

CONNECTING TO ENERGY[®]



TEGRA

Mounting instructions roof hooks cast aluminium

Front attachment for tiled roofs

- ✗ Direct mounting to roof structure
- ✗ No pressure on roof tiles
- ✗ Corrosion-resistant materials
- ✗ System statics according to DIN 1055
- ✗ For all commercially available tiles
- ✗ Quick and easy to mount

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MOUNTING ROOF HOOKS



Attachment to roof structure:

The statics of the wooden roof structure must be checked by the owner with respect to the additional loads (e.g. photovoltaic modules or solar thermal panels). The wood must be in excellent condition and have a sufficient cross section to accommodate the required screws and safely withstand the loads. The edge distance must be at least four times the diameter of the screw. Widen rafters if necessary.



Attachment:

Roof tiles must be removed.

Each roof hook must be attached with at least 2 screws, one of which must be screwed into the top row of holes and one in the bottom row of holes. Regarding the positioning of the screws on the rafters, the aforementioned specifications apply. If standard tools (cordless drill with suitable bit) are used properly, there is no danger of overtightening the screws.

Warning: impact wrenches can generate very high torques and destroy the screws. The damage is not necessarily visible from outside. Impact wrenches are not suitable for the mounting. The number and positions of the roof hooks can be obtained from the roof layout.

SUITABLE SCREWS:

MAGE's roof hook set includes two wood screws DIN 571 A2, nominal dimension 8 x 100, or other suitable screws. These are screwed into the rafters without pre-drilling. The edge distance should be four times the diameter of the screw. Widen rafters if necessary.

ACCOMMODATION IN ROOF TILE



The dimensions of the roof hooks have been chosen so as to ensure that they can be accommodated by standard roof tiles. The hook lies in the wave trough of the covering roof tile. At the top edge of the covering tile there must be a gap between 1 – 2 mm between the tile and the hook.

At the bottom end of the hook the gap to the tile must be at least 5 mm to ensure that the hook does not press against the tile and possibly break it when subjected to the maximum load (danger of water leaking into the roof structure).



Often the bottom seam of the roof tile must be machined to ensure that the covering tile is properly sealed around the hook! Sometimes the same is necessary for the top edge to ensure that the roof hook can be mounted properly. In this case the owner is responsible to ensure that the leakproofness of the roof is not affected by the mounting of the roof hooks.

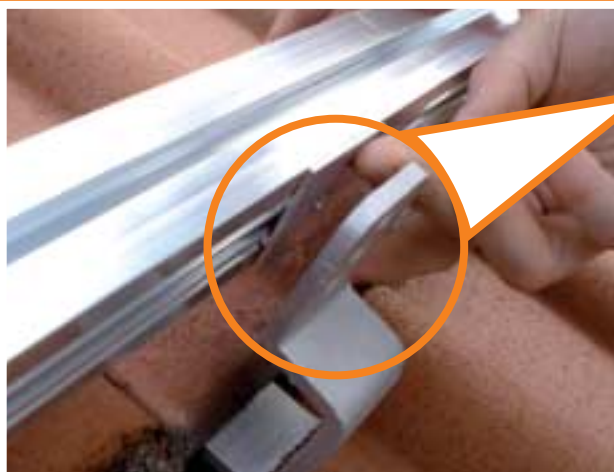


If the roof hook is not high enough to ensure the aforementioned distances to the roof tile, the base plate of the roof hook must be bolstered with an appropriate material. Hardwood slabs, washers or similar can be used. To ensure the required thread engagement, longer screws may have to be used.

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MOUNTING OF MOUNTING RAILS MEDIUM OR LARGE



Insert clamp plate.



Joining of roof hook to mounting rail with M8 x 20 cylinder head Allen screw, DIN 912 A2

The mounting rail must be mounted in such a way that it faces the roof ridge. The purpose of the clamp plate is to ensure that the screw channel of the mounting rail does not widen when screwed together with the roof hook.



CAUTION:

Please note that the mounting rail large 60 x 40 has a top and bottom side!

MOUNTING OF MOUNTING RAILS MEDIUM AND LARGE



After every **6 meters of mounting rail**, a **fixed rail bond** must be mounted. Attachment to mounting rail with 4 cylinder head Allen screws M8 x 20, DIN 912 A2 per rail bond.



After every **12 meters of mounting rail**, a **flexible rail bond** must be mounted. No module must be mounted over a flexible rail bond. The flexible rail bond requires no screw connection and is pressed into the mounting rails to be connected. The positions of the fixed and flexible rail bonds can be obtained from the roof layout.

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MOUNTING OF SLOT NUTS



Hold slot nut in a slight angle and press into the slot of the mounting rail. The slot nut can be slid into position.





The photovoltaic modules are mounted to the mounting rails with edge and middle brackets. To do this, the edge and middle brackets must be screwed together with the previously inserted slot nuts.

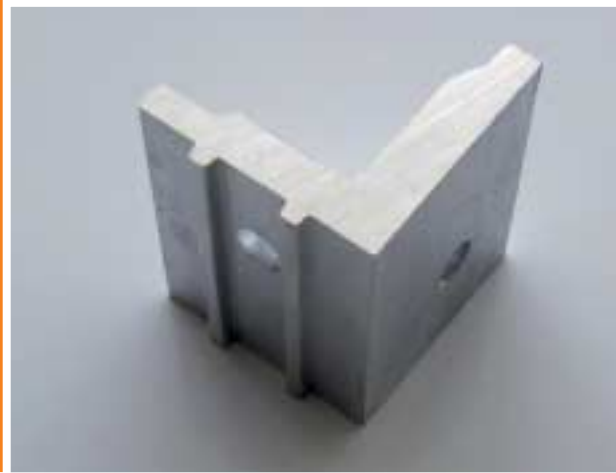
There is a middle bracket for each module. The design of the edge bracket depends on the height of the module frame. The length of the M8 cylinder head Allen screw, DIN 912 A2 varies according to the frame height.



Screw	Height of the module frame
Cylinder head Allen screw, DIN 912 A2 M8 x 35	For edge bracket with frame height 35 mm
Cylinder head Allen screw, DIN 912 A2 M8 x 40	For edge bracket with frame height 40 mm
Cylinder head Allen screw, DIN 912 A2 M8 x 45	For edge bracket with frame height 45 mm
Cylinder head Allen screw, DIN 912 A2 M8 x 50	For edge bracket with frame height 50 mm

The positions of the edge and middle brackets can be obtained from the roof layout.

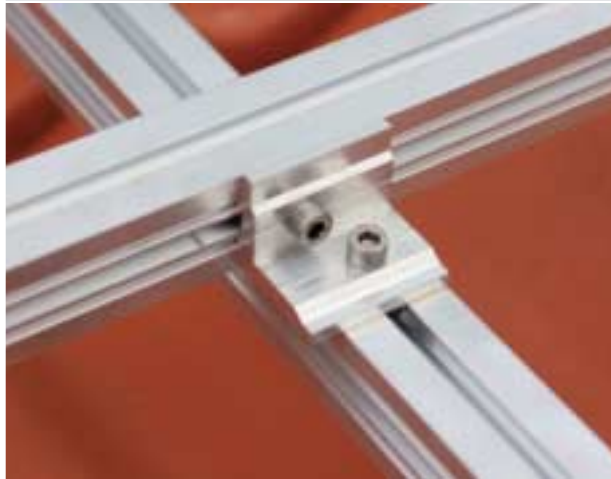
MOUNTING AS A CROSS CONNECTION



The type of mounting (single-layer system or cross connection) can be obtained from the roof layout.

In the case of cross connection mounting, the mounting rails are combined with the cross connector and cylinder head Allen screws DIN 912, A2, M8 x 20 into a cross connection.

The positions of the mounting rails and cross connectors can be obtained from the roof layout.



A cylinder head Allen screw, DIN 912, A2, M8 x 20 must be placed in the slot nut and another one in the screw channel. To do this, the ridges of the cross connector must be placed in the slots of the screw channel of the mounting rails.