

ASSEMBLY INSTRUCTIONS

Facade profiles

90 STAR, 45 MINISTAR



BEFORE YOU START

- The 90 STAR and 45 MINISTAR cladding profiles can be safely used as façade cladding for family houses (ground floor and multi-storey). From a fire safety perspective, they are classified under Reaction to Fire Class E. For higher buildings, its use must be consulted with a fire safety specialist, and installation should be carried out in accordance with the Fire Safety Solution
- These profiles are not intended to be used as balcony infills. For this purpose, it is necessary to use another solution, e.g. a certified system with a profile of 90 RHOMBA or 50 BONE.
- The TERAFFEST® material is not a structural material and therefore cannot be used for load-bearing constructions. When installing additional accessories on the façade cladding (e.g., lighting, guttering, etc.), it's should be anchored to wall, not only to the cladding profiles.
- This is a natural product, which may exhibit slight colour variations and shading, enhancing its wood-like appearance. These variations do not affect the product's quality or durability. Before installation, the colour of the profiles should be checked, and profiles should be mixed during cladding installation to emphasize their natural character. We recommend ordering all profiles at once to ensure uniformity.
- Profiles may have minor dimensional variations. The manufacturing tolerances are as follows: Width: ± 2 mm, Thickness: ± 1 mm, Length: ± 10 mm. Maximum longitudinal deflection: 5 mm per meter of length. Due to temperature fluctuations, TERAFFEST® cladding profiles and trims expand and contract. Ensure that expansion gaps are in according as prescribed.
- TERAFFEST® products are primarily designed for outdoor use. Sunlight and rain help maintain them naturally. If considering indoor use, consult your supplier. In partially covered installations, uneven exposure to rain may lead to dust water stains, which do not affect the cladding's functionality.
- Store on a dry and level surface. Before installation, protect profiles from direct sunlight to prevent uneven colour maturation.
- Do not treat the profile surface with stains, paints, varnishes, oils, or other products unless specifically recommended for composite materials by the manufacturer. Do not use solvents or thinners.
- When working with composite wood, use the same tools as for hardwood, such as a circular saw, drill, cordless screwdriver, measuring tape, level, pencil, rubber mallet, and square ruler. Personal protective equipment must be used when cutting and drilling TERAFFEST® façade profiles. Especially when cutting aluminium profiles, pay attention to eye protection.
- The 90 STAR and 45 MINISTAR profiles can be combined with each other, or with terrace profiles, e.g. 137 CLASIC.

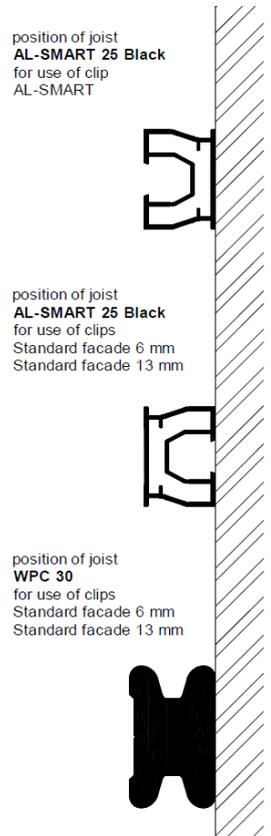
1. WALL PREPARATION

- The wall must support 90 STAR or 45 MINISTAR profile assemblies with a unit area weight of 17–26 kg/m².
- Standard exterior walls can safely handle this load. For insulated walls with a large insulation thickness (over 20 cm), suitability must be consulted with a project designer or structural engineer.
- **Specifics of anchoring on an existing External Thermal Insulation Composite System (ETICS)**
 - Façade joists must be anchored through the insulation into the load-bearing structure
 - As first, it is necessary to drill through the entire insulation thickness into the wall (the drilling depth depends on the type of anchor and the type of masonry/construction).
 - Penetration of the anchor through the thermal insulation layer disrupts its overall thermal performance, which must be considered in advance. To minimize heat loss, it is recommended to use façade dowels with a thermal break.
 - For aesthetic reasons, it is advisable to paint the wall first with black or anthracite façade paint
- **Specification of anchoring for a wooden building**
 - Façade supports can be anchored to the wooden structure of the perimeter walls.
 - For example, a static calculation was made on the model width of the outer battens of 625 mm (axially). The location of façade supports, and the frequency of anchors are elaborated in Table 2 for this model case. For other batten spacing, a new calculation must be created.
 - Part of the wall behind the façade supports should be covered with black diffusion foil with UV stabilization. This is both for aesthetic reasons of the wall cladding and to protect the layers behind the foil (protection of thermal insulation from water).



2. SELECTION AND INSTALLATION OF FAÇADE JOISTS

- We recommend using black joist AL-SMART 25, WPC 30 mm joist or 50 MINIBONE profile as under construction for installation of 90 STAR and 45 MINISTAR profiles on wall
- AL-SMART 25 joist is usable in both orientations, depending on selected fixing clip.
- Before anchoring large façade dowels (into the load-bearing wall), the façade joists must be pre-drilled according to the selected dowel type.
- Joist anchoring should be carried out according to the project's structural calculations. For reference, a basic structural model has been created using FISCHER UX10 dowels with M8 screws into masonry and HBS 5x70 mm screws into wood (Table 1).
- For the 45 MINISTAR façade profile the joist is anchored at a spacing of 600 mm.
- For the 90 STAR façade profile the joist is anchored at a spacing of 750 mm.
- The maximum length of the free end of the aluminium joist is 250 mm.
- The maximum length of the free end of the WPC carrier is 100 mm. (max. 300 mm at the bottom row)
- In the edge area of the walls at the corners, it is necessary to reduce the spacing A to 1/2 in a strip of about 1.0 - 1.5 m from the corner of the building.
- The first dowel must be placed at a maximum distance of 250 mm from the end of the profile.
- It is necessary to verify the height of the plinth waterproofing. It is not possible to anchor through the waterproofing. In some cases, it is necessary to move the first line of the façade joist up to a height of 300 mm from the ground.
- It is also possible to install a UV stable insect screen on the joist (eyelet size: 1.2 mm x 1.4 mm)



Fixing of facade joist for profiles 90 STAR, 45 MINISTAR - vertical view on the wall

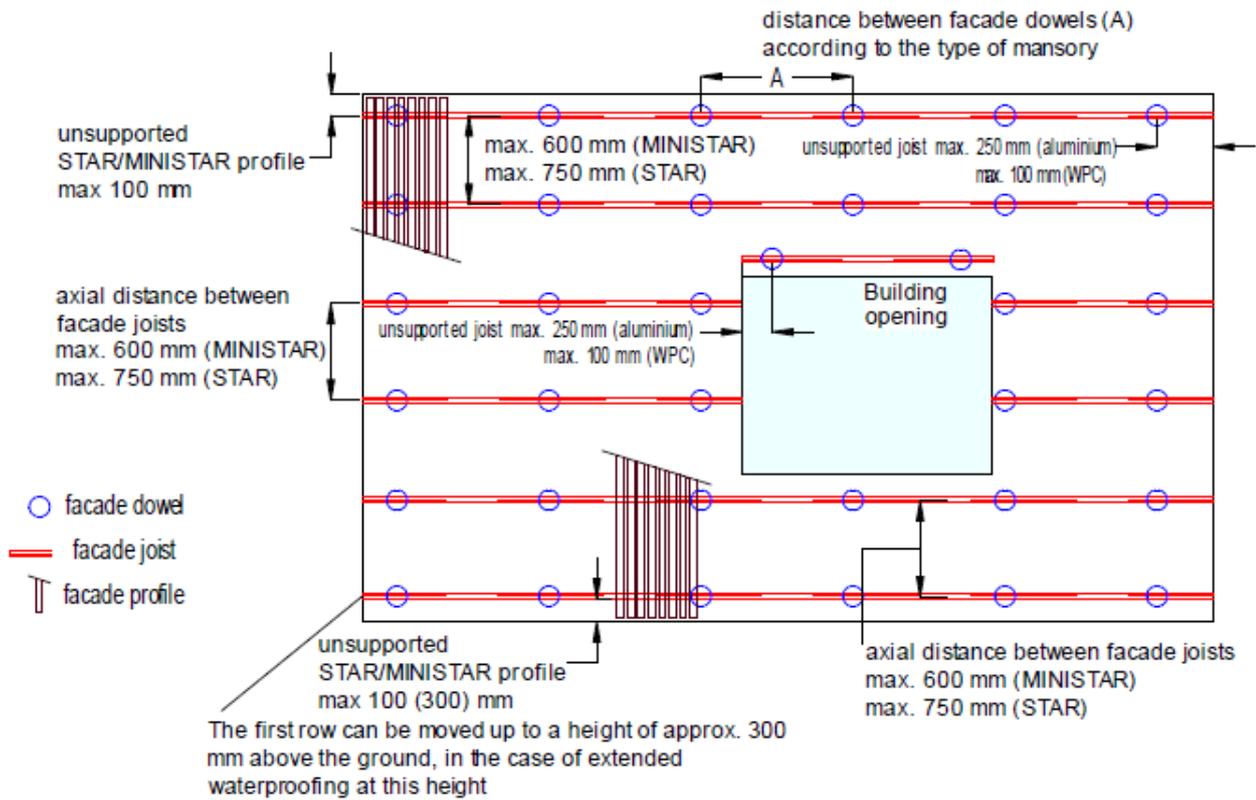
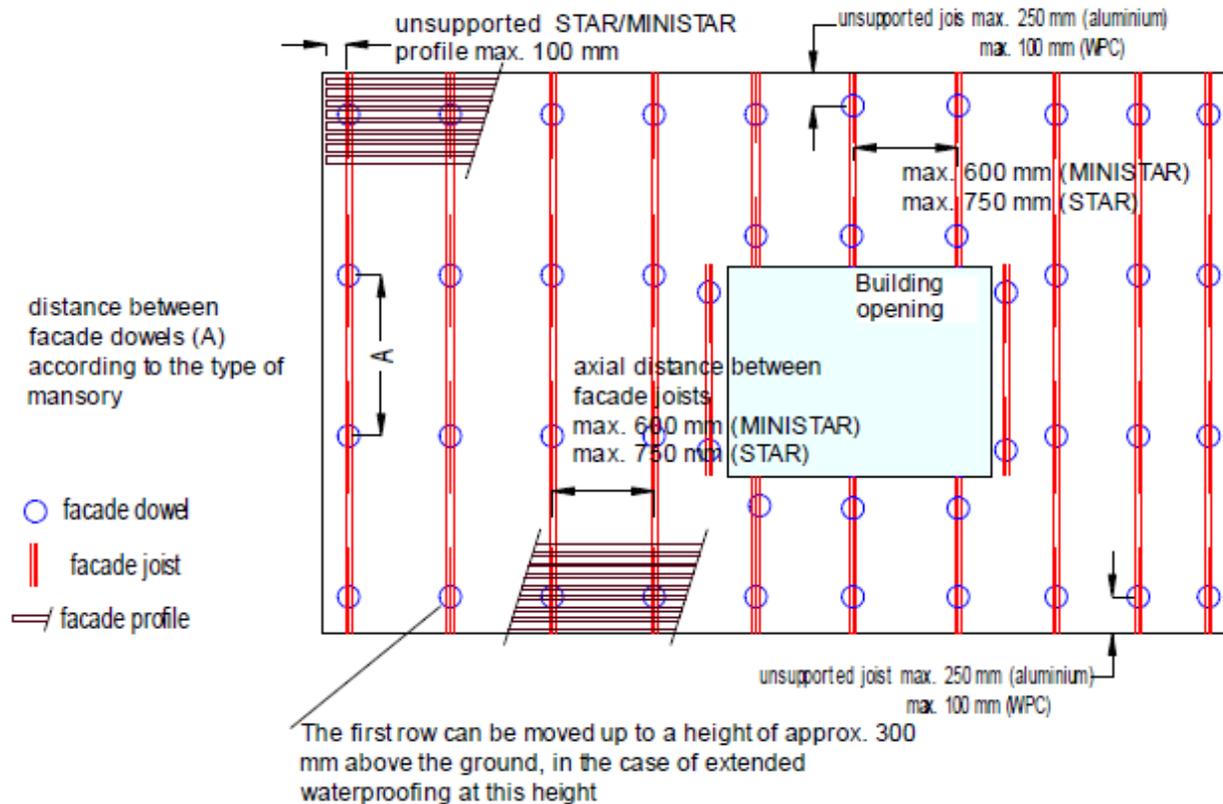


Table 1 Distances between façade dowels (A) by wall type

| | Category 1 | Category 2 | Category 3 | Category 4 |
|------------------------------|---|---|--|---|
| | Concrete | Full burnt bricks | Ceramic blocks, aerated concrete | Wooden buildings |
| |  |  |  |  |
| Spacing 600 mm (45 MINISTAR) | A = 90 cm aluminium (30 cm WPC) | A = 45 cm aluminium (30 cm WPC) | A = 35 cm aluminium (30 cm WPC) | A = 50 cm aluminium |
| Spacing 750 mm (90 STAR) | A = 70 cm aluminium (30 cm WPC) | A = 35 cm aluminium (30 cm WPC) | A = 25 cm aluminium (25 cm WPC) | A = 40 cm aluminium |

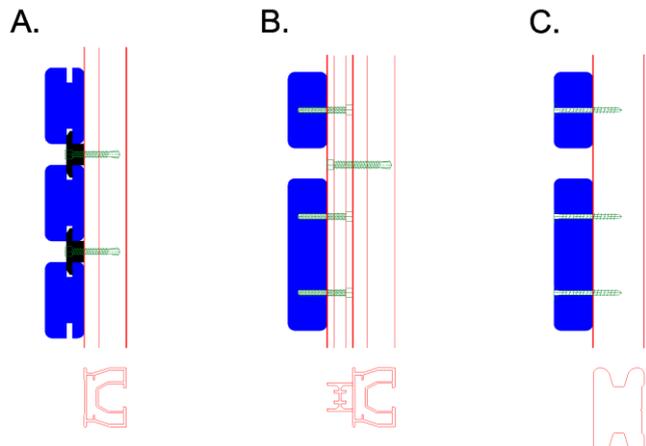
- The stated distances apply to FISCHER UX10 dowels with M8 masonry screw and HBS 5x70 mm wood screws.

Fixing of the facade joist for profiles 90 STAR, 45 MINISTAR - horizontal view on the wall



3. CHOICE OF ASSEMBLY METHODS FOR 90 STAR, 45 MINISTAR PROFILES

- The façade profiles 90 STAR and 45 MINISTAR are available in two variations – with a groove and without a groove for clip.
- Both façade profiles can be combined with each other (e.g., 3x MINISTAR + 1x STAR). However, it is necessary to use an assembly of the same type – either grooved or solid profiles.
- Installation can be done in 3 ways:
 - A. from the side onto clips
 - B. from the back via the Fasado joist
 - C. from the front with a screw through



4.A Assembly with clips

- Mounting on clips is only used for vertical orientation of façade profiles. In horizontal orientation, there is a risk of water accumulation in the upper groove of the clip, which would increase the risk of swelling.
- Tables 2 and 3 list the possible combination of accessory.

Supporting with a helper support board

- A helper board (beam) is placed on the ground to set a constant height for the façade profiles from the ground.
- The gap from the ground should be a minimum of 15 mm to prevent the formation of water spots.

Fixing of the START clips

- The type of Start clips will depend on the system used (see Tables 3 and 4)
- AL-SMART system clips do not require pre-drilling of joist.
- Other clips require pre-drilling of joists.
 - Aluminium joist should be pre-drilled with a drill bit of 2.5 mm in diameter.
 - WPC joist must be pre-drilled with a drill bit of 2 mm in diameter.

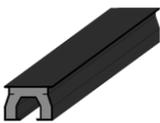
Sequential insertion of façade profiles and standard clips

- The selected clip will define the distance between the façade profiles.
- The pre-drilling of the joist will be similar for the Start clips (see the previous paragraph).

Additional profile securing against sliding

- For perfect stability of the façade system, each profile must be firmly screwed to the substrate at the bottom or top part of the profile.
- Alternatively, a “hidden screw” can be used from the side of the board.

Table 2 Extended combinations of facade profile, joist and clips for a 6 mm gap

| Gap | 6 mm (vertical installation) | | | |
|-----------------|--|--|--|--|
| Facade profiles |  | | | |
| Description | Basic variant for WPC joist | Basic variant for aluminium joist | Variant for faster installation on an aluminium joist | Version for fastest installation on an aluminium joist |
| START clip |  Clip Start A2 black | |  AL-SMART Start clip 7 mm | |
| Screw type |  Stainless steel screw A4 3,5 x 25 mm |  Stainless steel screw A2 TEX 3,9 x 16 mm | No screw | |
| Standard Clip |  Clip Standard A2 |  Standard facade clip 6 mm |  AL-SMART Standard clip |  AL-SMART rotating Clip A |
| Screw type |  Stainless steel screw A4 3,5 x 25 mm |  FASADO screw 4,2 x 28 mm TEX black | No screw | |
| Facade joist |  WPC joist 30 (or AL-SMART 25 Black groove down) |  AL-SMART 25 Black - Groove down |  AL-SMART 25 Black - Groove up | |
| | Sliding protection when mounted vertically – anchor each profile with 1x FASADO screw 4,8 x 47 mm TEX Black | | | |

ASSEMBLY INSTRUCTIONS

Façade profiles
90 STAR, 45 MINISTAR



Table 3 Extended combination of façade profile, joist and clip for a 13 mm gap

| Gap | 13 mm (vertical installation) | | |
|-----------------|--|---|---|
| Facade profiles | | | |
| Description | Basic variant on WPC joist | Basic variant on aluminium joist | Version for fastest installation on aluminium joist |
| START clip | <p>Clip Start A2 black</p> | | <p>AL-SMART Start clip 7 mm</p> |
| Screw type | <p>Stainless steel screw A4 3,5 × 25 mm</p> | <p>Stainless steel screw A2 TEX 3,9 × 16 mm</p> | No screw |
| Standard Clip | <p>Façade Standard clip 13 mm</p> | | <p>AL-SMART rotating clip B</p> |
| Screw type | <p>Stainless steel screw A4 3,5 × 25 mm</p> | <p>FASADO screw 4,2 × 28 mm TEX black</p> | No screw |
| Facade joist | <p>WPC 30 joist</p> | <p>AL-SMART 25 Black – Groove down</p> | <p>AL-SMART 25 Black – Groove up</p> |
| | Sliding protection when mounted vertically – anchor each profile with 1x screw FASADO screw 4,8 × 47 mm TEX Black | | |

4.B HIDDEN ASSEMBLY ON FASADO JOIST

The advantage of this solution is the use of façade profiles in both vertical and horizontal positions, the possibility of an arbitrarily large gap and at the same time with concealed installation without visible screw heads.

Preparing of the segment on the Fasado joist

- First, a sufficiently large underlay (larger than the length of the façade profiles) is prepared, on which the façade profiles will be pre-drilled. This is to prevent scratching of the profiles.
- On this underlay (e.g. made of cardboard boards), the façade profiles are placed at the required spacing. In the case of a gap size of 17 mm, the Fasado carrier can be used as a practical demarcation aid (it also has a width of 17 mm).
- With a gap of 17 mm, 6 MINISTAR profiles fit on the Fasado, with a gap of 30 mm, 5 MINISTAR profiles fit on the Fasado joist.
- The profiles must be pre-drilled with a 3 mm wide drill to a depth of 17 mm. With a greater pre-drilling depth, there is a risk of puncture through the profile. If the pre-drilling depth is lower, there is a risk of bulging of the profile surface after screwing in the screw.
- If pre-drilling is to be done through the Fasado joist, drilling is done to a depth of 27 mm.

Screwing of the STAR/MINISTAR profiles on the Fasado joist and assembling a segment

- 1 screw is anchored to the 45 MINISTAR profile, or 2 screws to the 90 STAR profile (according to Table 4)
- Fasado joist will be placed at the following maximum spacing.
 - 90 STAR ... 750 mm
 - 45 MINISTAR... 600 mm

Table 4 Details of anchoring on the Fasado joist

| Gap | 17 mm – 30 mm (Horizontally and vertically) | |
|-----------------------------------|--|--|
| Facade profiles | | |
| Screws | Stainless steel screw A4 3,5 x 25 mm | FASADO screw 4,2 x 28 mm TEX |
| Auxiliary joist | FASADO – façade joist 17 x 15 x 360 mm | |
| Screws for anchoring Fasado joist | Stainless steel screw A4 3,5 x 35 mm | FASADO screw 4,8 x 34 mm TEX Black |
| Facade joist | WPC joist 30 | AL-SMART 25 Black |

Fixing of the segment on the façade joist

- It is anchored to aluminium or WPC joist with 2 screws (see Table 4) per Fasado joist.

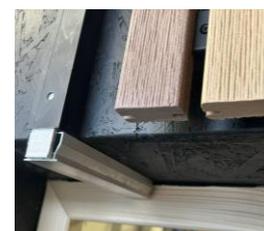
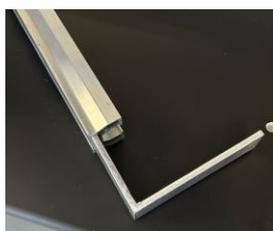
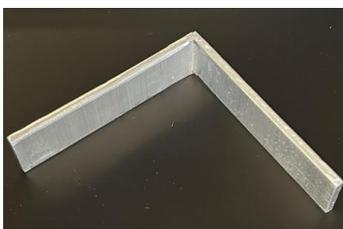


4.C DIRECT ASSEMBLY BY SCREW

- The biggest advantage of this method of installation is its speed and low price per m².
- The recommended 4.0 x 40 mm screws have a very small head (6 mm) that nests completely into the façade profile, so the visual impression of the façade is still excellent.
- The screws are available in black and silver. For dark facade, the use of black screws is recommended, for lighter shades silver.
- The screws can be used on WPC or aluminium joist.
- Both of façade profiles and supports must be pre-drilled with a drill \varnothing 3 mm.

5. POSSIBILITIES OF THE ALUMINIUM JOIST CONNECTION

- The AL-SMART 25 joist are connected longitudinally using the AL-SMART JOIST COUPLING 25. To ensure stability and prevent movement in the wind, it is necessary to mechanically attach the connector to the carrier from one side.
- For perpendicular connection of the joists, it is recommended to use an L-profile created by cutting an AL-profile of 100x100x4 mm to a width of 25 mm.
- For details around the window, it is possible to connect a perpendicular L-profile carrier and install façade profiles on it, or it is possible to mount the façade profiles directly on the L-profile (see the following photos)



6. PROFILE INSTALATION DETAILS FOR 90 STAR, 45 MINISTAR

- For longitudinal connections of façade profiles, a gap of at least 5 mm must be created.
- Facade profiles must be installed at least 15 mm above the ground.

