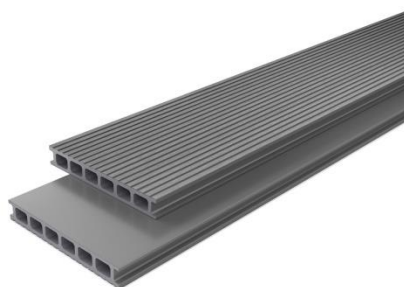


Installation Instructions of Hybrid Composite Systems

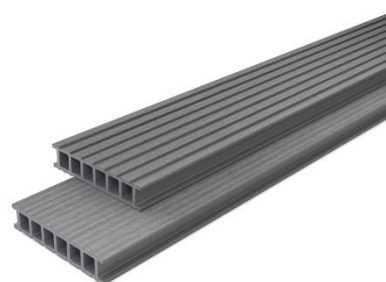


Elements of TIMBERNESS terrace system:

boards

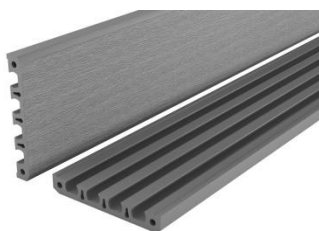


SELECT BOARD

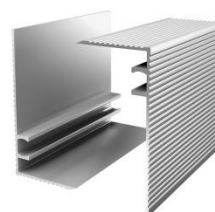


PRIME BOARD

finishing strips



COMPOSITE FINISHING STRIP



ALUMINIUM FINISHING STRIP

joists



LOW-PROFILE JOIST



STANDARD JOIST

kit for assembly of boards



STARTING CLIP



T-CLIP



T-CLIP FLAT



STAINLESS STEEL SCREW

OMEGA kit for assembly of strips



PVC CONNECTOR SELECT



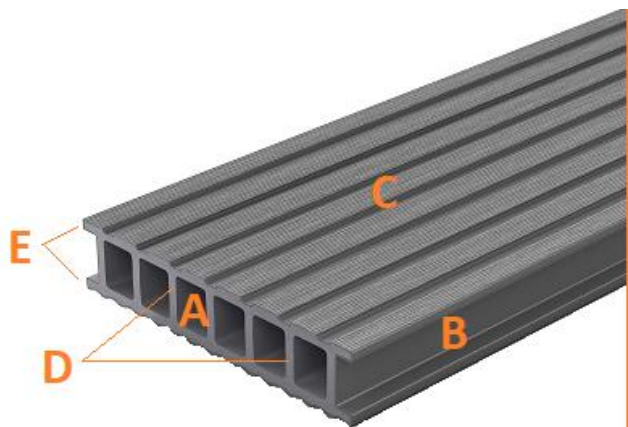
PVC CONNECTOR PRIME



OMEGA SLIDING CLIP



STAINLESS STEEL SCREW



A - front of board
B - side of board
C - top of board
D - ribs
E - tongues

PLEASE NOTE: Before the terrace installation, a base must be prepared in compliance with the requirements of the construction art as defined for this type of project. The manufacturer is not liable for any damage or destruction resulting from improper base preparation.

1. Important information

- Prior to assembly, please read these instructions, because a terrace not assembled in compliance with the manufacturer's instructions is not covered by the warranty and any claims resulting from damage or destruction of materials due to improper use of the system components will be rejected.
- Before assembly, make sure that the product complies with the specifications of the order and check it carefully for defects.
- To assemble the terrace, use boards from one and the same production batch. Boards from different production batches may slightly differ in color.
- Timberness hybrid composite systems are dedicated for mounting outdoors. Their properties do not allow their use as structural materials.
- The terrace should be installed in good weather conditions, at a temperature not lower than +5°C.
- The surface of the mounted terrace should have a 0.5% – 1% slope depending on the project specifics or location. The slope in the terrace must be in line with the direction of the boards' grooving. This will allow water to drain freely from the surface.
- Standard joist has two profiled sides for start clips and T-Clips assembly. This allows the use of joist height and width – 4 or 5 cm – interchangeably.
- The standard joists spacing is 45 cm axis to axis. If, however, the specifics of the project require, e.g. the mounted terrace will be part of a public facility or will be exposed to heavy use for other reasons, it is recommended to decrease the spacing between the joists to 35 cm axis to axis.
- The spacing between the first two and the last two joists (fixed at the edges of the terrace) should not exceed 25 cm and 30 cm for the so called floating terrace.

- When mounting Timberness hybrid composite systems, adequate spacing (clearance) should be maintained, both between system components and between system components and fixed objects (e.g. the wall of the building). Respectively:

clearance joist – joist	6 mm
clearance joist – fixed element	10 mm
clearance board – board	8 mm
clearance board – fixed element	8 mm
clearance strip – strip	5 mm
clearance strip – fixed element	5 mm

These values are minimal and relate to standard commercial length. Elements longer than 4 m require a gradual increase of clearance in proportion to the length of expansion – 2 mm for each additional meter.

- PRIME terrace boards have two usable sides, differing with the type of grooving. SELECT Boards should be laid grooved side up; However, there is a possibility of brushing on special order, allowing the use of the other, flat side of the boards. The choice of board side remains with the customer and is dependent only on their individual preferences.
- In case of necessity of cutting composite boards or strips, it is recommend to use circular saws used for cutting PVC or aluminium.
- The distance between the longer sides of the boards is constant, resulting from the construction of the Timberness system T-Clips or T-Clips Flat and equals 5 mm or 7 mm respectively.
- Where necessary, it is permissible to install a board with an end not supported by a joist (from the front). However, the distance from the front to the support cannot be greater than 3 cm.
- If the terrace is suspended (e.g. on concrete posts), other aluminium or wooden joists (not part of the Timberness system) may be used, provided that the required parameters are ensured.
- System T-Clips have a convexity at the screw hole. This allows for fixing the clips in specially contoured spots on the joist. Make sure there is a perfect fit between boards and clips, which will guarantee secure fixing of boards. T-Clips are designed for the installation of boards on low and standard system joists.

- ## 2. Installation of joists on different bases

For this type of base use low-profile or standard joists, as they must be supported all along their length. Joists are arranged parallel to each other, with a spacing of up to 50 cm axis-to-axis. This does not apply to the first two and the last two joists (at the edges of a terrace) where the spacing between the joists should not exceed 25 cm axis-to-axis. The joists should be fixed by means of wall plugs. The distance between individual fixing points must not exceed 40 cm.

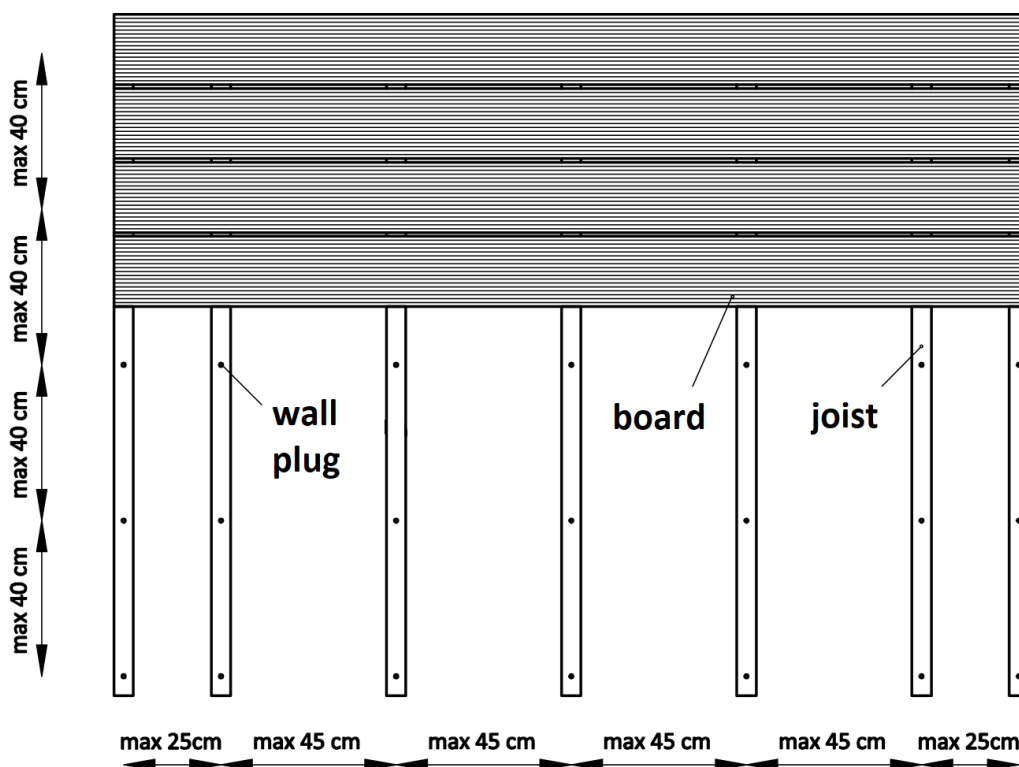


Fig. 1. Installation of terrace on concrete base.

b) concrete posts

Use standard system joists for installation on concrete posts. Joists should be put on the edge (i.e. 5 cm high) and placed parallel to each other, with a spacing not exceeding 45 cm axis-to-axis. This does not apply to the first two and the last two joists (at the edges of a terrace) where the spacing between the joists should not exceed 25 cm axis-to-axis. The distance between support points must not exceed 35 cm. Joists placed on concrete posts should be fixed with wall plugs. The posts should be adequately protected against moisture. If the terrace is suspended (e.g. on concrete posts), other aluminium or wooden joists (not part of the Timberness system) may be used, provided that the required parameters are ensured.

PLEASE NOTE: If you choose to use aluminium or wooden joists that are not part of the Timberness system, these will not be covered by Timberness manufacturer's warranty. Any inadequate preparation of the terrace supporting structure with the use of such joists may result in defects of the terrace or even cause damage to the terrace.

It is possible to use levelling systems enabling permanent union of the joists with the ground.

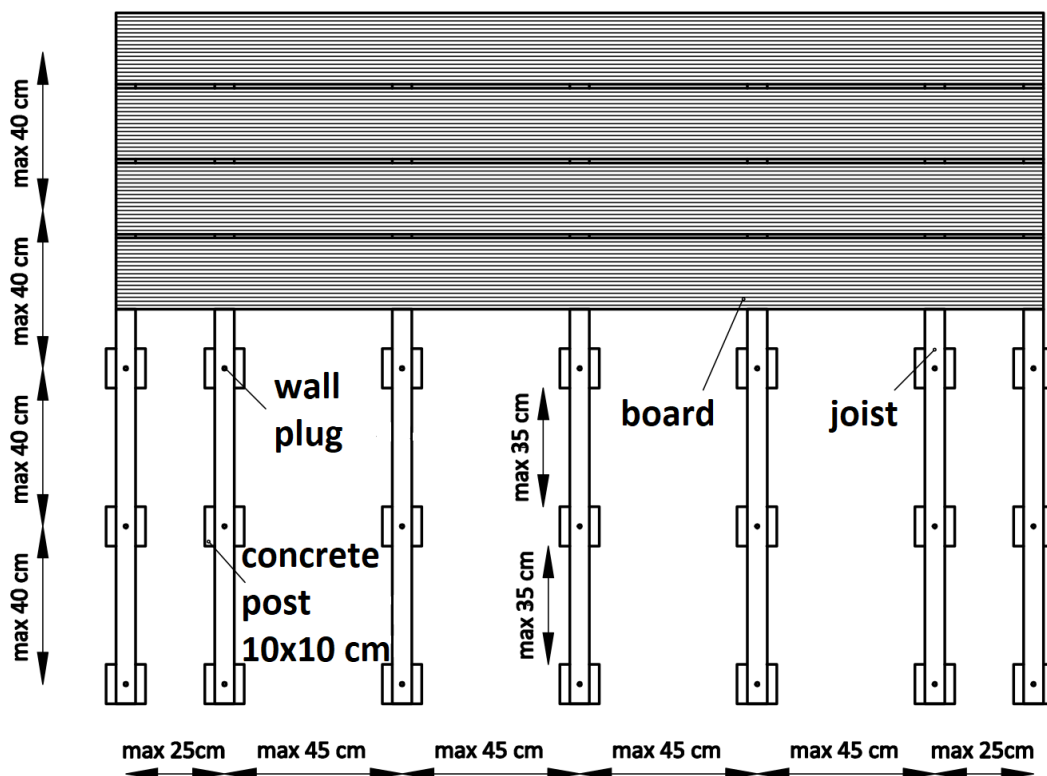


Fig. 2. Installation of a terrace on concrete posts.

c) A terrace on a balcony or an inverted roof structure with waterproofing

In a situation where a surface does not permit the installation of joists using screws, e.g. due to the use of waterproofing, you can lay the terrace without fixing it permanently to the ground, i.e. build the so-called floating terrace. However, you need to observe the following rules and work with utmost care, as such a terrace must be a strong and durable structure, preventing its motion during use.

- 1) You must not use the low Timberness joists for the installation of a floating terrace.
- 2) Start the installation of a floating terrace by laying joists along all the edges of the terrace so that they form a stable frame of the whole structure.
- 3) Next, lay main joists (long) and transverse joists (short) alternately. The main joists (long) should be placed parallel to each other at a distance of not more than 40 cm from the axis of one joist to the axis of another. This does not apply to the first two and the last two joists (at the edges of the terrace) where the spacing between the joists should not exceed 30 cm axis-to-axis. Correctly trimmed transverse (short) joists should be laid perpendicular to the main joists at a spacing of no more than 150 cm axis-to-axis.
- 4) If we put the transverse joists at a distance of e.g. 1.5 m from each other in one space (between main joists), the transverse joist in the next space should be put in the middle of this length.
- 5) Angle brackets should be used for all connections between joists
- 6) Use concrete weights (e.g. paving slabs) to weigh down the edges of a floating terrace. Place the weights between the main and transverse joists by means of angle brackets.

When you install a floating terrace, you may use aluminium or wooden joints that are not part of the Timberness system. Please note that the selection of inadequate joists in terms of their parameters may result in the supporting structure being unstable. This in turn may cause damage to the terrace.

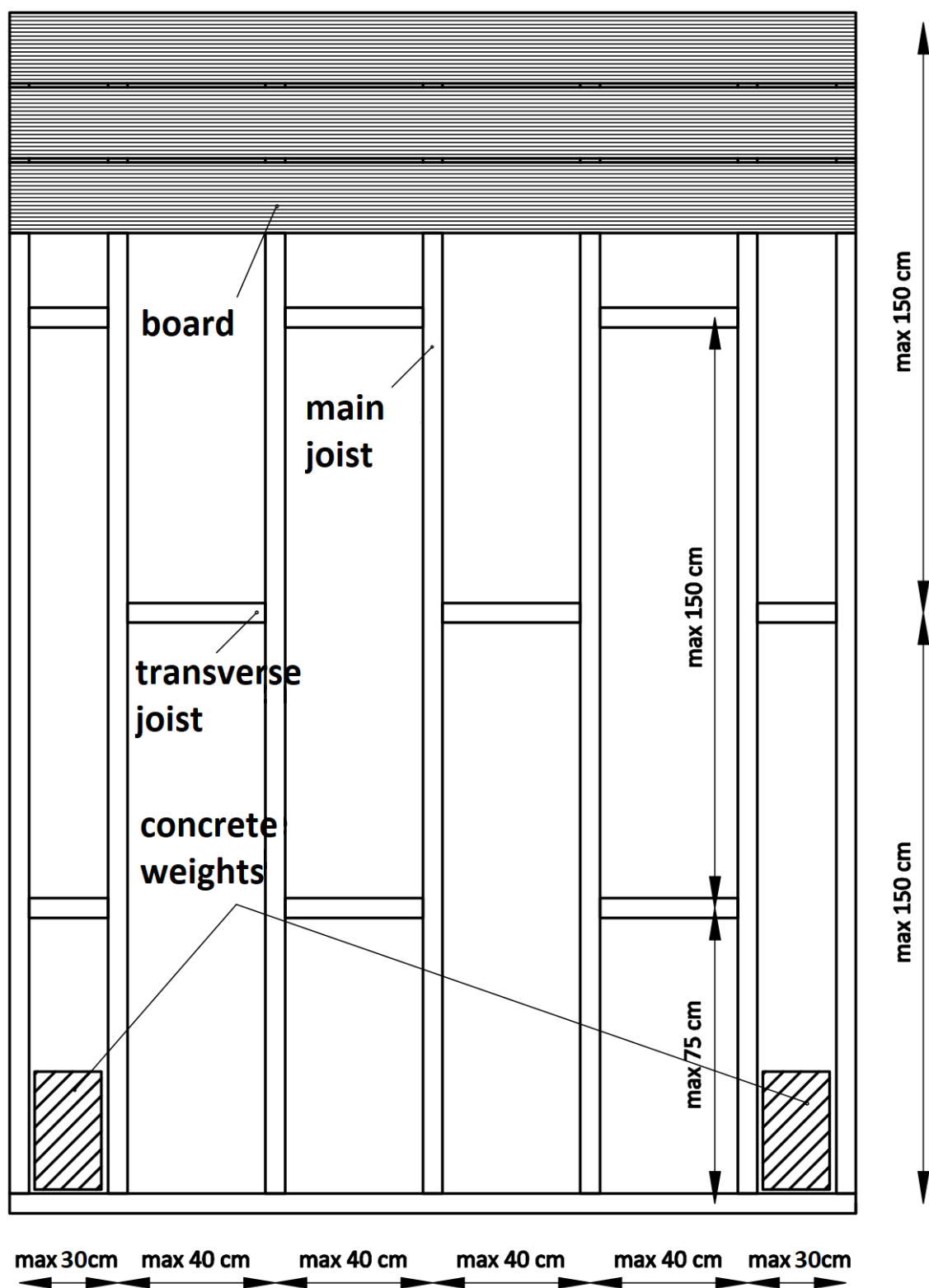


Fig. 3. Installation of a floating terrace.

3. Installation of a composite system terrace

a) installation of joists to a fixed base

Arrange the joists on the base, plain surface down. The grooved surface of the joist is used to house T-Clips and must be at the top. The joists should be fixed parallel to each other with a spacing of 45 cm axis to axis. Please note that the spacing between the first two and the last two joists should not exceed 25 cm measured from the axis of one joist to the axis of another. Where a joist end butts against a wall, other fixed element or another joist, leave a clearance (10 mm for a wall or other fixed element, 6 mm for another joist). Joists should be arranged perpendicular to the desired direction of the boards. In case of standard joist, keep in mind that the width and height of the joist may be used interchangeably. Before fixing joists to the base make sure that all joists are arranged at the same height.

When you use standard joists, there is a possibility to finish the terrace with composite strips fixed to the front of composite boards in a reinforced way – in two points (not only to the board but also to the joist). This solution is recommended for terraces intended for heavy use (e.g. in public places). Make sure that the joists forming the outer limit of the terrace are arranged so that the outer side (where finishing strips will be fixed) has marks in the form of two parallel lines. These marks will facilitate the mounting of the Omega sliding clips later. Details of this method of mounting the strips are given in section 4a ("reinforced mounting of composite strips").

Use ø6 wall plugs (generally available) to fix joists to a concrete base. In order to screw down the joists pre-drill the upper and lower side of the joist with a 6 mm drill bit. The resulting upper hole must be drilled again, this time using a drill bit with a diameter of 8 mm to allow the dowel through. The dowel length should be at least 45 mm. Insert the wall plugs into holes made in the concrete, then screw the joists down to the base. The spacing between the wall plugs should be 40 cm.

b) fixing the starting clips to the joists



The installation should start with fixing a starting clip to each joist on one side (the one from which we will start laying the boards).

Fig. 4. Fixing the starting clip.

In case of using double joists, the clips must be fastened to both joists. Starting clips should be mounted in such way as to align the shorter bent part with the beginning of the joist. The convexity at the screw hole must be carefully fitted into the specially shaped spot on the joist. Use the stainless steel self-tapping screws attached to the assembly kit to fix the starting clips.

c) mounting the boards



Slide the first board to the starting clips fixed earlier so that the bottom tongue of the board presses against the clip (the tongue must be inserted under the upper part of the clip).

Fig. 5. Mounting the first board.



Next, insert the longer side of a T-Clip (or a T-Clip Flat for use with aluminium or wooden joists) between the board and the joist from the side where the next board will be fixed. Make sure to position the clip correctly – the side inserted under the board should be the one with the longer distance from the screw hole. The T-Clip Flat may be inserted under the board either way.

Fig. 6. Mounting the next boards.

Gently push the clip to the board to ensure optimal fit. This maintains a constant clearance of 5 mm (or 7 mm in case of T-Clips Flat) between the boards. Screw the clips to the joist with stainless steel self-tapping screws attached to the assembly kit.

When fixing the boards, take care to ensure the best possible alignment of the board front with the side surface of the joist – it will guarantee an easy and aesthetic installation of the finishing strips.

It is also important to allow sufficient space (clearance) between the board fronts and walls or other fixed elements. The clearance should be 8 mm. For boards longer than 4 m, gradually increase the clearance depending on the length of the board – 2 mm per 1 m of the board. The need for such increase results from the longitudinal material thermal expansion.



While installing following boards, pay attention to the mark located on the side of the boards.

Fig. 7. The mark located on the side of the boards.

It shows the direction of the board brushing and should be pointing in the same direction for all the boards. If any of the boards is fixed with the mark pointing to a different direction, its colour shade may appear brighter or darker than the others, because the light falling on it will be reflected at a different angle.

d) connecting boards front-to-front

In a situation when the terrace project requires front-to-front board connection, use double joists. Joists should be arranged so that each of the boards rests on a separate joist in the place where they connect. Do not forget to allow a proper clearance between boards (see table on page 4). It is also necessary to use additional T-Clips (or T-Clips Flat) at the ends of the connected boards. It is forbidden to connect the boards on both joists with a single clip.

e) longitudinal cutting of boards

If there is a need to cut the boards along their length, cut them so that the newly formed board tongue has a length of 8 mm (measured from a chamber rib). A shorter tongue will make it impossible to fix the board to the joist with a (mounting) clip.

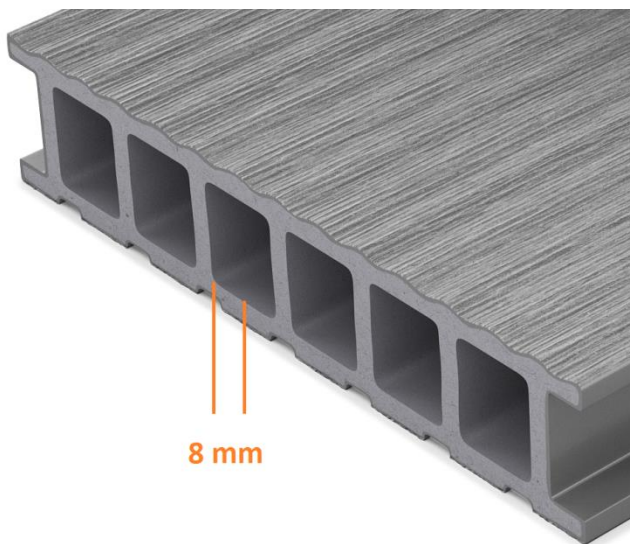


Fig. 8. Longitudinal cutting of boards.

f) mounting of the last board

When mounting the last board on the terrace it is not possible to use a clip. Therefore, you must fix it to the joist using stainless steel self- tapping screws supplied with the assembly kit, screwing them at an angle of 45° through the lower board tongue.

4. Mounting the finishing strips

Please note: due to the differences in the structure of SELECT and PRIME boards, use the dedicated PVC connectors, SELECT or PRIME respectively, to fit the finishing strips. Other parts necessary for the assembly, i.e. OMEGA sliding clips and self-tapping screws, are universal and can be used for both types of board.

a) fitting the finishing strips to the board front

To fit the finishing strips to the board fronts, use the dedicated PVC connectors (depending on the board type – SELECT or PRIME), stainless steel OMEGA sliding clips and system stainless steel self-tapping screws.



Fig. 9. Mounting the finishing strip.

The fitting starts with the fixing of the PVC connector to the board with a glue for rigid PVC. Please note the protruding parts of the connectors (teeth) at the bottom, which should be directed downward. After coating the board interior chambers with glue, insert the connectors into them. Place the OMEGA sliding clip's flat side on the PVC connector, ensuring the alignment of the screw holes in both elements. Fix the OMEGA clip to the PVC connector using two (for PRIME) or at least two (for SELECT) stainless steel self-drilling screws. In the case of the SELECT system, you may also use a third screw, using the central screw hole.

The PVC connectors with OMEGA clips should be installed at a distance of 35 cm apart, measured from the outer edges. Make sure there are always clips at the ends of the strips.

After installing the OMEGA sliding clips, put the strip to them with the profiled side and, after adjusting, fit it by pressing – to “click”. Keep in mind that the height of the masking strips needs to match the height of the structure. When assembling composite strips, pay attention to the mark placed on one of the strip sides, which should always be at the bottom of the profile.

Reinforced (double) assembly of composite strips

Where the terrace is exposed to heavy use (e.g. in public places), and standard joists are used, it is possible to further protect the composite strip by the installation of two OMEGA sliding clips. Then one of the clips is fitted to the board in a standard way, and the other to the joist. In this case, before fitting the strips fix an additional OMEGA sliding clip to the joist using self-tapping screws. It is then necessary to use marks (two parallel lines) located on the side of the joist. In the case of SELECT boards use the lower mark (bottom line) and in the case of PRIME boards use the upper mark (top line). After putting the OMEGA sliding clip to the joist, the proper mark should be exactly in the middle of the screw holes. This will allow adjusting the masking height to the height of the structure. After fixing all the clips put the strip to them with the profiled side and after adjusting to the two (upper and lower) rows of OMEGA clips fit it by pressing - to “click”. With this method you must remember to arrange the outermost joists in such a way that the markers are visible on the outside (see point 3a). While fixing the boards to the joists you should take care to ensure best possible alignment of the board fronts and the joist side surface.

b) assembly of finishing strips to the board long side

When mounting strips on the long side of the board use the appropriate dedicated PVC connectors, OMEGA sliding clips and stainless steel self-tapping screws. The PVC connector should be placed in the board side groove, with the flat side of the connector on the outside, in such a manner that the protruding parts of the connector (teeth) point down. To facilitate subsequent steps the connector may be fixed to the board with a small amount of glue. Then place the OMEGA sliding clip on the PVC connector, aligning the screw holes in both parts. Fix the OMEGA clip and the PVC connector to the board using the supplied stainless steel self-tapping screws. In the case of the PRIME system, both the clip and the connector are fixed with two screws, in the case of the SELECT system use at least two screws (through the outer holes in the PVC connector).

The PVC connectors and the OMEGA clips should be installed at a distance of 35 cm apart, measured from the outer edges. Make sure there are always clips at the ends of the strips.

After installing the OMEGA sliding clips, put the strip to them with the profiled side and, after adjusting, fit it by pressing – to “click”. Keep in mind that the height of the masking strips needs to match the height of the structure. When assembling composite strips, pay attention to the mark placed on one of the strip sides, which should always be at the bottom of the profile.

c) connecting the finishing strips front-to-front

In a situation where it is necessary to connect the composite strips front-to-front, it is recommended to cut the strips at an angle of 45° and install them by connecting strips with opposite angles – thus making the clearance between the strips less visible. The minimum clearance between the strips is given in the table on page 4.



Fig. 10. Connecting the finishing strips front-to-front.

The above strip assembly system does not interfere with the longitudinal thermal expansion and maintains optimal terrace aesthetics, because it is done without screws visible on the outside. In addition, it means easy removal of the strips or their replacement in case of damage. Just gently pry the strip at the end and then remove it from the next clip.