# re:Mix by Open Funk - Technical description

Revision date:  22.06.2023
By Ken Rostand

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# Product overview

Open Funk designs and locally manufactures sustainable and circular home electronics that do not compromise on performance, quality and style.

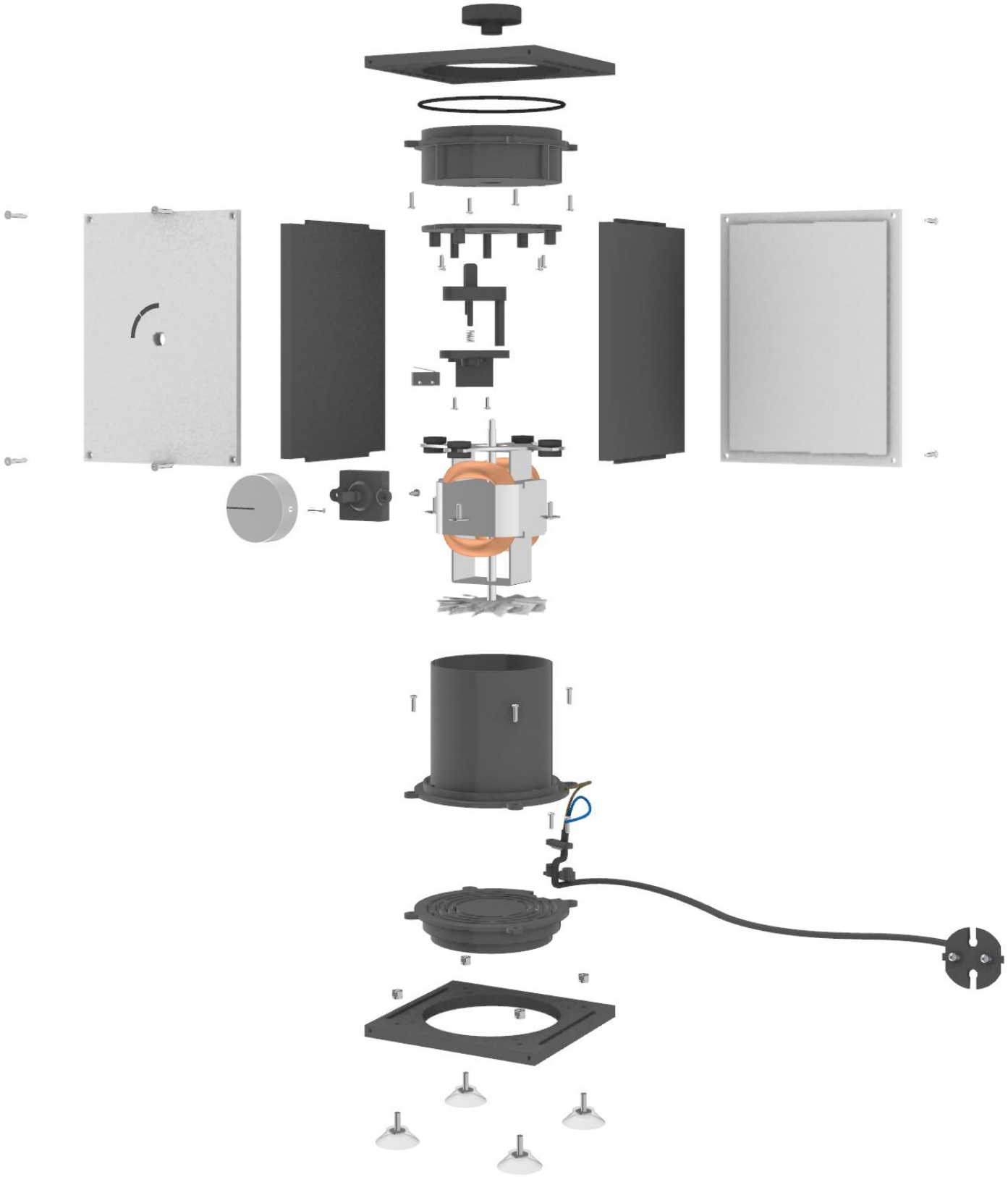
ReMix is our first product - a multifunctional kitchen mixer, smoothie maker and coffee grinder, with an outer casing made of recycled plastics and assembled in Germany.

It features a removable blender head and uses standard glass jars as containers:

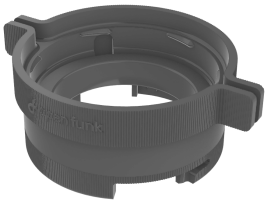
# BOM specification

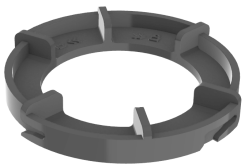
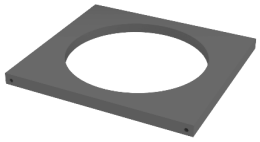
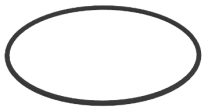
**Blender Head and Blade block:**

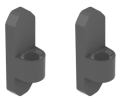
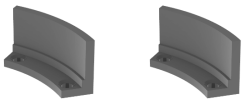
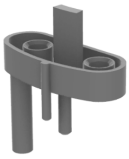
**Blender Casing and Assembly:**

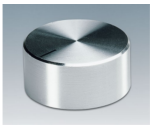


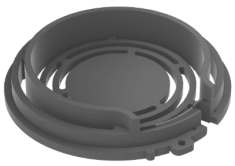
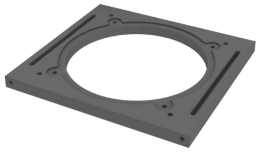
## Mechanical BOM:

| Part # | 3D view | Part name | Qty | Part size | Material & process | Part information |
|---|---|---|---|---|---|---|
| 1 |  | **Blade** | 1 | Blade:<br>Ø max = 58<br>Height = 30<br><br>Shaft:<br>Ø rod = 6<br>L = 35 | Material: Stainless steel 304 | Sourced as buy-in component in China |
| 2 |  | **Blade Seal** | 1 | Ø outer = 9<br>Height = 5 | Material: Silicone<br>Process: Injection molding<br>Colour: Translucent | Sourced as buy-in component in China |
| 3 |  | **Head Seal** | 1 | Ø outer = 78.8<br>Height = 17.7 | Material: TPE-V<br>Process: Injection molding<br>Colour: Black | Injection molded by us |
| 4 |  | **Blender Head** | 1 | L = 124<br>W = 95<br>H = 45 | Material: Engineering PLA<br>Process: 3D printed (FDM)<br>Colour: Black | 3D printed by us on Original Prusa i3 MK3S with 3dK E-PLA |
| 5 |  | **Blade Base** | 1 | Ø outer = 75<br>Height = 28.2 | Material: Stainless steel 304 | Sourced as buy-in component in China |
| 6 |  | **Slide Bearing** | 1 | Ø outer = 13<br>Ø inner = 8<br>Height = 20 | Material: Bronze | Sourced as buy-in component in China |

| | | | | | | |
|---|---|---|---|---|---|---|
| 7 |  | **Blade Locker** | 1 | Ø outer = 80.8<br>Height = 8.4 | Material: Engineering PLA<br>Process: 3D printed (FDM)<br>Colour: Black | 3D printed by us on Original Prusa i3 MK3S with 3dK E-PLA |
| 8 |  | **Blade Gear** | 1 | Ø outer = 33<br>Height = 11.5 | Material: Silicone with zinc plated iron nut<br>Process: Compression molded | Sourced as buy-in component in China |
| 9 |  | **Motor Gear** | 1 | Ø outer = 41<br>Height = 18.3 | Material: PA66+GF30% with copper nut<br>Process: Injection molded | Sourced as buy-in component in China |
| 10 |  | **Top Panel** | 1 | L = 130<br>W = 120.4<br>H = 8<br>Ø inner = 96.7 | Material: Recycled HDPE<br>Process 1: Thermopressed<br>Process 2: CNC milled | CNC milled by us on boards from Le Pavé® |
| 11 |  | **Socket O-ring** | 1 | Ø inner = 90<br>Ø = 2.5 | Material: Rubber EPMD70<br>Process: Injection molded<br>Colour: Black | Sourced as buy-in component from Hug Technik<br>Art. Nr.:<br>42709500250 |
| 12 |  | **Blender Socket** | 1 | L = 106.3<br>W = 106.3<br>H = 33.7 | Material: ASA<br>Process: 3D printed (FDM)<br>Colour: Black | 3D printed by us on Original Prusa i3 MK3S with Prusament ASA |
| 13 |  | **Motor Adaptor** | 1 | L = 102.6<br>W = 96.3<br>H = 20.4 | Material: ASA<br>Process: 3D printed (FDM)<br>Colour: Black | 3D printed by us on Original Prusa i3 MK3S with Prusament ASA |

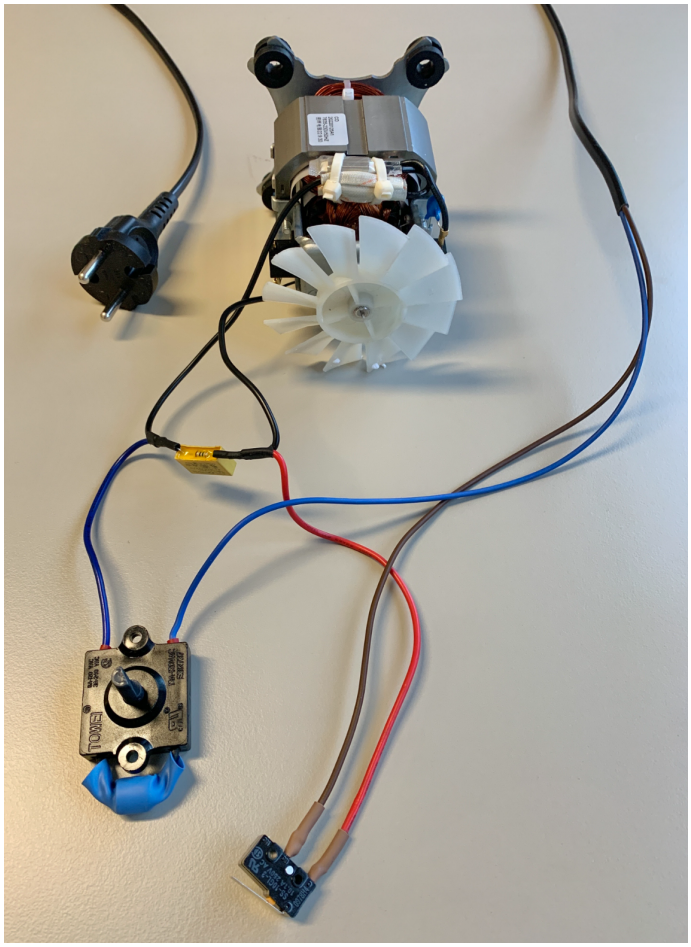
| | | | | | | |
|---|---|---|---|---|---|---|
| 14 |  | **Jar Slider** | 2 | L = 24.2<br>W = 9.3<br>H = 10 | Material: Engineering PLA<br>Process: 3D printed (FDM)<br>Colour: Black | 3D printed by us on Original Prusa i3 MK3S with 3dK E-PLA |
| 15 |  | **Stopper** | 2 | L = 27<br>W = 9.2<br>H = 13 | Material: Engineering PLA<br>Process: 3D printed (FDM)<br>Colour: Black | 3D printed by us on Original Prusa i3 MK3S with 3dK E-PLA |
| 16 |  | **Head Slider** | 1 | L = 45.7<br>W = 20.4<br>H = 56.5 | Material: ASA<br>Process: 3D printed (FDM)<br>Colour: Black | 3D printed by us on Original Prusa i3 MK3S with Prusament ASA |
| 17 |  | **Switch Holder** | 1 | L = 50.2<br>W = 28.7<br>H = 25.9 | Material: ASA<br>Process: 3D printed (FDM)<br>Colour: Black | 3D printed by us on Original Prusa i3 MK3S with Prusament ASA |
| 18 |  | **Left Panel** | 1 | L = 165.3<br>W = 120.4<br>H = 8 | Material: Recycled HDPE<br>Process 1: Thermopressed<br>Process 2: CNC milled | CNC milled by us on boards from Le Pavé® |
| 19 |  | **Right Panel** | 1 | L = 165.3<br>W = 120.4<br>H = 8 | Material: Recycled HDPE<br>Process 1: Thermopressed<br>Process 2: CNC milled | CNC milled by us on boards from Le Pavé® |

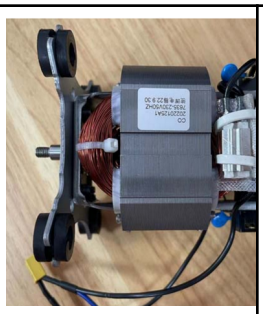
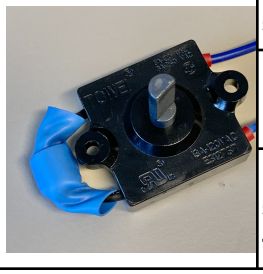
| | | | | | | |
|---|---|---|---|---|---|---|
| 20 |  | **Front Panel** | 1 | L = 175<br>W = 130<br>H = 8 | Material: Recycled HDPE<br>Process 1: Thermopressed<br>Process 2: CNC milled<br>Process 3: Sticker label | CNC milled by us on boards from Le Pavé® |
| 21 |  | **Back Panel** | 1 | L = 175<br>W = 130<br>H = 8 | Material: Recycled HDPE<br>Process 1: Thermopressed<br>Process 2: CNC milled | CNC milled by us on boards from Le Pavé® |
| 23 |  | **Switch O-ring** | 1 | inner Ø = 15.5 Ø = 1.5 | Material: Rubber NBR70<br>Process: Injection molded<br>Colour: Black | Art. Nr.: 4300550150 |
| 24 |  | **Control Knob** | 1 | Ø outer = 37.8<br>Depth = 15.9 | Material: Aluminum and ABS | OKW |
| 25 |  | **Ventilation Pipe** | 1 | L = 113<br>W = 83.7<br>H = 92 | Material: ASA<br>Process: 3D printed (FDM)<br>Colour: Black | 3D printed by us on Original Prusa i3 MK3S with Prusament ASA |

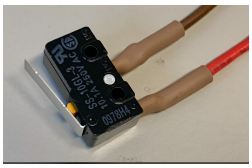
| | | | | | | |
|---|---|---|---|---|---|---|
| 26 |  | **Ventilation Grid** | 1 | L = 113<br>W = 103.3<br>H = 18.5 | Material: ASA<br>Process: 3D printed (FDM)<br>Colour: Black | 3D printed by us on Original Prusa i3 MK3S with Prusament ASA |
| 27 |  | **Cable Fixer** | 1 | L = 24.4<br>W = 8.6<br>H = 5 | Material: ASA<br>Process: 3D printed (FDM)<br>Colour: Black | 3D printed by us on Original Prusa i3 MK3S with Prusament ASA |
| 28 |  | **Bottom Panel** | 1 | L = 130<br>W = 120.4<br>H = 8<br>Ø inner = 96.7 | Material: Recycled HDPE<br>Process 1: Thermopressed<br>Process 2: CNC milled | CNC milled by us on boards from Le Pavé® |
| 29 |  | **Suction Feet** | 4 | Ø outer = 30<br>Height = 20 | Material: TPE-V with stainless steel thread<br>Colour: Black | Vakuplastik |
| 30 |  | **Jar** | 1 | Ø outer = 86<br>Height = 125<br>V= 565 mL | Model: 13460<br>Mouth: TO82<br>Material: Glass | GläserUndFlaschen. Any TO82 will fit. |

Parts in blue are in contact with food

## Electrical BOM:

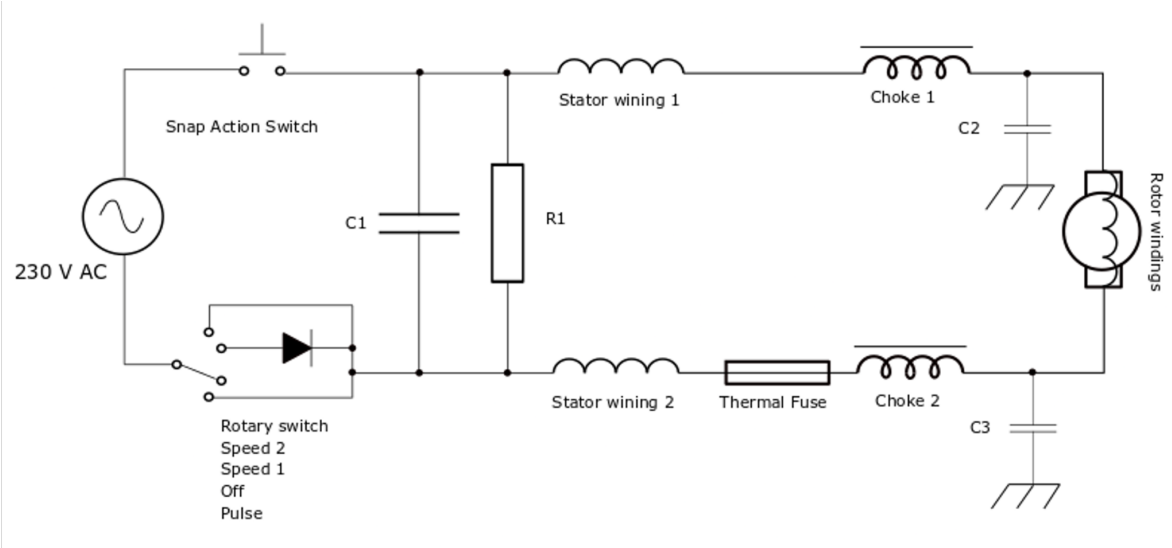


| | | | | | |
|---|---|---|---|---|---|
| 1 |  | **Motor** | 1 | Model: 7635<br>Incl. below components:<br>• blue capacitor X1<br>• heat protector 17AM1+PTC<br>• inductor 4X10 12UH 45 45<br>• yellow capacitor X2 224 275 +470K<br>• Heat shrink tubes<br>• Wires | CCY Motor |
| 2 |  | **Rotary switch** | | Model: B3200-411G | Shenzhen Towei Electrics Co., Ltd. |
| 3 | | **Ferrule** | 2 | Model: VT AEHI 1,0-100 | Vogt AG Verbindungstechnik |
| 4 | | **Heat shrink tube1** | 1 | Model: SDB 4,8 BL<br>Schrumpfschlauch-Box, 12m, blau, Ø4,8mm | WE EISENACHER |

| | | | | | |
|---|---|---|---|---|---|
| 5 | | **Micro switch** | 1 | Model: SS-10GL-3 | OMRON |
| 6 |  | **Heat shrink tube 2** | 2 | Model: 1812CA007<br>DIN VDE 0293-308<br>Inner diameter 3.2mm | WE EISENACHER |
| 7 | | **Solder** | 2 | LZ FE CSN 1,0 25 Lötzinn bleifrei, Ø 1,0 mm, 250 g | Felder Löttechnik |
| 8 |  | **Power Cable** | 1 | Zuleitung H03VVH2-F2x0,75<br>schwarz 1400mm 110/K<br>1.S.Typ 110 Zentral-Konturenstecker<br>2.S. 300/ 5mm verzinnt | Plastro Mayer GmbH |

# Schematic

Schematic 2023-01-05




| Component | Value |
|---|---|
| R1 | 1 MOhm |
| C1 | 0,22 µF |
| C2, C3 | JY332M (X1 400VAC; Y2 300VAC) |
| Thermal Fuse | W<br>17AM1033A5 |
| Choke | 38 µH |

# Technical description

## ON/OFF and speed control


OFF position
Knob is set at position O

Speed 1
Turn knob clockwise to position I
The device turns ON and starts spinning at 50% max speed

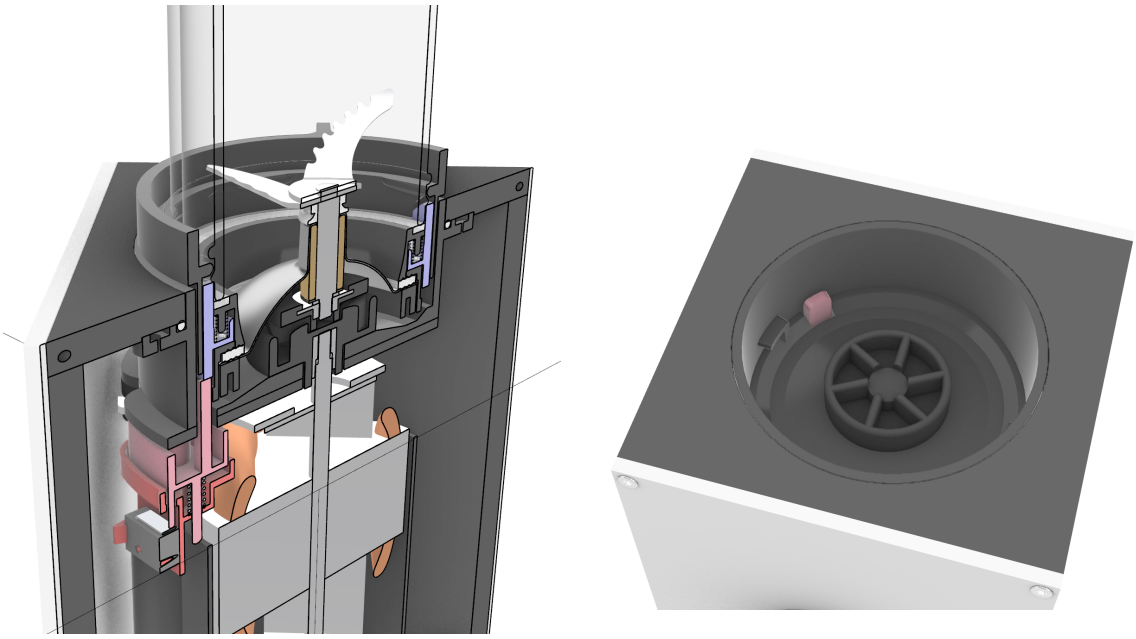
Speed 2
Turn knob clockwise to position II
The device starts spinning at max speed

Funk mode
Turn knob counterclockwise to position F
The device starts spinning directly at max speed

## Locking of Blender Head into Housing Socket

Slide in the Blender Head into the Blender Socket and twist-lock clockwise firmly using the two handles

## Detection of Blender Head and Jar



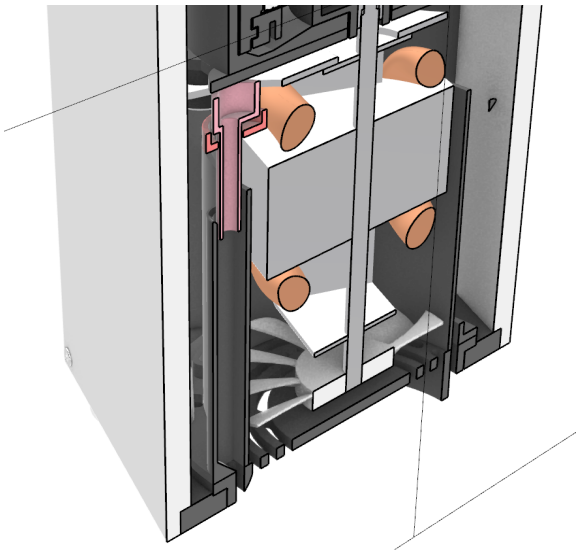
Detection of Blender Head

By Microswitch being pushed by the Head Slider (in pink)

Detection of Jar

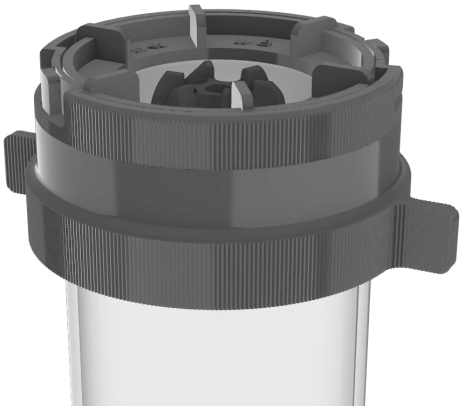
By Head Slider (in pink) being pushed by the Jar Slider (in blue)

## Water protection and draining



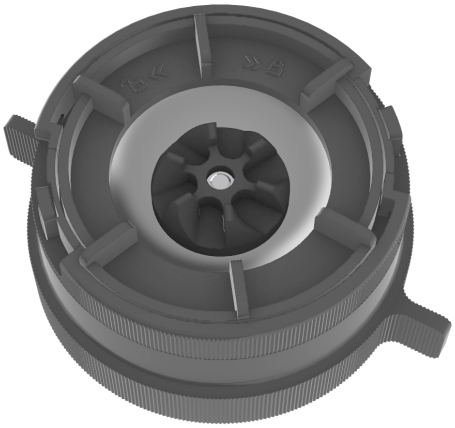
Potential excess water accumulating inside the Socket is being drained safely through the Head Slider, so it comes out through the Ventilation Grid outer holes.

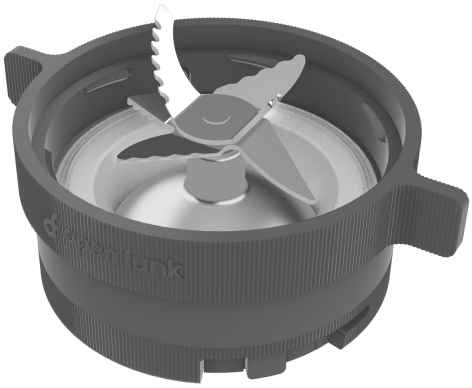
# Locking of Blender Head onto Jar



<u>By twist-off lock</u>
Size and fit standard > TO82 glass jars
Twist the Blender Head clockwise onto the Jar mouth to lock and seal the Jar tightly

# Locking of Blades into Blender Head





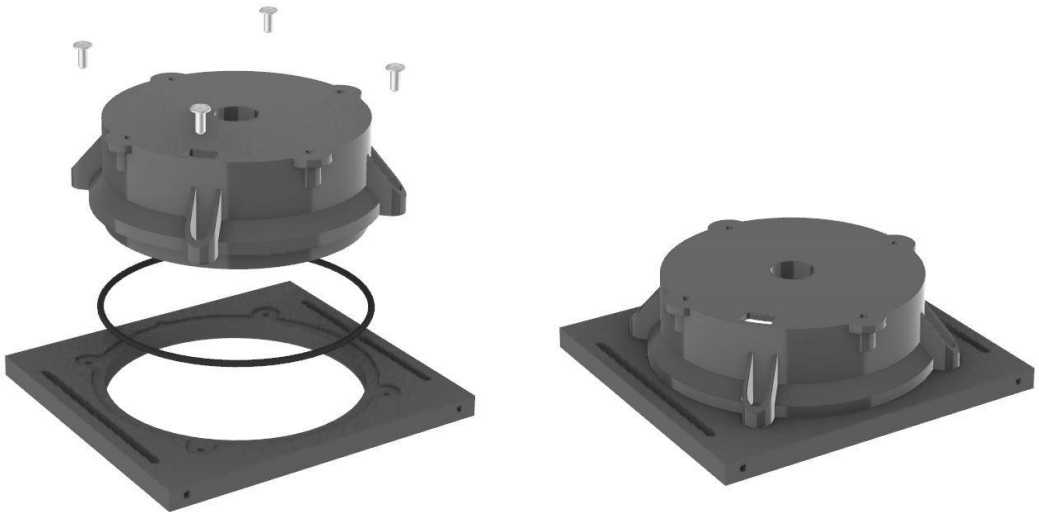
The Blade Gear on the other side of the Blade Rod locks in place the Blades Block together {Blades, Metal Base, Bearing, Rod Seal}

Twist-lock the Head Locker into the Blender Head, so it holds in place the Blades Block and compresses the Head Seal.

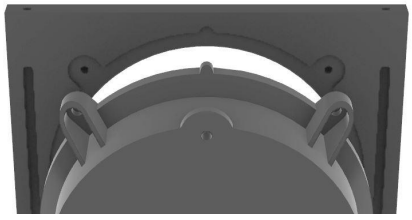
# Assembly Instructions

Max torque for screwing:  0.25 Nm

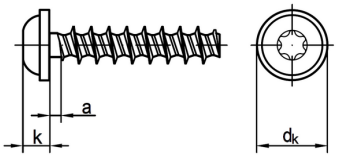
**1.**



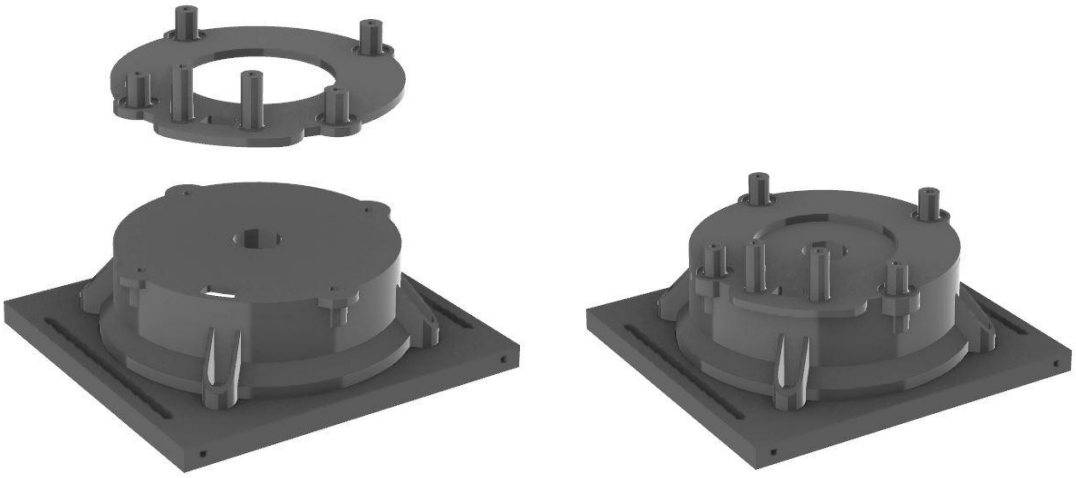
- Place the Socket O-ring into the groove of the Blender Socket
- Place the Blender Socket into the recess of the Top Panel
    - Make sure the positioner is aligned with its housing:



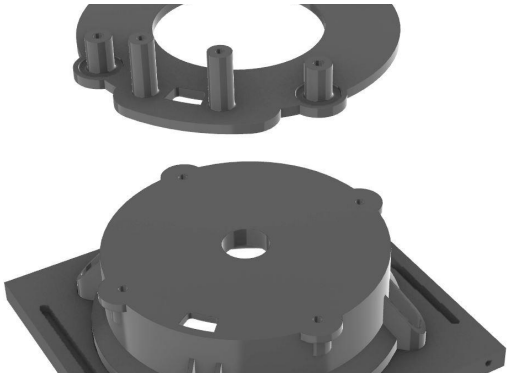
    - Fix it with 4 torque screws 3.5 x 8mm (#1126103508)



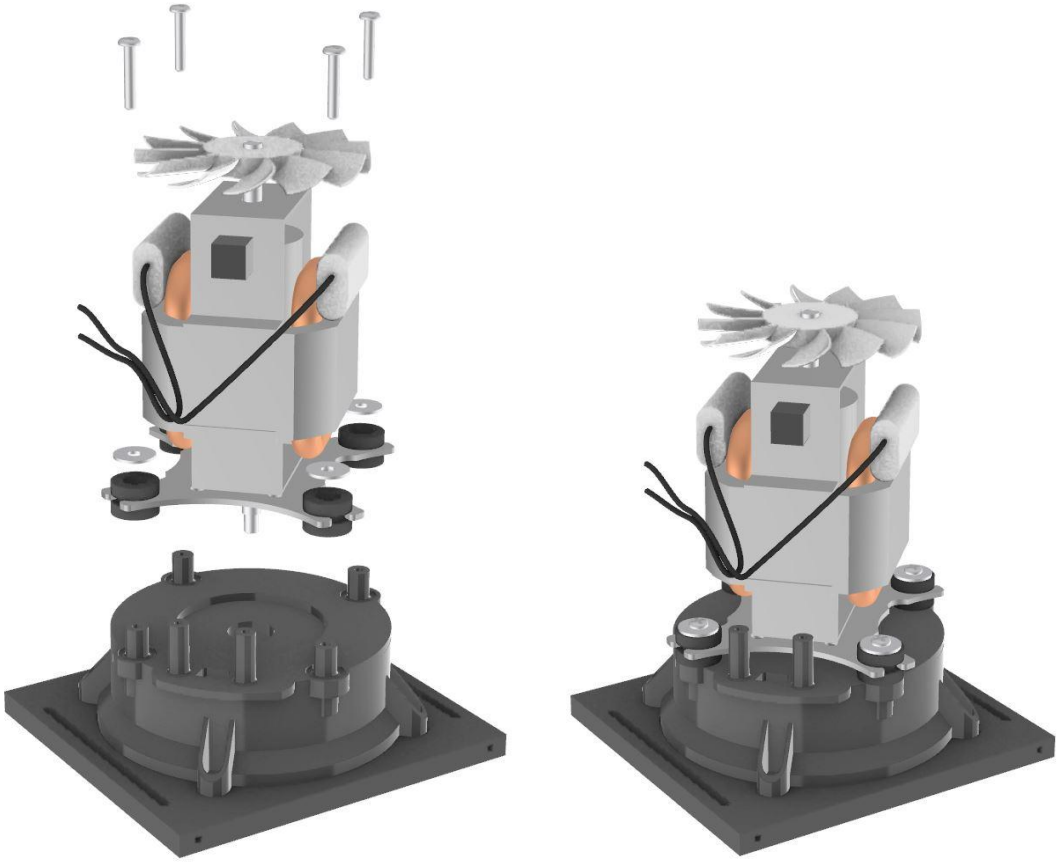
**2.**



- Place and screw the Motor Adaptor onto the Blender Socket
    - Place the Adaptor Jig around the Adaptor and Socket a shown above
    - Make sure the two rectangular holes are aligned:



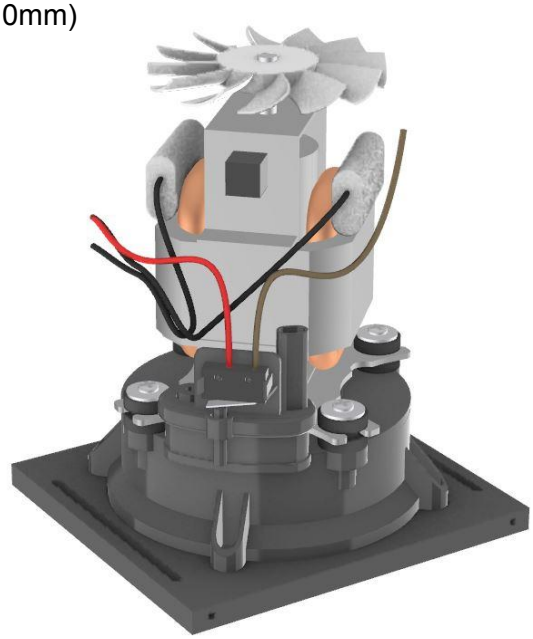
**3.**



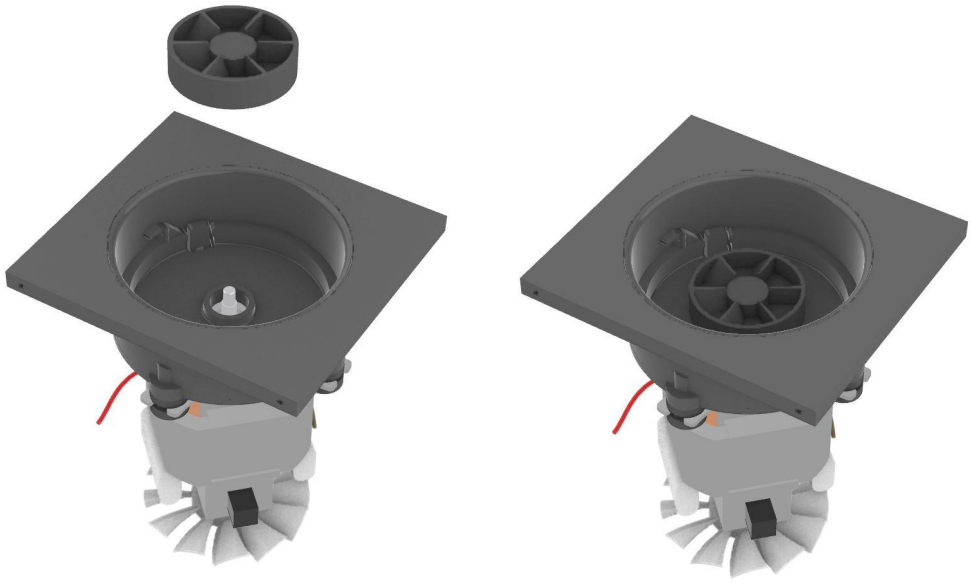
- Insert the Motor on top of the Motor Adaptor
- Place the 4 big washers (#103280415) on top of the motor rubber rings
- Fix the Motor to the Adaptor with 4 torque screws 3.5 x 20mm (#1212103520)

**4.**

- Place and snap-lock the Microswitch into the Switch Holder
- Place Spring 1 (0.5x6x15mm) around the Head Slider pin
- Insert the Head Slider through the rectangular hole and the two screw towers
- Slide the Switch Holder through the two screw towers
- Fix it with 2 screws (Torque M3x10mm)

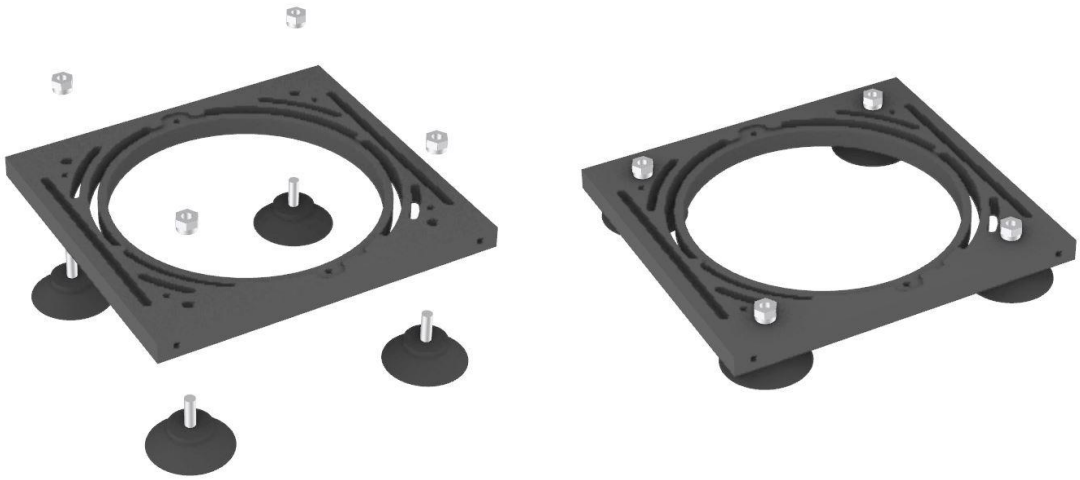


**5.**

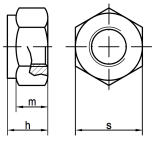


- Screw Motor Gear onto Motor Shaft in the Casing Socket
- The Gear is **left threaded**, so turn it counter-clockwise to fasten it
- To fixate the Motor shaft, place the fan blades in the palm of your hand

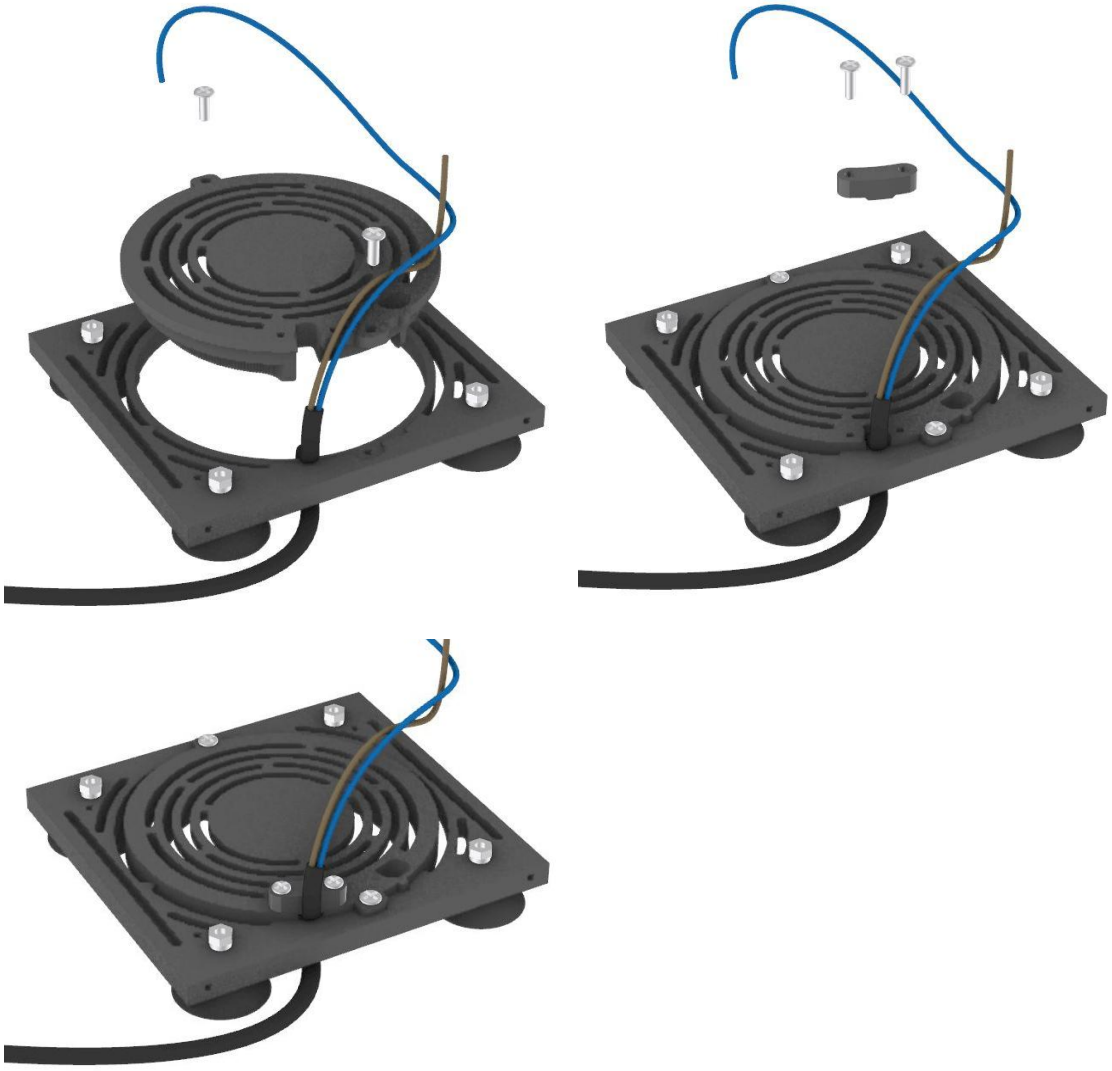
**6.**



- Place the bottom panel onto the suction feet
- Fixate them with 4 Nyloc Nuts
- M4, with blue Nylon insert

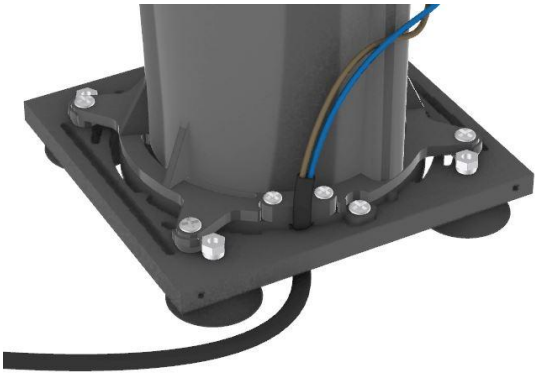


**7.**



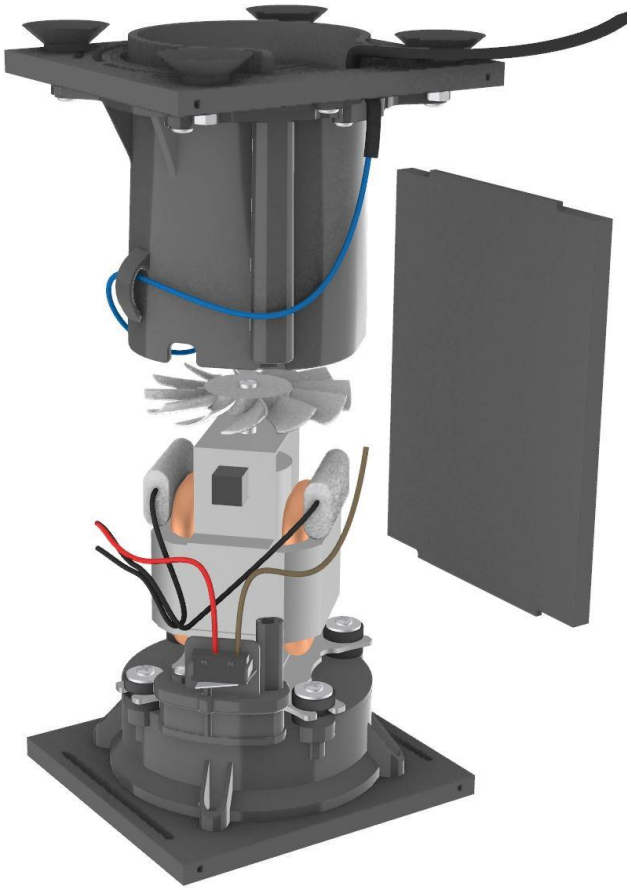
- Place the Ventilator Grid onto the Bottom Panel with the Electric Cord in the cutout
- The Ventilator Grid just sits in one direction on the Panel, the little tooth next to the cable cutout should sit firmly in its recess on the bottom panel
- Fix the Ventilator Grid to the Panel with 2 torque screws 3.5 x 8mm (Art. Nr.: 1126103508)
- Secure the Electric Cord with the Cable Fixer and 2 torque screws 3 x 10mm (Art. Nr.: 1126103010)

**8.**

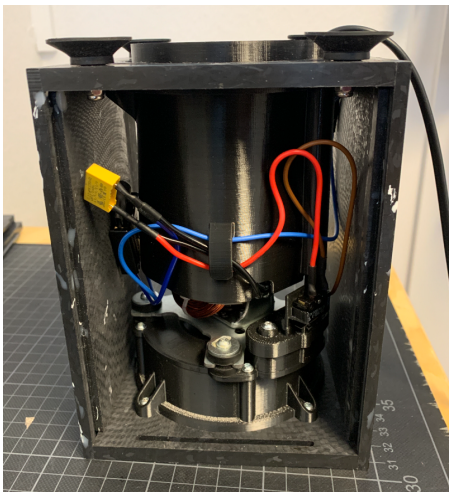


- Lay the 4 Spacers onto the remaining screw holes and place the Ventilation Pipe on top of them
- The Cable Fixer should sit in the cutout of the Ventilation Pipe
- Fix the Ventilator Pipe to the Panel with 4 torque screws 3.5 x 12mm (Art. Nr.: 1126103512)
- If needed, use the fixture to hold the Ventilation Pipe in place while screwing
- Remove the Fixture
- The bottom part is now finished!

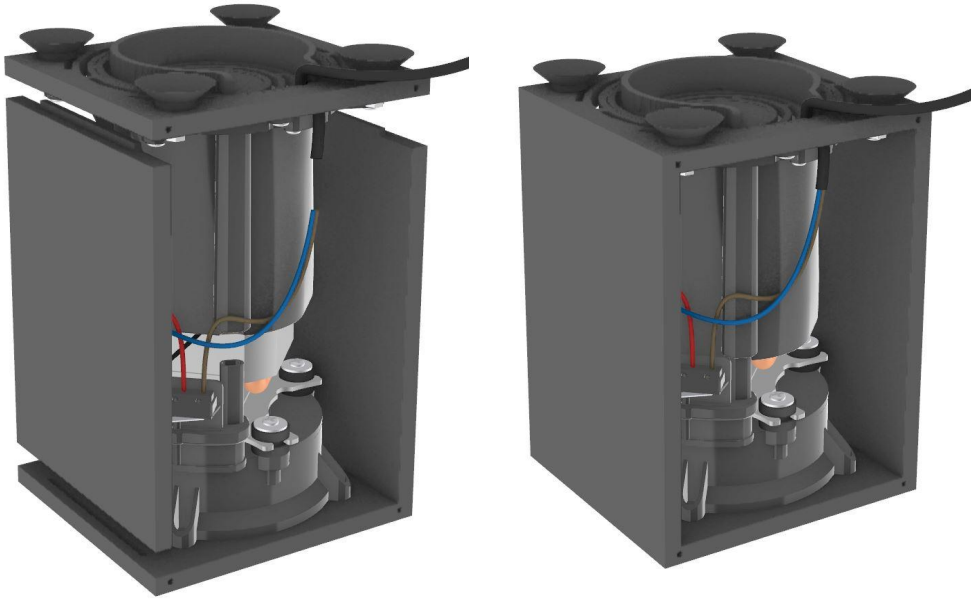
**9.**



- Flip the Bottom Panel up-side-down and slide the Ventilation Pipe around the motor
    - Make sure the draining pipe is aligned with the Head Slider pipe
- Interlock the Left Panel in between the Top Panel and Bottom Panel
- Place the different electric cables as shown on the pictures

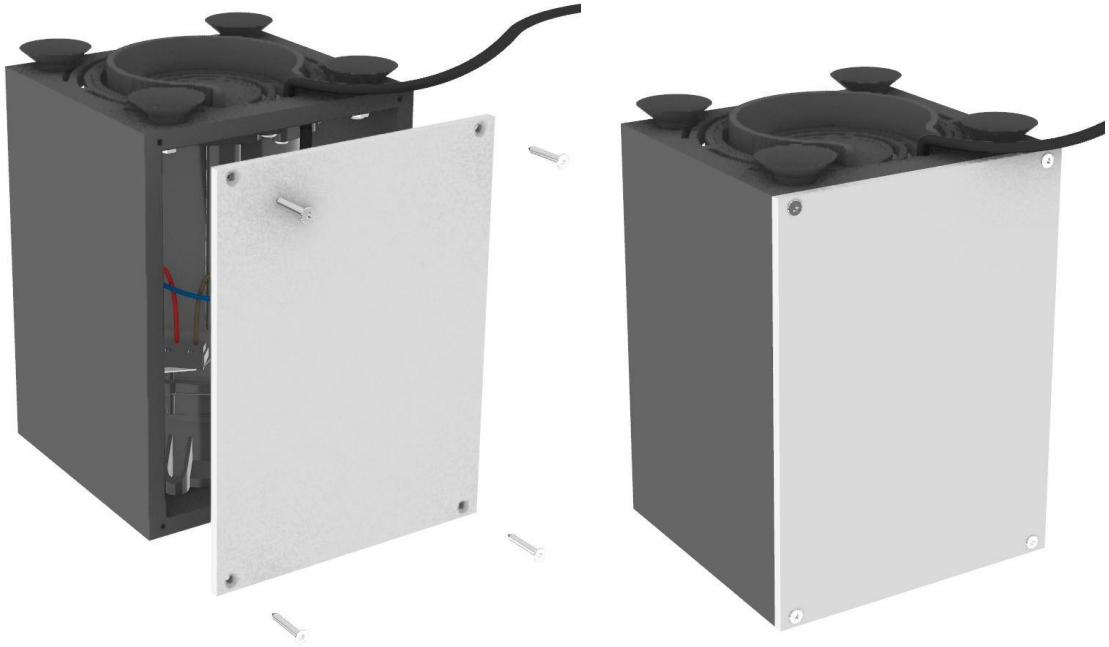


**10.**



- Lift up the part with the suction feet to insert the other side panel
- The Tongues of the side panels should slip into the grooves in the top and bottom panels until they are flush with each other

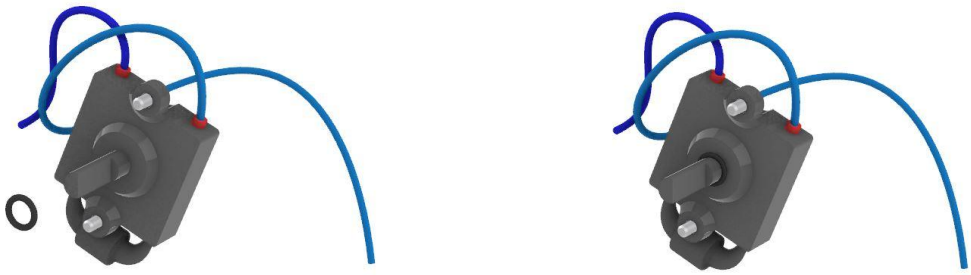
**11.**



- Fixate the back panel onto the backside (where the detection switch is mounted) with 4 screws 4x16mm (Art. Nr.: 12112030016)
    - !! Make sure to not mount the back panel onto the front side !!

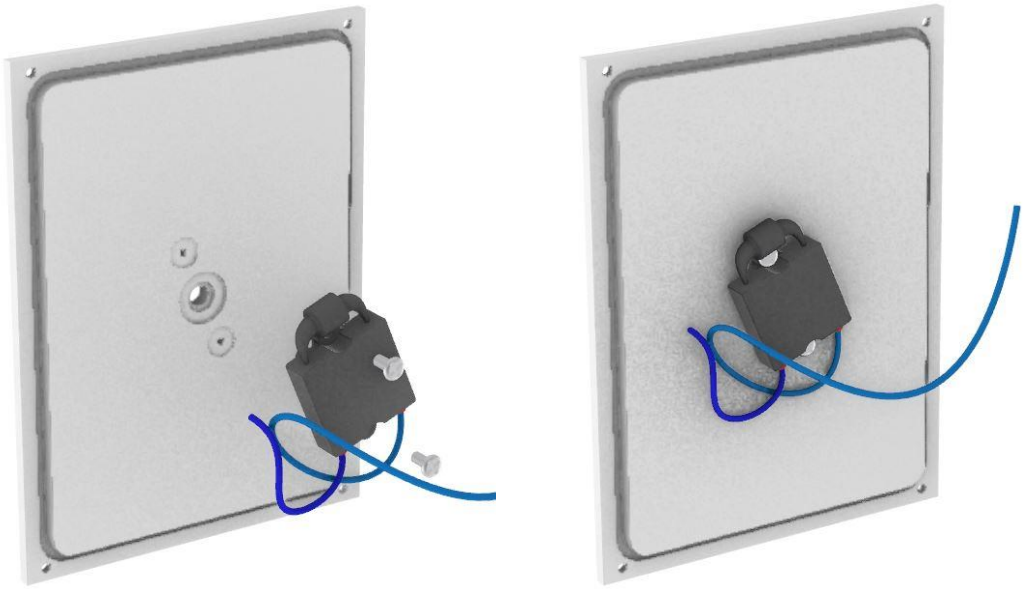
- Make sure you don’t screw the panel onto the side with the rotary switch

**12.**



- Pull the small O-Ring (Art. Nr.: 4300550150) over the Shaft of the Rotary switch

**13.**



- Fixate the Rotary Switch onto the backside of the Front Panel with 2 Torque Screws 3,5x8mm (Art. Nr.: 1126103508)
- Make sure to mount it in the right direction:
    - The sticker on the front side must be on the right side of the hole
    - The cables of the Rotary switch must be on the bottom of it
    - If done right, the sticker is next to the round side of the shaft

**14.**

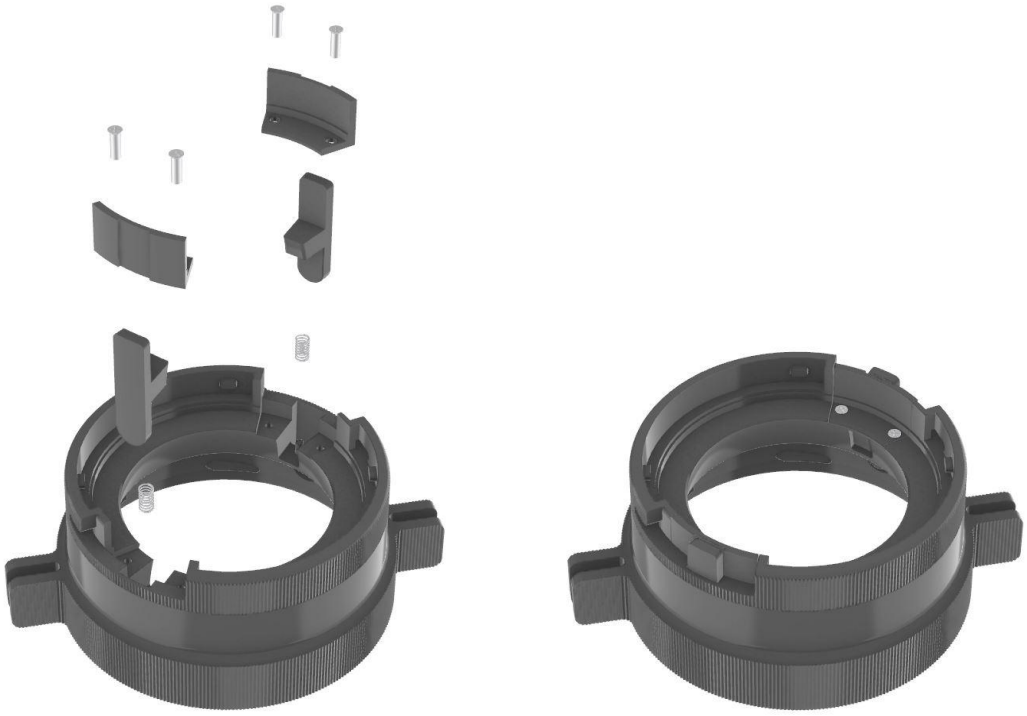
- Fixate the Front Panel onto the Body with 4 screws 4x16mm (Art. Nr.: 12112030016)

**15.**

- Press the Knob onto the Shaft - It should slide on it with just a slight resistance
- If it won't slide on, check the inside of the knob if the set screw is screwed too far in

- secure it by fastening the set screw through the side hole in the knob with a small flathead screwdriver

**16.**

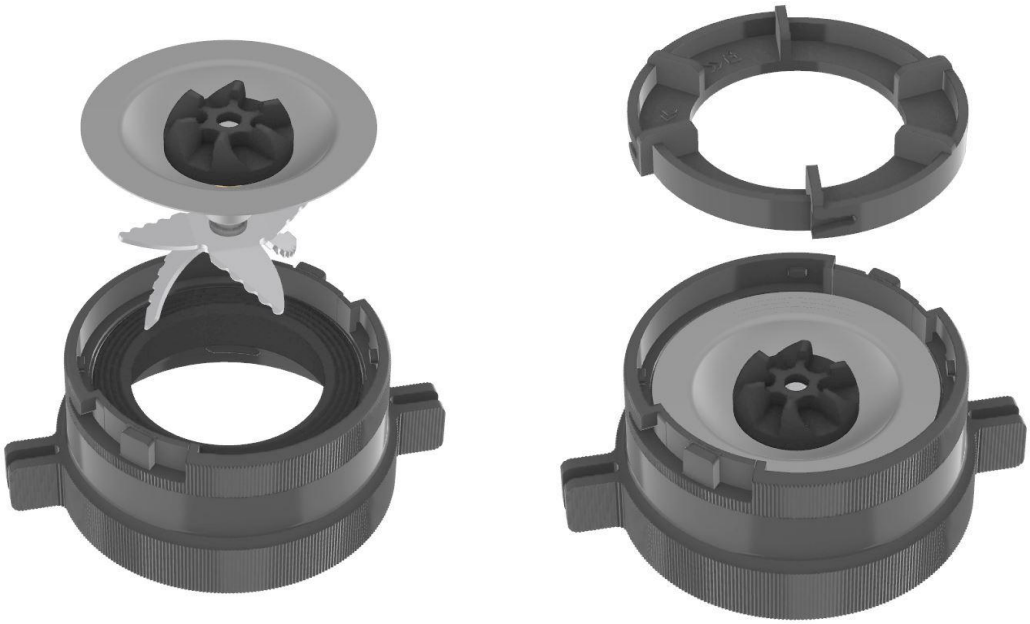


- Place the 2 Springs (Art. Nr.: 195062908481) onto the pins in the bottom holes of the Blender Head and insert the jar sliders over them with the round end downwards
- Press them down with 1 of the Stoppers on each side and secure it
- with 2 screws 2.2x9.5mm (Art. Nr.: 1153522009)

**17.**

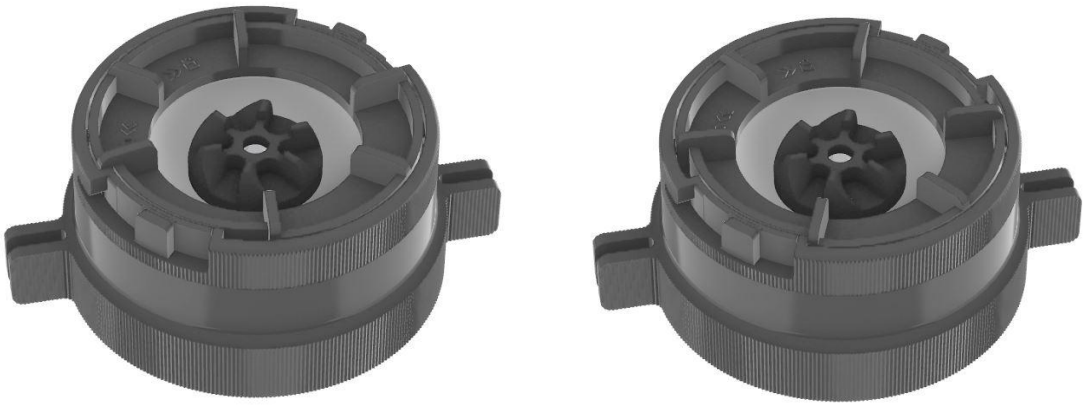
- Insert the Head Seal into the Blender Head
- Make sure the side with the thicker rings is on the bottom side of the blender head.
- If done wrong, it won't sit snugly as it does in the picture.

**18.**



- Lay the blade onto the bottom side of the Blender head and place the Blade Locker on it.

**19.**



- Press the Blade Locker down and turn it clockwise to lock the blade in place.

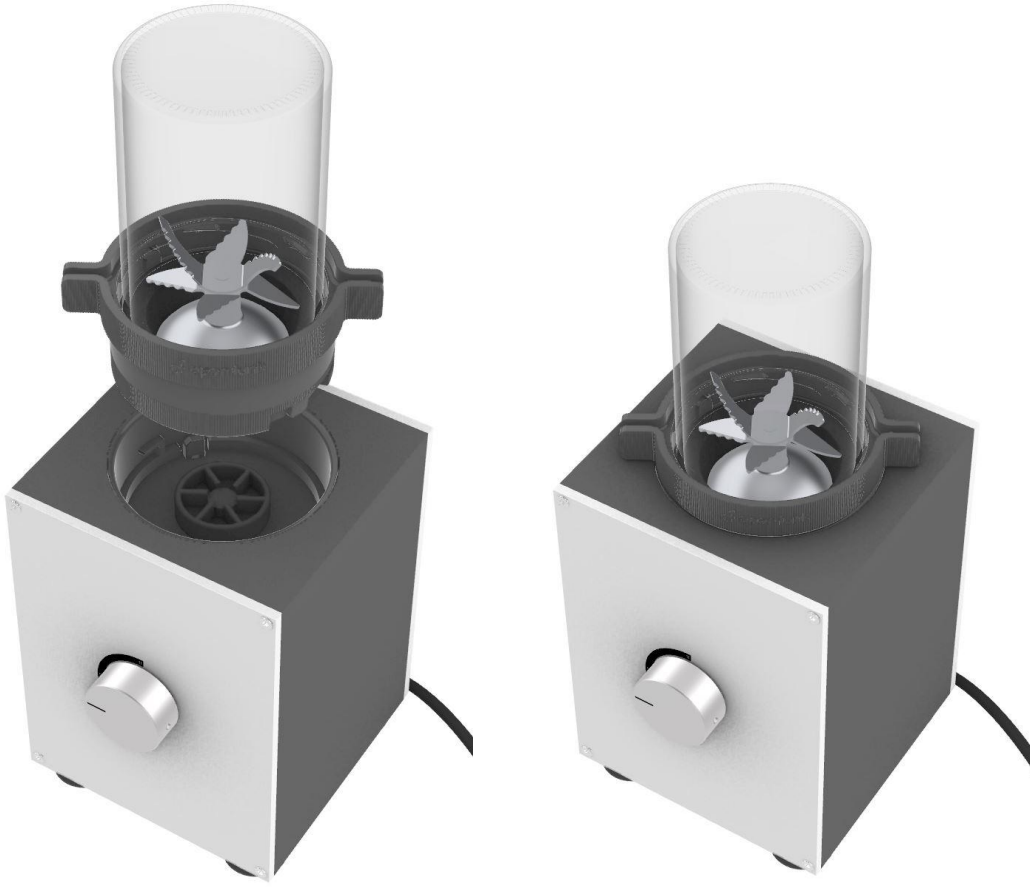
**20.**

- Twist the Blender Head clockwise onto the Jar mouth to lock and seal the Jar tightly
- For more Information, check the chapter “Locking of Blender Head” in this manual.

**21.**

Final assembly quality check:

- Plug the device to power outlet safety test station
- Place product label in the middle of the Bottom Panel
- Scan the QR code and run the power safety test
- Send test report to server (automatically)
- Verify test PASS
    - If PASS go to next step
    - If not, report defect to Open Funk



(A)

- Slide the Blender Head into the Housing Socket (A)
- Check no speed control function working on position A

**(**B)

- Twist and lock the Blender Head into the Housing Socket (B)
- Check all speed control functions working on position B

(C)

- Remove the Jar from the Blender Head (C)

- Check no speed control function working on position C
  **!! No hands shall be near the blades during this check !!**

- Remove the Blender Head from the Housing Socket

Ready to be further QC tested and packaged.