



**OPERATOR MANUAL**  
**SCREWS FOR FIXING STEEL SHEETS TO STEEL SUBSTRATE**  
**M12 TYPE WITHOUT WASHER**  
**No. OM\_M12**

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.

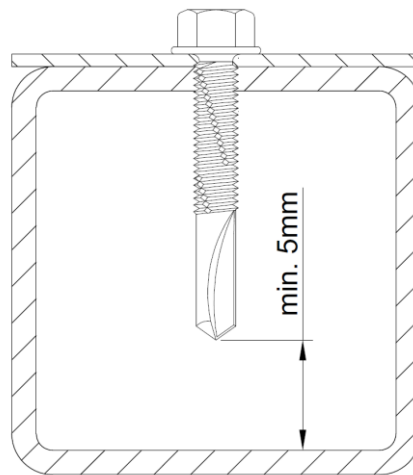
**General rules:**

- 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 sheet 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 **M12** screws is not permitted. Cutting of screws that extend beyond the structure is forbidden due to the risk of losing their load capacity;
- Products may only be used for their intended purpose.

**Product selection rules:**

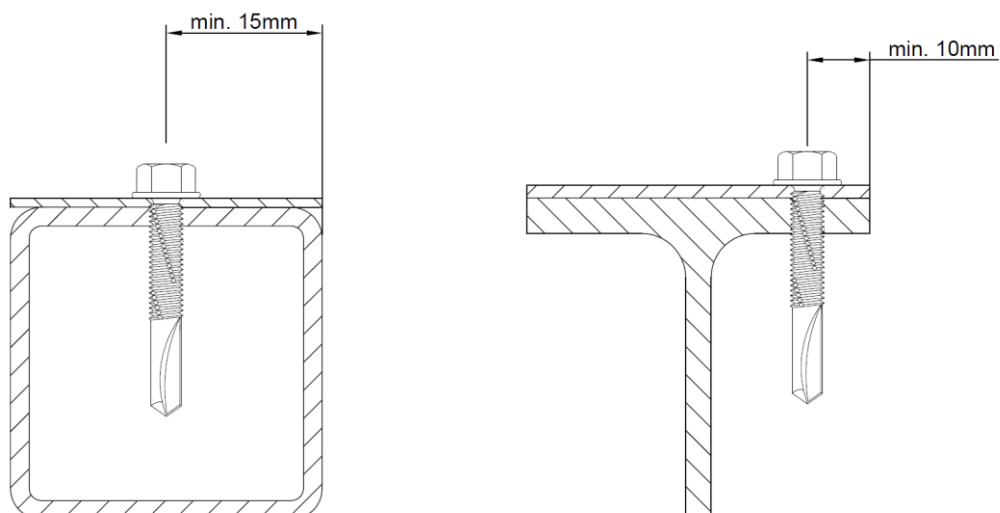
- **M12** without washer are designed for fixing steel sheets to steel substrates where the tightness of joints is not required;
- **M12** without washer are designed for fixing structural steel sheets;
- **M12** screws are covered by class **A1** reaction to fire and can be used in this class;
- The corrosion protection of the screws should be suitably selected for the corrosive environment in which they will be used. **M12** screws are protected against corrosion by **12µm** zinc coating, 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 sheet;
  - thickness of **PES** sealing tapes, if used (tape thickness should not be greater than 3mm);
  - 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;
- Screws can be used on steel substrates of grade not worse than **S280GD**;

- Screws can be used for steel substrates with a minimum thickness of **4mm**;
- Maximum steel drilling capacity for screws **12mm**. Maximum tool speed **1800rpm**;
- In order to select the appropriate length of the screws, the thickness of all fixed elements must be summed. Then add to that sum the thickness of the steel substrate and check in the Baltic Fasteners product catalog exact length of the **M12** screws that is suitable for fixing the obtained thickness. The sum of the thicknesses of all the elements including substrate must be within the range  $h_{min} - h_{max}$  given in the catalog;  
Product catalog is available on the website [www.balticfasteners.com](http://www.balticfasteners.com);
- When fixing steel sheets to closed steel profiles(pipes), keep in mind that the length of the screws must be adjusted to the internal dimension of the profile so that chosen screw can be easily tightened. The distance between the end of the screw and the opposite side of the profile must be at least **5mm** as shown on the picture below.

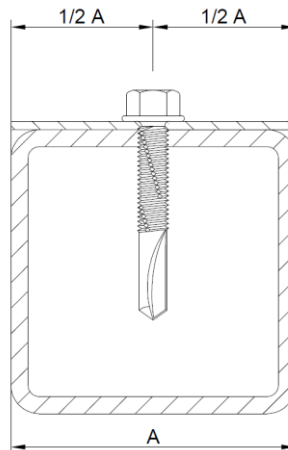


**Installation process:**

- Place the steel sheet, following instruction provided by the Manufacturer. Use of **PES** insulating tapes at the contact surface between panel / support is recommended;
- For structural sheets, it is recommended to install screws in the lower sheet wave;
- The steel sheet should be screwed to the substrate with the selected screws in accordance with the fixing plan.
  - a) Screws must always be mounted perpendicular to the substrate.
  - b) Recommended tightening torque **5Nm**.
  - c) The distance from the fixing point to the edge of the steel profile (with a thickness less than **5mm**) must be minimum **15mm**. The distance from the fixing point to the edge of the steel profile (with a thickness of more than **5mm**) must be minimum **10mm**.

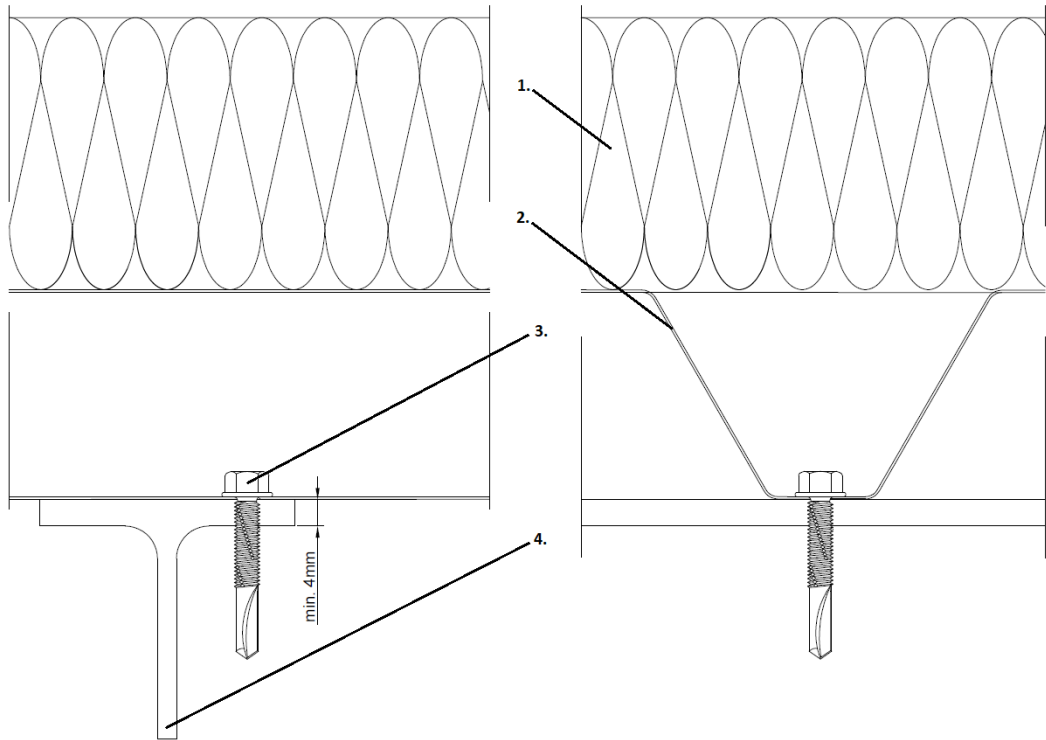


- d) For closed profiles and **Z-section** and **C-section** steel profiles, it is recommended to mount in the center of the shelf as shown in the figure below.



- e) With properly selected screws, at least the whole drilling point and two full threads must be protruded outside of the structure (visual inspection is not possible when fixing to closed profiles).
- f) Fixing parameters specified for the screw **M12** need to be retained.
- g) Use dedicated nut-setters for a given screw line. For fixing screws coated with paint use spring nut-setters.
- h) The steel sheet should be fixed to each support 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, for example **M0 4,8x20**. The distance between screws should be **max. 250mm**;
  - Once you have fixed the steel sheet, proceed to assemble the next one by following the procedure given above.

**Picture 1** illustrate the fixing of **M12** screws to steel substrate.



1. Thermal insulation
2. Structural steel sheet
3. Screw for steel sheets
4. Steel profile

Picture 1. Assembling of the M12 with structural steel sheet on steel substrate.

**Basic dimensions of screws M12 without washer type:**

