

3DFEEDY INSTRUCTION MANUAL

Version 1.0

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3DBIZZ UG (haftungsbeschränkt)

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GENERAL INFORMATION

1. Read and keep the operation instructions

These operating instructions belong to the multi-filament feeder of 3DBIZZ “3Dfeedy”. For the sake of clarity, the multi-filament feeder will be referred to as "3Dfeedy" in the following. Read the operating instructions carefully, especially the safety instructions, before using 3Dfeedy. Failure to follow these operating instructions may result in injury or damage to 3Dfeedy or 3D-printers connected to. Applicable local and national legislation regarding the use of this product must be followed. Keep the operating instructions for further use. If you pass 3Dfeedy on to third parties, be sure to include this operating manual.

For different languages and the most recent version of this document please visit:

www.3dbizz.com/manuals

2. Legend of Symbols

The following symbols and signal words are used in this instruction manual:



Electricity hazard



Keep out of the reach of children.



CHOKING HAZARD – Small parts not for children under 3 years or any individuals who have a tendency to place inedible objects in their mouths.



Warnings require your attention. Failure to follow the instructions for proper set up, use and care for your device can increase the risk of serious personal injury, death or property damage.



The symbol indicates additional information for assembling and further tips.

- Colors in the image description correspond to the illustration for better comprehensibility.
- Parts in the illustration relevant for the work step are colored green.

SECURITY

1. Intended Use

3Dfeedy is designed exclusively for the home user in the hobby and do-it-yourself sector for the following purposes:

- multi-filament printing
- number of filaments dependent on number of Feedy units; 3Dfeedy intended for 3 filaments.
- compatible filament is dependent on your 3D-printer.

All other applications are expressly excluded and are considered to be non-intended use. The manufacturer or dealer accepts no liability for injuries, loss or damage caused by non-intended or incorrect use.

Possible examples of non-intended or incorrect use are:

- use of the 3Dfeedy for purposes other than those for which it is intended;
- failure to observe the safety instructions and warnings, as well as the assembly, operating, maintenance and cleaning instructions contained in this operating manual;
- failure to observe any accident prevention, occupational health or safety regulations specific and/ or generally applicable to the use of 3D-printing equipment;
- use of accessories and spare parts not intended for the 3Dfeedy;
- modifications to the 3Dfeedy;
- repair of the 3Dfeedy by someone other than the manufacturer or a specialist;
- commercial, craft or industrial use of 3Dfeedy;
- operation or maintenance of 3Dfeedy by persons who are not familiar with the handling of the feeder and/or do not understand the associated hazards.

Despite intended use, non-obvious residual risks cannot be completely ruled out.

PREPARATION 3D-PRINTER

The following steps are explained in general, as they are applicable the same way to any 3D-printer. However, the pictures are shown as an example based on Ultimaker 2+, which makes the individual steps probably look slightly different.

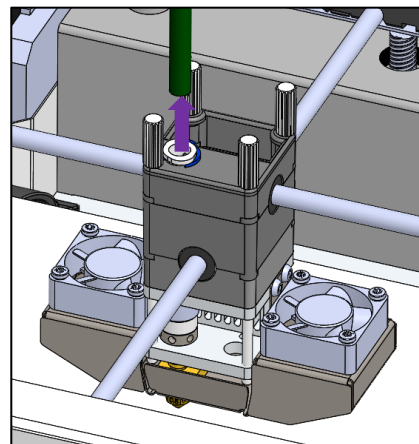
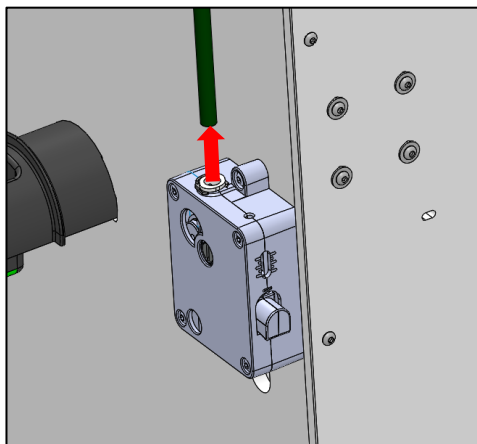
- ⚠ We cannot give any warranty for your 3D-printer. However, if you follow all the steps carefully and take care of yourself and your printer, no damage is expected.
- ⚠ As you are installing 3Dfeedy to your 3D-printer, you have to make sure your 3D-printer does have a CE-Conformity.

1. Disconnect Power Supply



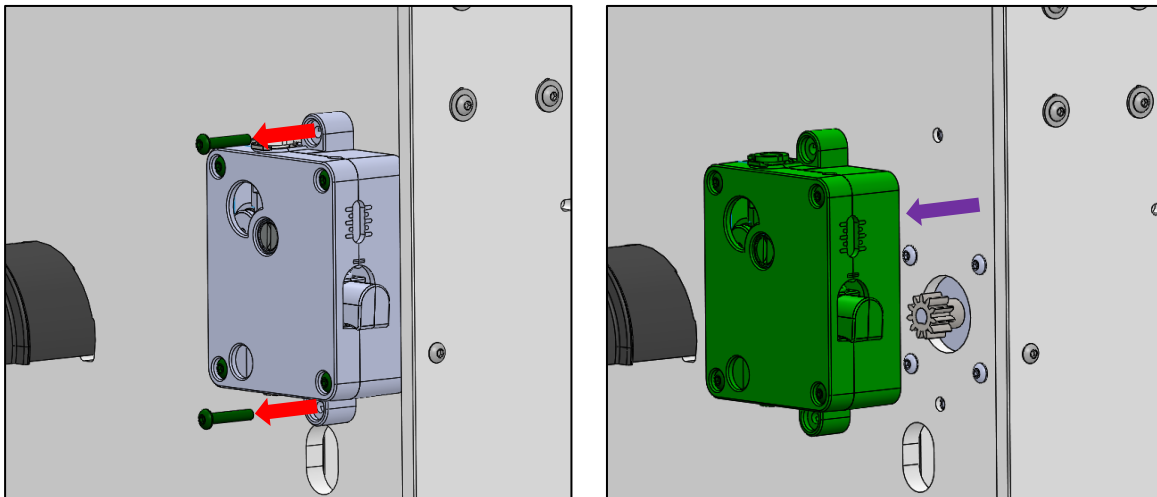
- ⚠ Disconnect your 3D-printer from the power supply.
- ⚠ Failure to follow the instructions for proper set up, use and care for your device can increase the risk of serious personal injury, death or property damage.

2. Unplug PTFE Tube



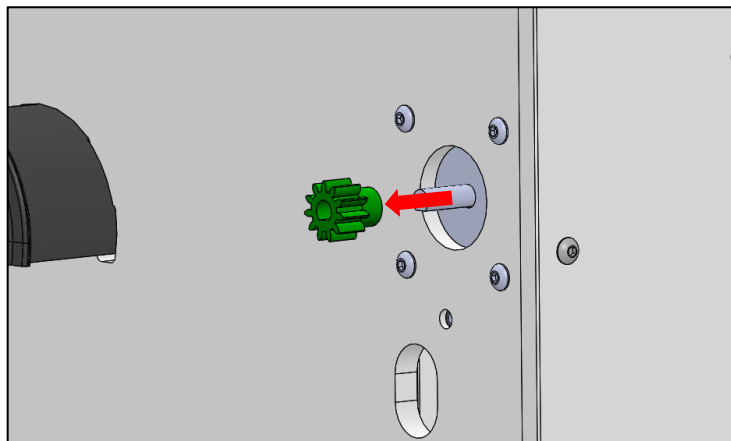
- Unplug the PTFE tube from the extruder.
- Unplug the PTFE tube from the printhead.
- ⚠ For unplugging the PTFE tube, usually a release button has to be used.

3. Remove Extruder



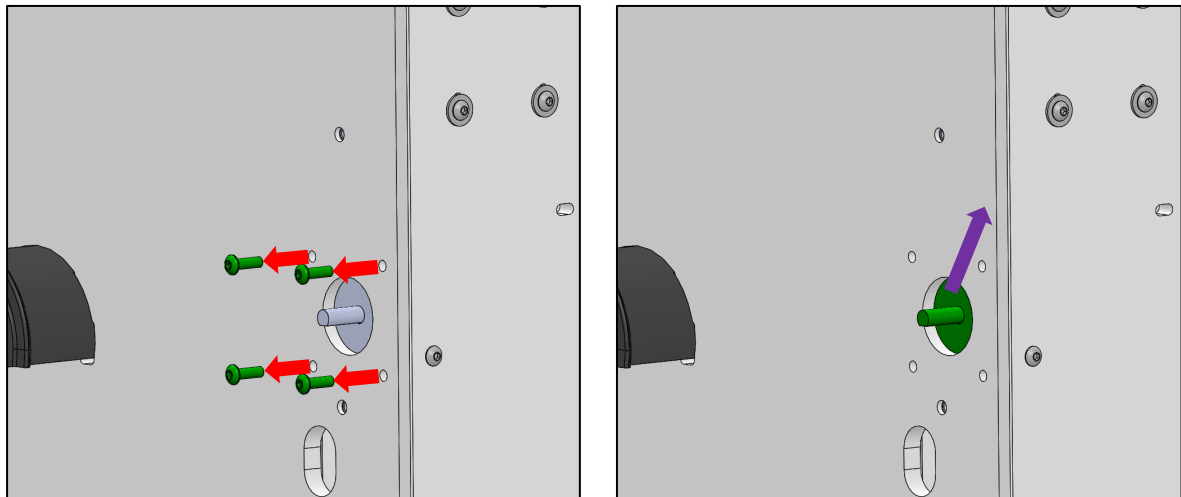
- Unscrew the screws of the extruder.
 - Remove the extruder.
- ① It could look different with your 3D-printer to the visualization shown above.


4. Remove Drive Gear



- Remove the drive gear from the extruder drive motor.
- ⚠ In some cases, an additional stud screw has to be removed or loosened.
- ① It could look different with your 3D-printer to the visualization shown above.
- ① Sometimes, the drive gear already fits to the drive gear of 3Dfeedy (e.g. Ultimaker 2+), which makes it unnecessary to change it. You can check this by comparing the additional drive gear from the box with the mounted one of your 3D-printer.
- ⚠ If the drive gear is tight fit to the extruder drive motor, do not damage the extruder drive motor. Please purchase a new extruder drive motor with equal settings of the existing extruder drive motor.

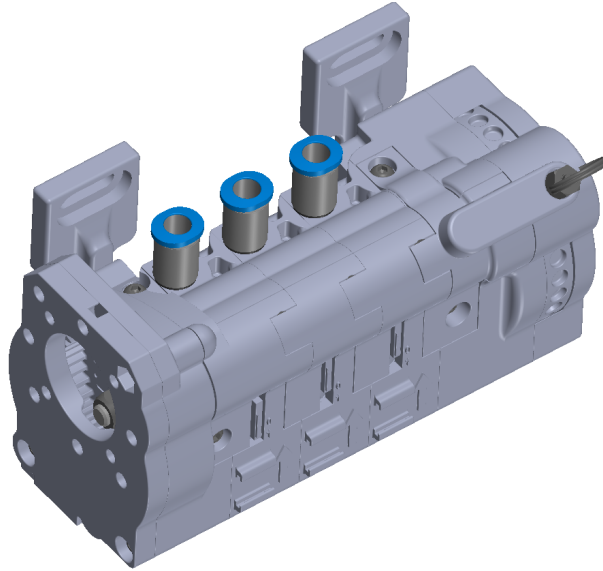
5. Remove Extruder Drive Motor



- Unscrew the screws of the extruder drive motor.
 - Remove the extruder drive motor.
- ① It could look different with your 3D-printer to the visualization shown above.
-  **Make sure the 3D-printer is disconnected from the power supply.**
- ① If it is necessary for dismounting the extruder drive motor, unplug the extruder drive motor cable temporarily from the mainboard of your 3D-printer. Remember the plug position on your mainboard.

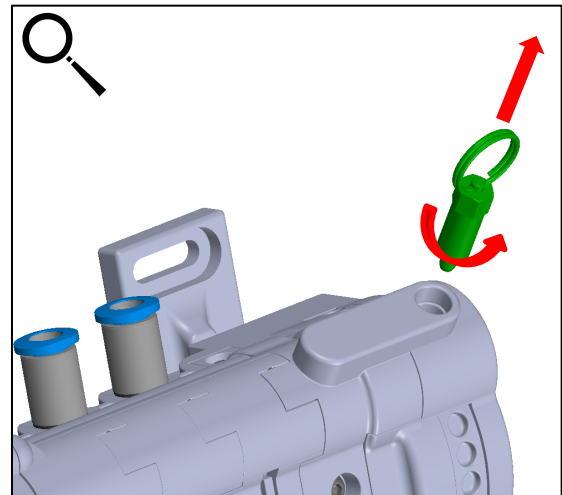
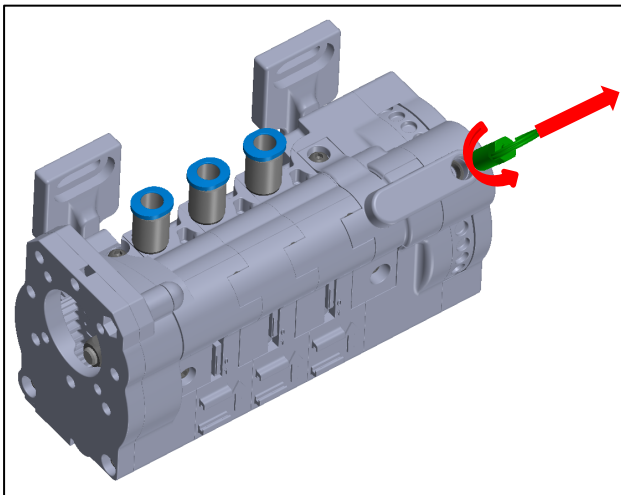
PREPARATION 3DFEEDY

Before Installing 3Dfeedy to your 3D-printer, you have to prepare it for installing some components of your 3D-printer, as 3Dfeedy is shipped in fully assembled state for quality check.



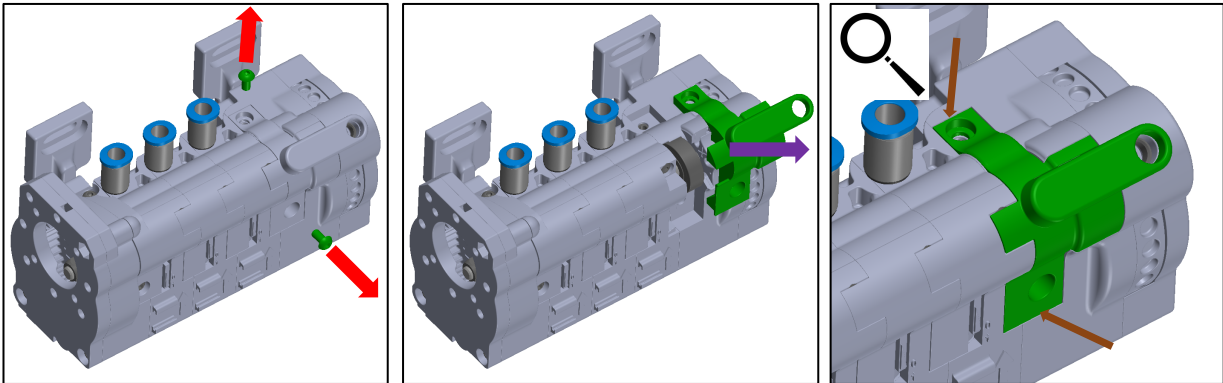
This is the initial configuration of 3Dfeedy in the box.

1. Remove Manual Adjustment Fixture



- Remove the manual adjustment fixture by unscrewing it by hand.

2. Remove First Selector Cover

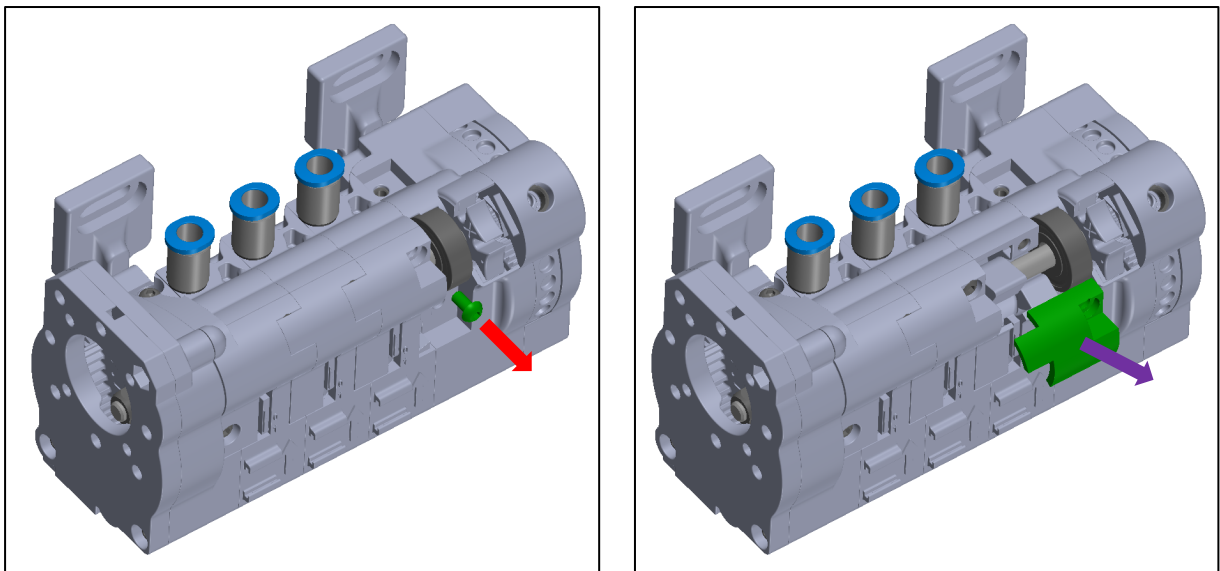


- Unscrew and remove the two screws with the Allen key.
- Now remove the transmission unit selector cover.

 **Be careful when removing the transmission unit selector cover for not breaking it!**

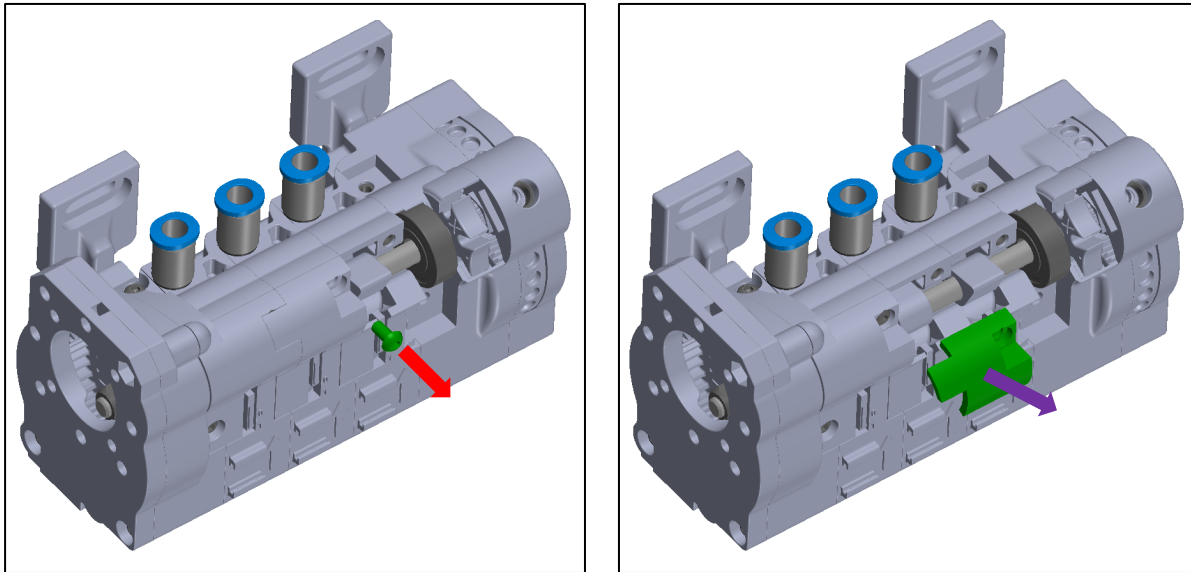
- If the transmission unit selector cover is tight fit, carefully insert a thin screwdriver to the marked edges to take it out of the grooves.

3. Remove Second Selector Cover



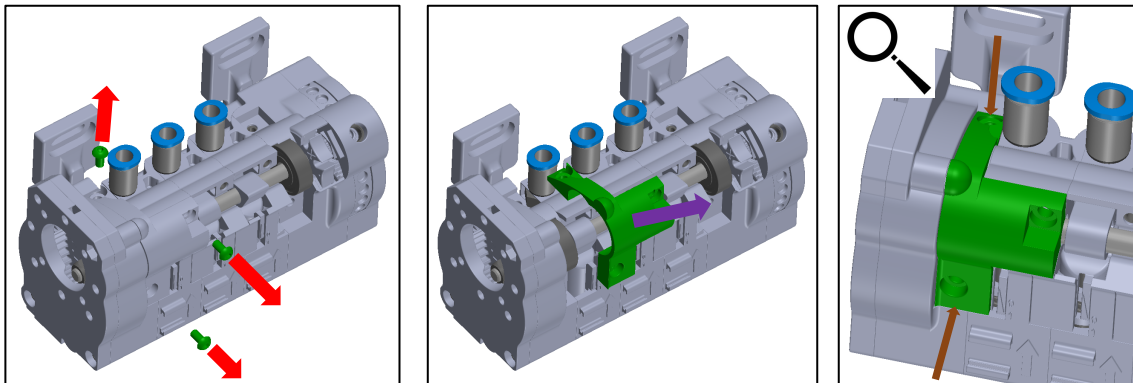
- Unscrew and remove the screw with the Allen key.
- Now remove the first repeater unit selector cover.

4. Remove Third Selector Cover



- Unscrew and remove the screw with the Allen key.
- Now remove the second repeater unit selector cover.

5. Remove Fourth Selector Cover



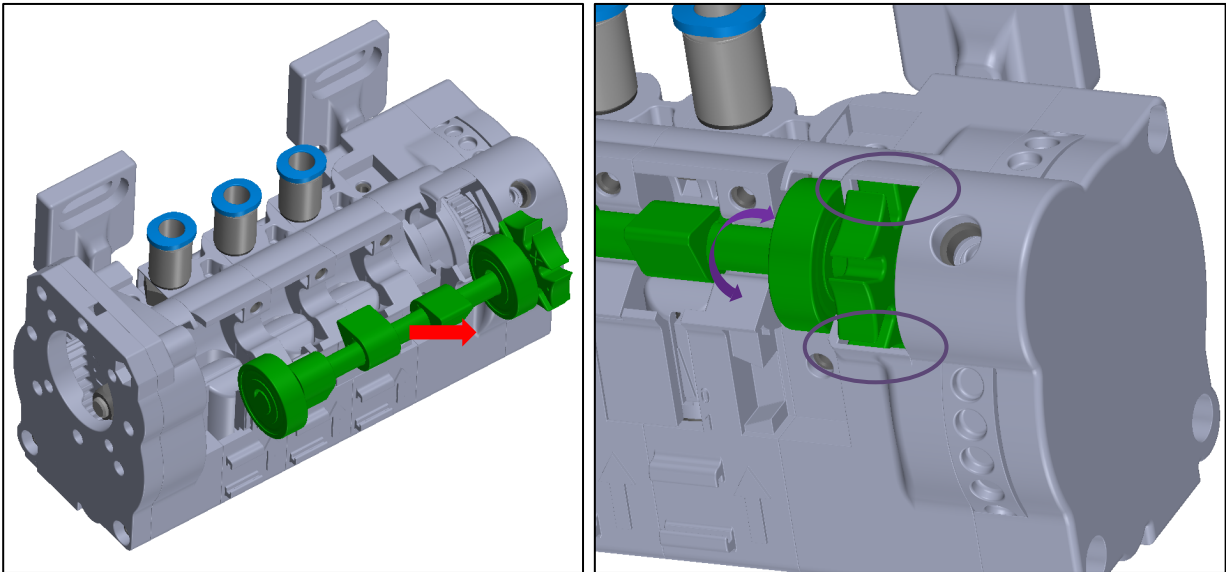
- Unscrew and remove the three screws with the Allen key.
- Now remove the drive unit selector cover.



Be careful when removing the drive unit selector cover for not breaking it!

- If the drive unit selector cover is tight fit, carefully insert a thin screwdriver to the marked edges to take it out of the grooves.

6. Remove Selector Shaft

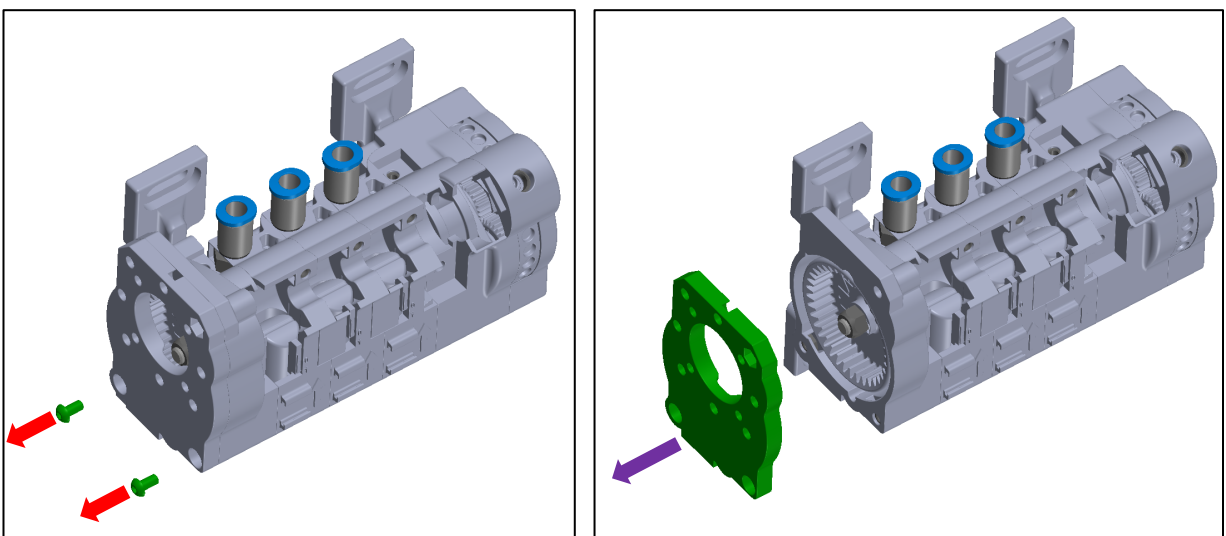


- Remove the selector shaft from 3Dfeedy.

 **Be careful when removing the selector shaft for not damaging the housing at the transmission unit!**

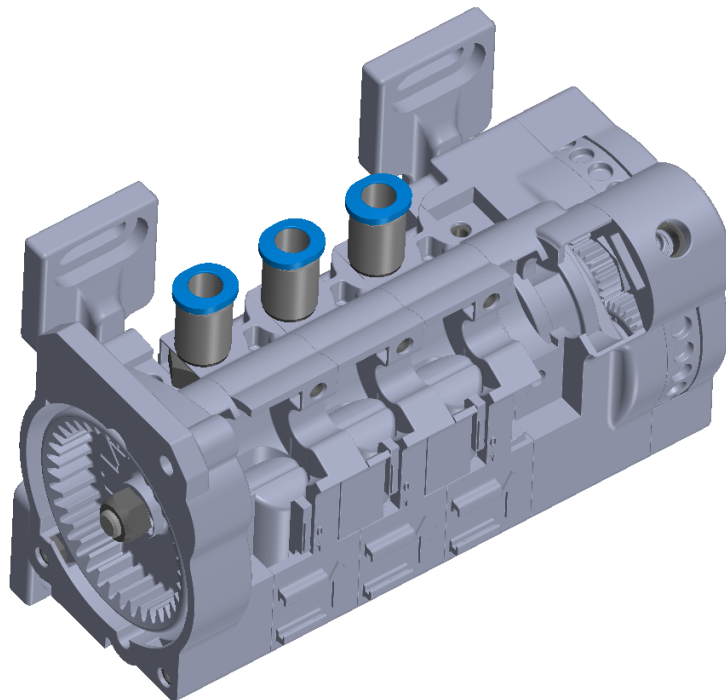
- If the selector shaft is getting stuck at the housing of the transmission unit, carefully rotate the shaft slightly to release the gear from the housing.

7. Remove Drive Gear Cover



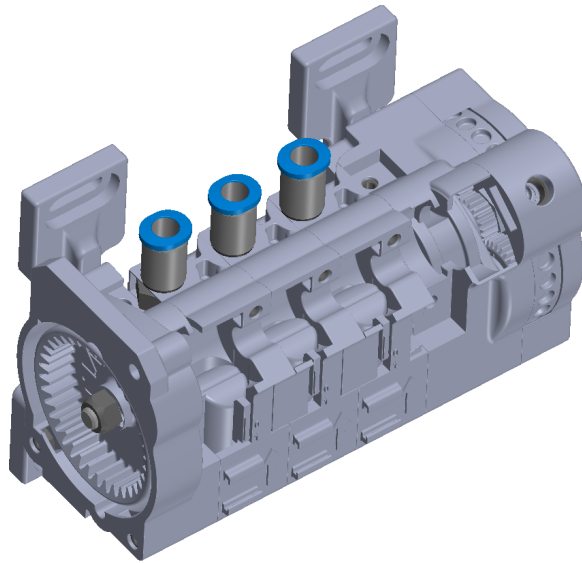
- Unscrew and remove the two screws with the Allen key.
- Now remove the drive unit cover.

The prepared 3Dfeedy for installing the necessary components of your 3D-printer looks like following:

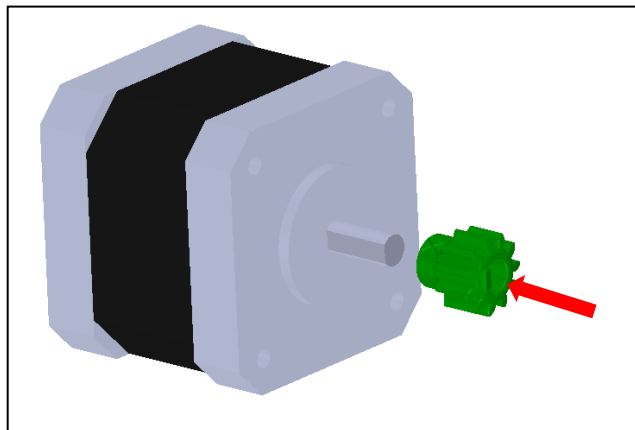


ASSEMBLY 3DFEEDY

Now 3Dfeedy is ready for marriage:

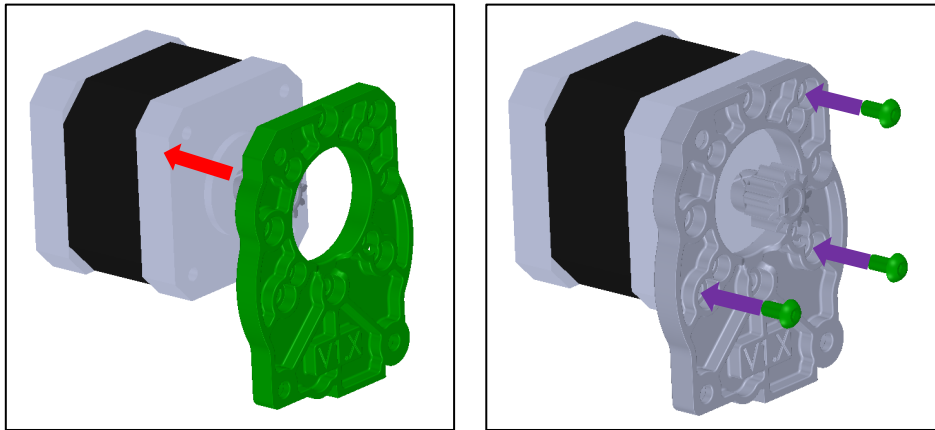


1. Connect Drive Gear to Extruder Drive Motor



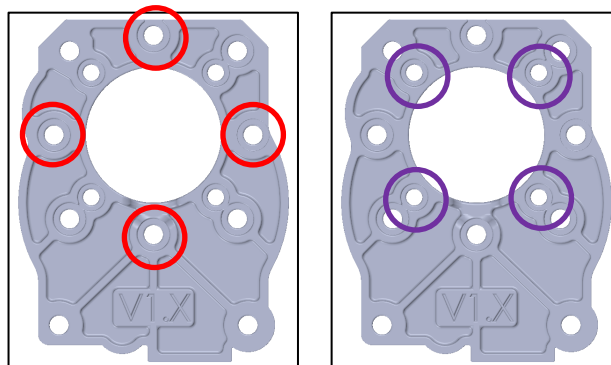
- ① You may use the extruder drive motor from your 3D-printer uninstalled in chapter “Preparation 3D-Printer”.
- ① Alternatively, a new extruder drive motor can be bought and used for further steps.
- ⚠ If a new extruder drive motor was bought, make sure it has equal settings to your extruder drive motor for not damaging the mainboard of your 3D-printer.
- Connect the drive gear from the box to the extruder drive motor by pushing it on the shaft if necessary.
- ① Take a close look at the flat shaft of the extruder motor drive to correctly align and connect the drive gear.

2. Connect Extruder Drive Motor to Cover of Drive Unit



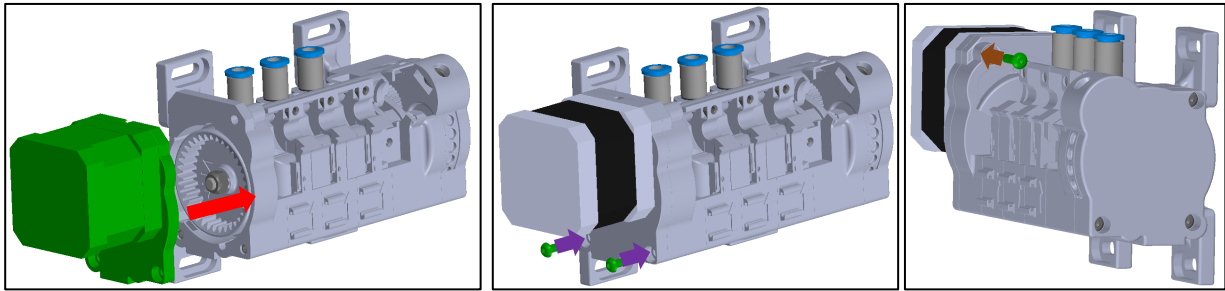
- Put the drive unit cover on the extruder drive motor.
- ① If the extruder drive motor is of the size NEMA 14 or NEMA 11 go to step 2.1 and take a closer look on how to install these extruder drive motors.
- ① If the extruder drive motor is of a different size than NEMA 11, NEMA 14, NEMA 17, probably a new drive unit cover has to be prepared in advance.
- ① If the motor shaft is too long use spacer between extruder drive motor and drive unit cover. This will be shown in detail in the instruction “3Dfeedy Spacer Instruction Manual”.
- For NEMA 17 insert and tighten three M3x6 screws hand-tight with the Allen key to fix the extruder drive motor to the drive unit cover.

2.1. Connect other Extruder Drive Motor sizes to Drive Unit Cover



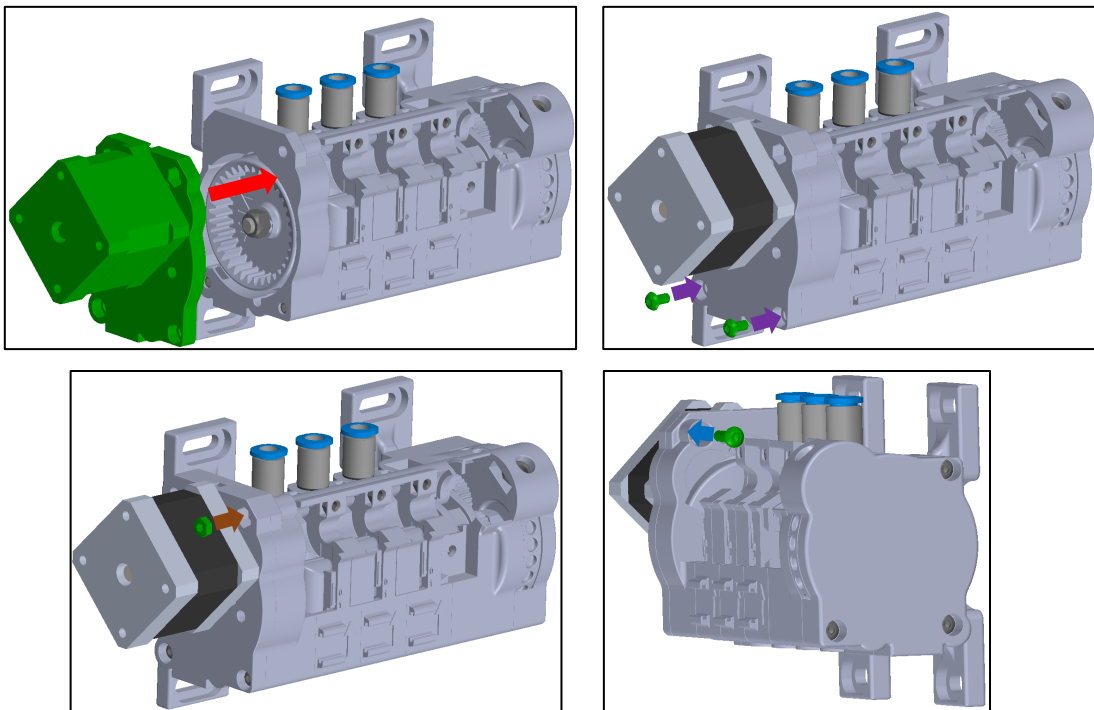
- If the extruder drive motor is of the size NEMA 14, use the holes highlighted in red and fix the extruder drive motor with four M3x6 screws from the box hand-tight with the Allen key.
- If the extruder drive motor is of the size NEMA 11, use the holes highlighted in purple and fix the extruder drive motor with four M2.5x6 screws from the box hand-tight.
- ① If the motor shaft is too long use spacer between extruder drive motor and drive unit cover. This will be shown in detail in the instruction “3Dfeedy Spacer Instruction Manual”.

3. Marriage: Connect Extruder Drive Motor to 3Dfeedy



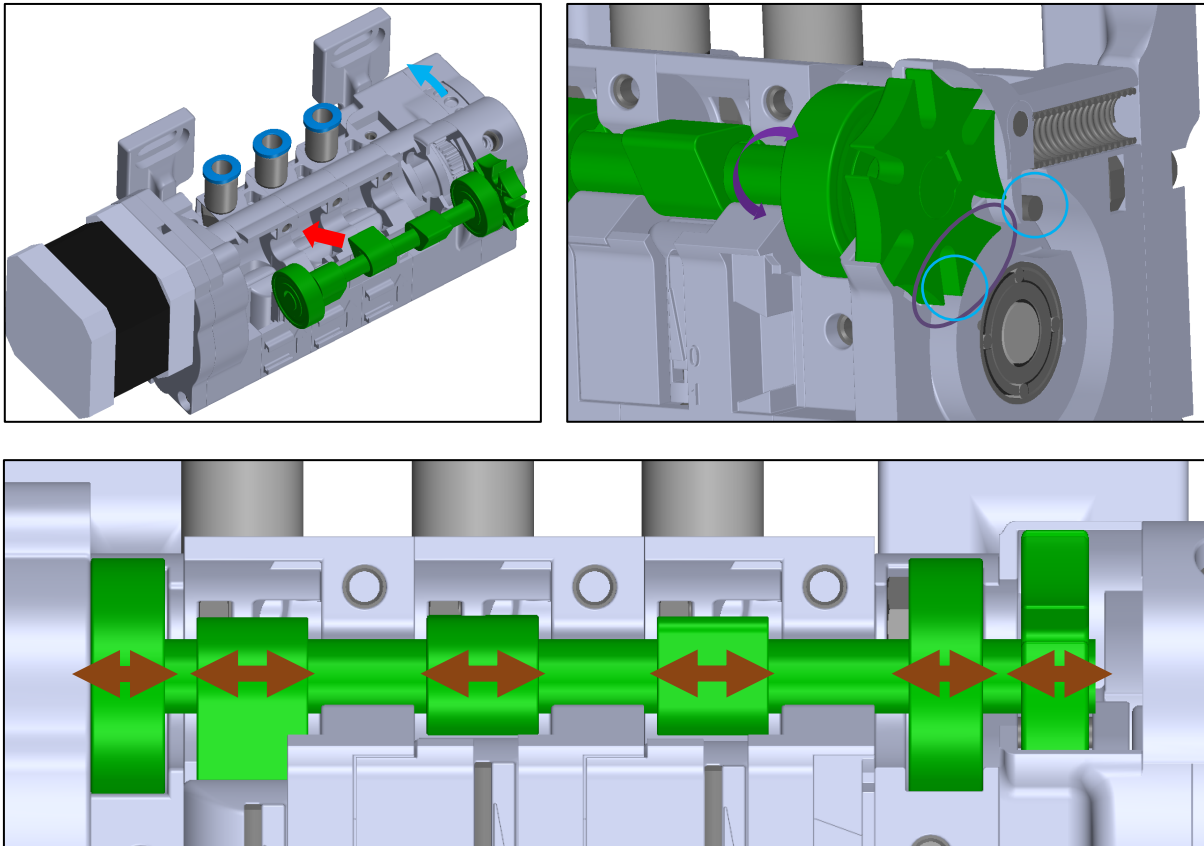
- Connect the extruder drive motor with the drive unit cover to 3Dfeedy.
- Insert and tighten two M3x6 screws hand-tight with the Allen key.
- Insert and tighten the M3x12 screw from the box hand-tight with the Allen key.
- ① If the extruder drive motor is of the size NEMA 14 or NEMA 11, follow the steps 3.1.

3.1. Marriage: Connect other Extruder Drive Motor sizes to 3Dfeedy




- Connect the extruder drive motor with the drive unit cover to 3Dfeedy.
- Insert and tighten the two M3x6 screws hand-tight with the Allen key to fix the extruder drive motor to 3Dfeedy.
- Insert a M3 hexagon nut from the box to the groove.
- ① If the steps of the manual “3DFeedy Spacer Instruction Manual” has been followed, sometimes the hexagon nut is already installed.
- Insert and tighten the M3x6 screw from the box hand-tight with the Allen key.

4. Insert Selector Shaft

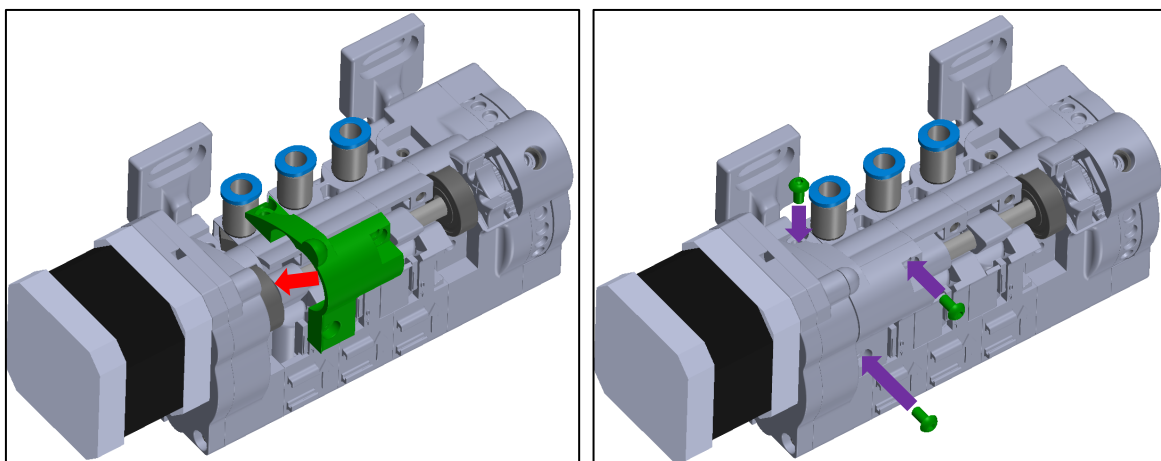


- Insert the selector shaft to 3Dfeedy.

 **Be careful when inserting the selector shaft for not damaging the housing at the transmission unit!**

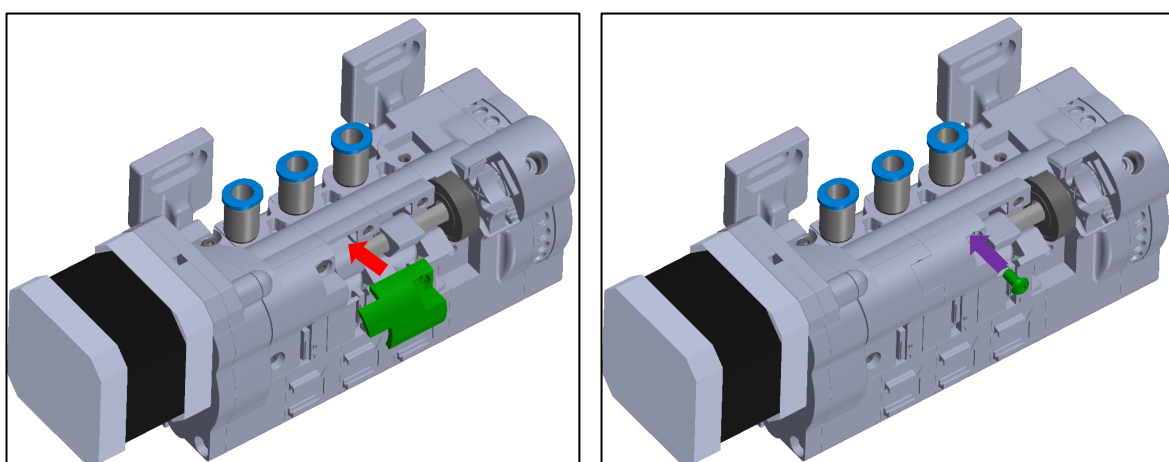
- After inserting the selector shaft carefully rotate it slightly to fit the highlighted area of the selector shaft to the drive gear.
- If there are collisions when inserting the selector shaft, the components on the shaft may be slipped and have to be repositioned during insertion.
- Try to rotate the manual adjustment wheel until the selector shaft starts to rotate.
- ① Slightly press in the selector shaft at the bearings to avoid it from pushing out.
- ① If the selector shaft starts to rotate, the selector shaft is correctly oriented.
- ① If the selector shaft does not start to rotate and the selector shaft is pressed out even though it is fixed with your hands, the selector shaft is probably wrong oriented and the step marked in violet should be repeated. This can usually also be seen when the bearing does not fit at all in the groove.

5. Insert Fourth Selector Cover



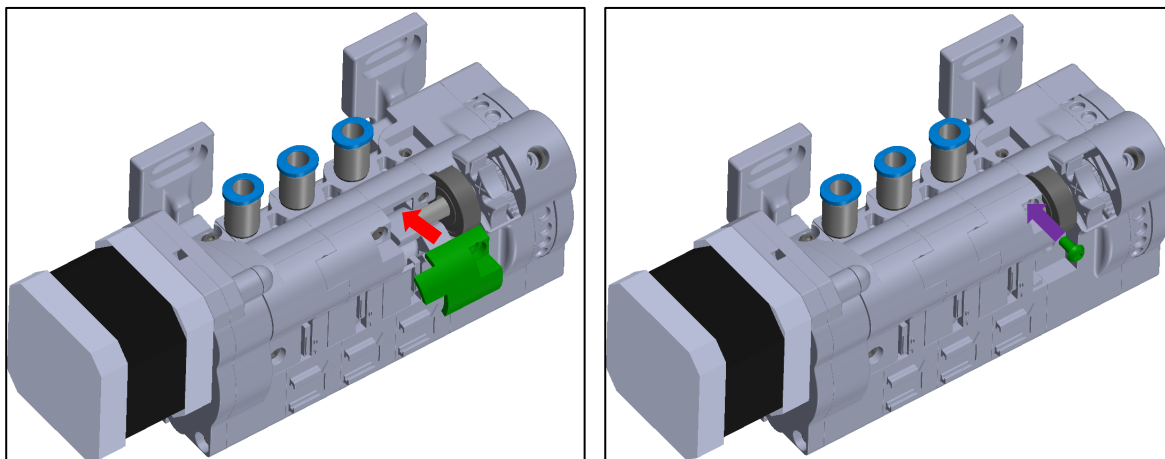
- Insert the drive unit selector cover.
- Insert and tighten three M3x6 screws hand-tight with the Allen key.

6. Insert Third Selector Cover



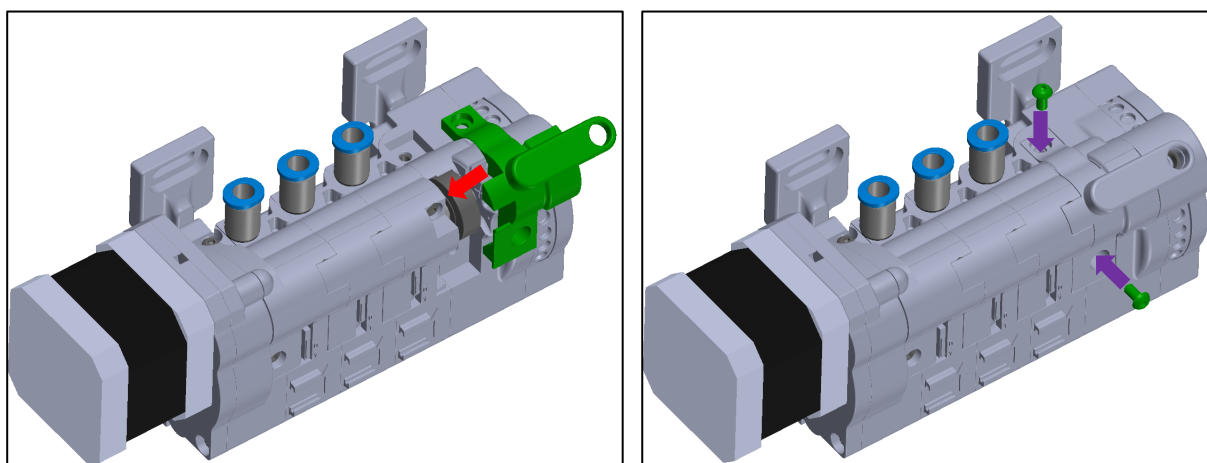
- Insert the second repeater unit selector cover.
- Insert and tighten the M3x6 screw hand-tight with the Allen key.

7. Insert Second Selector Cover



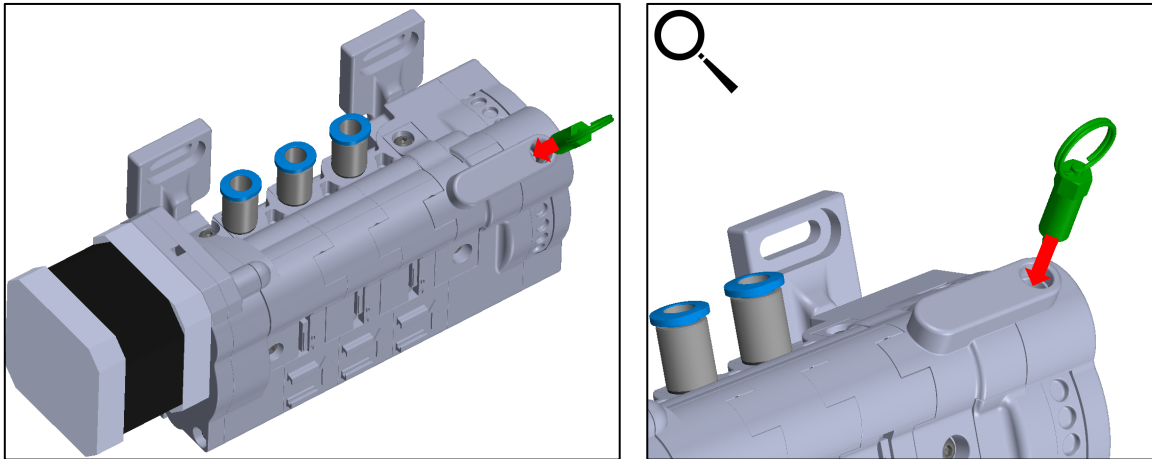
- Insert the first repeater unit selector cover.
- Insert and tighten the M3x6 screw hand-tight with the Allen key.

8. Insert First Selector Cover



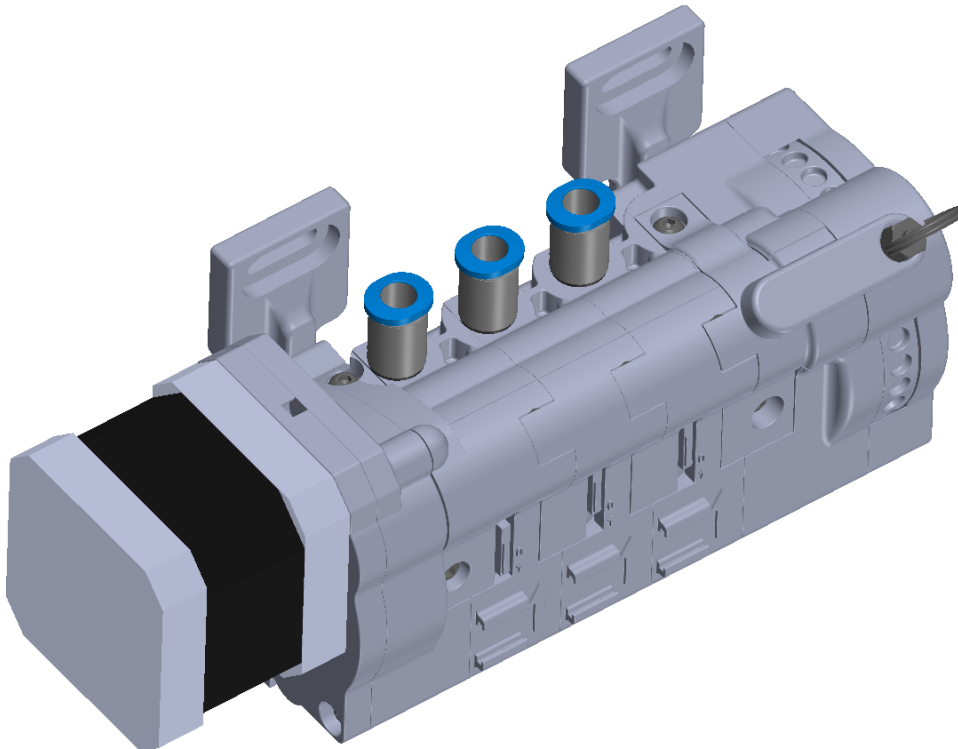
- Insert the transmission unit selector cover.
- Insert and tighten two M3x6 screws hand-tight with the Allen key.

9. Insert Manual Adjustment Fixture



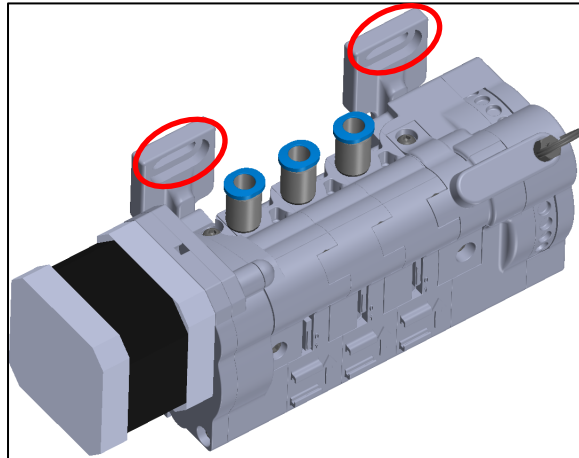
- Insert and tighten the manual adjustment fixture hand-tight.

The assembled 3Dfeedy ready to install looks like following:



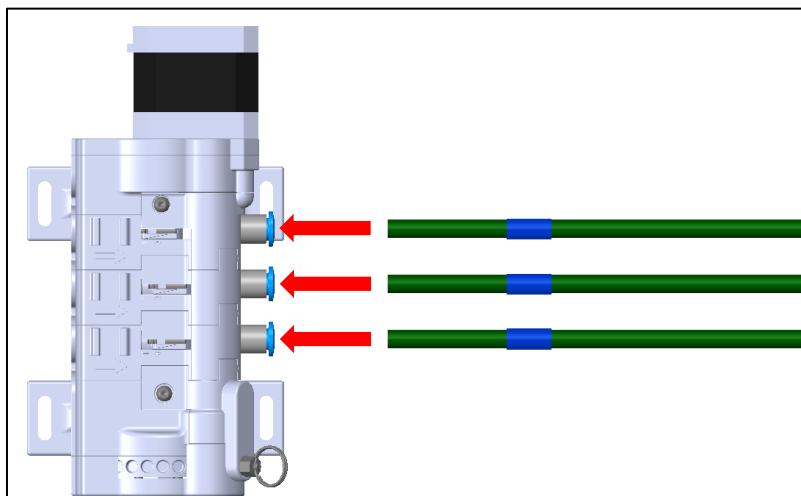
ASSEMBLY 3D-PRINTER

1. Install 3Dfeedy to 3D-Printer



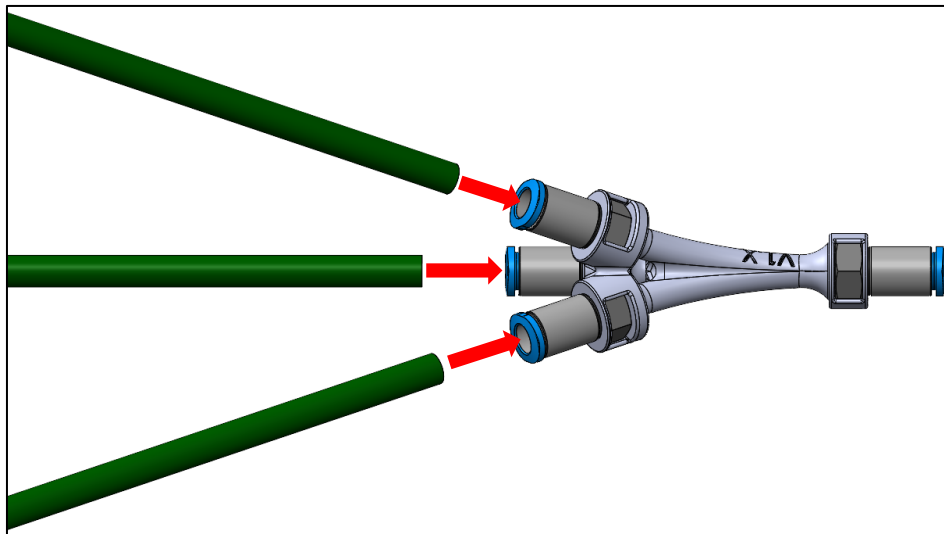
- Install 3Dfeedy on or next to your 3D-printer for example with screws or zip ties (not included to the box).
- ⚠ **Make sure that 3Dfeedy is mounted at a sufficient distance from the printhead, so that it can move freely and reach any position on the print bed.**
- ① Additional installation options and geometries will be provided for selected 3D-printers.
- ① Suggestions for installation options and geometries by the community are very welcome for all the different printer types.

2. Insert PTFE Tubes to 3Dfeedy



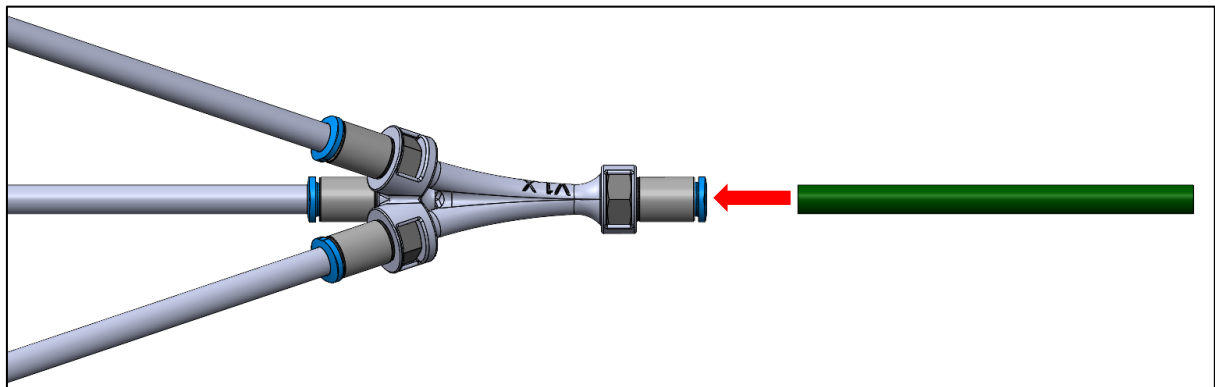
- Insert the three long PTFE tubes from the box to the tube connectors of 3Dfeedy.

3. Insert PTFE Tubes to Collector



- Insert the second end of the three long PTFE tubes to the tube connectors of the PTFE tube collector from the box.

4. Insert PTFE Tube to Collector

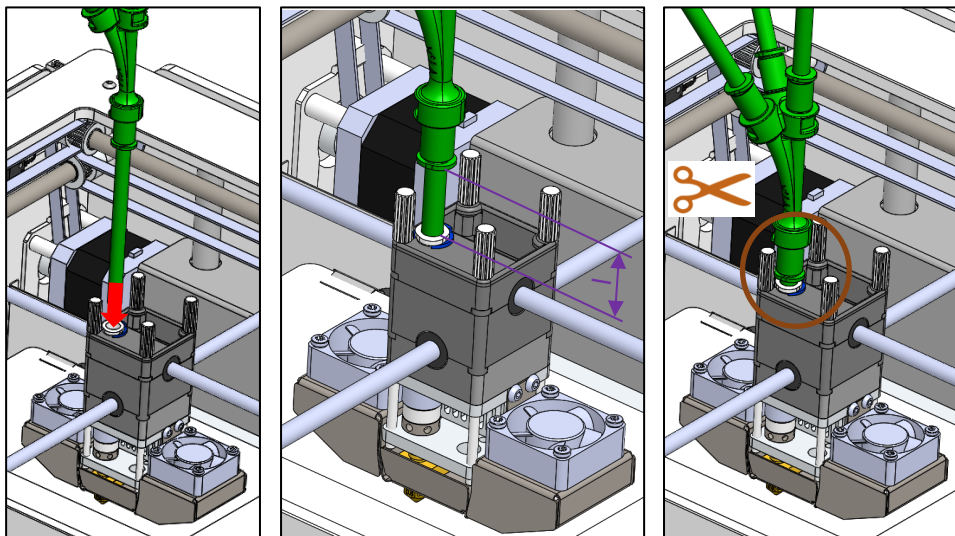


- Insert the short PTFE tube from the box to the tube connector of the PTFE tube collector.

5. Calibration of the Extruder

- If you unplugged the extruder drive motor cable from the mainboard for installing the extruder motor, replug it to the mainboard.
- ⚠ **Make sure the 3D-printer is disconnected from the power supply.**
- ① Make sure to use the right plug on the mainboard.
 - Plug in the 3D-printer to the power supply.
 - Calibrate the extruder steps using the document “3Dfeedy Calibration Instruction Manual”.
- ① As there are many different options for different 3D-printers, several different possibilities are described in the document “3Dfeedy Calibration Instruction Manual” for the determination of the correct value for the E-steps, for the saving of the settings to your 3D-printer as well as for reversing the rotation direction.
- ① Although we have used our best efforts to create this document, there is a small possibility that your exact configuration is not covered, so please let us know and we will give our best to cover those cases as well.

6. Insert PTFE Tube to Printhead



- Insert the second end of the short PTFE tube to the connector of your printhead.
- Measure the shortest distance of the connector on your printhead and the tube connector of the PTFE tube connector.
- ⚠ **Make sure the PTFE tube is fully inserted to the printhead.**
 - Remove the PTFE tube from the printhead.
- ⚠ **For unplugging the PTFE tube, usually a release button has to be used.**
 - Cut off the measured length on the short PTFE tube and reinsert the PTFE tube to the printhead.

SERVICE AND MAINTENANCE

1. Typical Problems

Problem	Possible Solution
<i>The filament unit is not switched when retracting the filament or rotating in negative direction.</i>	<p>Wrong rotation direction of the stepper motor is set, which can be determined, if the rotation direction is changed and afterwards a switch of the filament unit is performed. This can be solved by changing the rotation direction of your stepper motor.</p>
	<p>The selector shaft is stuck, which can be determined by following the steps in “Assembly 3Dfeedy > 4. Insert Selector Shaft”. By following these steps, the problem may also be solved.</p>
	<p>The “Retraction Gear Ratio” is not selected correctly in the Feedy Converter, which leads to a too short retraction distance and the switching process for the filament unit is not triggered. This can be determined and solved by decreasing the “Retraction Gear Ratio” in the Feedy Converter (e.g. to 1:5) and redoing the printing.</p> <p>The default “Retraction Gear Ratio” in original state is 1:4.</p>
<i>The filament is getting stuck when retracting it from the printhead and switching to the next filament unit.</i>	<p>The short PTFE tube is too long, which leads to a too short retraction distance before switching the filament unit. This can either be solved by reducing the length of the short PTFE tube shown in “Assembly 3D-Printer > 6. Insert PTFE Tube to Printhead” or by changing the gear ratio in the transmission unit.</p>
	<p>The filament end is getting too thick for retracting it through the printhead and the PTFE tube. This can be solved by changing the printhead temperature and/or the retraction velocity. The perfect settings for your 3D-printer have to be evaluated by testing.</p>
	<p>The filament is stringing when retracting it from the printhead and therefore the following filament is getting stuck when inserted to the short PTFE tube. This can be solved by changing the printhead temperature and/or the retraction velocity. The perfect settings for your 3D-printer have to be evaluated by testing.</p>

2. Cleaning and Maintenance

- Grease the gearbox whenever you grease your 3D-printer but at least once a year.
 - Clean the 3Dfeedy carefully with a brush or very carefully with compressed air whenever it is dirty.
-

3. Waste Management



Sustainability is very close to our hearts. For this reason, we want to make recycling as easy as possible to help reduce waste. By disassembling it into individual components, it is possible to dispose of our 3Dfeedy in a recycling-friendly way. All plastic parts are made of PLA.

4. Further Information

For detailed information, please visit the following links:

Feedy Converter	www.3dbizz.com/downloads
All manuals (multilingual)	www.3dbizz.com/manuals
All user guides (multilingual)	www.3dbizz.com/guides
FAQs	www.3dbizz.com
PDF-version of all manuals and guides	www.3dbizz.com/downloads
Warranty	www.3dbizz.com/warranty

*Have fun with your 3Dfeedy
and don't hesitate to ask us if you have any questions*

3DBIZZ UG (haftungsbeschränkt)

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