



# ETATRACK *active* 1500

## Installation guide



Before starting installation, please read installation guide carefully!

### 1. Safety references

#### General

This installation instruction contains fundamental references, which are to be considered for mounting and start-up. It is to be read therefore absolutely before assembly and start-up from the mechanic as well as the responsible user, too. It should be at the installation site. This installation guide refers to the tracking system ETATRACK 1500 active. There is not only under this section of "safety references" the specified to consider general safety reference but also into other sections inserted, special safety reference.

#### Reference markings



Safety references marked with this symbol can cause endangerments of persons.

Attention

Safety references marked with this symbol can cause damages on machines or its function.

Advice

Advices and information to facilitate working and secure perfect operational sequences.

## Training and qualification of the personnel

The personnel for installation, use and maintenance must exhibit the appropriate qualification for the work. Area of responsibility, competence and monitoring of the personnel must be exactly regulated by the user.

## Safe working

All security references, present national instructions for accident prevention as well as internal instructions for working, use and safety are to be followed.

## Consequences

In case of ignoring the security references, endangerments of persons, environment and the tracking system as well as total loss of requirement on compensation can be the consequence .

For example:

- Failure of important functions of the plant
- Endangerments of persons caused by mechanical effects.

## Safety references for the user

Endangerments of electronic electricity are to be excluded. (see details for example in the regulation of Verband der Elektronik = VDE, Germany).

## Safety references for installation and maintenance

Before starting work at the tracking system make sure that the electricity supply has been switched off. Please follow the instructions to stop the drive in this guide.

## Inappropriate treatment

Working security of tracking systems is only guaranteed in case of normal application.

The limit values specified in the technical data are not to be exceeded!

## Before installation of the solar modules

Refer to instruction manual of solar modules and inverters for details about electrical and mechanical installation requirements.

## 2. Delivery and storage

### Delivery

Tracking systems ETATRACK active are supplied completely from the factory.

Due to high weight of each part of the construction care must be taken during unpacking and handling.



It is absolutely necessary to wear security gloves and shoes!

## 3. Delivery contents

### Mechanical parts:

|                        |          |   |      |
|------------------------|----------|---|------|
| -Mounting Pole         | (1 pc)   | Square tube 150x150x6, 2,75 m length      | (1a) |
| -Traverse              | (1 pc)   | Rectangular tube 150x100x6, 4,20 m length | (1b) |
| -Cross Beam            | (1 pc)   | Rectangular tube 150x100x6, 0,90 m length | (2)  |
| -Pole connector        | (4 pcs)  | Steel angle 63x63x8, 280 mm length        | (3)  |
| -Cross Beam con.       | (2 pcs)  | Steel angle 63x63x8, 330 mm length        | (3a) |
| -Hinge fixation        | (5 pcs)  | Steel angle 63x63x8, 213 mm length        | (4)  |
| -Hinge lower part      | (6 pcs)  | Welded steel 200x70x120 mm                | (5)  |
| -Hinge upper part      | (6 pcs)  | Welded steel 150x50x30 mm                 | (6)  |
| -Centre Rail           | (6 pcs)  | Square tube 50x50x4, 3,40 m length        | (7)  |
| -Connecting tube       | (2 pcs)  | Square tube 40x40x4, 4,20 m length        | (8)  |
| -Connection clamp      | (11 pcs) | Steel angle 40x40x5, 70 mm length         | (9)  |
| -Upper motor fixation  | (1 pc)   | Steel angle 50x50x5, 70 mm length         | (10) |
| -Lower motor fixation  | (1 pc)   | Steel angle 276x276, 63x63 mm             | (11) |
| -Module fixation clamp | (48 pcs) | Stainless steel 50x50x1,5 mm              | (12) |
| -Standard parts        | (1 set)  | Bolts, washers, nut                       |      |
| -Linear motor          | (1 pc)   |   | (13) |
| -Controller fixation   | (2 pcs)  |   | (14) |
| -Grounding cable       | (1 pc)   | 16x320 mm                                 |      |

### Controller

|                                   |  |  |      |
|-----------------------------------|--|--|------|
| - Electronic box incl. Controller |  |  | (15) |
|-----------------------------------|--|--|------|

## 4. Assembly preparation

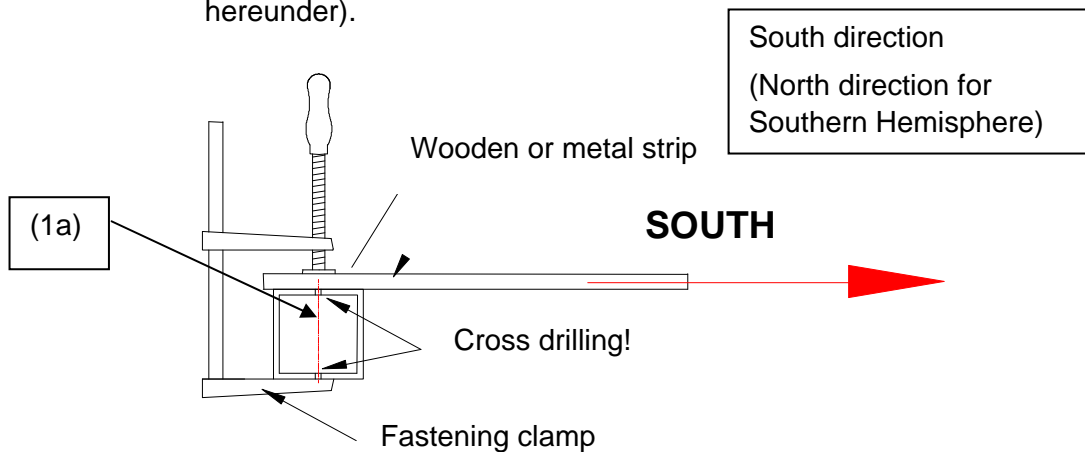
### Foundation

Before mounting the tracking system a suitable foundation is necessary. A surface foundation for the tracking system has to be constructed to assure the correct operation for the indicated maximum of module surfaces (see fig. 4.1)

**Advice**

While setting mounting pole into foundation (1) take care of the exact adjustment of cross holes into EAST – WEST direction!

To get the right adjustment use some helping material (see figure hereunder).



During drying-procedure of foundation please use wooden boards to support mounting pole. In case of installation on flat roofs, stability can be effected with clamping belts.

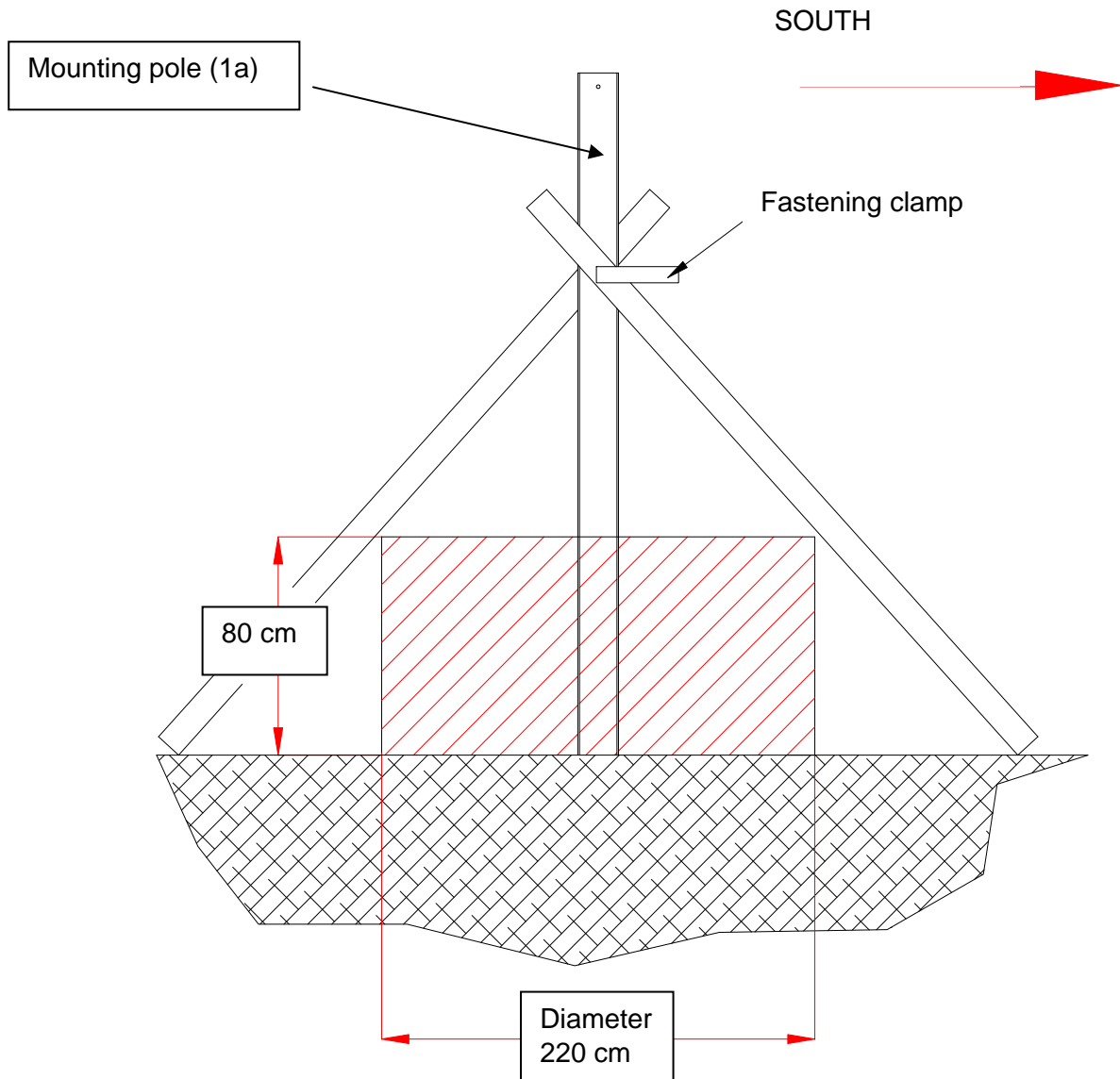


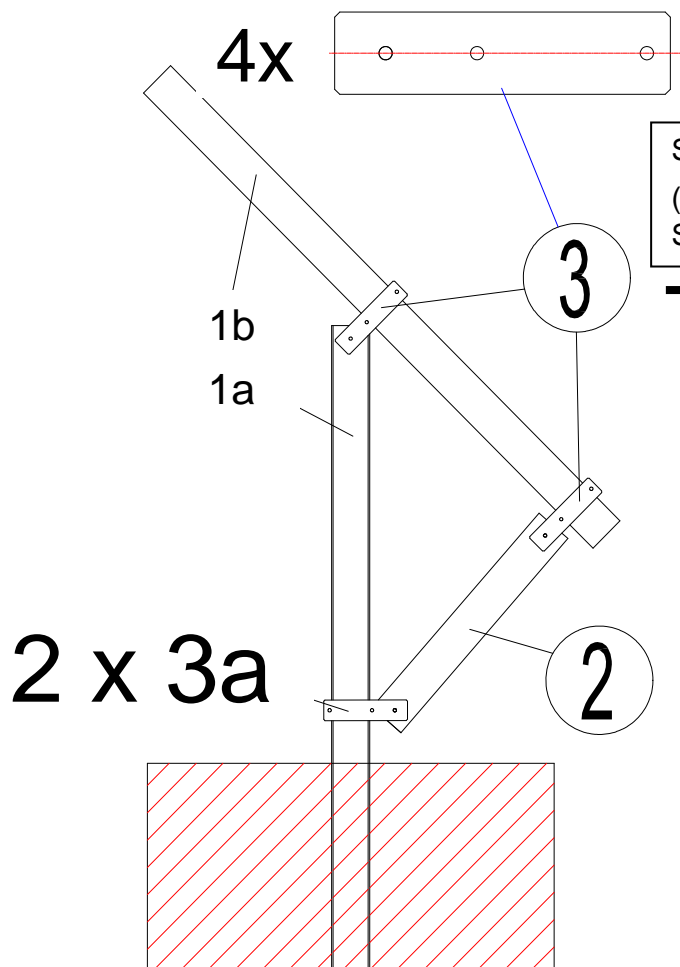
fig. 4.1 Dimensions of surface foundation



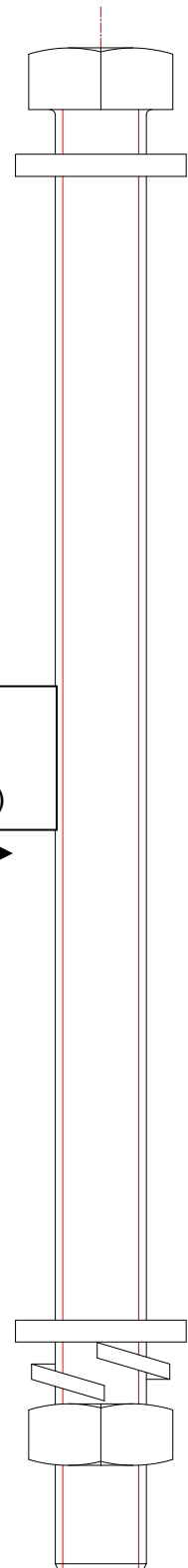
## 5. Mounting

### 5.1 Required tools:

- 2x ring or open ended flat spanner 24 mm
- 2x ring or open ended flat spanner 10 / 13 mm
- 2x ring or open ended flat spanner 14 / 15 mm
- Level
- Rubber or plastic hammer
- Fastening clamp
- Torque wrench (refer to page 15 for nominal torques)



South direction  
(North direction for  
Southern Hemisphere)

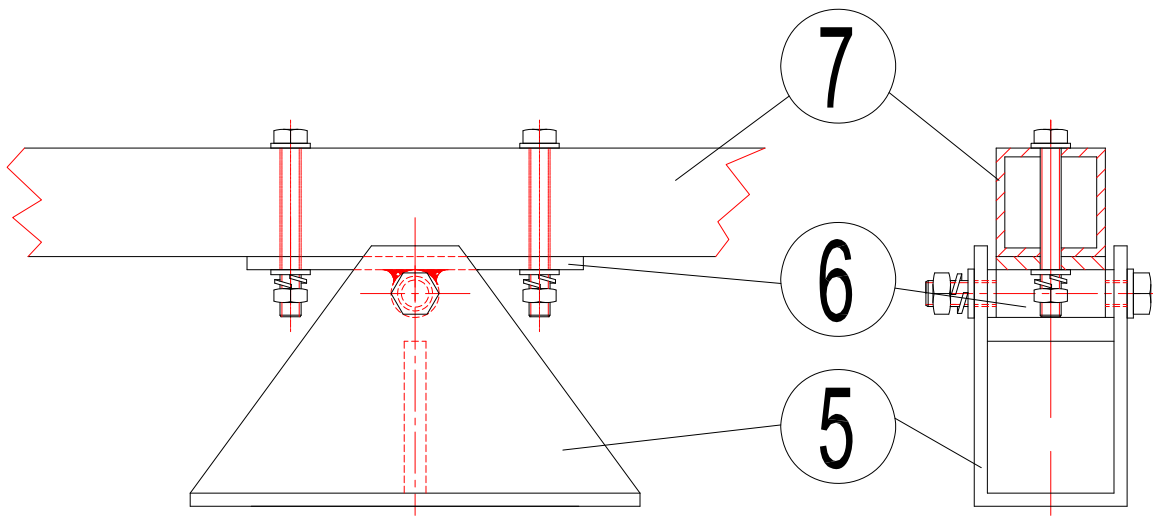


9x

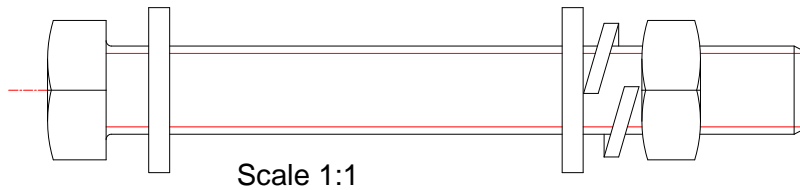
M16 x 190 mm

### 5.2. Hardened foundation

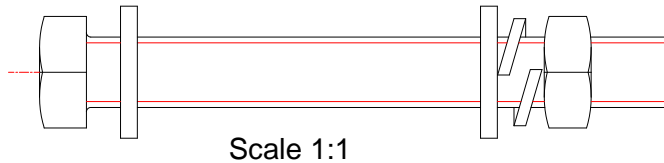
## 5.3 Preparing the rails and hinges



1 pc M12 x 95 mm



2 pcs M10 x 80 mm



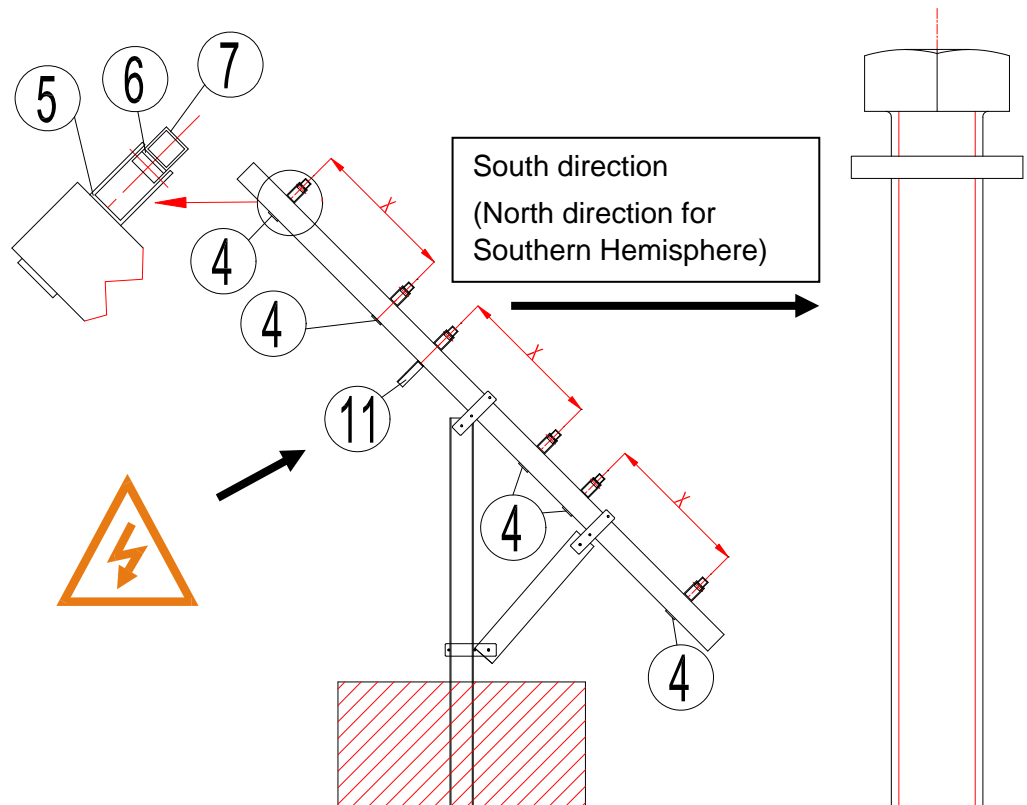
The grounding cable will be installed on the upper traverse (17)

The tracking systems have to be grounded under the terms of the local standards





## 5.4 Fixation of rails on the beam



**Advice**

Keep attention of lower mounting plate for drive (11)!

Attachment of **third** upper hinge deviates from the other five hinges! (See fig. 5.4)

Before tightening the screws align module fixation in parallel line

Dimension „X“: depends on position of fixation holes in the PV modules.

$X = \text{Distance between holes} - 71.4 \text{ mm}$

12pcs  
M12 x 140 mm



Fig. 5.4 Arrangement of lower motor fixation

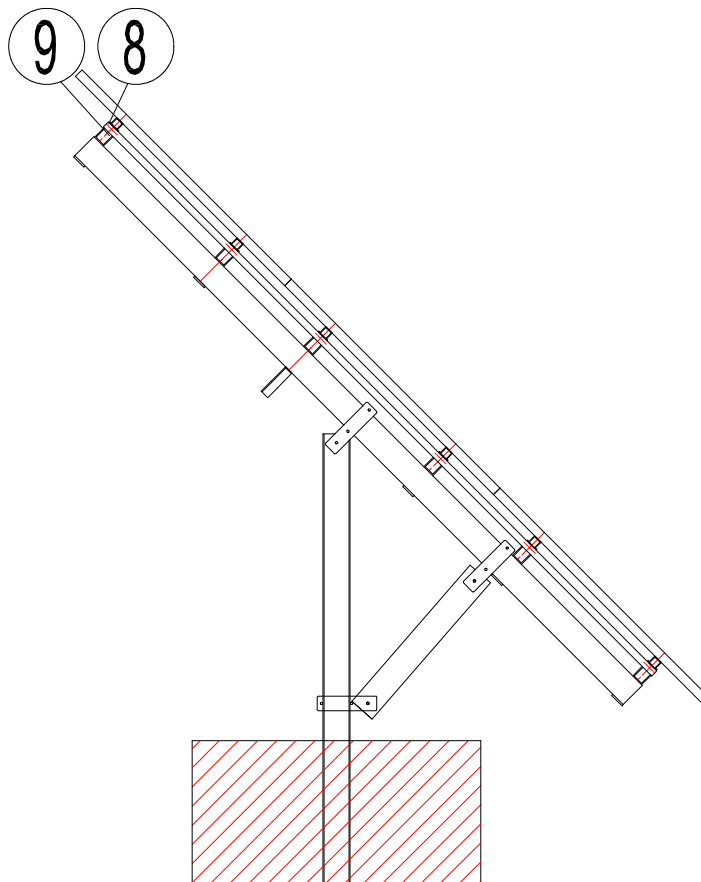
## 5.5. Mounting of solar modules

Each solar module is to be fastened with 4 pcs fixation clamps(12) at the Centre rails (7). Please start with the following steps:

- Attach the fixation clamps on the module fixations
- Put in the screws M8 x 110 mm from the top into the drillings given at the centre rails
- Connect the centre rails with connecting tubes (8), connection clamps (9) as well as upper motor fixation (10).
- Fixation of solar modules

### Advice

Before final tightening of screws please check easy swivelling feature. In case of difficulties the adjustment of the hinges or rails could be not correct. The module frame has to be aligned right-angled.



## 5.6. Assembly of linear motor

The linear motor is in factory setting, which means in morning (evening for Southern Hemisphere) position. Do not turn the inside bar with the ball!

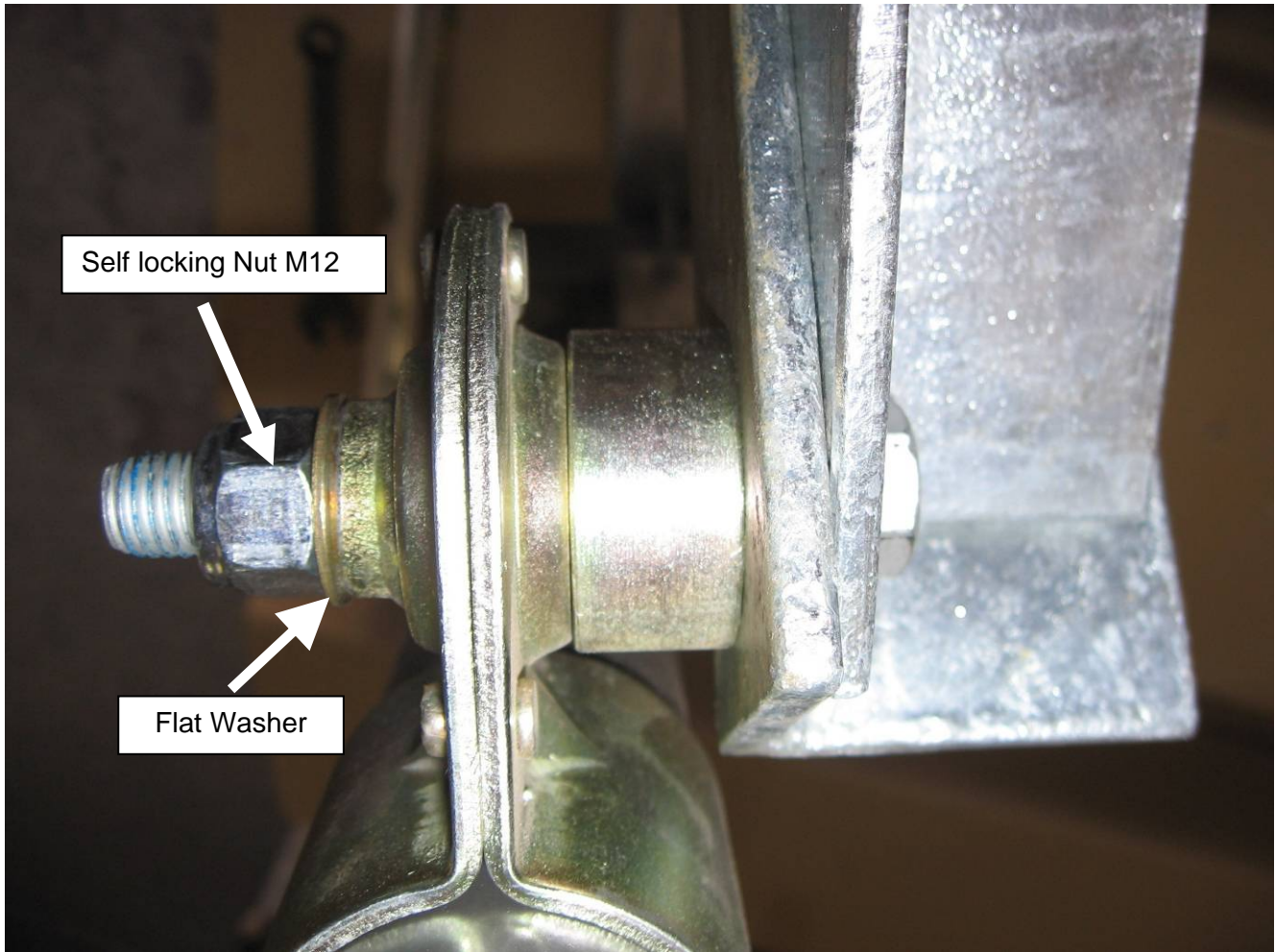
During assembly of the motor on the frame:

Dimension 235 mm between the bolts centres must be kept!

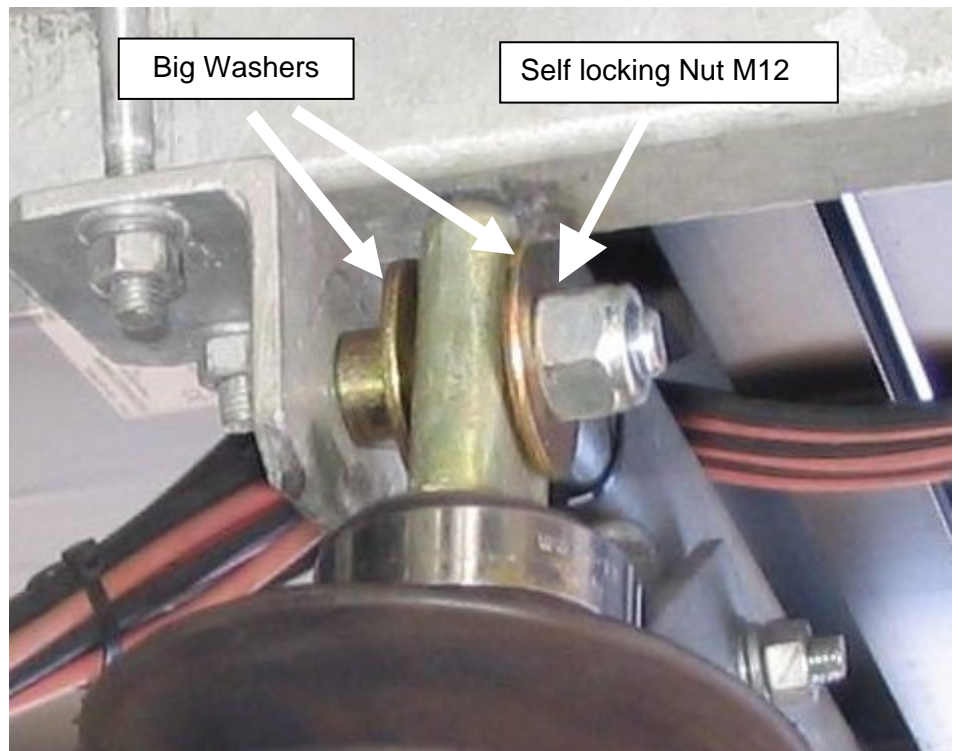


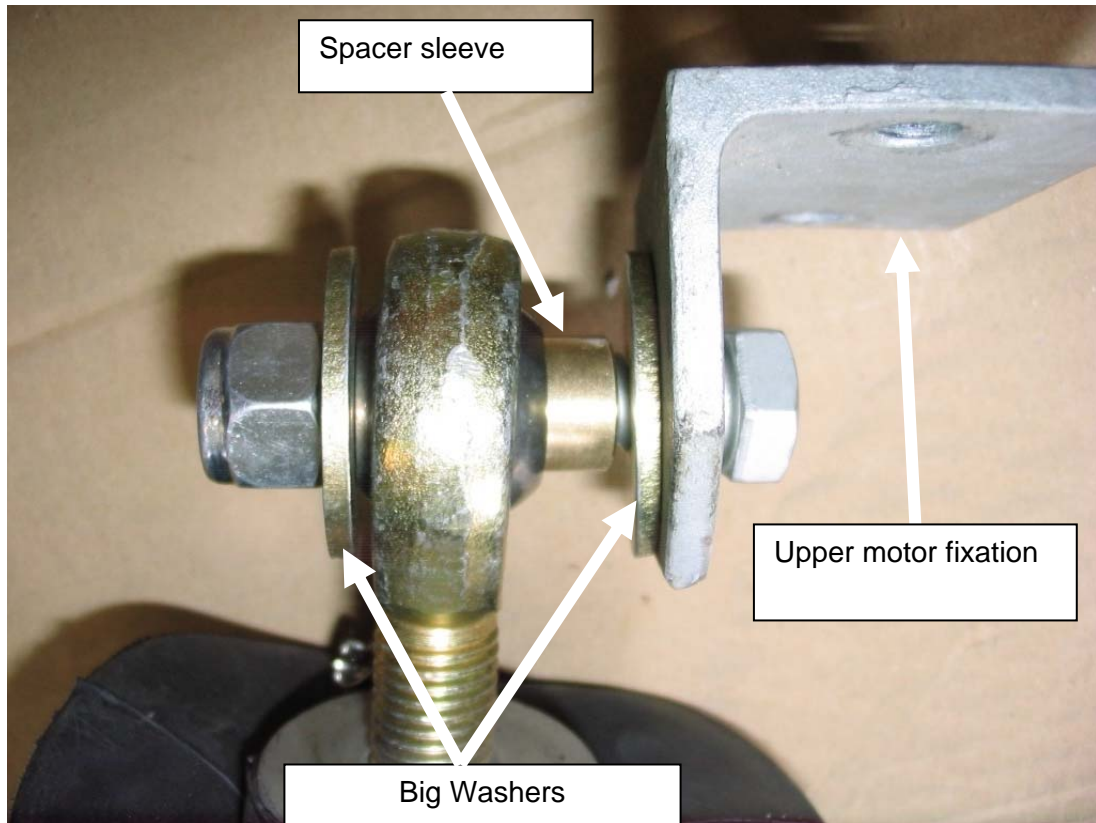


## Lower motor fixation with spacer sleeve



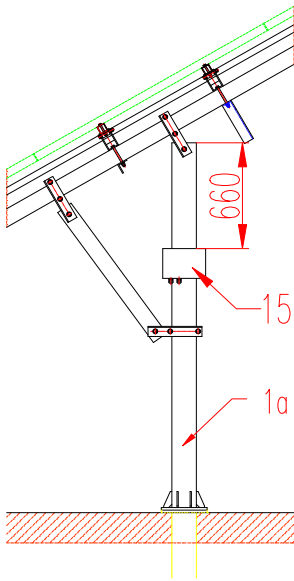
## Upper Motor Fixation





Assembly of the upper motor fixation for actuators with spacer sleeve.

## Installation of the controller box

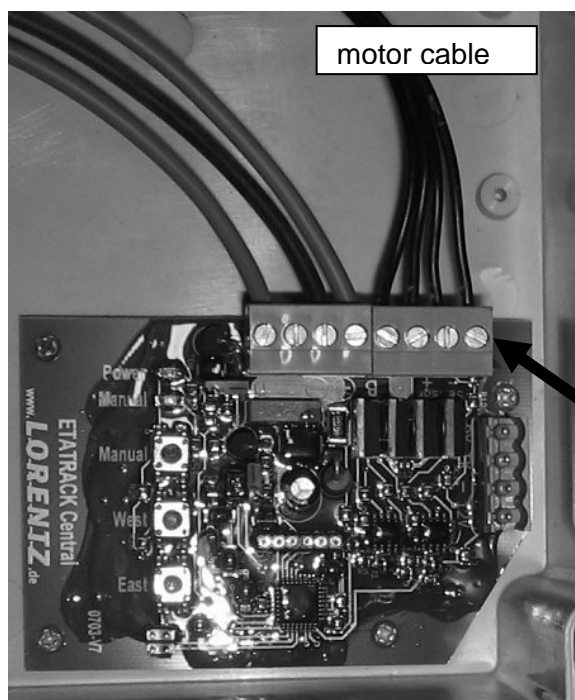


Controller with controller fixation and M4 nut installed on the mounting pole. Distance from upper edge mounting pole ca. 660 mm.

## Linear motor, motor and gearbox

**Attention**

Cable conduit and water drainages have to point downwards to avoid that water penetrates in gearbox housing.



The motor cable must be plug on right upper terminal.





## Nominal torques for Bolts ETATRACK active

| Screw dimension | Strength           | Torque [Nm]     |
|-----------------|--------------------|-----------------|
| M16             | 8.8 (Steel)        | 230             |
| M12             | 8.8 (Steel)        | 93              |
| M10             | 8.8 (Steel)        | 54              |
| M8              | 8.8 (Steel)        | 27,3            |
| M6              | Stainless Steel A2 | 5,9 - max. 11,3 |



**We recommend a unique control of the screw connections approximately 6 months after installation.**

### Comments:

All connection elements for parts of the tracker: steel, zinc coated, strengthening class 8.8

Screws for standard fixation of solar modules: M6, high grade steel A2

All data are standard values in accordance with the producer's data which are not obligatory

As this manual is only a suggestion from our side, the local technical firm has to verify the installation very carefully.