 stainless steel through bolts each with a washer $\geq \varnothing 16$ mm instead of integral clips.

7.4 Vertical laying

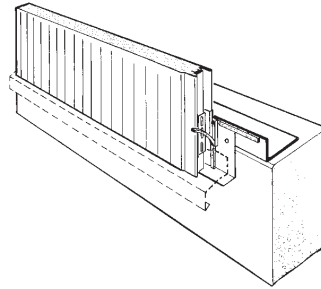
An angular plinth profile that can be combined with a drip profile is horizontally aligned on the base support and fastened using blind rivets. (Final fastening is made later with the integral clip.)

The plinth profile has various functions:

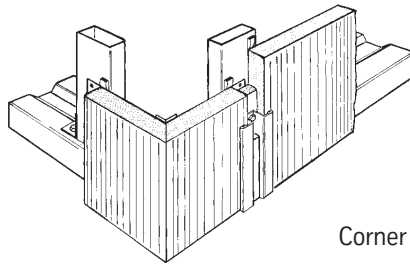
- holding the panels when they are horizontally aligned
- transmitting the panels' dead load
- sealing the joint labyrinth in the panel joint against air.

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Laying is started with a curved or angled corner element. In order to secure the elements against wind suction forces, both protruding longitudinal edges are riveted to vertical profiles which are flush with the horizontal members. A structural analysis of these profiles and their connections with regard to load transmission is required.

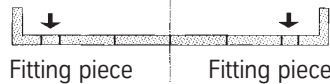
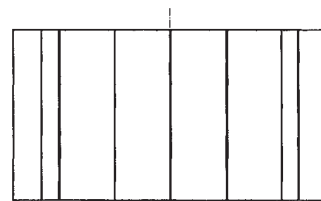


Base point



Corner element

A symmetrical surface measurement is made between the corner elements of a wall. Normally, the cover width of the first and the last element are uniformly adjusted (please refer to the chapter entitled 'Cutting on site'). This is the only way to compensate for tolerances.

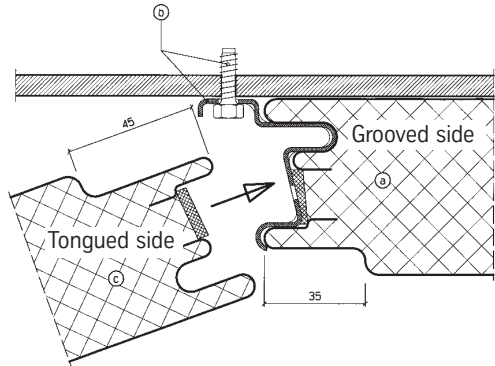


Installation recommendations

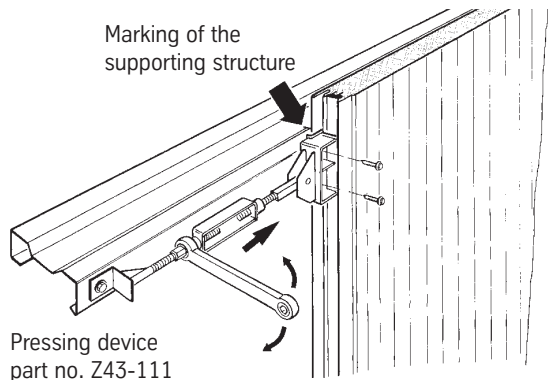
The following panels are installed with the tongued side forward and fastened using integral clips (please refer to the chapter entitled 'Fastening'). Between the corner element and the first aligned wall panel there must be a gap of 50 mm. This gap will be closed by means of a cover strip (please refer to the chapter entitled 'Joint').

Installation sequence:

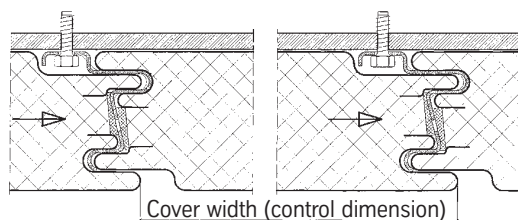
- a) Wall panel already mounted
- b) Placing and fastening the screws of the integral clip (grooved side)
- c) Insertion of the next wall panel (tongued side) and pressing it against the previous one to achieve the correct cover width



A pressing device is used for aligning the wall panels and pressing them into the correct position. Marking of the supporting structure as mentioned in the chapter entitled 'Preparation for installation work' may be used for checking the correct position.



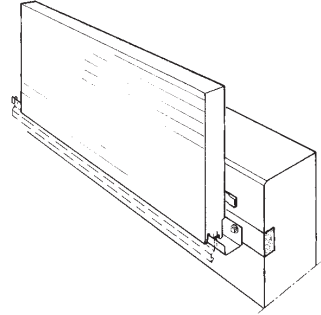
The panels are correctly installed when a cover width with a tolerance of ± 2 mm is maintained after pressing. This method ensures the optimum degree of compression of the sealing strips and air- and rain-tight sealing.



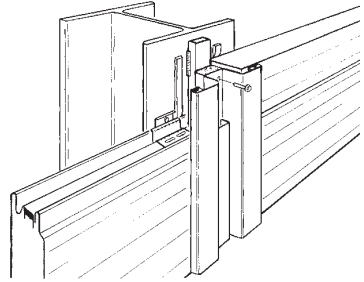
Installation recommendations

7.5 Horizontal laying

In the case of horizontal laying, a U-shaped plinth profile, which can be combined with a drip profile, is exactly aligned and fastened using screws. The first wall panel is inserted into this profile with the tongued side downwards. The upwards pointing grooved side accommodates the first integral clip. When laying panels horizontally, the laterally protruding inside steel sheets must be fastened to the support in order to secure them against wind suction forces.

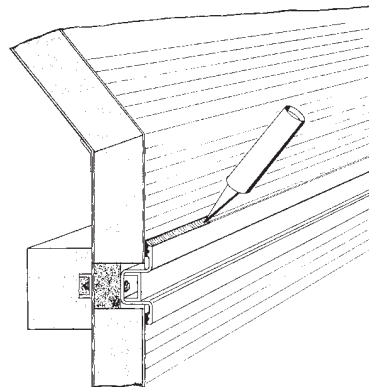


The supporting structure consists of supports and/or intermediate vertical members. The panels are laid as single or multi-span girders. This results in joints on the supports. As in the case of vertical laying, these joints should have a width of 50 mm. Each panel end is separately fastened using an end clip. The joints are closed as described in the chapter entitled 'Joints'. The following steps in the installation procedure are identical with those for vertical laying.



The upper connection to the barge board or to the eaves is carried out using appropriately spaced through bolts, provided that the holes will be covered by flashings. If the roof edge consists of curved or angled parapet elements, the longitudinal edge (grooved side) of the last mounted wall panel must be removed.

The joint between the wall panel and the parapet element must have a width of 50 mm, as described in the chapter entitled 'Joints'. The transition area between the upper edge of the joint cover strip and the parapet element must be sealed using a silicone-rubber based sealant to ensure water drainage. For more details, please refer to the proposed designs.



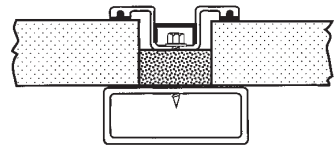
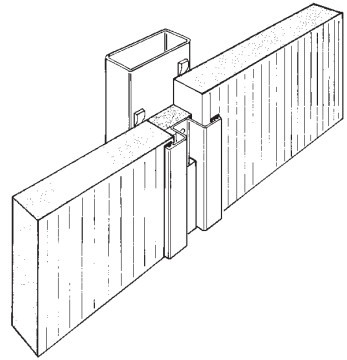
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8. Joints

In the transition area between corner elements and wall panels or between supports and parapet elements, joints with a width of 50 mm are provided. These gaps are used to compensate for tolerances.

The gaps must be sealed so that they are resistant to air and rain and to ensure thermal insulation. The following methods may be applied:

- a) Insertion of a sealing strip consisting of closed-cell PE foam. The oversized viscoplastic sealing strip is pressed against the edges of the joint thereby sealing the joint.
- b) In-situ foaming of the joint using PUR foam with a maximum thickness of 35 mm, applied in several layers. It is recommended that the joint cover strip is fastened after foaming.

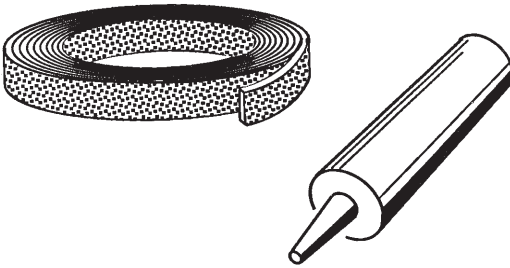


Installation recommendations

9. Sealing

The tongued and grooved design which is characteristic of Hoesch isowand integral® requires special measures to prevent the leakage of air at all connecting points such as eaves, barge board and base point. Sealing strips shown on the detailed drawings and flashings are used for this purpose.

When sealants in cartridges are used, these must be amine hardening sealing compounds on a silicone rubber base.



10. Other matters

These installation recommendations are based on many years of experience by us and our customers. They have been prepared to the best of our knowledge. The latest version of our technical documents, and also these recommendations for installation can be found on our website www.tks-bau.com.

If the above procedures are not observed, any right to make a complaint in the event of damage will be inadmissible.

Observance of the recommendations does not release the user of our product from his obligations of complying with the local situation and circumstances.

Final remark:

The accident prevention regulations must be observed.

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