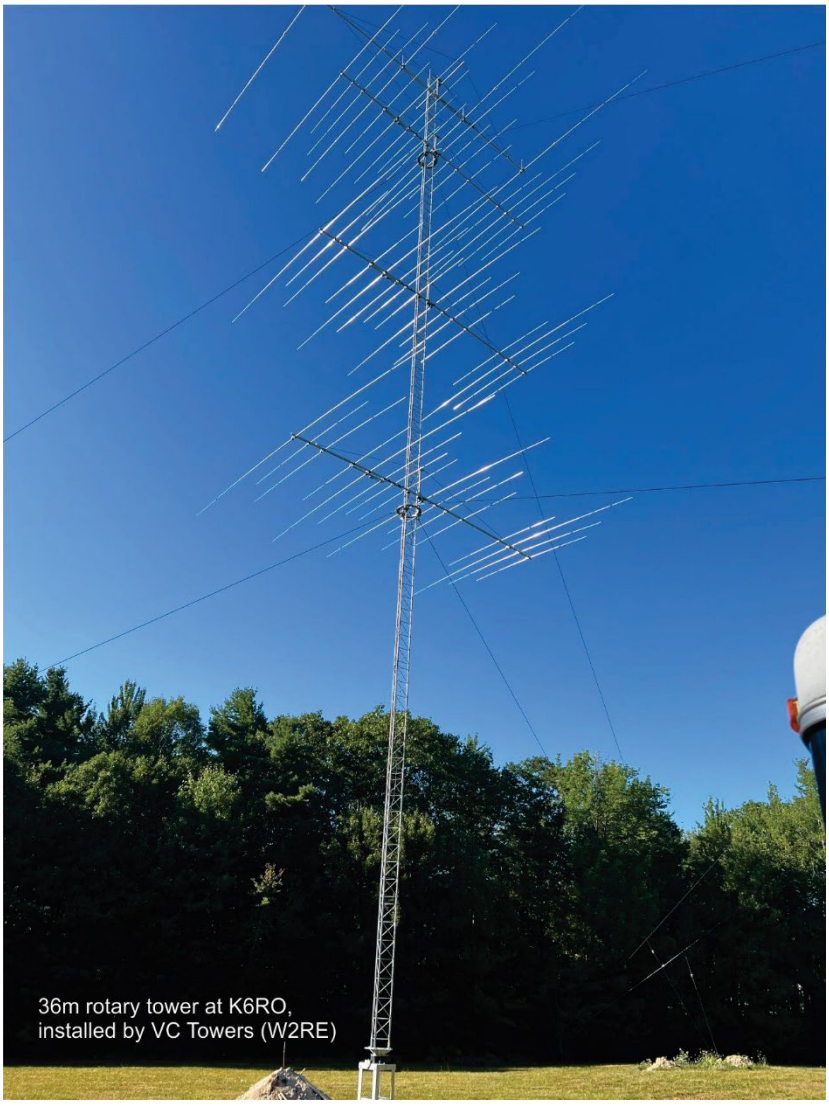
Rotary base RB45–65

Rotary Ring OFR-2

Manual



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General Information

The RB45–65 rotary base is standardly produced for RR45, R55, and R65 tower section sizes (Rohn standards).
The base has adapter pipes that can be adjusted to fit any of these three standards.

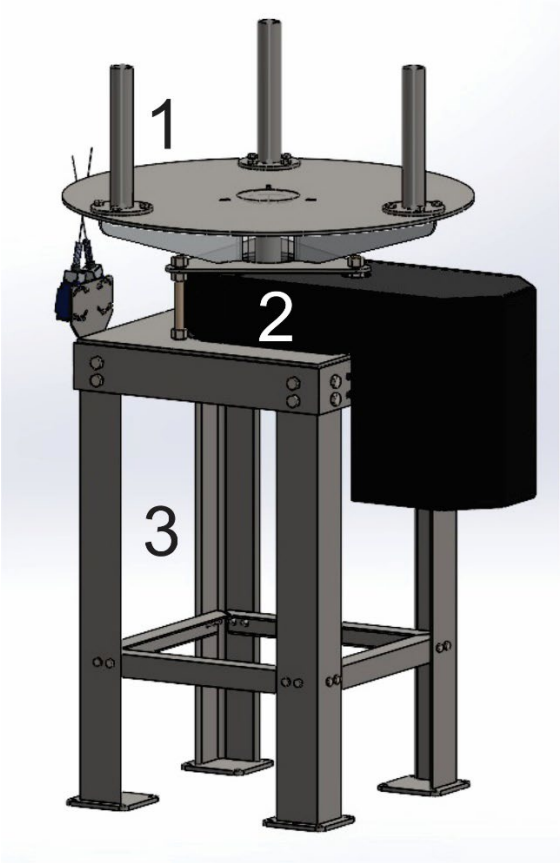

Fig 1

The entire base and rotary ring assemblies are designed to be **fully dismountable** for easier transport and handling.
This modular approach eliminates the need for heavy transport machinery: two installers can carry and manipulate the assemblies on site without difficulty.
If the parts were permanently welded, the units would be extremely heavy and require special equipment for loading, unloading, and positioning. (Fig 1)

The rotary base consists of three main components:

1. **Base plate with bearings and support plate**
2. **Motor with chain drive**
3. **Mounting legs for anchoring the base to the foundation**

1. Base Plate with Bearings and Support Plate

The bearing plate is designed so that the entire main shaft assembly—containing three ball bearings—can be removed from the base for inspection, lubrication, or replacement.

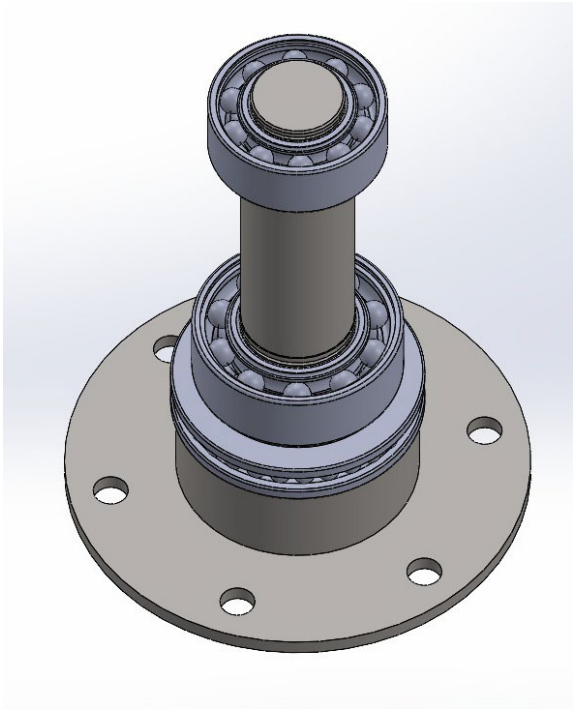

Fig 2

At the bottom of the shaft is a **tapered bearing** designed to support vertical loads up to **10 tones**.

Above it are **two radial bearings**. (Fig 2)

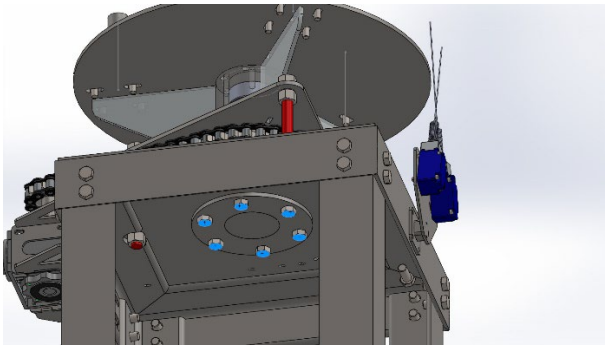

Fig 3

The complete main shaft assembly is attached to the support plate with eight screws. (Fig 3)

Removal procedure:

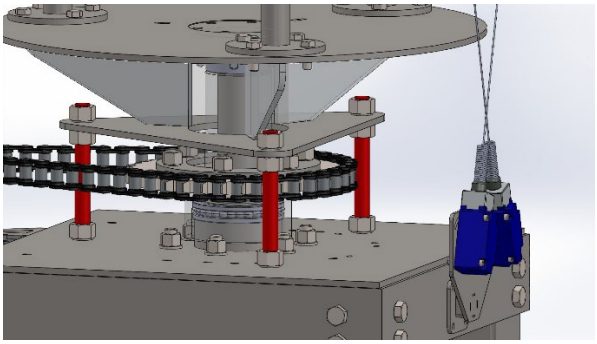

Fig 4

Block the tower using three locking bolts (red color) so that they touch the surface of the support plate. (Fig 4)

Lock them in place with jam nuts.

At this point, the tower is supported by the three bolts, and the main shaft can be removed.

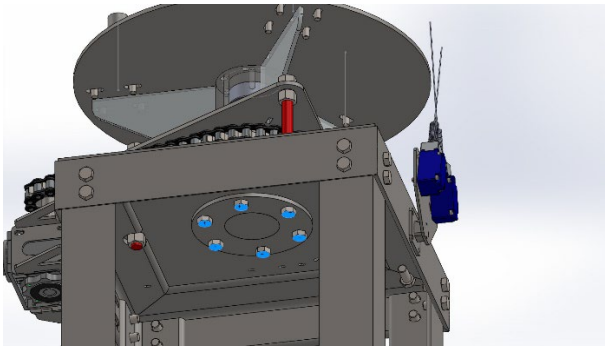

Fig 5

Unscrew all eight screws indicated in blue color. (Fig 5)

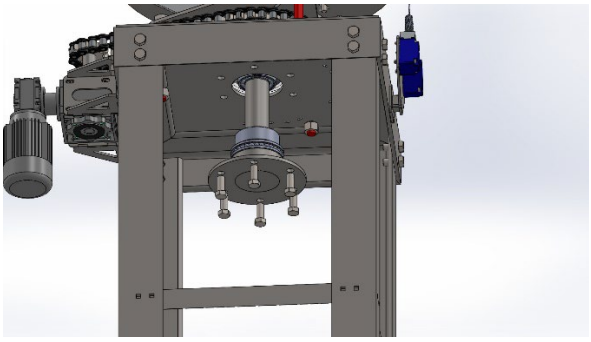

Fig 6

Pull the main shaft vertically downwards. If removal is difficult due to tight bearing tolerances, apply light tapping or use a puller. (Fig 6)

Perform any required servicing.

Reinstallation:

- Insert the shaft back into position.
- Tighten the eight bolts evenly so that the shaft seats uniformly into its housing.
- Fully tighten all bolts.

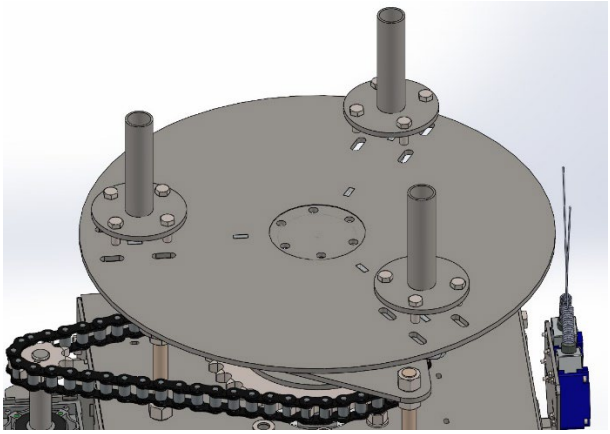

Fig 7

The **upper circular plate** carries bracket for attaching the first tower section. The plate has multiple perforations for mounting adapter pipes for Rohn 45, 55, or 65 sections. The elongated holes allow for fine adjustment to compensate for small fabrication errors in the tower sections. (Fig 7)

2. Motor with Chain Drive

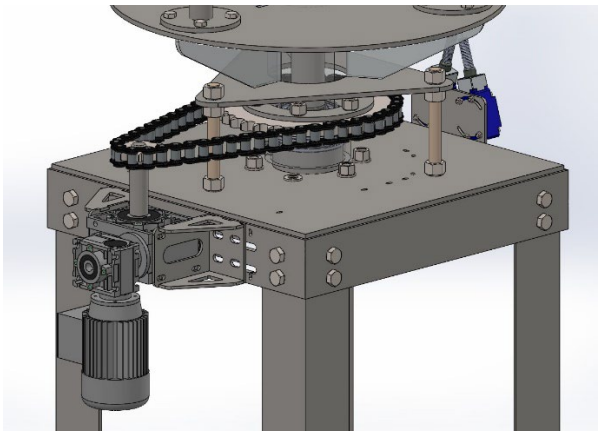

Fig 8

The motor is mounted on the side of the base. (Fig 8)

- Remove the motor cover to access the motor.
- Motor power rating: **500 W – 750 W nominal**.
- Before installation, test the motor outside the base and verify the functionality of the control box.
- Detailed motor specifications and wiring are described in the **MOTORS** section.

3. Mounting Legs

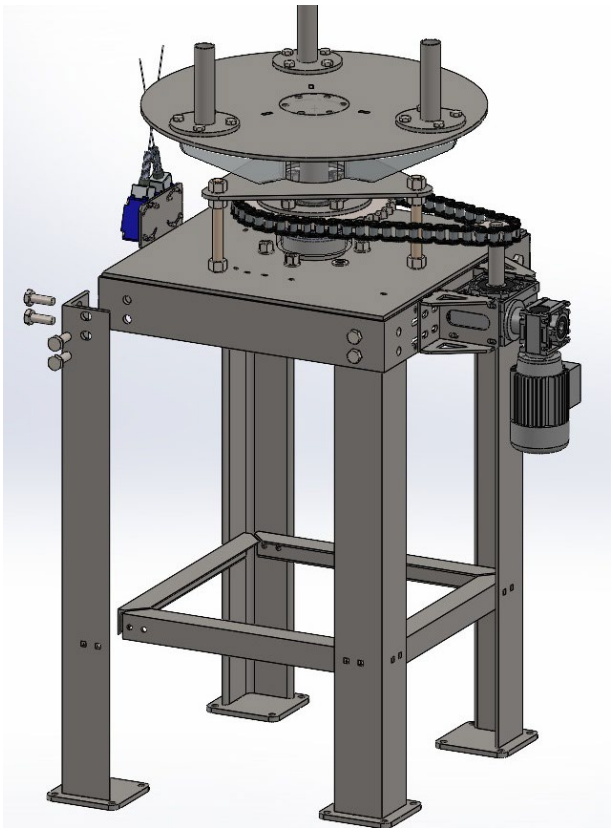

Fig 9

The mounting legs secure the rotary base to the tower foundation.

The legs are designed to be **detachable** for easier transport and handling during installation. (Fig 9)

- A welded, monolithic design would make the base extremely heavy and require special machinery for loading, unloading, and positioning on site.
- The detachable-leg approach allows the base to be transported and installed much more easily, **without compromising mechanical strength**, as all components are dimensioned for the intended loads.

- Standard height is **60 cm**
- Custom heights available on request, depending on the average snow depth in the installation location.

Rotary Ring – OFR-2

The OFR-2 rotary ring is designed for smooth rotation, easy installation, and simple servicing.
The design philosophy emphasizes **serviceability and modularity**: the ring can be easily assembled and disassembled when required. (Fig 10)

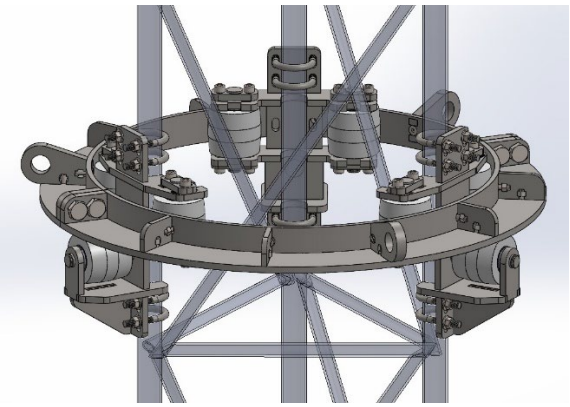

Fig 10

At the same time, the structure has been engineered to ensure **sufficient strength with no critical weak points**, while keeping the weight as low as possible.
This balance of robustness and lightness significantly simplifies both installation and maintenance—traditionally one of the biggest challenges during tower operation.

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5. Design Features

In strong winds, the tower's weight and wind load often act on a single point of the ring. In traditional designs, this force is carried by only one or two bearings, causing uneven load distribution.

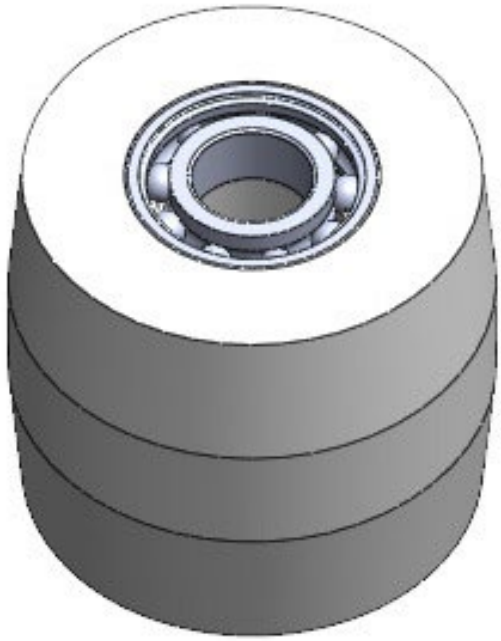

Fig 11

The rollers used in the OFR ring are made of **high-strength PVC material**, the same type commonly applied in heavy industrial environments.
Each roller is equipped with **two ball bearings**, ensuring smooth rotation. (Fig 11)

These bearings require regular maintenance: they should be **inspected and lubricated twice a year** using appropriate bearing grease.
The recommended maintenance intervals are **April and November**.
Following this schedule will significantly extend the service life of the rollers.

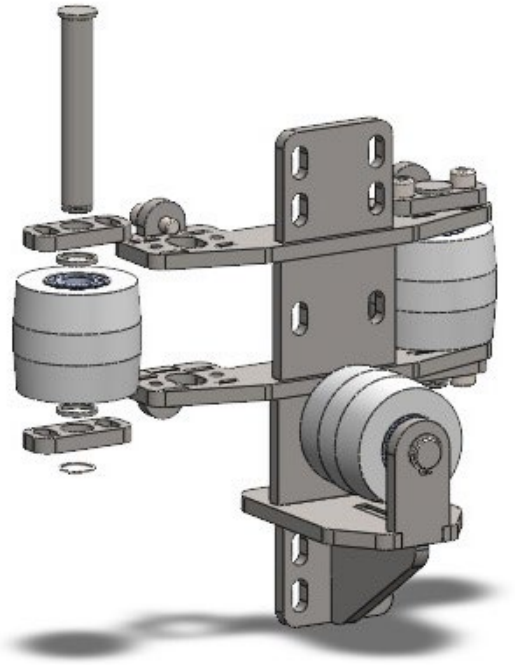

Fig 12

The OFR-2 design uses **one horizontal roller** and **two vertical rollers** per assembly. (Fig 12)

In case of wind stress, at least two rollers in one assembly take the load, and each roller contains two bearings—**four bearings total**—providing higher durability than standard closed-ring designs. Plastic rollers also distribute the load more evenly, increasing robustness and service life.

6. Serviceability

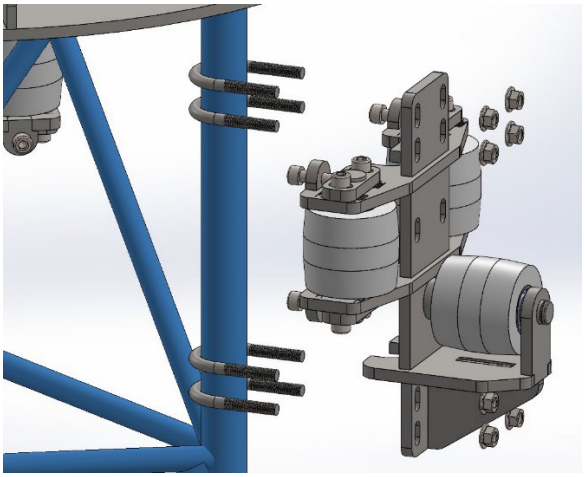

Fig 13

The roller assembly is easily accessible for inspection and lubrication. (Fig 13)

If replacement is necessary, the assembly can be removed and reinstalled without auxiliary support cables.

The assembly is mounted to the tower using either: **Two 12 mm U-bolts or Four 8–10 mm U-bolts**

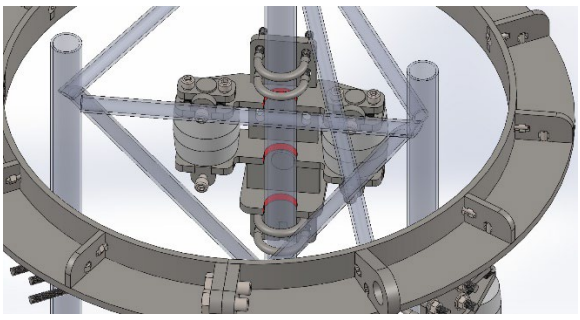

Fig 14

The contact surface of the roller assembly—where it clamps to the tower pipe—is cut to precisely match the **half-diameter of the tower's supporting pipe**.(Fig 14)
This ensures a very firm grip and maximum contact surface area between the assembly and the tower's tube.

7. Vertical Roller Adjustment

Vertical rollers can be adjusted by **± 5 mm** to correct section dimension deviations.
They are factory-set to exact section dimensions, so adjustment is only necessary when obvious size discrepancies exist.

Adjustment procedure:

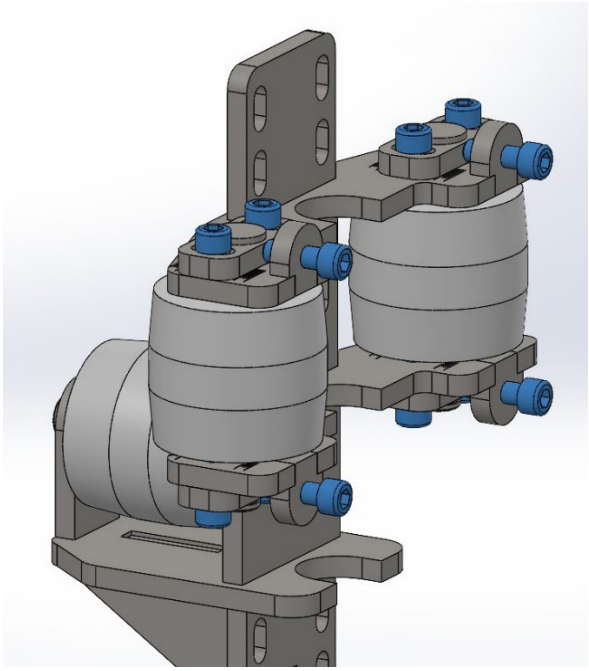

Fig 15

Loosen the safety bolt to its rearmost position.

Loosen the screws securing the vertical roller shafts. (Fig 15)

Move the vertical rollers toward or away from the tower to achieve optimal contact.

Retighten the screws securing the vertical rollers.

Move the safety screw forward until it just touches both the upper and lower roller plates, then lock it with a jam nut.

This prevents the rollers from moving, even under high stress.

8. Mounting the Roller Holders and Outer Ring

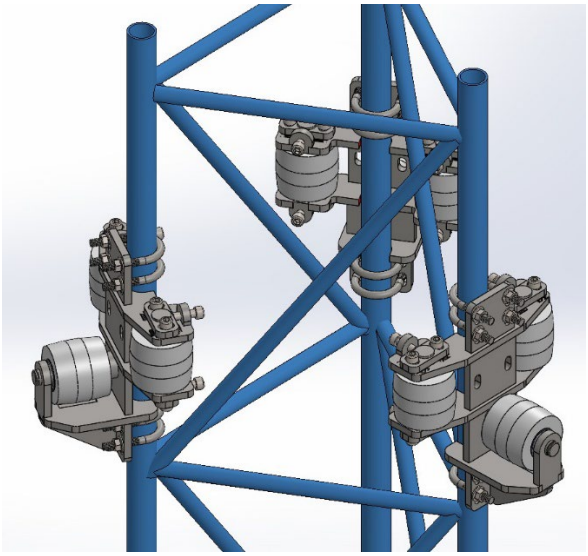

Fig 16

Mount all three vertical roller holders onto the tower. Ensure all are at the same height (Fig 16)

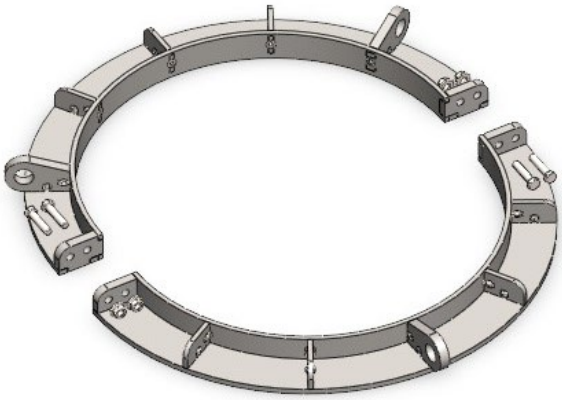

Fig 17

The outer ring consists of **two fully symmetrical halves**, which are joined together on the tower using **four M10 bolts**. This design allows for easy installation, disassembly, and servicing of the ring components. (Fig 17)

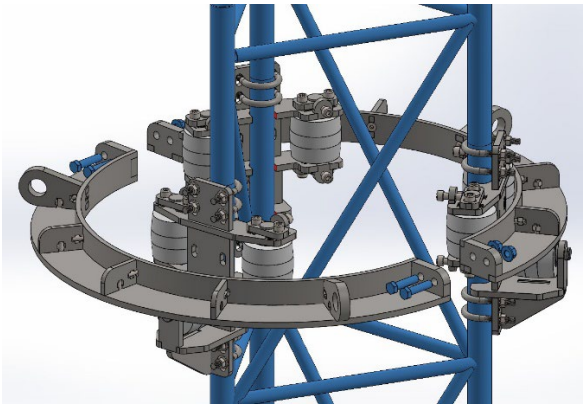

Fig 18

Install the **outer ring** onto the horizontal rollers. (Fig 18)

The outer ring consists of two symmetrical half-rings, making it easy to lift and mount at any point on the tower or to remove it when necessary.

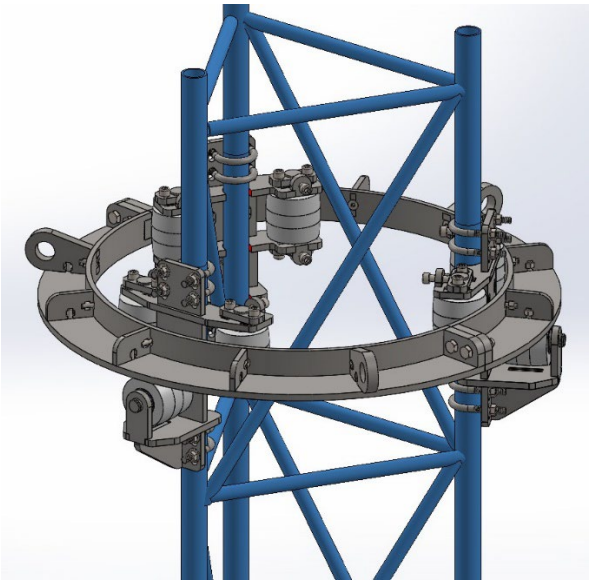

Fig 19

Join the two halves of the outer ring and secure them with screws directly on the tower. (Fig 19)

1. Check that the ring rests evenly on all three horizontal rollers. If needed, adjust the height of the roller holders using a spirit level (bubble level).
2. When properly installed:
    - All three rollers touch the ring
    - The ring remains horizontal in all positions
3. Tighten all screws. The ring should rotate smoothly without binding.