



# Marco UP Series Electric Pump Assembly

Once you have disassembled the pump, use this guide to assemble it back.

Written By: Marco Spa



## INTRODUCTION

This guide works for every gear pump in the UP series from Marco.

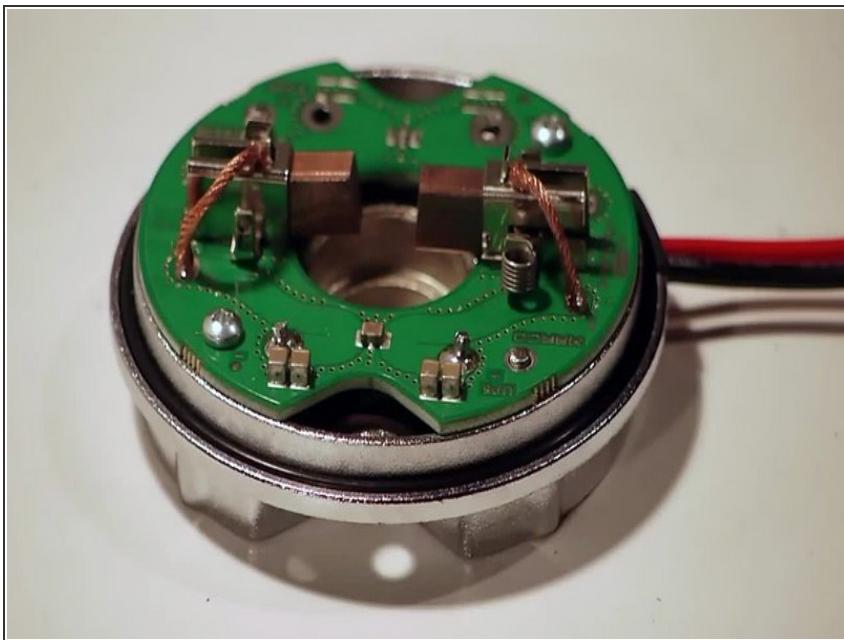
Some parts of the assembly may be tricky; for this reason it's important to read the steps carefully.

The manufacturer's individual product pages are available at [this link](#).

## TOOLS:

- [2.5 mm Flathead Screwdriver](#) (1)
- [8mm Socket Wrench Screwdriver](#) (1)
- [Phillips #2 Screwdriver](#) (1)
- [Soft Mallet](#) (1)
- [Silicone Grease](#) (1)

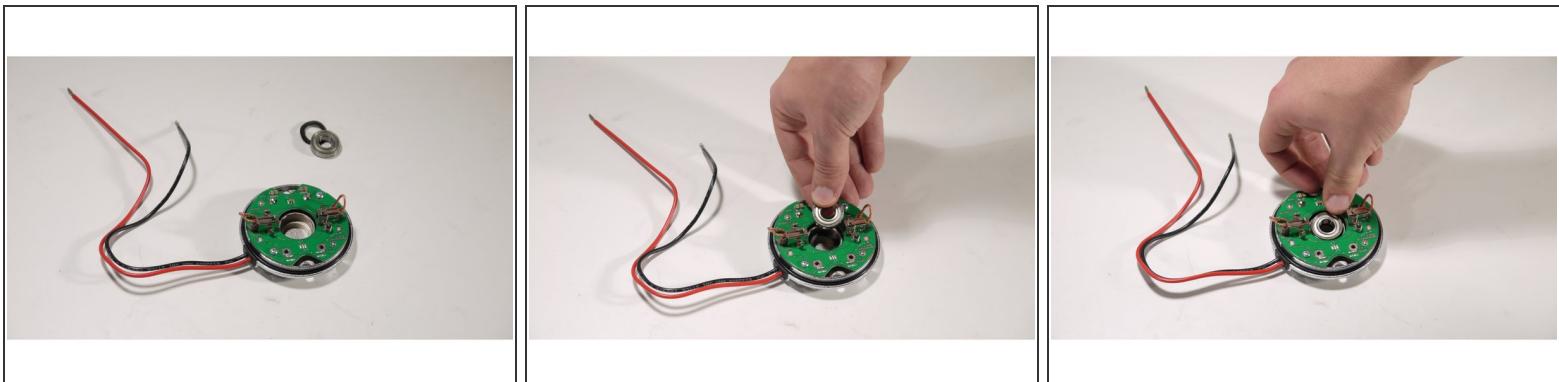
## Step 1 — Prepare the brushes



- Place the brushholder on the table, face up.
- Follow the steps in the video to move the brushes' springs out of the way.
- Pull the brushes away from the center.

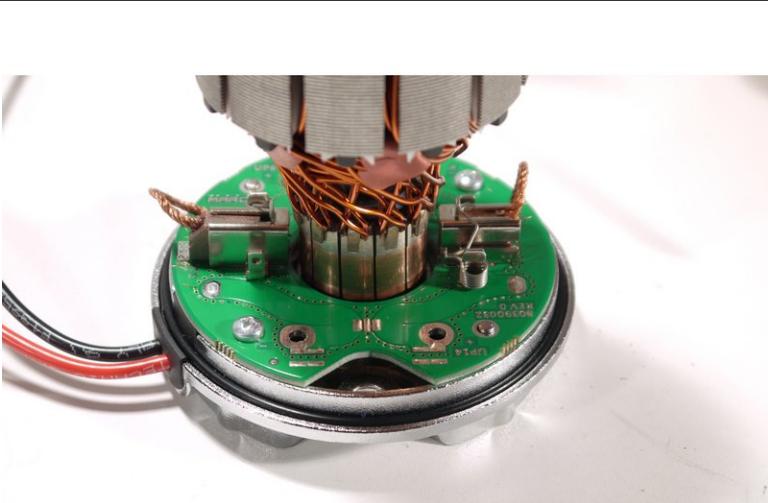
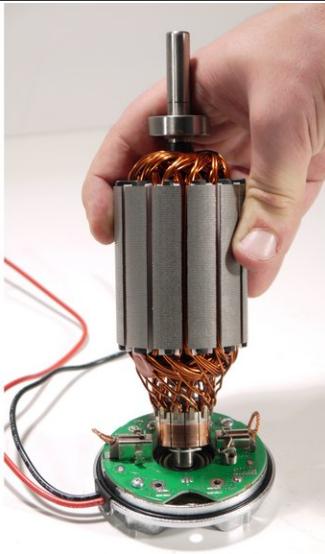
 Come back here if in the next steps the stator magnets suck up the rotor.

## Step 2 — Insert the spring and the ball bearing



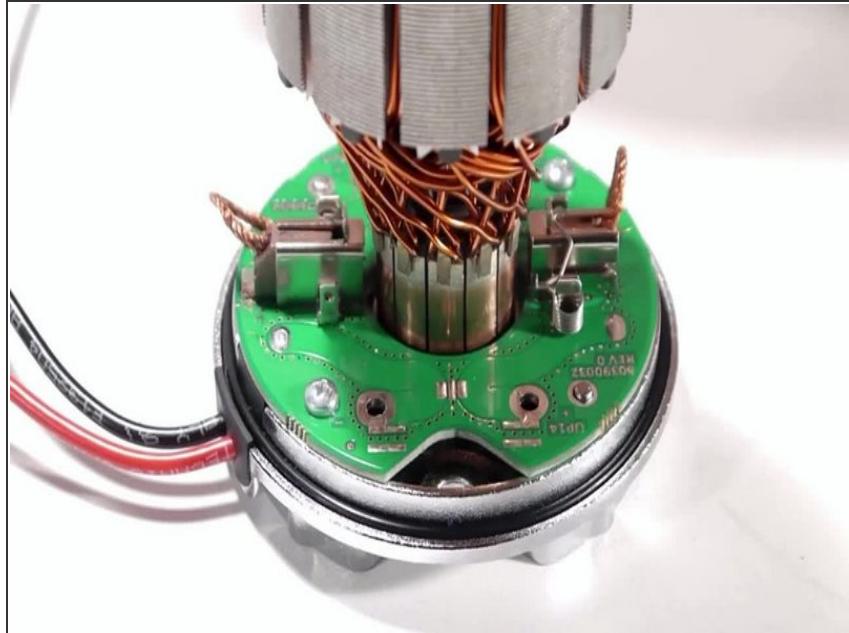
- First, fit the round spring in the hole.
- Then, insert the ball bearing and press a little to be sure that it touches completely on the bottom.

## Step 3 — Insert the rotor



- Insert the rotor shaft in the ball bearing.

## Step 4 — Lift brushes' wires



- As seen in the video, lift brushes' wires: this helps the brush moving flawlessly in the brushholder.

⚠ This operation is very important: if you forget to do this the wire may clamp in the o-ring sealing and prevent the brush from moving towards the electrical rotary joint. Waterproofness is also compromised, if this happens.

↗ Come back here if you assembled everything but the motor won't turn on after applying power.

## Step 5 — Insert the stator tube



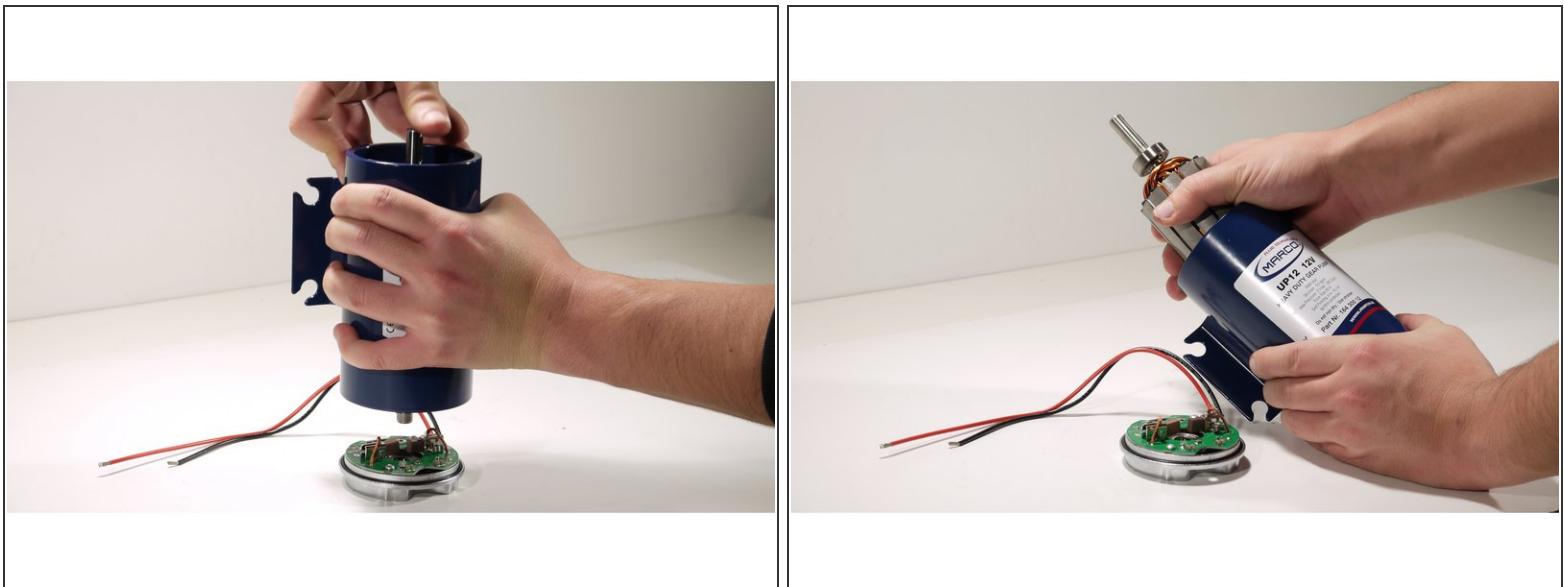
- Place the stator tube over the rotor.

⚠ Make sure that the MARCO logo stays upward, otherwise the pump rotates in the wrong direction.

- With your thumb, keep the rotor down. The magnetic field is strong and tries to lift it up: if it happens, you have to set the brushes back in place, like in the previous steps.

⚠ Make sure that the brushes' wires are in place!

## Step 6 — If it doesn't work the first time...

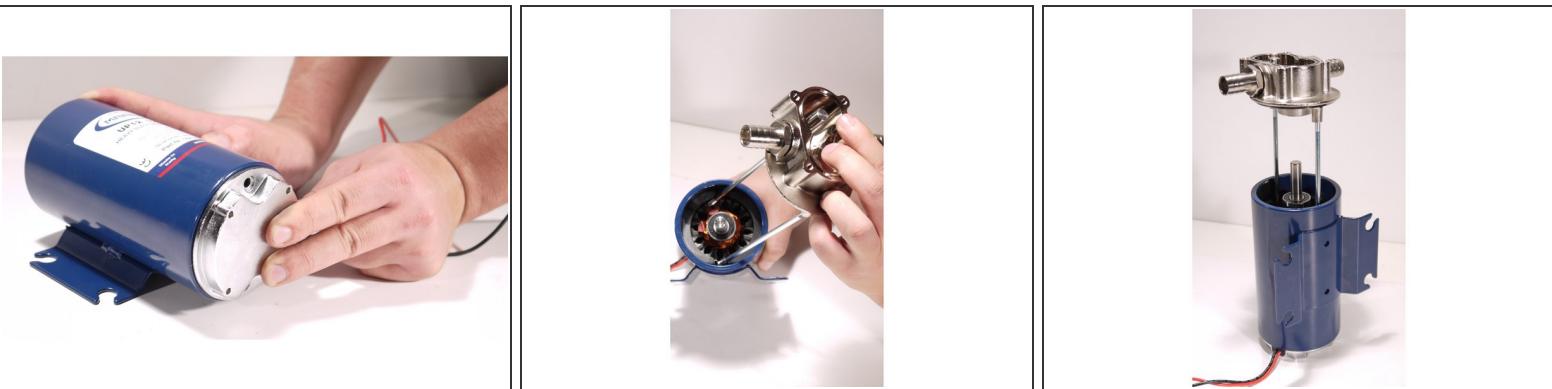


- If you didn't manage to stop the rotor from lifting, pull it out from the stator tube by pulling from the top and pushing from the bottom.

- Once you have both of them divided, start all over again.

**⚠** Don't try to force the rotor between the brushes without unloading the brushes' springs! You may break them.

## Step 7 — Insert the pump head



- Make sure that the pump's brushholder is in the correct position, like in the first picture. You should have the cables looking down on the right and the MARCO logo in the sticker on the stator that looks toward pump's head.
- Insert the pump's head tie-rods in the holes between the magnets.

**⚠** There's only one way to mount it right, the other is upside down! Watch the pictures.

- Push the tie-rods down to the end of the motor: they should come out on the other side, as seen in the next steps.
- **i** The smaller motors have the tie-rods placed horizontally: refer to the position of the holes in the pump's head to understand the right direction to assemble them!

## Step 8 — Fix the nuts

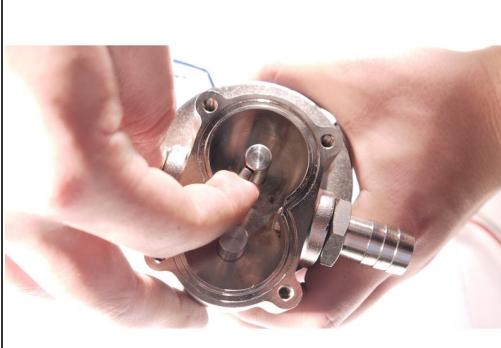


- First insert the o-rings.
- Then add the washers.
- Eventually, close **slightly** with the nuts.
- Before screwing **firmly** the nuts, shake a little the assembly or allow a few kicks with a soft mallet on the back of the pump, to adjust the mechanical parts to each other.

**i** If you can, test that the motor rotates freely by connecting it to the power supply right now. **This is a useful step to do right now, because if the brushes are not correctly assembled, you'll have to disassembly the pump again e start from step 4.**

- **Firmly** fix the nuts, but be prepared to untighten them as needed if the pump draws too much current.

## Step 9 — Insert the key



- Turn the pump around and insert gear's key in the shaft.
- This may be tricky on the smaller pumps: if you haven't enough room to slide it inside with the finger like in the pictures, you may use a magnetic flat screwdriver if you have a metal key or a flat screwdriver with some grease on it to make it sticky for the plastic ones.

## Step 10 — Add the gears



- First, insert the gear with the key: it could be harder to do it once the other gear is in place.
- Then, insert the second gear.

## Step 11 — Add the top plate and the o-ring



- Follow the movements in the video to insert the o-ring in its slot.
- Watch the flow direction arrow on the sticker, and place the top plate as shown.

## Step 12 — Lock the top plate with the screws



- Don't close them too tight, the screwdriver strength is ok!

## Step 13 — All done!



- Your pump assembly is completed!

**i** If it draws too much current, loosen the screws on the top plate (a little) with the motor spinning and/or the nuts on the back. Allow a few seconds free spin and close them again. This helps the different parts to adjust correctly to the working position.