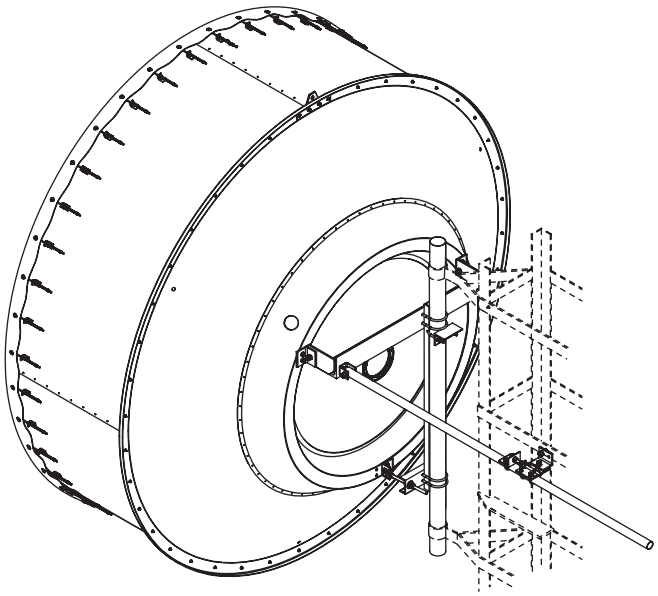
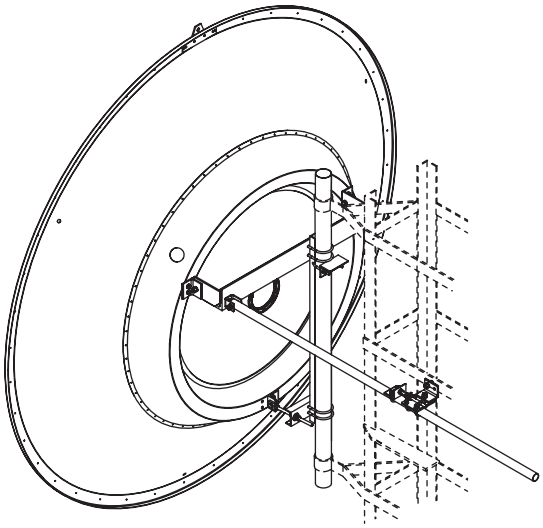
Installation Instructions
12 ft Antennas
PA, PAL, PAX
DA, UA, DAX, UDA, UXA

NMT 192-15(e)



DA, UA, DAX, UDA, UXA



PA, PAL, PAX

These Installation Instructions are valid for antennas in the following version :

- Reflector ∅ 3,7 m (12 ft)
- Waveguide feed **single** or **dual** polarized
- Pipe mount for installation on pipe ∅ 115 mm
- Antenna offset to the left or the right
- Safety collar for easy installation
- 2 spindles for fine adjustment of **Azimuth** & **Elevation of ± 5°**
- 1 sway bar Ø60 mm x 3 m
- Reflector with shroud, shroud aperture covered by **a flexible planar radome**, or without shroud (see sketch above)

Note : The assembly of the reflector and shroud for antennas with “split” reflector is described in the dedicated Installation Instructions.

It is important to mount the antenna exactly as described in this installation instruction.
The installed antenna shall be inspected once per year by qualified personnel.
RFS disclaims any responsibility for the result of improper or unsafe installation.
This installation instruction has been written for qualified, skilled personnel.

We reserve the right to alter details, especially with respect to technical improvement.

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1. Tools required for installation (Tools are not included with antenna)

- Hoisting device for 800 daN
- Water balance and compass
- Torque wrench from 0 to 250 Nm
- Wrenches for hexagon bolts : M6(10), M8(13), M12(19), M14(21) M16(24), M20(30)
- Shackle
- 2 ropes
- Mallet
- Square

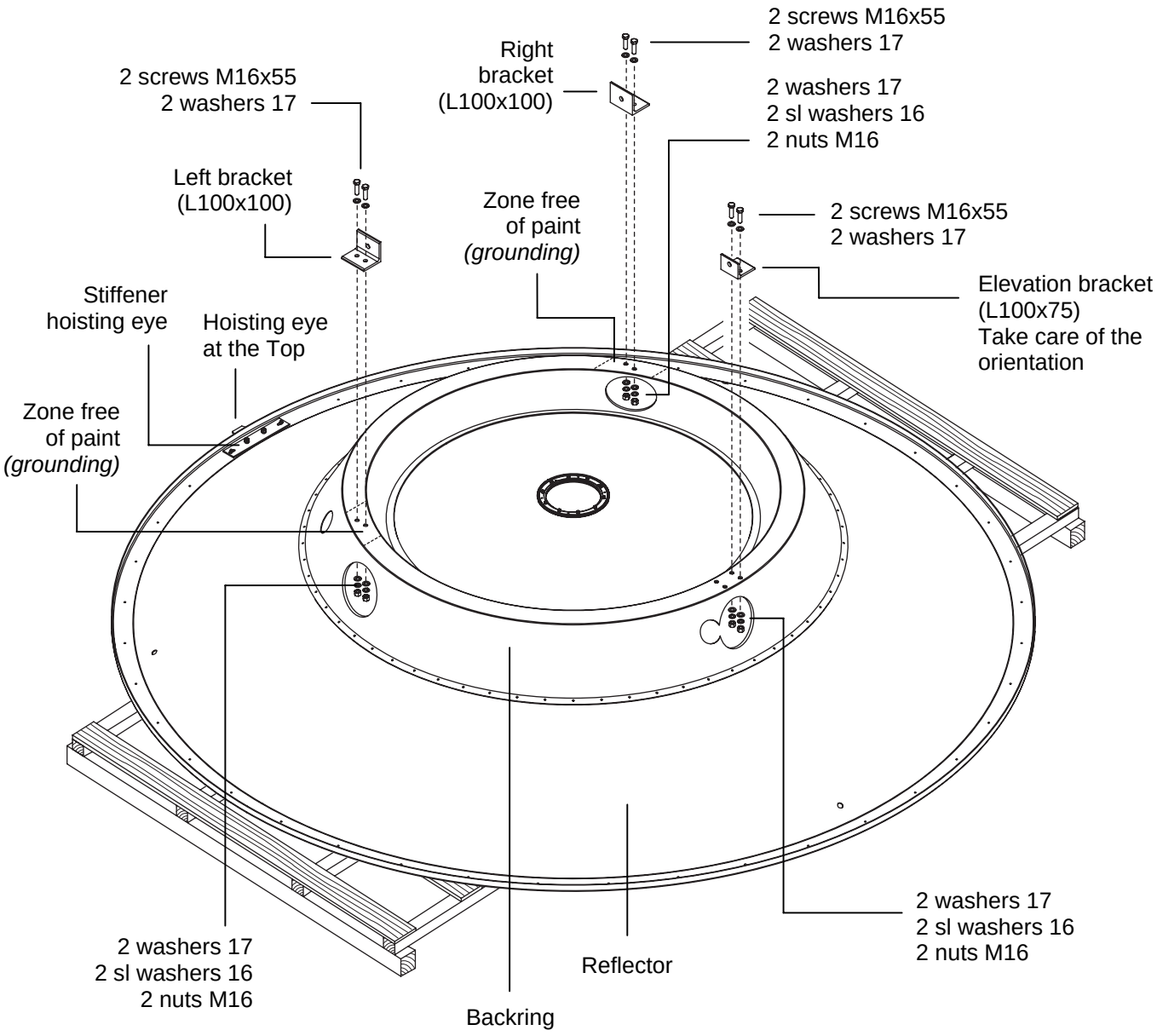
(values in brackets = openings of spanners)

2. Antenna with “split” reflector

If you have ordered an antenna with a “split” reflector, refer to specific installation instructions joined for reflector & backring assembly, otherwise skip this step.

3. Brackets installation on backring

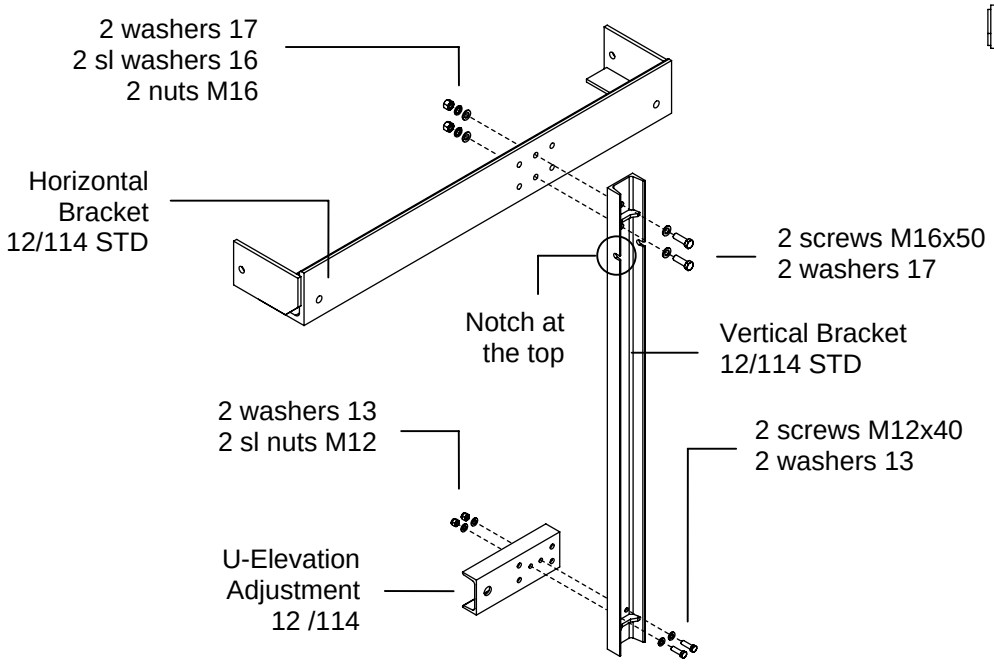
Before starting the installation of the brackets on the backring, install the antenna reflector on a thick cardboard or wooden planks to protect the antenna during the assembly *(or the antenna top packing case for e.g.).*



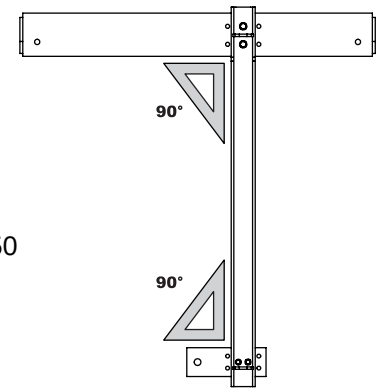
4. Pre-assembly of the T-Mount & Antenna Offset

T-Mount Pre-assembly (for an offset Left)

For easy operation of the bolted joints, and correct torque tightening, « Anti Seize » Installation Paste must be applied to all threads of bolts and fine adjustment spindles. After this, keep the lubricated threads free of dust and dirt! (a Torque Table is attached for specifications)



Offset left

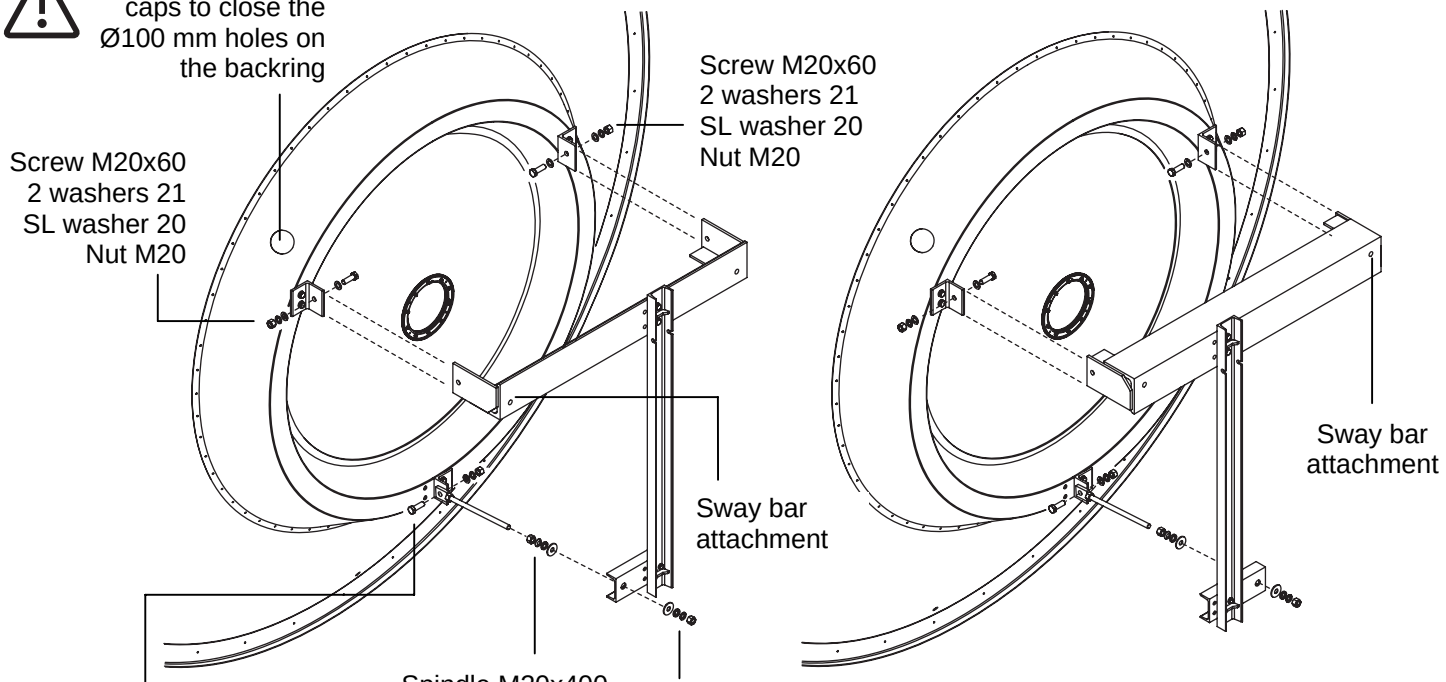


(Rear view)
for an offset left

After perpendicularity check between the 3 parts of the T-Mount, torque tighten the M12 & M16 bolts to lock the assembly. *(Without square, you can help you with a sheet of paper).*

Offset Right

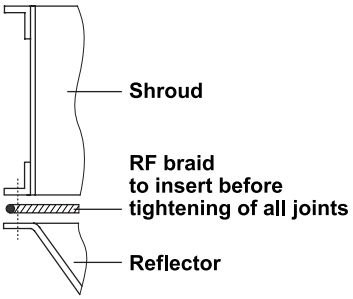
Install the 3 plastic caps to close the Ø100 mm holes on the backring



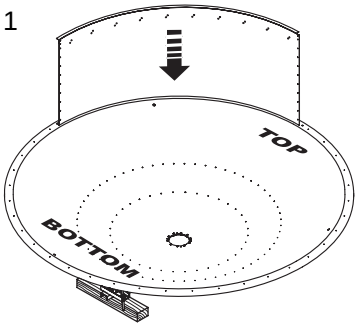
It is mandatory to tighten all bolted joints of the mount according to the torque table, before lifting the antenna.

5. Installation of the shroud panels (For antenna equipped with shroud)

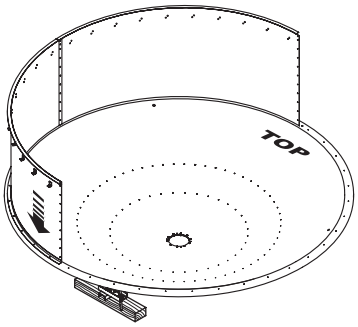
- Dismount the hoisting eye and the stiffener hoisting eye of the reflector (pre-installed in factory)
- Install the reflector equipped with its mount on wooden beam (to not damage mount parts with the ground) & keep bolt threads free of dust.
- The reflector's rim and the shroud panels must be clean and dry



5.1

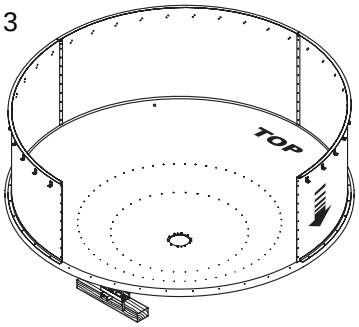


5.2

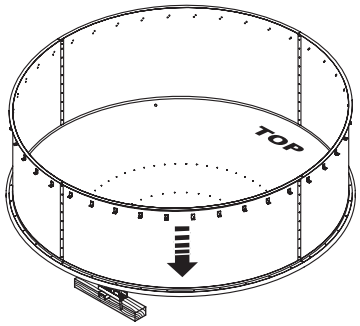


Do not tight all joints before complete shroud installation & RF braid install.

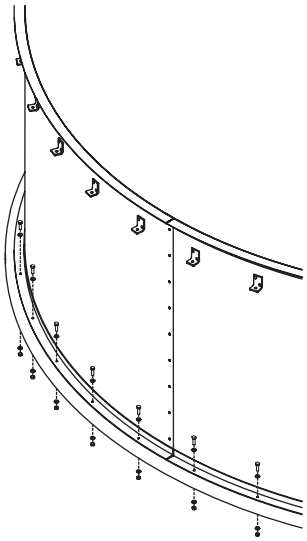
5.3



5.4



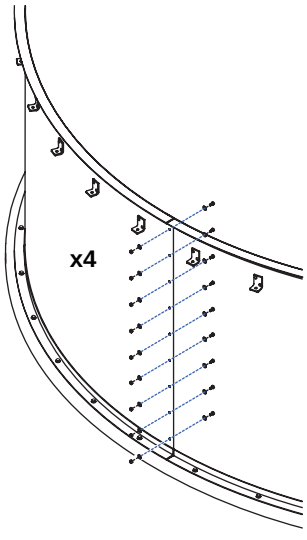
Reflector / Shroud panels assembly



40 screws M6x30
80 washers 6.4 ∅18*
40 SL nuts M6

for spots free of paint 90° from TOP (left & right) add 2 serrated lock washers A6.4

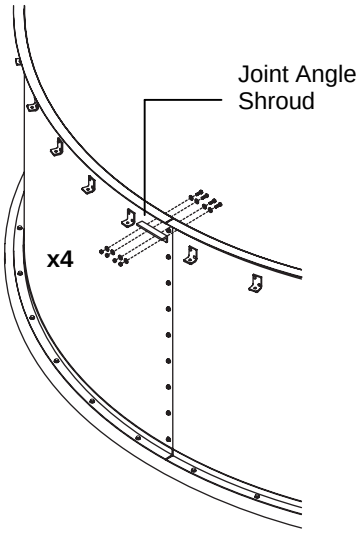
Shroud panels assembly



(Short shroud length)
9 or 10 screws M6x16
18 or 20 washers 6.4 ∅18
9 or 10 SL nuts M6

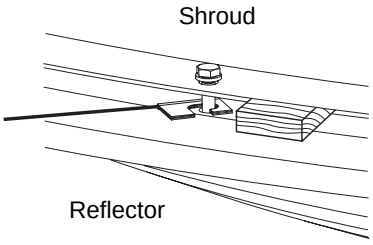
(Long Shroud length)
11 or 12 screws M6x16
22 or 24 washers 6.4 ∅18
11 or 12 SL nuts M6

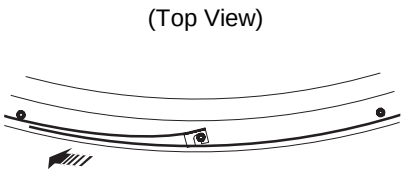
Shroud panels reinforcement assembly

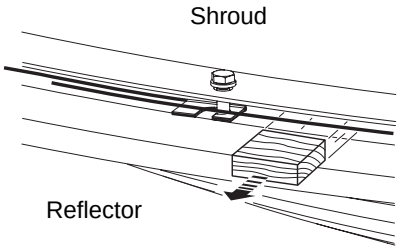


4 screws M6x25
8 washers 6.4 ∅18
4 SL nuts M6

5.5 RF Braid installation between shroud & reflector rim (for antennas with shroud)





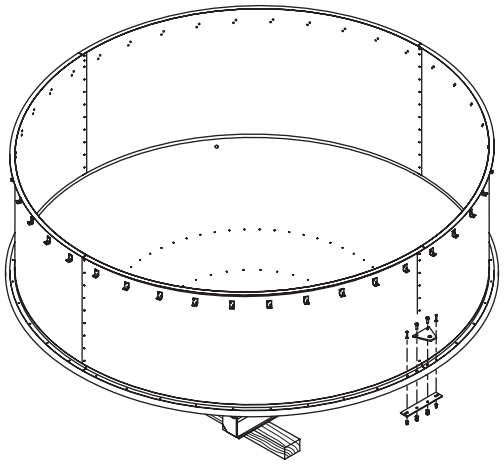


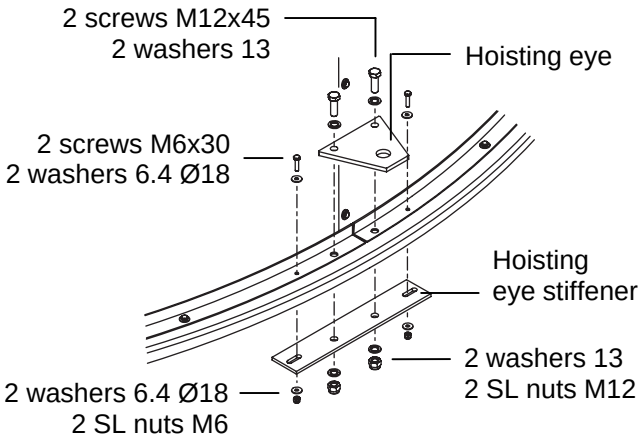
- Squeeze the clip onto the RF braid, then hook it onto the a flange bol between the reflector and the shroud rim

- Overlap the RF braid ends

- Removed spacers, and tighten all the bolts

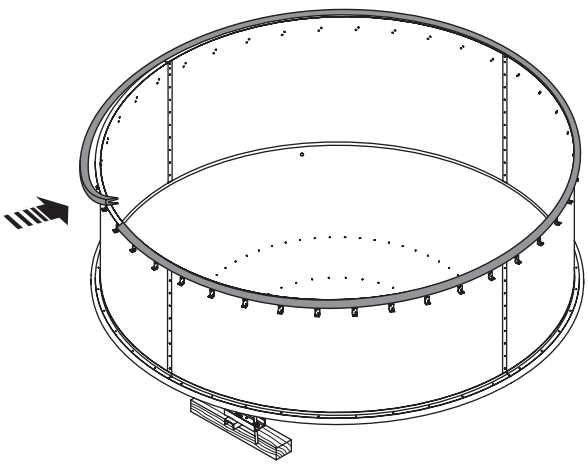
6. Hoisting eye and stiffener re-installation (for antennas with shroud)

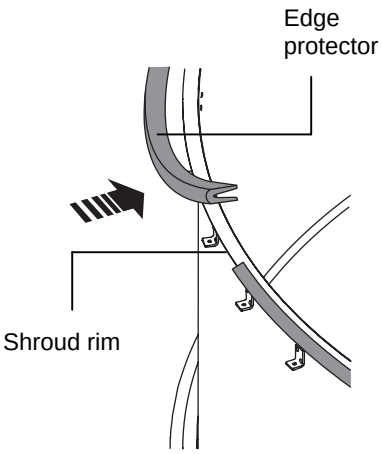




Note : For antennas with non split reflector the SL nuts fonction is replace by SL washer + nut.

7. Radome protection installation on shroud rim





8. Feed Installation (for customized antennas, see specific Feed Install. Instructions joined)

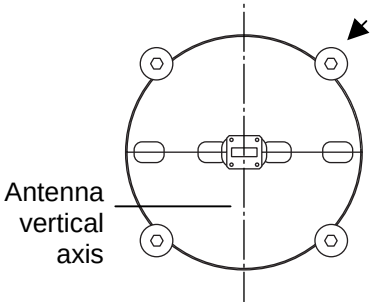
The feed is a precision component which should be handled with special care during installation. For instance, always carry the feed, supporting casting plate side. Any damage may degrade the antenna's performance. Repair of feeds is not possible in the field.

8.1 Polarization choice

Single polarization

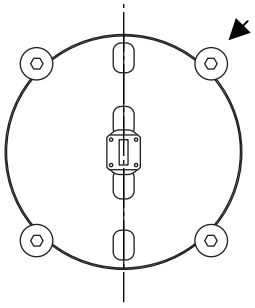
9" Feed System *(rear view)*

Vertical polarization



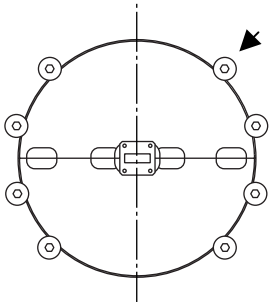
- Unscrew the 4 screws M6
- Carefully rotate the feed of 90°
- Lock the 4 screws M6

Horizontal polarization



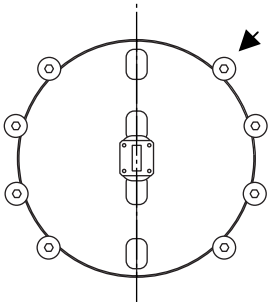
14.5" Feed System *(rear view)*

Vertical polarization

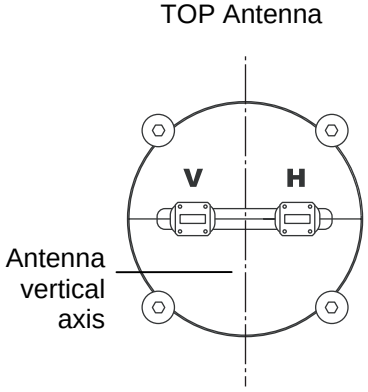


- Unscrew the 8 screws M6
- Carefully rotate the feed of 90°
- Lock the 8 screws M6

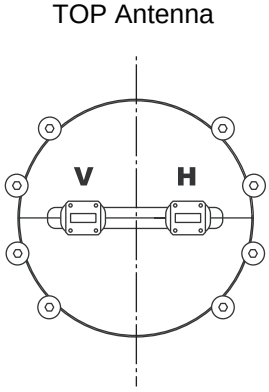
Horizontal polarization



Dual polarization



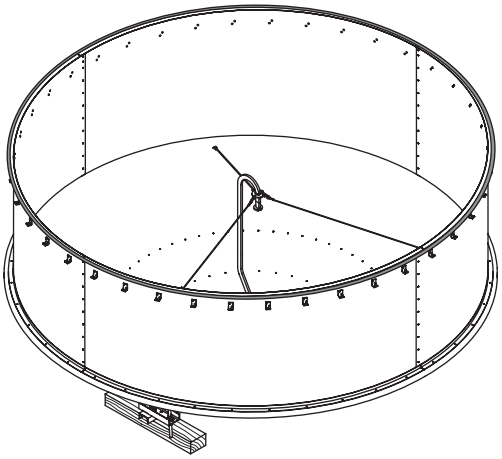
9" Feed System *(rear view)*

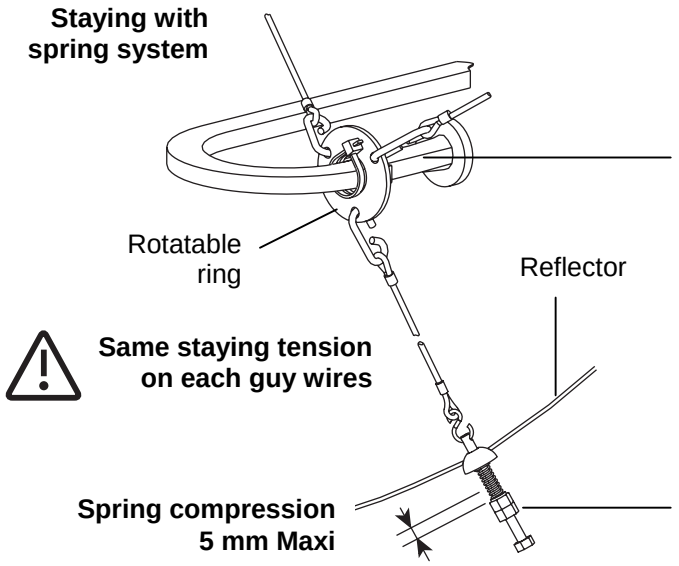


14.5" Feed System *(rear view)*

8.2 Guy wires assembly

- Insert the 3 guy wires in the mounting holes **from the rear** of the reflector
- Move the feed assembly partway through the connecting ring
- Hook the guy wires into rotatable ring
- Move the feed and fix it, with the clamp brackets & the 4 screws M6, in the connecting ring

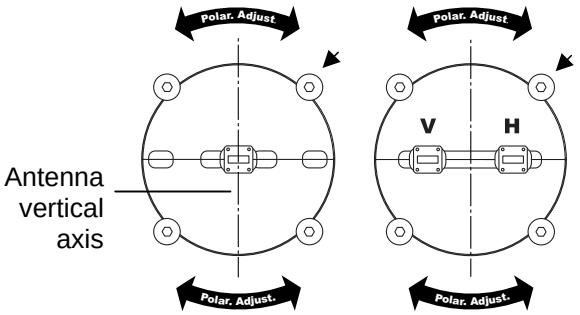




8.3 Polarization fine adjustment

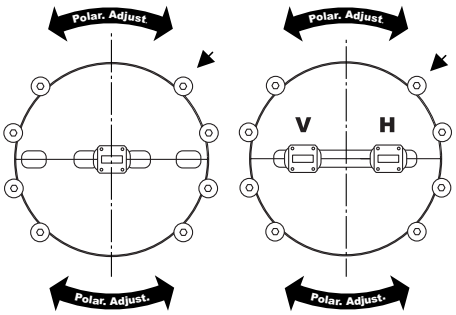
The final adjustment will be made after the antenna installation on tower

9" Feed System
(rear view)



Loosen the 4 screws M6 and adjust polarization by rotation of the feed system

14.5" Feed System
(rear view)

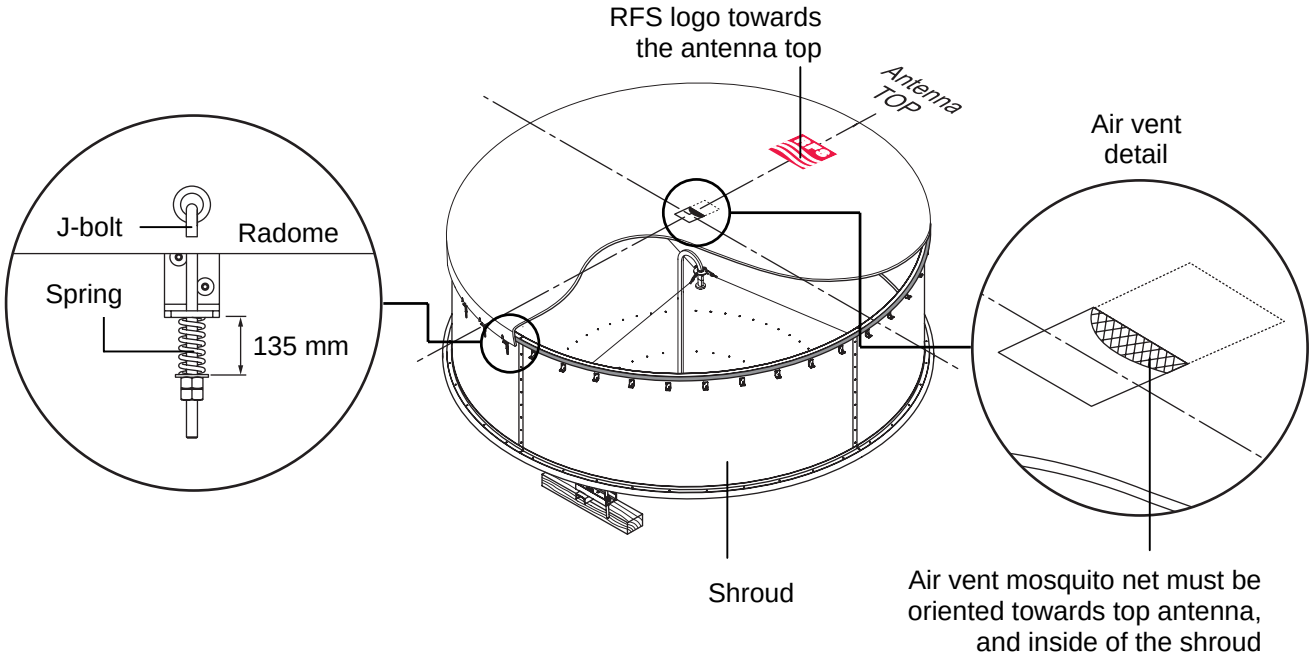


Loosen the 8 screws M6 and adjust polarization by rotation of the feed system

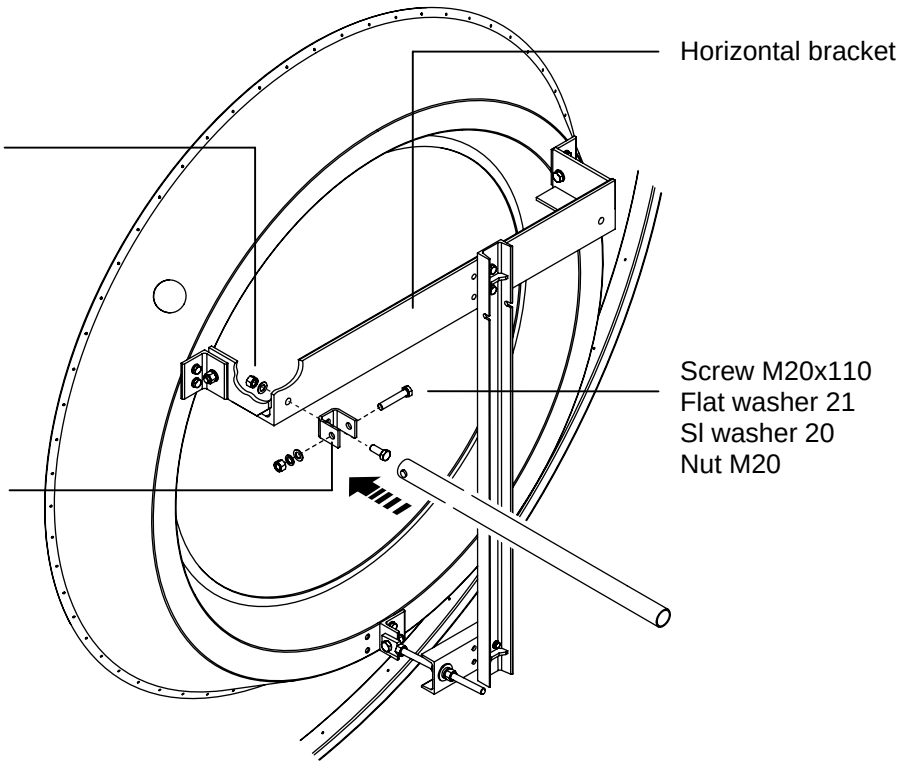
9. Radome Installation (Antennas with shroud)

Take care to avoid kinking of planar radome during installation. Kinking would destroy the radome, which is not repairable !

- Unpack the radome and carefully strech it over the shroud aperture.
- For radomes with RFS logo, align it with the vertical axis of the antenna.
- For radomes without RFS logo, the central air vent mosquito bet aperture must be oriented towards the antenna top.
- Attach J-bolt with springs and smooth radome down as the springs are attached, but do not displace the edge protector on the shroud rim.
- Align the length of the springs to approximately 135 mm at each J-bolt, this will provide proper radome tension.



10. Sway bar assembly

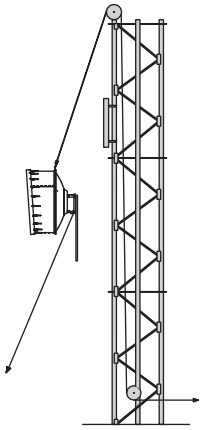


(For an easier sway bar orientation, keep the U-bracket sway bar free in rotation without gap between, until final attachment to the tower. At this time all bolted joints will be torque tighten)

11. Lifting of antenna & hoisting on the tower

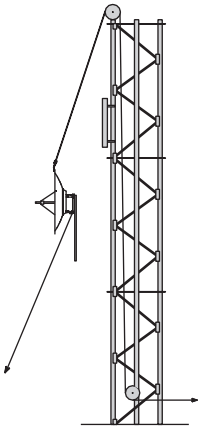
Before antenna hoisting on the pylon, it is mandatory that all the bolted joint of the T-Mount structure have been torque tighten, otherwise the installation on the pipe support could be problematic.

Antenna with shroud



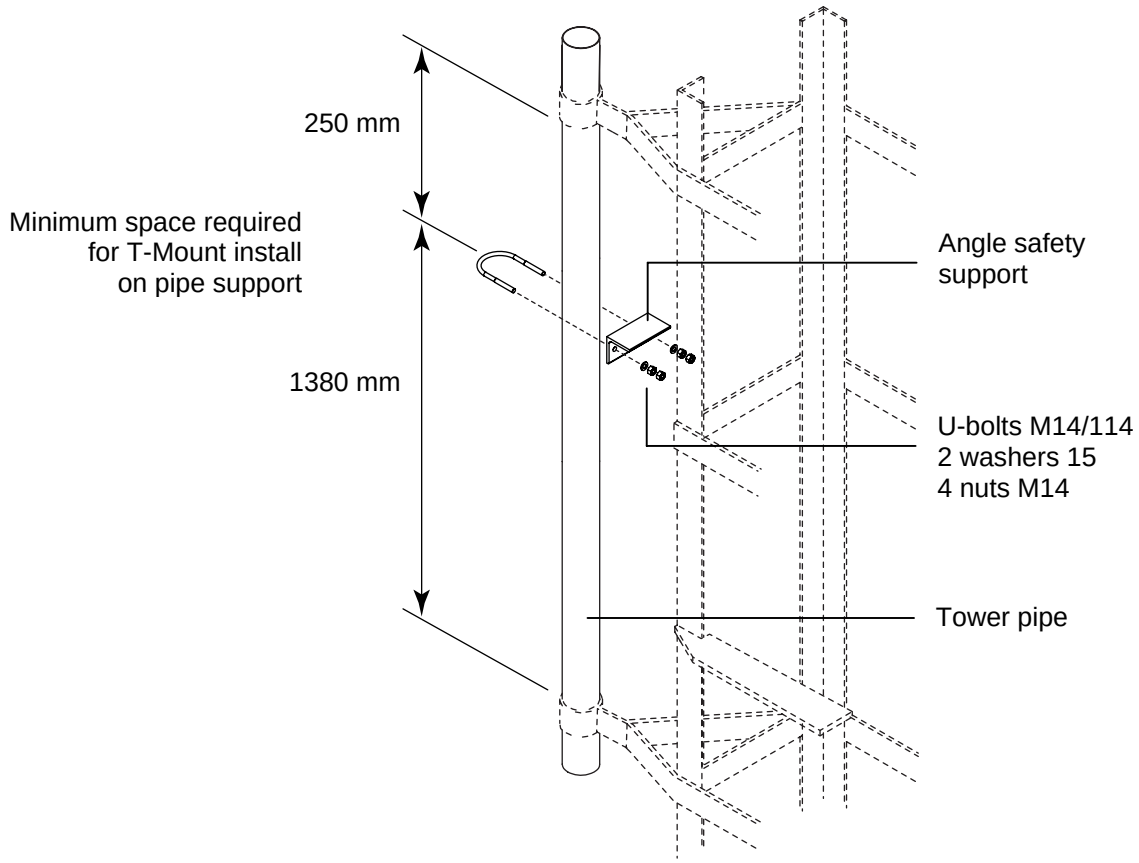
2 ropes fixed on the mount to avoid collision with the structure.

Antenna without shroud

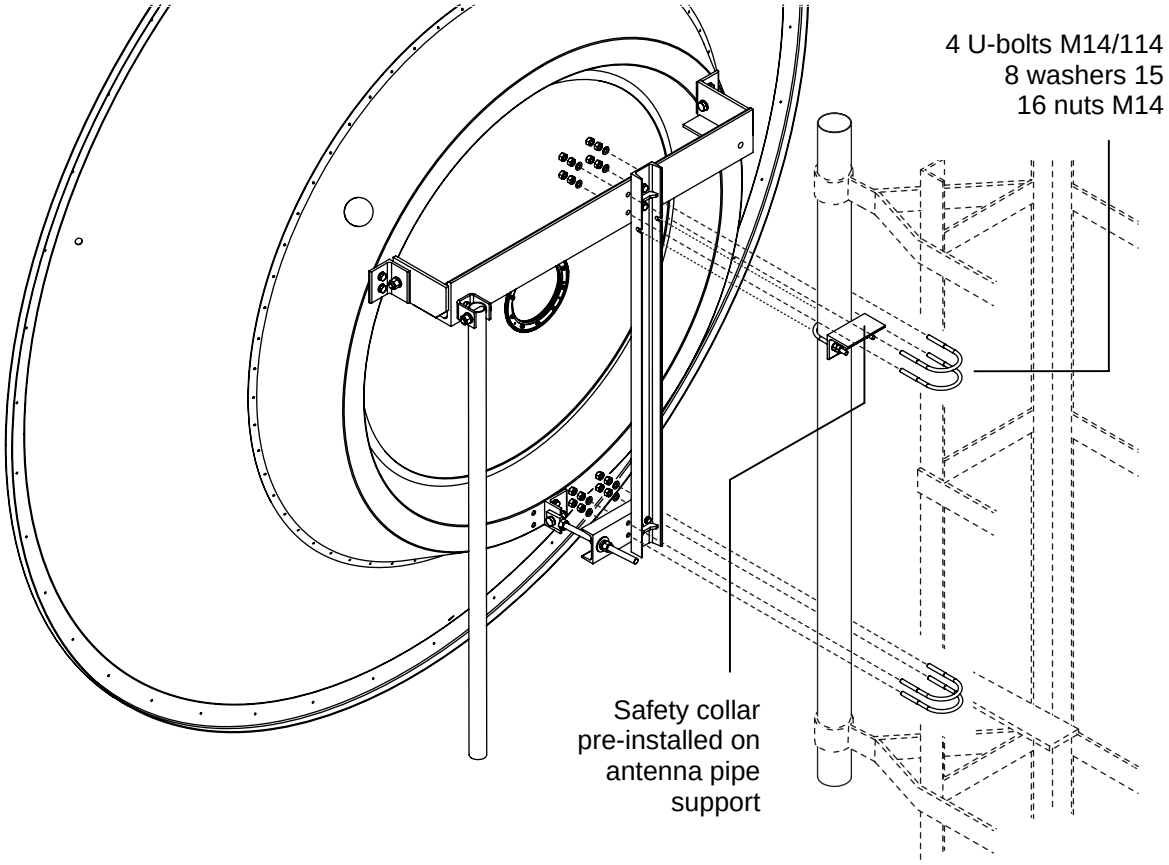


2 ropes fixed on the mount to avoid collision with the structure.

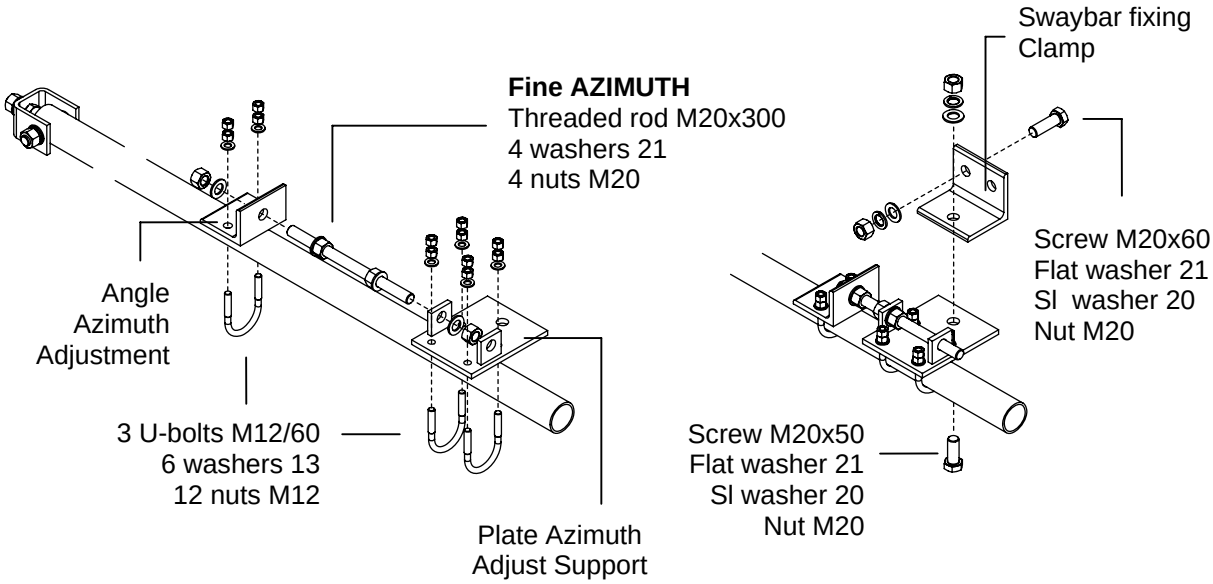
12. Safety collar pre-installation on pipe support

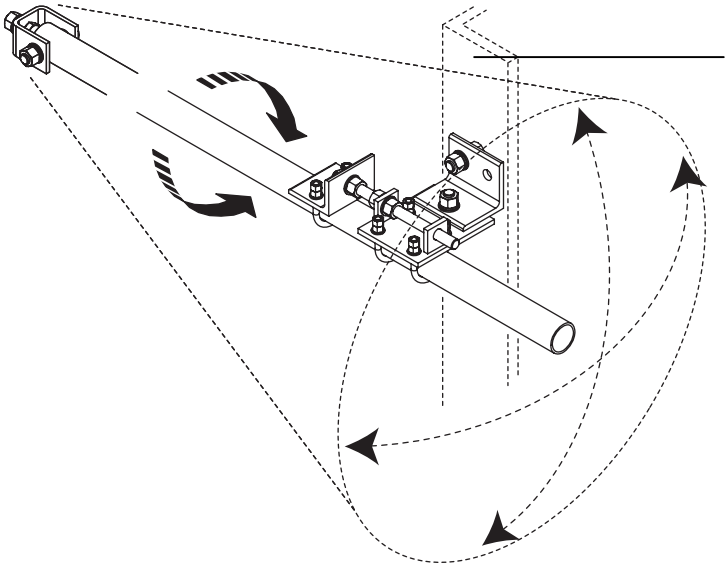


13. Antenna installation on pipe



14. Fine Azimuth adjustment installation



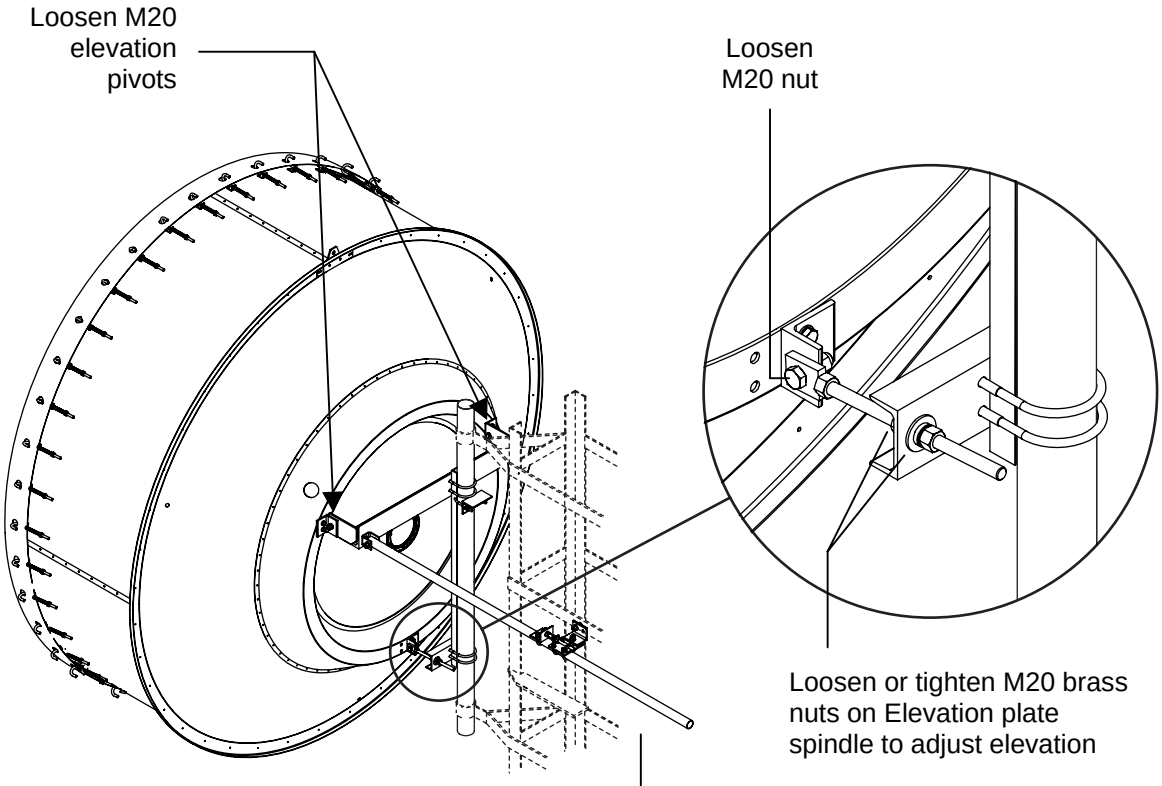


Installation on a tower with angle structure*

Do not angle the sway bar more than 25° in any direction for tower installation, and must be attached to a strong tower interface or structure.

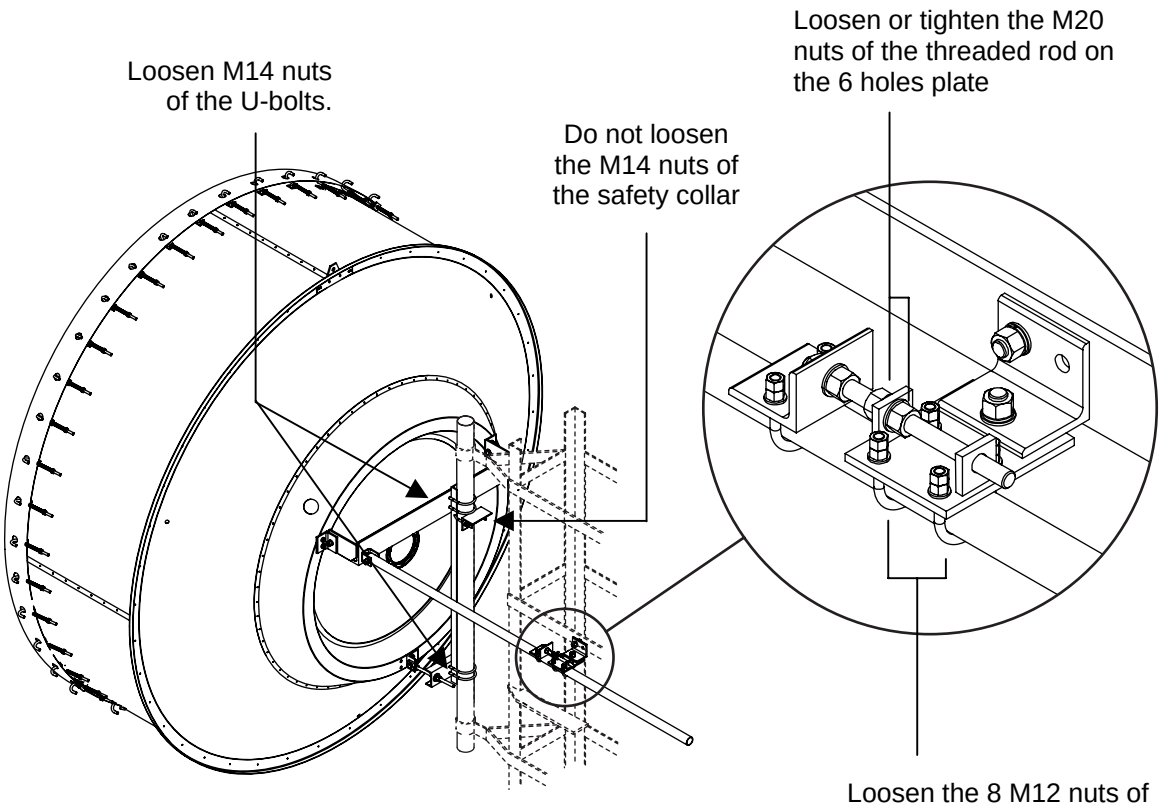
* For an installation on a tower with a pipe structure, swaybar kit options Ø60, Ø89, Ø114 are available in option (SMA-SKO-60, SMA-SKO-89 or SMA-SKO-114)

15. Elevation adjustment



16. Azimuth adjustment

If the nuts of the 4 U-Bolts are already torque tighten, loosen each nuts of 3/4 of turn



To adjust the Azimuth, the sway bar must be attached to the tower

After azimuth adjustment, lock the first nut on the U-bolt with the torque value specified on the torque table (the U-bolt threads must have been greased before torque tightening), then fix the second nut against the first one. **Do not use two wrenches to fix the second nut.**

17. Final Check

When the installation of the antenna has been completed, it is necessary to make sure that the installation instructions have been followed in all aspects.
It is especially important to check that all bolted joints are torque tightly locked.