



OPERATOR MANUAL
SCREWS FOR FIXING ROOF TILES TO WOODEN SUBSTRATE
M2 TYPE WITH WASHER
No. OM_M2_V14

Installation carried out in an appropriate way, using professional tools is extremely important for proper and safe use of building fasteners. Always follow all instructions listed in this operator manual.

General rules:

- The operator manual, apply only to original products of Baltic Fasteners Sp. z o.o. bearing the Manufacturer's logo, which allows for their identification;
- The use of screws shall be confirmed by a fixing plan made on the basis of complete building data;
- When carrying out the fixing plan, observe the mounting parameters and take into account the loads of the connections given in valid approval or technical evaluation issued for the product;
- When carrying out the fixing plan, comply with applicable laws and standards;
- The steel roof tiles Manufacturer's recommendations must be taken into account;
- The number and type of screws must be in line with the information given in the fixing plan;
- Only tools that are equipped with clutch adjustment should be use;
- Modification of **M2** screws with washer **V14** is not permitted;
- Products may only be used for their intended purpose.

Product selection rules:

- **M2** screws with **V14** washer are designed for fixing steel roof tiles to wooden substrate;
- **M2** screws are covered by class **A1** reaction to fire and can be used in this class;
- The corrosion protection of the screws should be suitably selected for the corrosive environment in which they will be used. **M2** screws are protected against corrosion by **12µm** zinc coating, which allows them to be used in corrosive environments **C2**. Washers **V14** delivered with screws are made of steel, **12µm** zinc coated, which allows them to be used in corrosive environments **C2**;
- The length of the screws should be appropriately selected depending on the thickness of all fixed elements:
 - thickness of the steel roof tiles;
 - thickness of **PES** sealing tapes, if used;
 - thickness of other components, if used.In addition, the thickness of the steel substrate should be taken into consideration when choosing the length of the screws. The following min. anchoring depth is allowed **h_{ef} = 20mm**;
- Screws can be used for steel roof tiles of grade not worse than **S280GD**;
- Screws can be used for steel roof tiles with a minimum thickness of **0,50mm**;

- Maximum steel drilling capacity for screws **2x1,00mm**. Maximum tool speed **2200rpm**;
- Screws can be used in wooden structures of minimum class **C24**;
- In order to select the appropriate length of the screws, the thickness of all fixed elements must be summed. Then check in the Baltic Fasteners product catalog exact length of the **M2** screws with washer **V14** that is suitable for fixing the obtained thickness. The sum of the thicknesses of all the elements including must be within the range $h_{min} - h_{max}$ given in the catalog. Product catalog is available on the website www.balticfasteners.com;

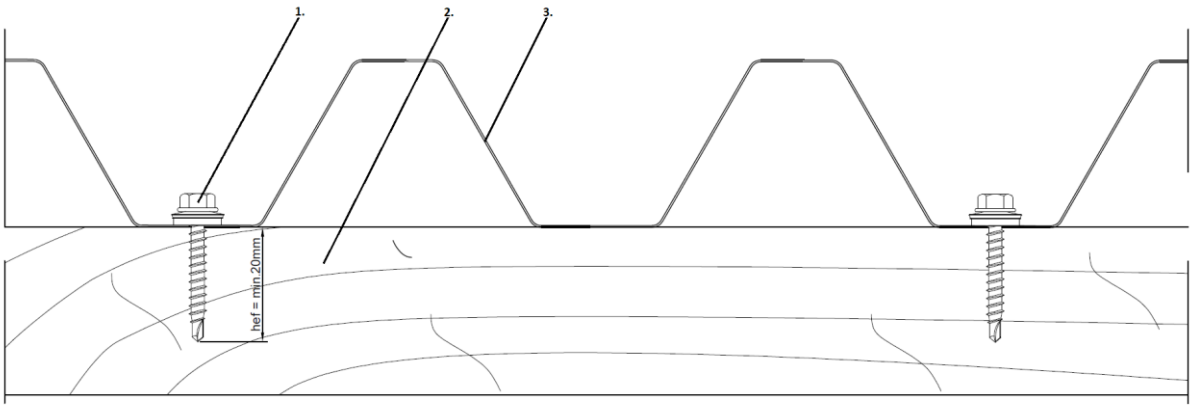
Installation process:

- Roof tile should be placed at the installation site following the instructions provided by the Manufacturer;
- Roof tile should be screwed to the substrate with the selected screws in accordance with the fixing plan. It is recommended to fix the roof tile in every second lower wave. Further rows of fixings should be carried in every second lath (only applies to sheeting). This assembly allows for the proper operation of the roof subject to temperature changes.
 - a) Screws must always be mounted perpendicular to the substrate.
 - b) The EPDM should be properly tightened as shown on the picture below. Recommended tightening torque **4Nm**.



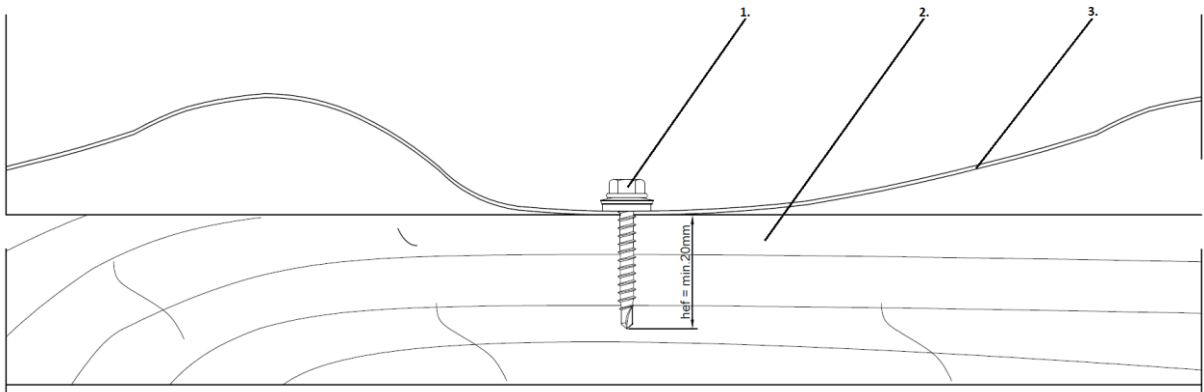
- c) Fixing parameters specified for the screw **M2** need to be retained.
 - d) Use dedicated nut-setters for a given screw line. For fixing screws coated with paint use spring nut-setters.
 - e) The steel sheet should be fixed to each lath with the same number of screws to balance the system;
- In case of damage to the corrosion or paint coating on the screws, the defects must be further secured;
 - Overlapped waves of the steel sheet should be connected longitudinally by using overlapping screws with washer, for example **M2 4,8x20**. The distance between screws should be **max. 250mm**;
 - Once you have fixed the steel roof tile, proceed to assemble the next one by following the procedure given above.

Pictures 1-2 illustrates the fixing of the roof tiles of various shapes with **M2** screws to the wooden substrate.



- 1. Screw for roof tiles
- 2. Wood
- 3. Roof tile

Picture 1. Assembling of trapezoidal roof tile using M2 screws with washer V14 to wooden substrate.



- 1. Screw for roof tiles
- 2. Wood
- 3. Roof tile

Picture 2. Assembling of sinusoidal roof tile using M2 screws with washer V14 to wooden substrate.

Basic dimensions of screws M2 with washer V14 type:

