

Installation Instructions

econudo® decking boards

1. General information

Econudo® belongs to a new innovative material group and is a modern and resource-friendly composite material made of natural bamboo fibres and a high-quality polymer as a bonding agent.

60 % natural bamboo fibres which originate from cutting processes such as sawing and profiling and are treated in a complex process represent the natural basis for the econudo® bamboo polymer composite (BPC).

In combination with an eco-friendly polymer (PE) and selected additives, a versatile material is created which promises beauty and resilience particularly for outdoor applications.

Whether for decking, loggias or balconies, econudo® offers you a easy-care, durable and especially crack- and splinter-free solution for your wellness oasis and is a particular delight for those who love walking bare-foot thanks to a surface that is pleasant to walk on.

Unlike decking boards made of wood, no time-consuming care such as coating or oiling is necessary. The solid econudo® boards do not turn grey and have a high colour-fastness. Following slight adaptation of the boards in the initial weathering phase, you can enjoy your favourite colour unchanged.



2. Technical notes

- Take the different installation specifications for the different uses into account, as well as the selection of the system profile (see section 3.2 as well as Fig. 2 and 3) which depends on these.
- Installation may only be with the matching and approved econudo® system components.
- The BPC material can be sawed, drilled and sanded using standard woodworking tools.
- The BPC material is not suitable for all permanently wet areas, waterlogging, direct contact with soil, load-bearing function.
- The econudo® BPC elements must not be used for suspended, cantilevered static components. We recommend econudo® BPC only for laying on patios with a continuous base! Do not install econudo® BPC on e.g. steel frame balconies without a statically safe, load-bearing base! Carry out installation in accordance with the instructions in our installation guidelines and adhering to regional building regulations.
- The base must have a gradient of 1- 2 %, be capable of bearing a load, level, firm and water-draining.
- Do not carry out installation work at temperatures below 5° C. Note the expansion limit in accordance with DIN EN 15534 1+2.
- Since the decking board expands and contracts depending on temperature and environmental humidity, the prescribed distances of 1 - 2 cm to adjacent fixed components must always be kept (see Fig. 2 and 3 as well as section 3.2, last paragraph).
- With patio dimensions up to 6.6 m - in width or length - both the BPC or the aluminium system profile can be used for the sub-structure.
- From patio dimensions from 6.6 m - in width or length - and for commercial use of the patio, we recommend use of the aluminium system profile for the sub-structure.
- Optionally, we recommend reinforcing the sub-structure made of aluminium profiles with cross connectors if heavy loads e.g. in the event of commercial use, are to be expected (see Fig. 3).
- The spacing between the cross connectors should not exceed 1.0 m. The aluminium starting strip counts as the first cross connection. (see Fig. 3)
- If the spacing of the econudo® system profiles has to be adapted to the structural circumstances on site, smaller spacing must be planned for the sub-structure and supports than is specified here.
- If the econudo® system profile has to be extended, the econudo® system profile coupling can be used for easier installation. Important: Connection point of the econudo® system profile must rest on a bearing point.
- To guarantee good air circulation under the structure, at least mounting base S must be used for patios. In the case of covered balconies and loggias, the 10 mm pad can be used as minimum as a spacer under the system profiles.
- If pads are used to align the sub-structure instead of mounting bases, no more than two pads may be placed on top of one another and they must be secured against slipping.
- If the topmost sealing layer is made of bitumen or film sheeting, they must be protected from mechanical damage caused by sharp objects e.g. the base plate of the mounting base.
- The decking boards must be installed using a regular bond.
- The econudo® decking boards are attached using concealed screws on a sub-structure made of system profiles using an econudo® system connector.
- The econudo® system connector is installed using self-cutting stainless steel screws. Pre-drilling prevents chipping and overtightening during screwing.

- If objects that cause a high point load are to be placed on the patio, they must be placed on a load-distributing base so that the weight is distributed evenly.
- Garden furniture should be fitted with protective gliders to avoid damage.
- Leaves and dirt should be swept off the patio regularly.
- Pockets of moisture and alga infestation should be avoided particularly in shady areas.
- For optimum air circulation underneath the patio, check the sub-structure at regular intervals, remove any leaf and dirt deposits between the econudo® system profiles.
- Cleaning with a high-pressure cleaner is not possible!
- Scoring, scratches and/or small projections can be reworked using a steel wool sponge along the length of the boards.
- To remove snow and ice from the econudo® decking boards, we recommend using snow shovels made of plastic. Standard de-icing salt can be used to melt ice and snow.
- Small quantities of BPC materials such as cutting residue can be disposed of with domestic waste. Larger quantities should be delivered to recycling yards, they can be used thermally in waste incineration plants as recyclable used wood.
- Please note our detailed installation and care instructions

Visual inspection of the packaging units and non-laid decking boards

Please check the econudo® patio boards for any faults and visible damage. The patio boards must be stored in a horizontal stack. When stored outdoors, the boards must be protected from sunlight and the wet.

3. Installation

3.1. Prepare the base

Determine the overall height of the complete construction. Keep a downward gradient of 1 - 2% away from the building for the overall construction. Create a load-bearing base that can cope with the pressure to be expected. If installation is to be on a gravel base, this must be compacted properly first. Lay a water-permeable root mat (econudo® article no. VL-WU16) on the prepared base. If installation takes place on insulating materials, make sure that only hard foams are used that do not compress when a load is placed on them. If the topmost sealing layer is made of bitumen or film sheeting, they must be protected from mechanical damage caused by sharp objects e.g. the base plate of the mounting base. In the case of bituminous bases, use our roof protection mat (econudo article no. VL-DA25), in the case of film bases such as e.g. Evalon film supplied by Alwitra, use Regupol resist 9510 building protection sheet supplied by Berleburger Schaumstoffwerke.

Always heed the processing instructions provided by the manufacturer as well as DIN 18195 part 5.

3.2. Support spacing in the sub-structure made of BPC and aluminium system profiles.

The econudo® decking board is suitable both for private use, commercial use in public areas as well as for use as a roof terrace floor covering. Depending on the type of use, different spacing must be used for the support points. Depending on the type of use and the resulting prescribed load assumptions per square metre, the installation base is mounted to the system profile (BPC-XUG/VAA-ESP) at different intervals.

Maximum spacing of the support points from centre to centre, in centimetres:

for private use or for public/commercial use and/or use as a roof terrace

- a) System profile made of BPC: either 30 cm or 42 cm
- b) System profile made of aluminium: always 55 cm for each of the as stated above.

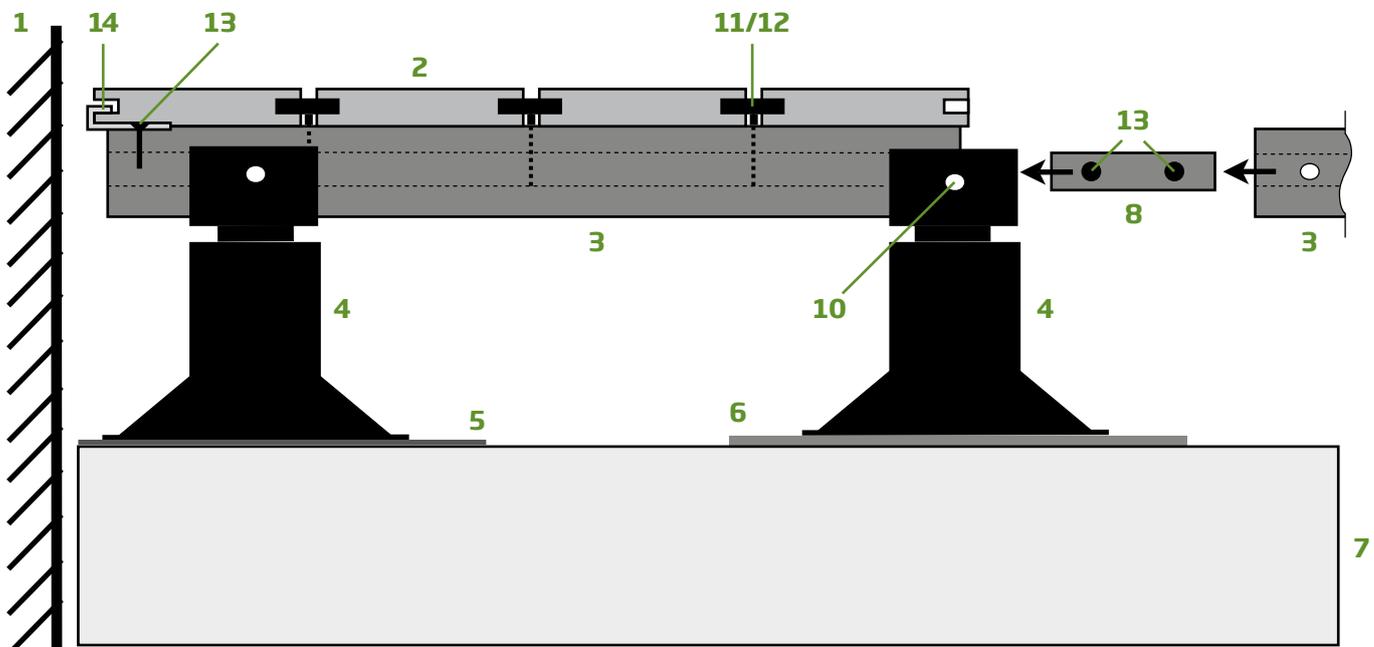


Fig. 1
System overview econudo® decking boards with econudo® sub-structure made of BPC

- | | | |
|------------------------------|------------------------------------|------------------------------------|
| 1 Solid component, e.g. wall | 5 Root control fleece (VL-WU-16) | 10 Screw (VZ-B-24) |
| 2 econudo® decking board | 6 Roof protection cork (VL-DA25) | 11 System connector (BPC-XMO) with |
| 3 System profile (BPC-XUG) | 7 Sustainable ground | 12 Screw, stainless steel, black |
| 4 Mounting foot (VL....) | 8 System profile coupler (BPC-XKA) | 13 Screw Ø 3,2 x 25 mm (VZ-B-25) |
| | | 14 Start rail aluminum (VZ-ST-A) |

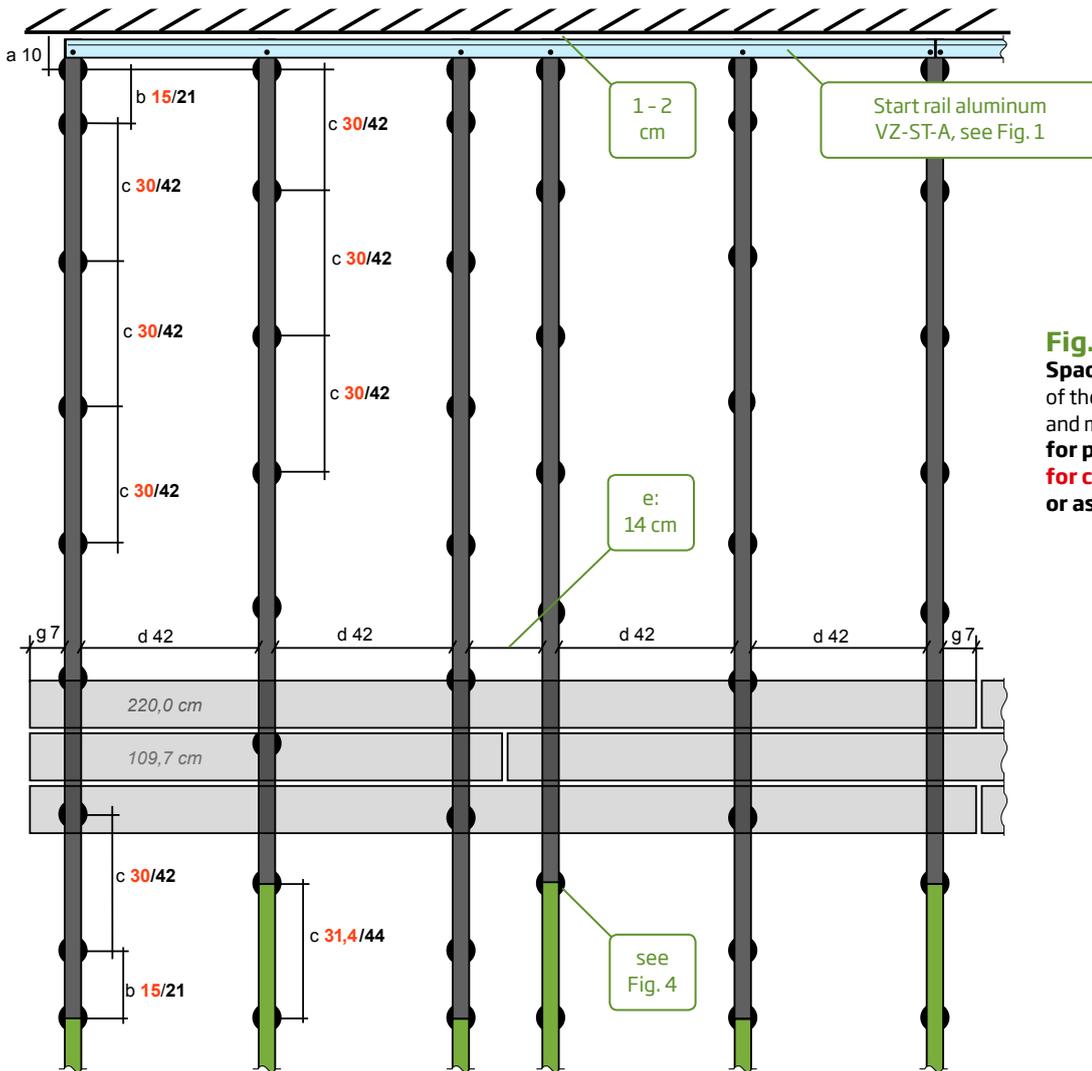


Fig. 2
Spacing
of the BPC system profiles
and mounting bases
for private use,
for commercial use
or as a roof terrace

Spacing **BPC system profile/mounting bases for private use, for commercial use** or as **a roof terrace**

Die Screw the mounting bases to the system profile at the specified intervals. The ground side of the system profile must be facing upwards. Only use the stainless steel screw (VZ-B-24) Ø 4.2 x 24 mm for attachment. Pre-drilling prevents chipping and overtightening during screwing.

- If the spacing has to be adapted to the structural circumstances on site, smaller spacing must be planned.
- If the system profile has to be extended, the system profile coupling (BPC-XKA) must be used.
- The connection point of the system profile must rest on a bearing point. (see Fig. 4)

Maximum clear spacing within the sub-structure:

private use a: 10 cm b: 21 cm c: 42 cm d: 42 cm e: 14 cm g: 7 cm

commercial use
or roof terrace a: 10 cm **b: 15 cm** **c: 30 cm** d: 42 cm e: 14 cm g: 7 cm

When fitting whole system profile lengths of 2,200 mm from the first extension max. spacing c: **31,4 cm**/44 cm. Results in **7/5** supports.

Keep a distance of 1 - 2 cm to all fixed components. Align the other profiles at the necessary distances to one another (see Fig. 2). Check the levelness and gradient of the sub-structure again.

Quantities recommended per square metre:

approx. 6.85 lineal metre board (= approx. 23.8 kg)

approx. 3.5 lineal metre system profile (= approx. 3.5 kg)

12 x supports (mounting base or pad) for commercial use or use on a roof terrace

8 x supports (mounting base or pad) for private use

21 x system connectors incl. screws

The individual local circumstances cannot be taken into account here. Waste is not included in the quantity recommendations! These must be rounded up to full packaging units.

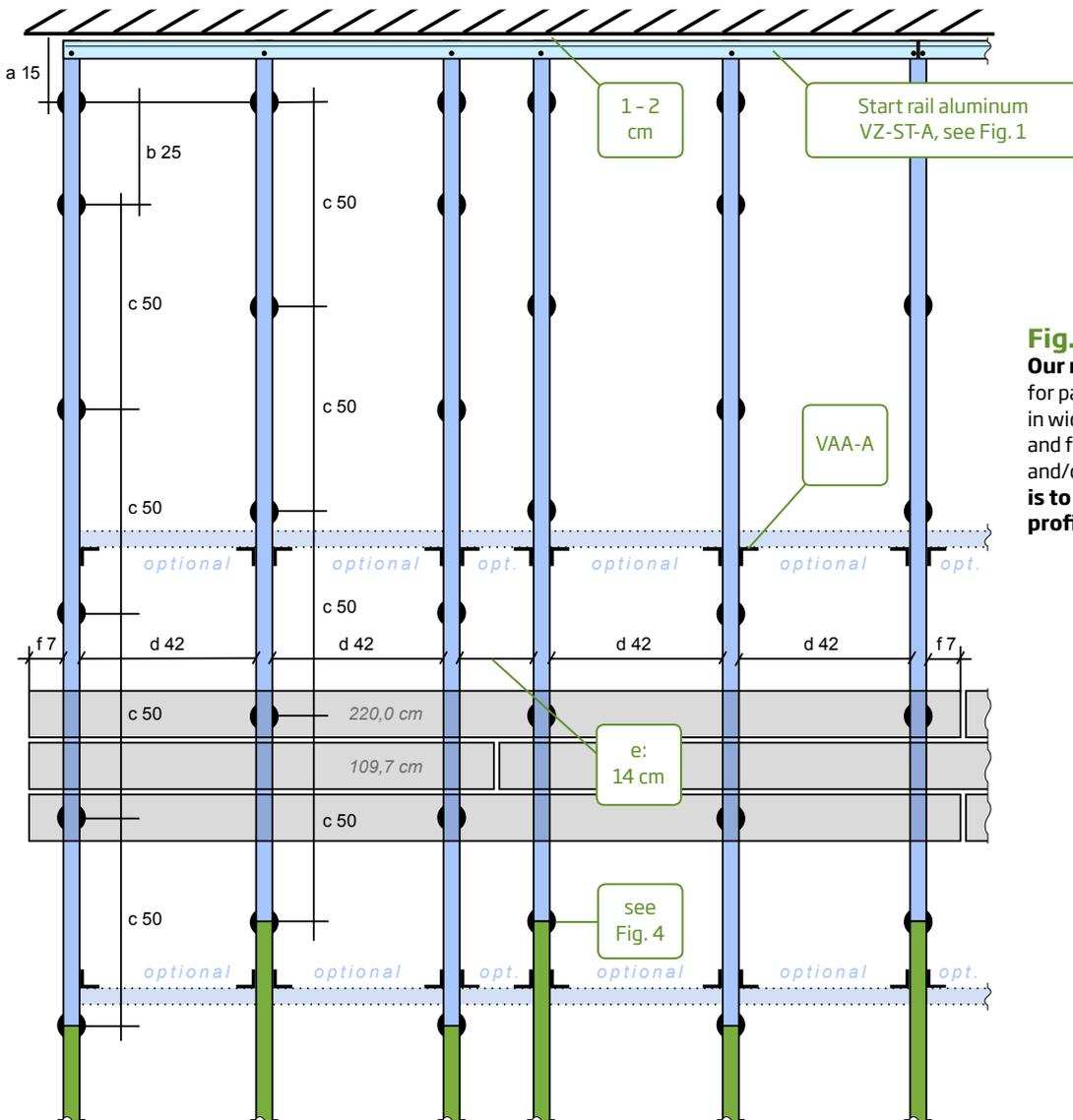


Fig. 3
Our recommendation
 for patio dimensions from 6.6 m in width or length and for commercial/public use and/or use as a roof terrace **is to use the aluminium system profile for the sub-structure.**

Spacing **aluminium system profile**/mounting base for **commercial use/public** and/or use as a roof terrace as well as for patios greater than 6.6 m in length or width.

Connect the mounting bases to the aluminium system profile (VAA-ESP/ VAA-SP) at the given spacing.

- If the spacing has to be adapted to the structural circumstances on site, smaller spacing must be planned.
- If the system profile has to be extended, the system profile coupling (VAA-XKU) must be used.
- The connection point of the system profile must rest on a bearing point. (see Fig. 4)

Maximum clear spacing within the sub-structure:

a: 15 cm b: 25 cm c: 50 cm d: 42 cm e: 14 cm f: 7 cm

When fitting whole system profile lengths of 2,400 mm from the first extension max. spacing c: 48 cm. Results in 5 supports.

When fitting whole system profile lengths of 4,000 mm from the first extension max. spacing c: 50 cm. Results in 8 supports.

Position the system profiles thus prepared on the load-bearing base.

Keep a distance of 1 - 2 cm to all fixed components. Align the other profiles at the necessary distances to one another (see Fig. 3). Check the levelness and gradient of the sub-structure again.

Quantities recommended per square metre:

approx. 6.85 lineal metre board (= approx. 23.8 kg)

approx. 3.5 lineal metre aluminium system profile VAA-ESP/VAA-SP (= approx. 4.4 kg)

8 x supports (mounting base or pad)

21 x system connectors incl. screws

The individual local circumstances cannot be taken into account here. Waste is not included in the quantity recommendations! These must be rounded up to full packaging units.

Fix the mounting bases to the system profiles at an appropriate distance apart a); b) see 3.2). In the case of the BPC system (BPC -XUG) the ground side of the profile should be facing upwards. Use stainless steel screws (VZ-B-24) to attach the mounting bases to the BPS system profile. Pre-drilling prevents chipping and overtightening during screwing. If the spacing of the system profile or the support points has to be adapted to structural circumstances, the specifications of the maximum distances must not be exceeded. In this case, smaller distances must be planned for the system profiles and support points.

For narrow segments less than 80 cm wide, at least three system profiles must be provided as supports. Position the system profiles in the direction of the gradient on the prepared base. Keep a distance of 1 - 2 cm to all fixed components at the head end. Align the other profiles spaced out (see Fig. 2 or Fig. 3) in relation to one another. Check the levelness and gradient of the sub-structure again.

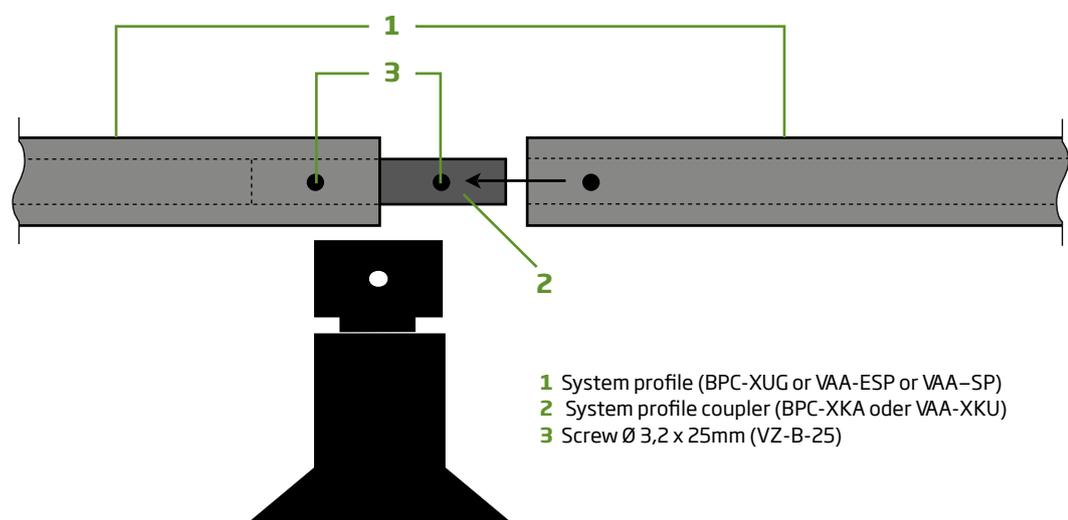
3.3 Extend the system profile

If the system profiles have to be extended, use the respective system profile coupling for the BPC or aluminium profile. (BPC-XKA or VAA-XKU). Insert the coupling halfway into the system profile to be attached and screw it to the profile. Only use the stainless steel screws Ø 3.2 x 25 mm (VZ-B-25) provided for attachment and use one coupling per connection point.

Now insert the second system profile as far as it will go onto the system profile coupling. Then screw the second system profile to the coupling as well. Only use the stainless steel screws Ø 3.2 x 25 mm (VZ-B-25) provided for attachment. Plan offset of the joints from one row to the next so that the points are not all in one line (see Fig. 2 or Fig. 3). Pre-drilling prevents chipping during screwing. Always avoid overtightening the screws as the durability of the screwed joints will otherwise be reduced.

The connected system profiles must rest on a bearing point.

Fig. 4
Extend the system profile



3.4 Selection of decking board surface

The decking boards can be used on both sides i.e. they have different surface structures on the front and back. Which side to use as the top surface is mainly a matter of personal taste.

3.5 Laying patterns

The decking boards must be installed using a regular bond.

3.6 Aligning and fixing the first decking board in place

The first row of boards is laid in a straight line along the wall. Keep a distance of 1–2 cm to all fixed components. Fix the start strip (VT-ST-A) to each system profile (BPC-XUG) using the screw (VZ-B-25), countersink the screw (VZ-B-25) head so that it is flush to the surface. Then fit the board with the groove side to the start strip, making sure that the board is parallel along the entire length.

Next, insert the system connectors (BPC-XMO) into the opposite groove of the first board. Position each system connector in the centre of the respective system profile. Screw each system connector in place.

Note - do not tighten completely yet!

Only use the black stainless steel screws provided to attach the system connectors to the system profile.

Pre-drilling prevents chipping and overtightening during screwing.

3.7 Installation of the decking boards

Now fit the second decking board to the system connectors of the first board. The boards must be able to be fitted easily by hand. Clamp the boards in the first and second row at each end and in the centre using a vice-grip wrench. On account of the system used, there is a joint gap of 6 mm between the rows of boards. Keep the same joint gap at the head joints as well.

Next, insert the system connectors into the opposite groove of the second board. Position each system connector in the centre of each system profile again. Only use the stainless steel screws provided to attach the system connectors in the system profile.

Pre-drilling prevents chipping and overtightening in BPC during screwing. Screw each system connector using one system profile each

Note - do not tighten completely yet!

Now fit the third decking board to the system connectors of the second board. Clamp the boards from the first via the second to the third row at each end and in the centre using a vice-grip wrench. On account of the system used, there is a joint gap of 6 mm between the rows of boards. Keep the same joint gap at the head joints as well.

Now tighten the system connector screws between the first and second and between the second and third row of boards. **During attachment of the econudo® system connector in the system profile, care must be taken that the screw is not overtightened!**

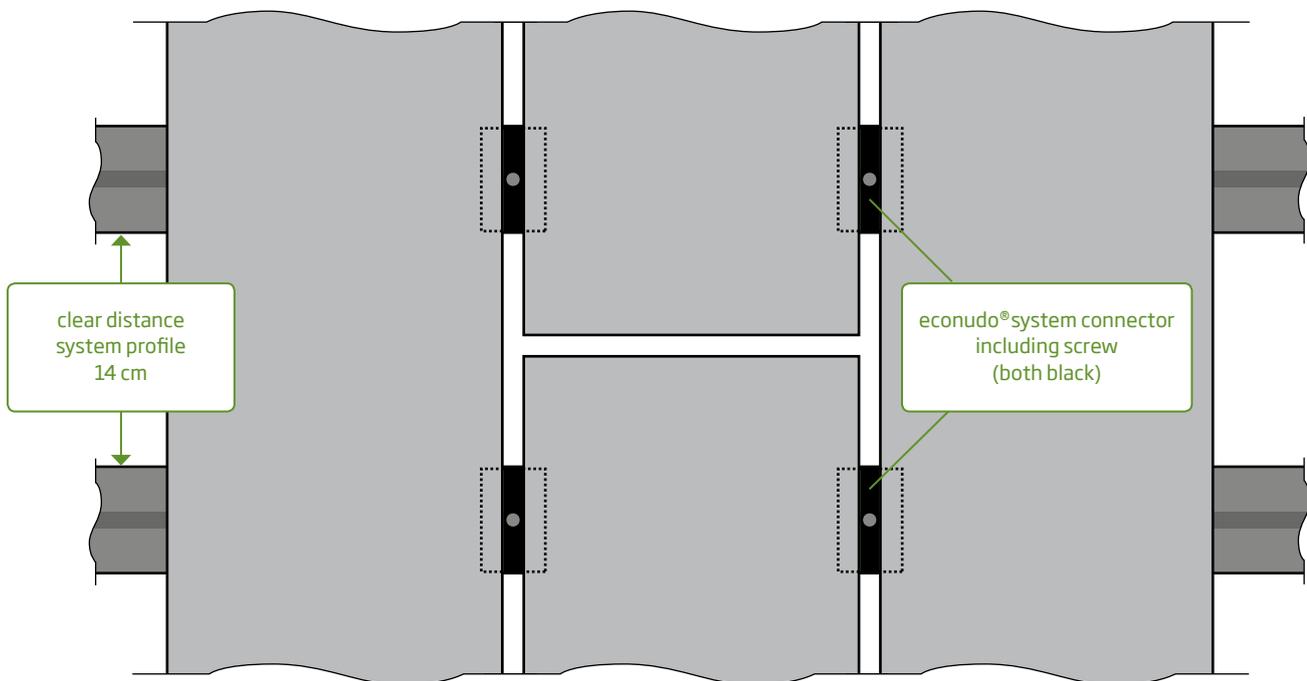
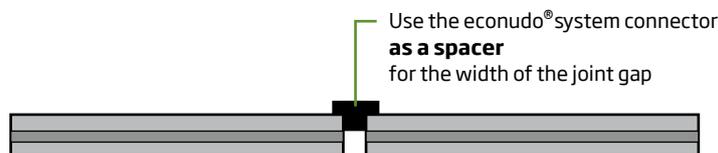


Fig. 5 Joint gap



Next, insert the system connectors into the opposite groove of the third board. Then position each system connector in the centre of each system profile again. Only use the black stainless steel screws provided to attach the system connectors in the system profile.

Pre-drilling prevents chipping and overtightening during screwing. **Note - do not tighten completely yet!**

Now fit the fourth decking board to the system connectors of the third board. Clamp the boards from the second via the third to the fourth row at each end and in the centre using a vice-grip wrench. On account of the system used, there is a joint gap of 6 mm between the rows of boards. Keep the same joint gap at the head joints as well.

Now tighten the system connector screws between the third and fourth row of boards. **During attachment of the system connector in the system profile, care must be taken that the screw is not overtightened!**

Repeat these working steps board for board, row for row. Only use the system connectors and screws provided for attachment. Position and screw each system connector using one system profile each, do not leave out any necessary connections.

Finally, adapt the width of the last board. Attach the edge strip (VZ-ED-A) to each system profile using the screw Ø 3.2 x 25 mm (VZ-B-25).

Pre-drilling prevents chipping and overtightening during screwing.

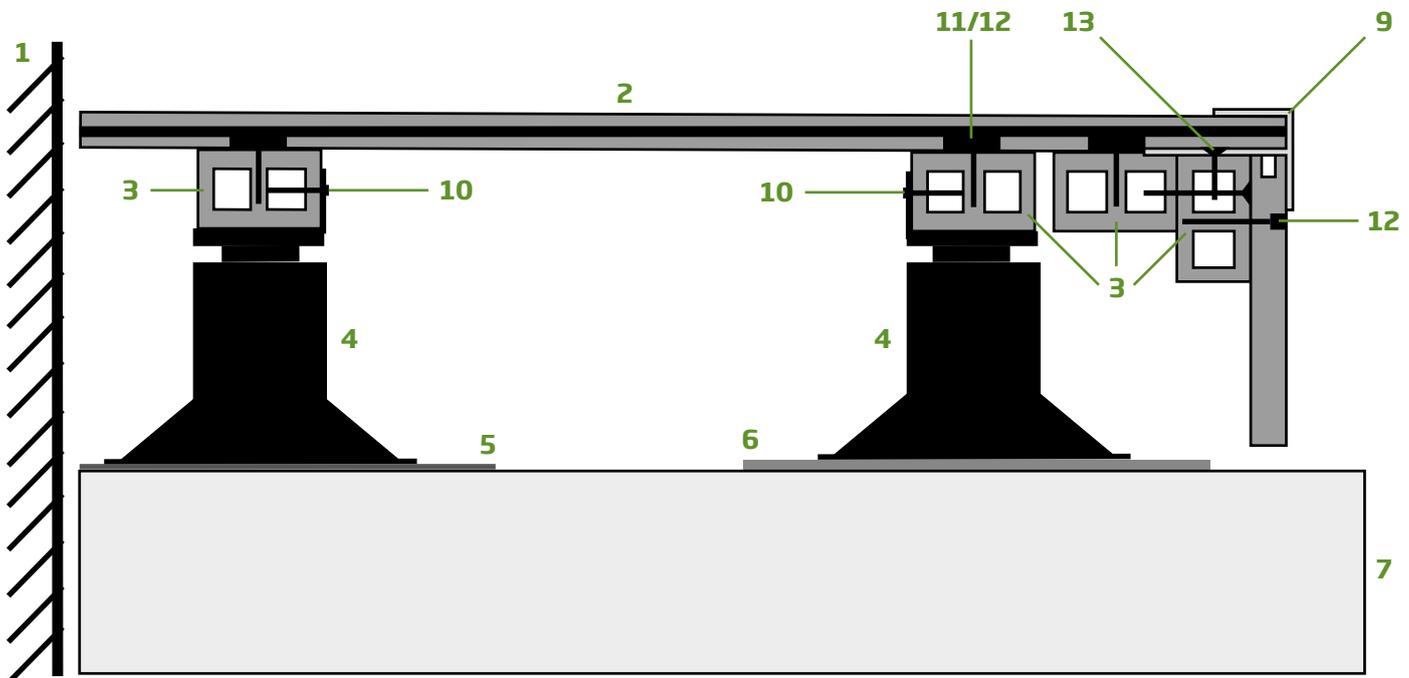


Fig. 1a
System overview econudo® decking boards
with econudo® sub-structure

- | | | |
|------------------------------|----------------------------------|--|
| 1 Solid component, e.g. wall | 5 Root control fleece (VL-WU-16) | 10 Screw VZ-B-24 |
| 2 econudo® decking board | 6 Roof protection cork (VL-DA25) | 11 System connector (BPC-XM5/BPC-XM0) with |
| 3 System profile (BPC-XUG) | 7 Sustainable ground | 12 Screw, stainless steel, black |
| 4 Mounting foot (VL....) | 9 Finish rail aluminum (VZ-ED-A) | 13 Screw Ø 3,2 x 25 mm (VZ-B-25) |

4. Cleaning and care

■ After installation, initial cleaning of the decking boards using Dr. Schutz intensive cleaner for wood, WPC and stone must be carried out. For this purpose, dilute Dr. Schutz intensive cleaner in the ratio 1:3 to 1:5 with water. Can be used non-diluted on stubborn stains. Distribute the cleaning solution on the pre-wetted area and leave for approx. 10 minutes. **IMPORTANT:** Do not allow to dry, clean in sections if necessary. After it has been left for the required time, work using a scrubbing brush, broom or Multi Clean 350. Pick up loosened dirt using a wet vacuum cleaner or mop. Rinse off in addition using clear water until the soiling has been removed completely.

■ If objects that cause a high point load are to be placed on the patio, they must be placed on a load-distributing base so that the weight is distributed across as large a surface as possible.

■ Garden furniture should be fitted with protective gliders to avoid damage.

■ Sweep leaves, moss and dirt off the boards.

■ Pockets of moisture and alga infestation should be avoided particularly in shady areas.

■ Scoring, scratches and/or small projections can be reworked using a steel wool sponge along the length of the boards. The colour of processed areas will adjust in terms of colour within a few weeks.

■ The evaporation of rainwater can cause signs of drying in the form of edges or spots on new patios. This is caused by residual dust from the production process dissolved in the water as well as dirt and dust from the ambient air settling on the surface of the patio. Since the patio is not usually ever empty of objects, all patio areas will never be wetted by the same amount of rainwater. The objects (e.g. furniture) prevent even drying since they cause shade in partial areas. This results in the above-described drying edges or drying spots made up of dust residue, which is not washed off by the rainwater but rather remains on the surface and dries on. This becomes less as time goes on, but cannot be excluded because there is always a certain amount of dirt and dust in the atmosphere.

This is a natural process and not reason for any complaint.

In order to remove the signs of drying, repeat the measure described above for initial cleaning of the decking boards. If these signs of drying occur again, the process may be necessary several times.

Regular cleaning is carried out using Dr. Schutz intensive cleaner for wood, WPC and stone on the exterior. Always note the separate instructions on the container labels.

If you need more information about the products, visit www.dr-schutz.com or call the Dr. Schutz service hotline on +49 5152 97 79 16.

Note

The econudo® decking board is a natural product. Since these boards are a natural product with a high bamboo content, changes in colour and shape of the boards due to UV radiation and influences of the weather are material-dependent and do not constitute a fault.

No liability is accepted for damage caused by non-observance of the installation instructions or improper treatment. The decking boards may only be used in accordance with the instructions in this installation guidelines, the service characteristics and adhering to regional building regulations.

www.econudo.com / www.econudo.de

State of the art: January 2019**We reserve the right to make technical changes**

These technical notes do not constitute a contractual legal relationship nor an additional obligation from the sales contract.

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