

Jirous antenna mounting

version 1.0
10/18/2017

1. Mounting methods

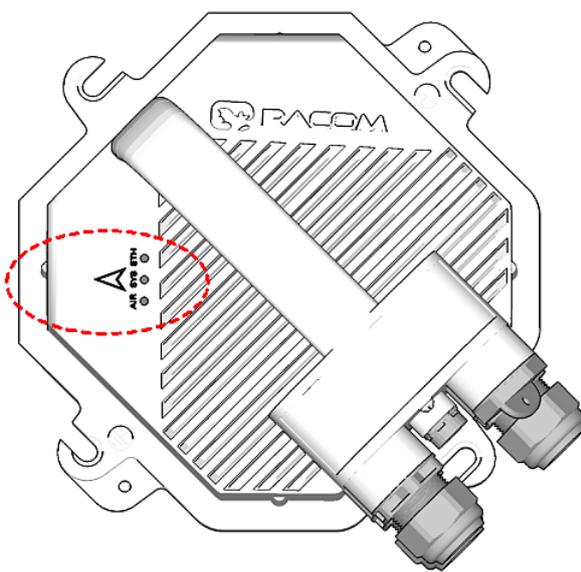
Mounting on the mast tube can be realized with:

- right-side mounting
- left-side mounting

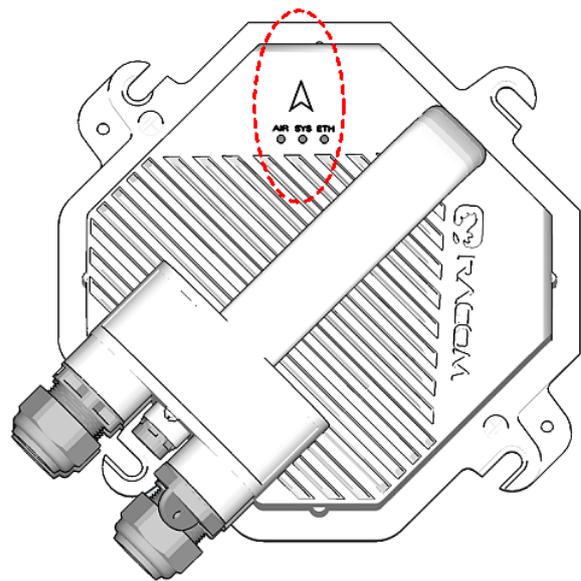
Mounting for antenna polarization can be realized with:

- horizontal RX polarization mounting
- vertical RX polarization mounting

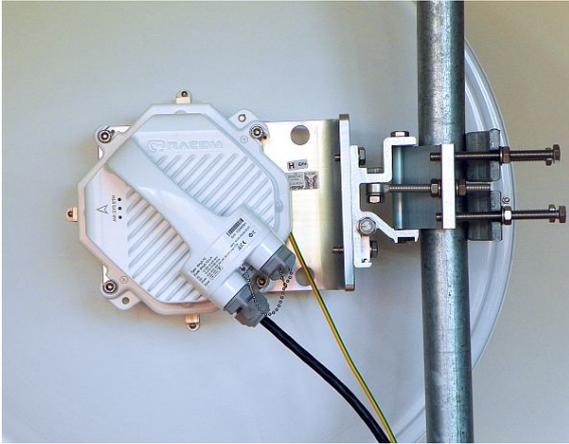
In all cases mount the unit with the connectors facing downwards at an angle.



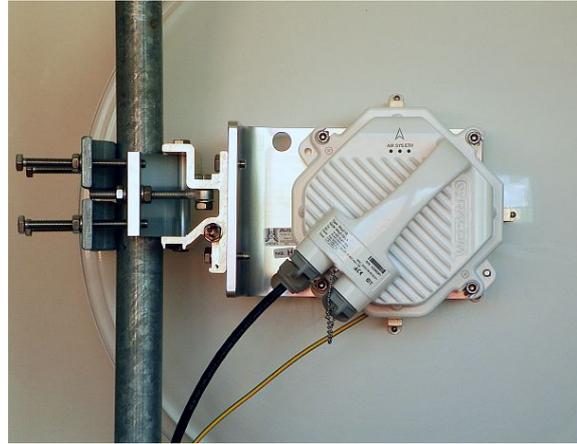
*Fig. 1: Horizontal RX polarization
– see the arrow sign*



*Fig. 2: Vertical RX polarization
– see the arrow sign*



*Fig. 3: Left-side mounting
– horizontal RX polarization*



*Fig. 4: Right-side mounting
– vertical RX polarization*

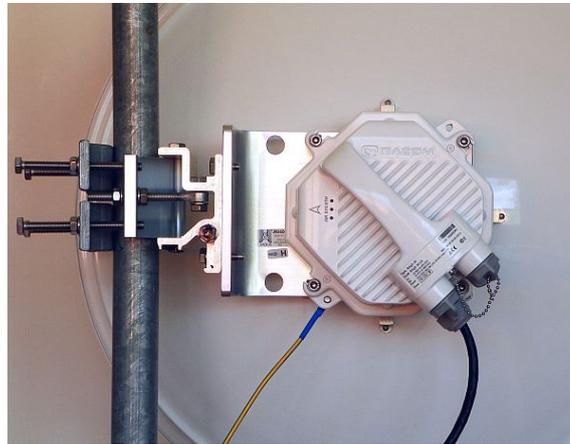


Fig. 5: Right-side mounting – horizontal RX polarization

When changing the polarization from horizontal to vertical only the FOD unit needs to be turned through 90° around the central antenna pin by unscrewing the four bolts on the dish using a No. 6 Allen key.



Important

RAy-17 and RAY-24 links need one end installed with vertical polarization and the other end with horizontal polarization: these models use cross polarization. RAY-10, RAY-11 & RAY-18 require the same polarization at both ends of the link.

Changing the mounting method

An antenna bracket is supplied as standard partly assembled, and ready for right-side mounting.

On changing the Jirous antenna bracket for left-side mounting the adjustment bolt (part No. 11) and swivel bolt (part No. 6) need to be unscrewed, then shift the bracket body (part No.5) to the other side of clamp plate (part No. 4), (do not turn upside down) and then insert bolt (part No. 6) into the second hole on the mounting plate holder and through the same hole on the clamp plate and secure in place with the nuts. The adjustment bolt (item No. 11) and nuts are switched to the other side of the clamp plate (part No. 4). It is also necessary to switch the hanging bolt (part No. 7) on the antenna mounting plate to the second hole so that after switching sides with the antenna it is on the top again.

In the case of the antenna when changing the method of mounting from right-side to left-side it is only necessary to change the eye hook on the top and rotate the plastic cover of the antenna. This is not only important from an aesthetic point of view, so that the RACOM logo is not upside down, but also because there is a discharge channel on the lower edge of the dish (except for $\varnothing 380$ mm dishes).

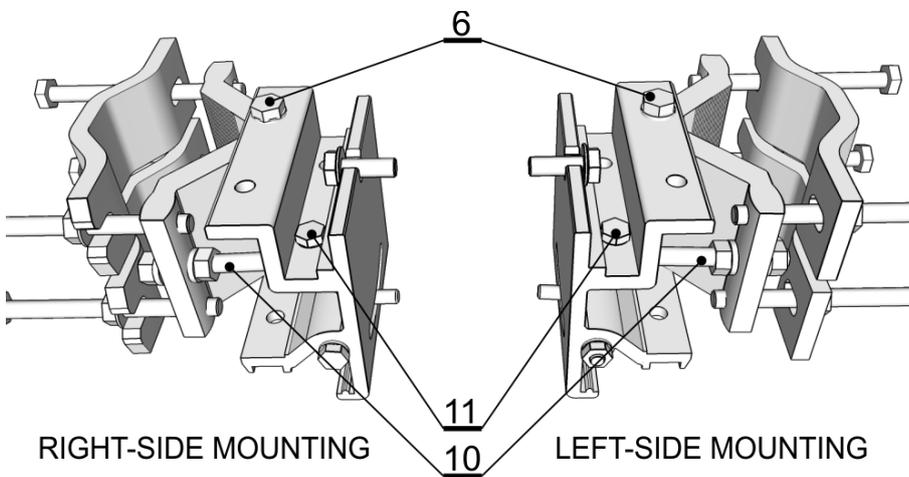


Fig. 6: Changing the mounting method

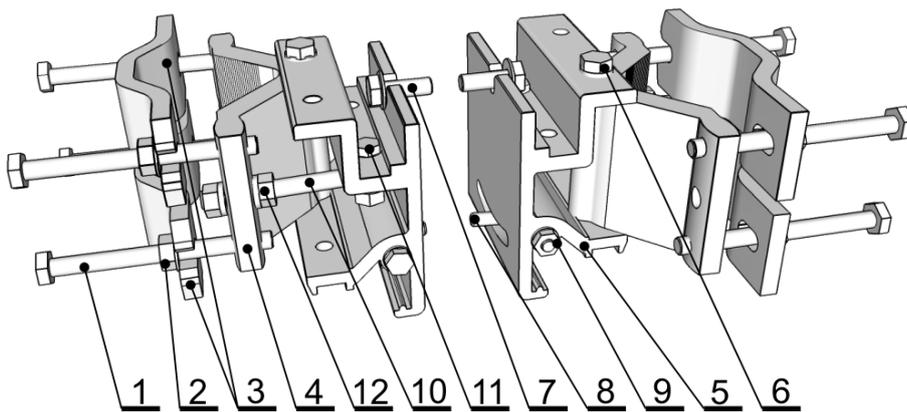


Fig. 7: Close up image of the mounted bracket showing numbered parts

2. Assembly procedure

RAY2 microwave bridge equipment is generally supplied as several component parts packaged separately in a box.

- Two parabolic antennas with assembled mounting plates. There are also 4 screws in a small plastic bag in the box.
- Two brackets for mounting the antenna to the mast.
- Two FOD stations, each separate in a box, in a single package.
- Other accessories based on the order placed (for more detailed information see User manual RAY2, *Accessories*¹).

A No. 17 spanner and a No. 6 Allen key are required for mounting the mechanical parts of the antenna. Spanner No. 17 serves for precisely setting the direction of the antenna.

It is advisable to lightly **lubricate** the retaining screws eg. by the supplied grease.

- a. Prepare the antenna bracket based on the diameter of the mast tube. For smaller diameters face the bent part of the saddle plate (part No. 3) inwards. For larger diameters it should face outwards. Screw the bolts (part No. 1) into the clamp plate (part No. 4) so that they protrude approx. 1 cm through the clamp plate. Clamp the saddle plate to the mast by tightening the nuts (part No. 2) on the bolts.

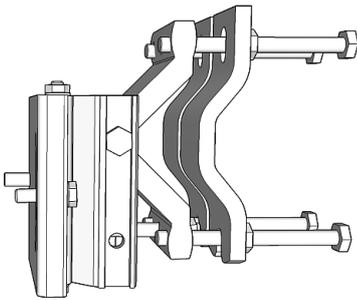


Fig. 8: Position of the saddle plate for \varnothing 40–80 mm

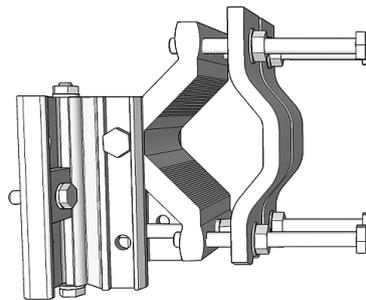


Fig. 9: Position of the saddle plate for \varnothing 65–115 mm

¹ <http://www.racom.eu/eng/products/m/ray2/accessory.html>

- b. Slide the antenna bracket onto the mast tube and clamp to the mast by tightening the nuts. Recommendation: Keep the gap between the two saddle plates (part No. 3) as wide as possible, so the horizontal angle adjustment screw can fit in this gap. The range of horizontal adjustment is consequently wider. This has a bigger effect when the mast diameter is smaller.

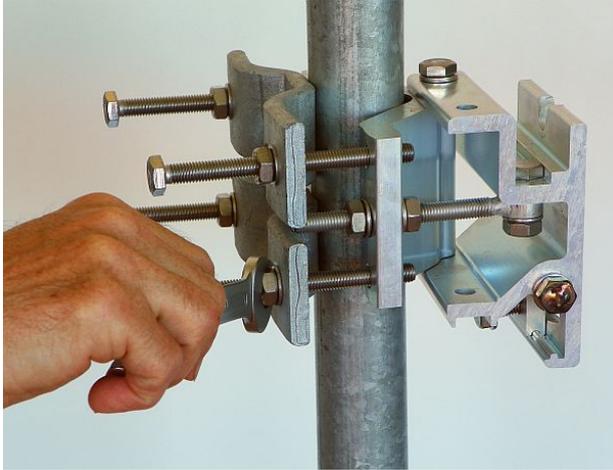


Fig. 10: Attaching the bracket to the mast tube

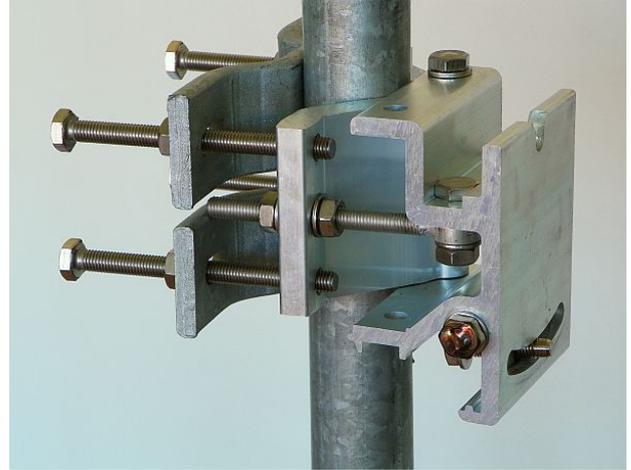


Fig. 11: Bracket on the mast tube

- c. Screw the hanging bolt (part No. 7) into the upper hole of the mounting plate so that the antenna can be hung on the mounting plate holder. Hang the antenna on it and tighten the lower bolt. (part No. 8)

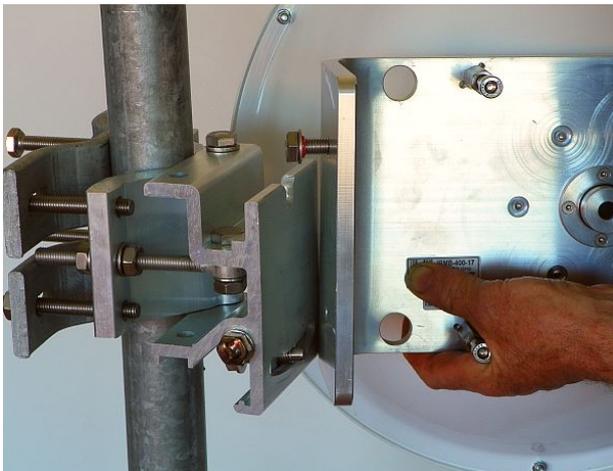


Fig. 12: Hanging the bolt on the holder

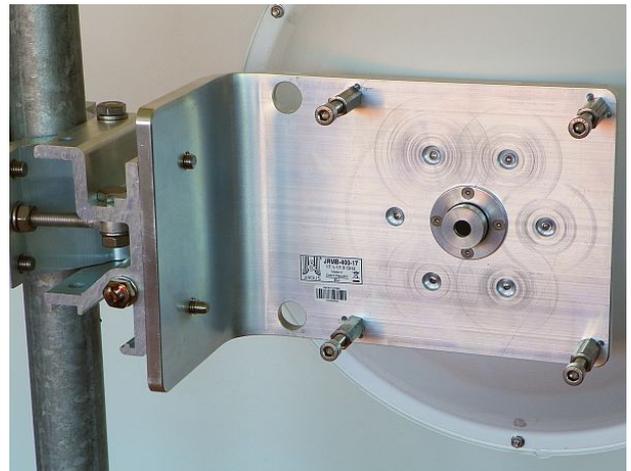


Fig. 13: Correct position of the mounting plate

- d. Tighten both bolts to the plate before continuing with installation to prevent any unnecessary movements of the equipment. Before precisely adjusting the vertical direction of the antenna upon completing installation it will be necessary to unscrew them again as the lower bolt (part No. 8) passes through the adjustment block and the upper one (part No. 7) serves as the axis of rotation.

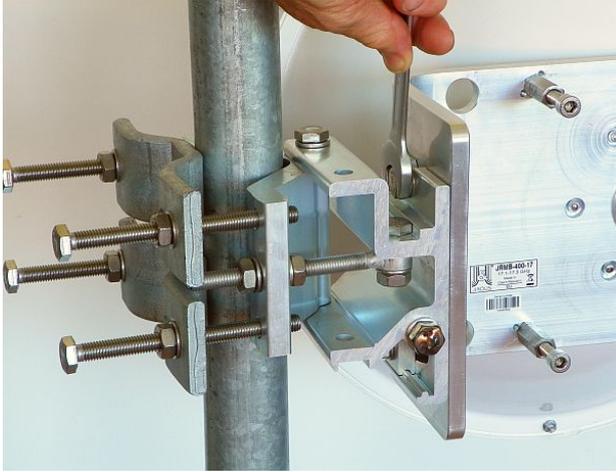


Fig. 14: Tightening the upper bolt to the mounting plate

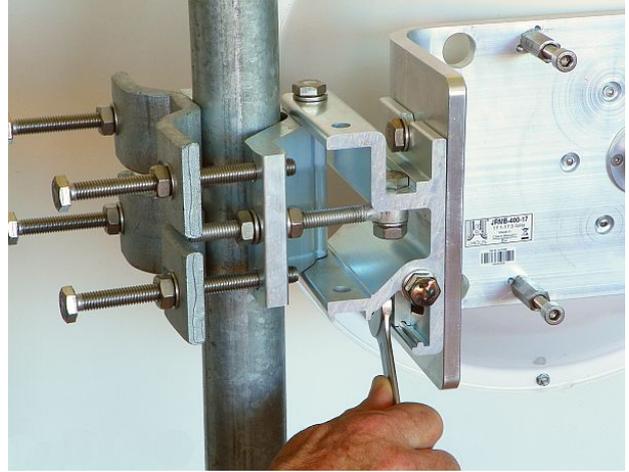


Fig. 15: Tightening the lower bolt to the mounting plate

- e. Before installing the FOD unit on the antenna first unscrew the 4 bolts on the back of the antenna enough so that the unit can be slid on to them. Then check whether the "O" ring is correctly fitted on the antenna pin, and make sure it is not damaged and has been lubricated with grease – see Section 3, "Lubrication of the antenna pivot". Then remove the protective plastic cover from the central pin of the antenna and fit the FOD unit to it carefully so as not to damage the "O" ring. Secure it in place with the four bolts. Carefully ensure the correct polarization of the antenna – see Section 1, "Mounting methods". Finally tighten the bolts with a No. 6 Allen key.

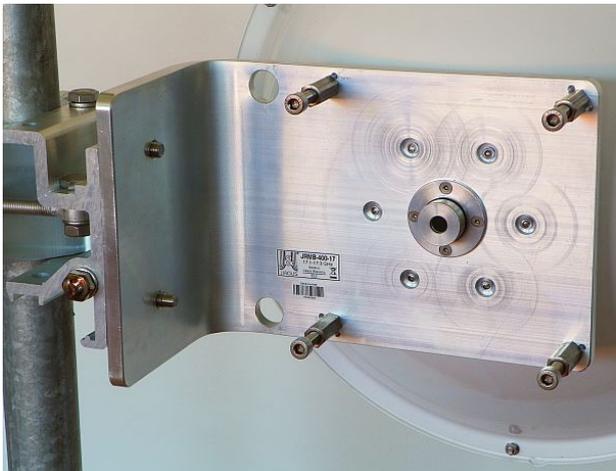


Fig. 16: Dish before installing the FOD unit



Fig. 17: Tightening bolts on the FOD unit

- f. The precise horizontal direction the antenna is pointing in can be adjusted using the bolt with two nuts (part No. 10 and 12). Once the direction has been set the antenna is fixed in place by tightening the nuts against the bracket to prevent further movement of the antenna. The vertical direction the antenna is pointing in can be adjusted by turning the fine adjustment bolt (part No. 9) by the bracket mounting plate. After selecting the correct direction the position is secured by tightening the bolt – see *point d.* (part No. 7 and 8). The correct position in both directions is found by monitoring RSS, see User manual RAY2, *Directing antennas*².

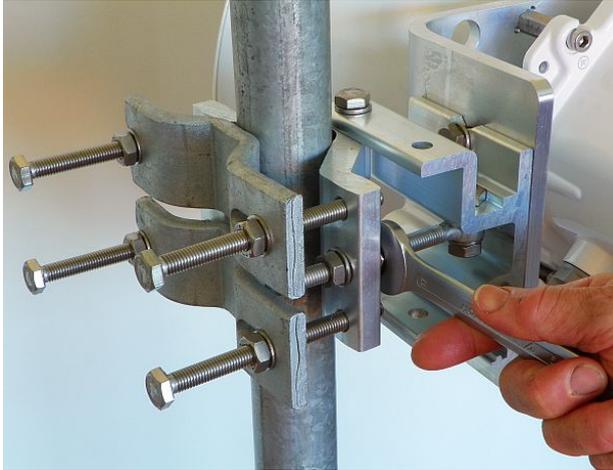


Fig. 18: Horizontal adjustment of the antenna direction



Fig. 19: Vertical adjustment of the antenna direction

- g. After pointing the antenna in the right direction tighten the bolts on the bracket on the axes of rotation (part No. 6 and 11). Then check again that all other bolts have been sufficiently tightened. We can now proceed to connect the FOD unit to the user network.

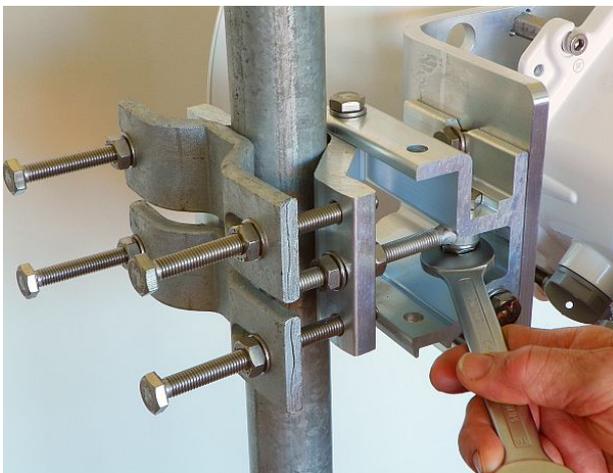


Fig. 20: Tightening the axis at the fine adjustment bolt

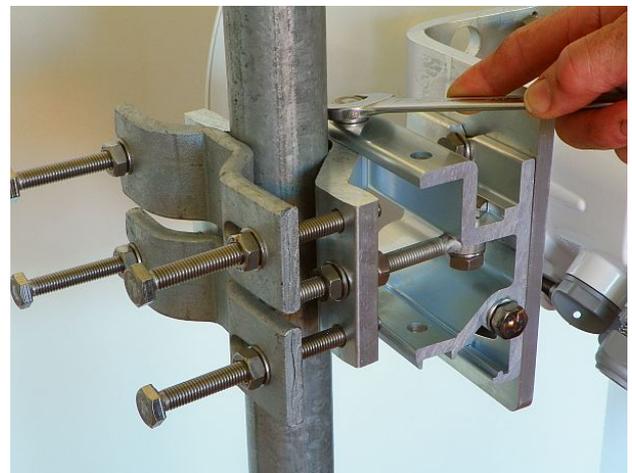


Fig. 21: Tightening the axis at the bracket

² <http://www.racom.eu/eng/products/m/ray2/install.html#directing>

3. Lubrication of the antenna pivot

Before fitting the RAY bushing to the antenna pivot ensure the "O" ring (part No. 1) is in the correct position. It is also essential to prevent moisture getting in between these two parts. This moisture could cause oxidation which would complicate disassembly of this mechanical coupling in the future. For this reason we need to treat these surfaces with the grease which is supplied in the box marked "SILIKONOVÉ MAZIVO". If you use a different grease for lubrication then it should be a Teflon or a silicon grease.

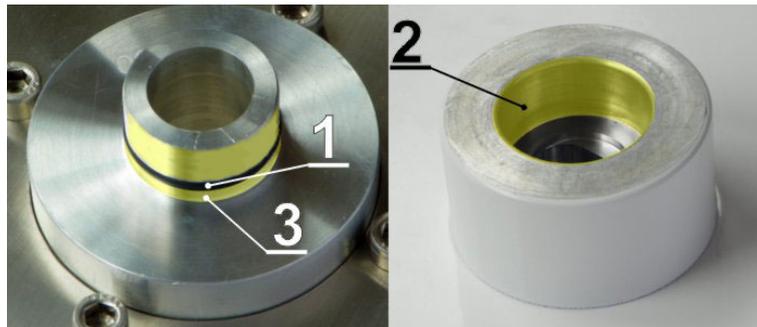


Fig. 22: Grease points on the antenna pivot and RAY unit bushing

Lubricate both the internal area of the bushing on the RAY unit (2) and the "O" ring (1) with a thin even layer that allows the pin to slide easily into the bushing without damaging the "O" ring. The layer has to be really thin and even to ensure no grease is pushed in to the waveguide. A little bit more grease may only be applied in the area (3) beyond the "O" ring on the antenna pin to optimally fill the small gap (max. 0.1 mm) between the pin and the bushing to prevent leakage of moisture and water into the unit. Installation should be carried out according to the antenna installation instructions.

A tub of grease is supplied with each RAY unit.



Important

Lubrication is a very important assembly step for every RAY unit. Failure to lubricate the unit can lead to operational and assembly complications.



Fig. 23: Silicone grease