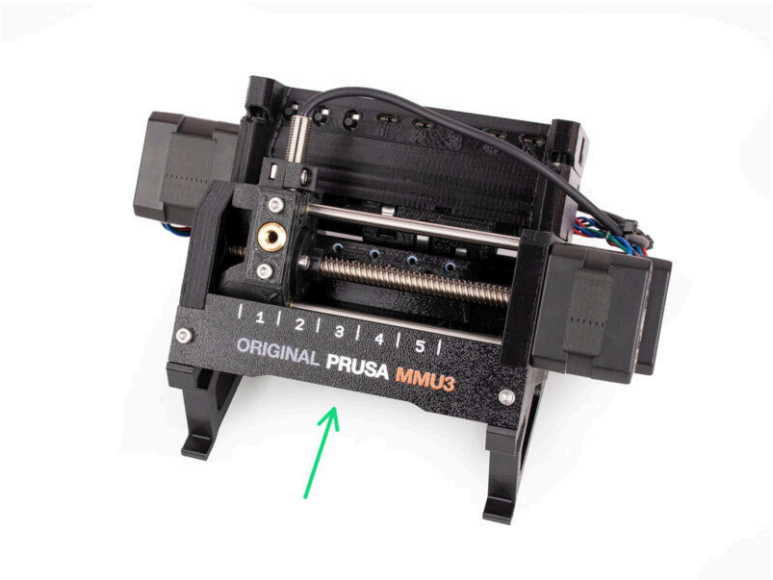
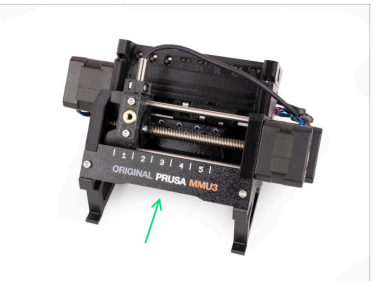
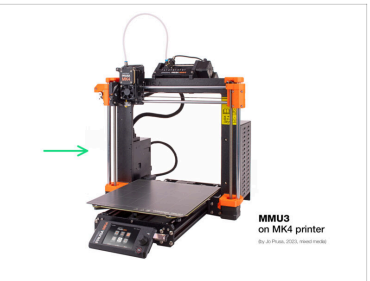
Tabla de Contenido

1. Introducción



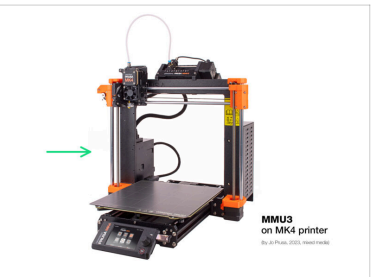
PASO 1 MMU History and Printer Compatibility

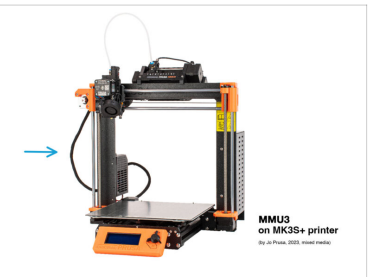




- **Welcome to the MMU3 guide!** There were several generations of the Original Prusa Multi-Material printing solution. Verify you are looking at the correct guide for your MMU unit and your printer.
  - MMU1 for MK2 and MK2S printers (introduced in 2016-2018)
    It used four separate extruders feeding one nozzle.
  - MMU2 for MK2.5 and MK3 (2018-2019) *Five filaments feeding one direct-drive extruder.*
  - MMU2S for MK2.5S, MK3S, MK3S+ (2019-2023)
    Introduced a chimney on the extruder with the IR-filament sensor.
  - **And finally, the current model**:
    MMU3 for MK3S+, MK3.5/S, MK3.9/S, MK4/S and CORE One.
    MMU3 is the one we will be dealing with in this guide.

PASO 2 Supported printers





- Original Prusa Multi-Material **MMU3** is currently officially supported only in combination with these printer models:
  - Prusa **CORE One**
  - Original Prusa **MK4/S** and **MK3.9/S**
  - Original Prusa **MK3.5/S**
  - Original Prusa i3 **MK3S+**

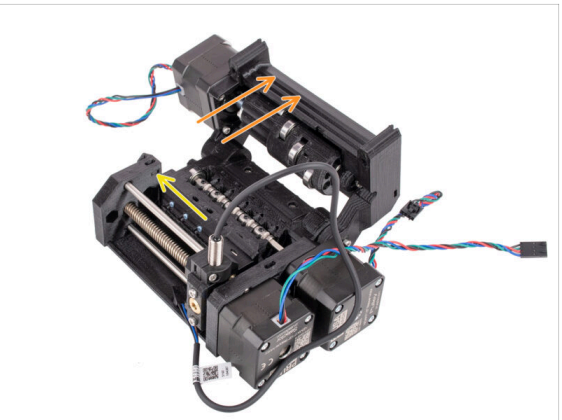
ⓘ For more info, visit the MMU3 Compatibility article.

PASO 3 MMU3 + Enclosure

The MMU3 is also supported with the Original Prusa **Enclosure** for the classic printer models.

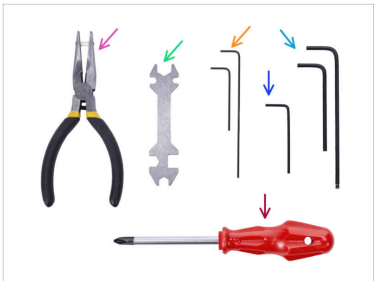
- If you plan to use this combination, **install the MMU3.** Then, continue to the Enclosure assembly guide.

PASO 4 Disclaimer



- **Asegúrate de que tu impresora** está completamente montada y **funciona perfectamente** antes de proceder a acoplarle la MMU3. Realiza algunas impresiones de un solo material. Si tienes algún problema, soluciónalo primero. Diagnosticar los problemas de la impresora puede ser más difícil con la MMU acoplada.
- A medida que te embarques en el proceso de montaje, no podemos insistir lo suficiente en la importancia de seguir cuidadosamente todos y cada uno de los pasos.

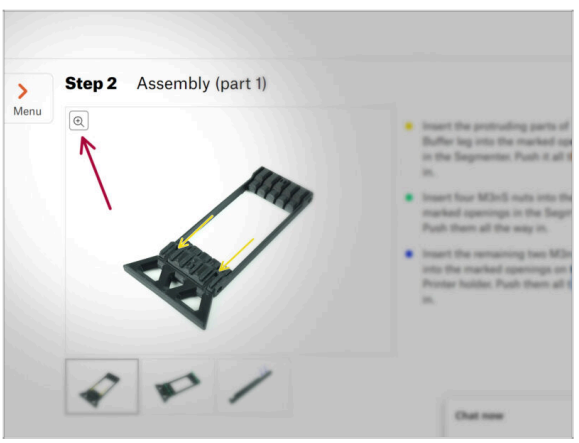
PASO 5 Tools required



- Las **herramientas necesarias** para el montaje del Kit MMU3 están disponibles como un **paquete opcional**.
  - Needle-nose pliers (1x)
  - Universal wrench (1x)
  - Philips PH2 screwdriver (1x)
  - Allen key 1.5mm (2x) *the short and long one*
  - Allen key 2mm (1x)
  - Allen key 2.5mm (1x) *the short and ball-end long one.*

Para algunos capítulos, como extra, aconsejamos considerar:
- una herramienta de medición; lo mejor sería un calibre o un pie de rey digital. También puedes imprimir una.
- Los alicates de corte plano también pueden ser útiles durante el montaje.

PASO 6 Ver imágenes de alta resolución

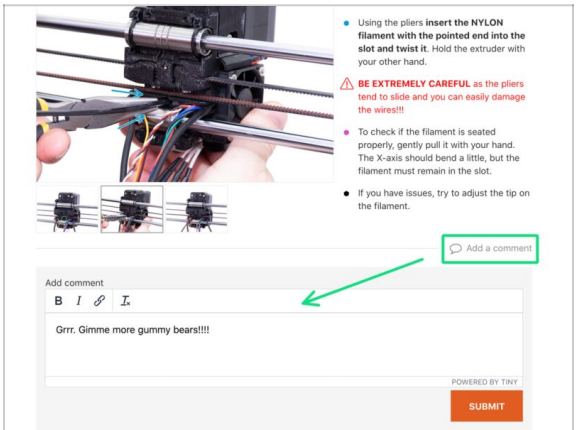


- Cuando utilizes el manual en la web help.prusa3d.com, puedes ver las imágenes originales en mayor resolución para mejor claridad.
- Just hover your cursor over the image and click the Magnifier icon ("View original") in the top left corner.

PASO 7 Labels guide

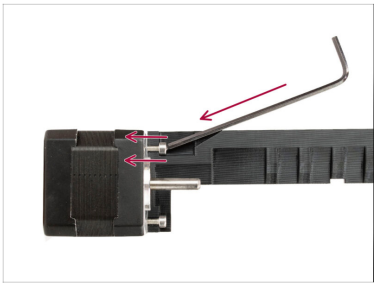
- All the boxes and bags containing the parts for the build are labeled.
- Most of the part drawings on the labels are scaled 1:1 and can be used to identify a part.
- You can download and 2D print a Prusa Cheatsheet with the 1:1 scaled fastener drawings. help.prusa3d.com/cheatsheet. Print it at 100 %, don't rescale it, otherwise, it won't work.

PASO 8 ¡Estamos aquí para atenderte!



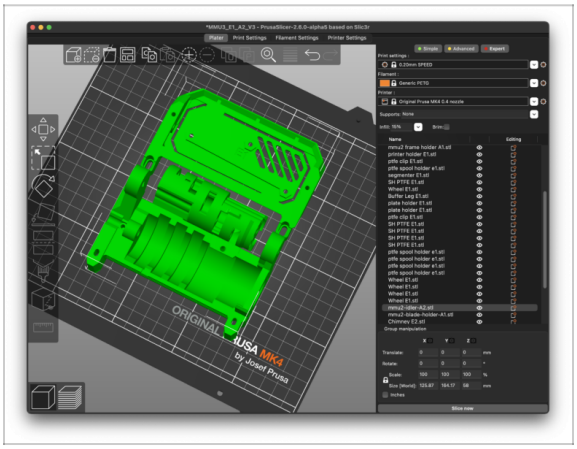
- ¿Estás perdido en las instrucciones, falta el tornillo o la pieza impresa está rota? **¡Háznoslo saber!**
- Puedes contactar con nosotros empleando los siguientes medios:
  - Using our 24/7 live chat
  - Or by writing an email to info@prusa3d.com
  - Or, you can use the comments under each step.

PASO 9 Consejo pro: introduciendo las tuercas



- Durante el montaje del kit MMU3, algunos tornillos deben apretarse con una llave Allen acodada. Asegúrate de que el tornillo quede perfectamente perpendicular a la rosca. Si te resulta difícil girarlo, suéltalo por completo, vuelve a alinearlo y comienza de nuevo para evitar roscas cruzadas.
- Para aberturas profundas, utiliza un tornillo largo como el M3x30 como asa para ayudar a colocar la tuerca.
- If a hex nut won't fit, use a fully threaded screw (e.g., M3x10, M3x18) and insert it from the opposite side to drive the nut into place.

PASO 10 Printed parts



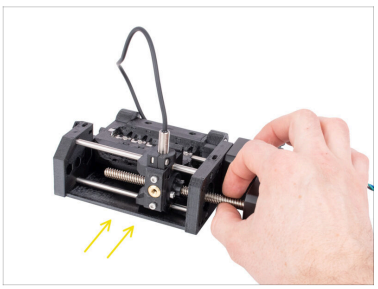
- Si has pedido la MMU3 sin piezas de plástico, tendrás que imprimirlas utilizando los códigos G prelaminados antes de proceder al montaje.

  ⚠ Las piezas **deben estar impresas perfectamente** para que la MMU3 funcione correctamente: sin deformaciones ni esquinas levantadas, hilos u otras irregularidades.
  Si no puedes garantizar que las piezas estén impecables, adquiere en su lugar el kit MMU3 con las piezas de plástico impresas en fábrica.
- En caso de que algunas piezas se rompan durante el montaje, puede volver a imprimirlas. Verifica todas las piezas de plástico antes de comenzar su construcción para asegurarse de que no haya problemas.
- The MMU3 printable parts are available at Prusa3D.com Printables profile
  More info is available at: Prusa3D.com/prusa-i3-printable-parts/

PASO 11 Prepare your desk

- ¡Ordena tu escritorio! Ordenar disminuye la probabilidad de perder piezas pequeñas.
- **Clear your workspace.** Make sure you have enough room. A nice clear flat workbench will get you the results you are aiming for.
- **¡Que haya luz**! Asegúrate de que estás en un entorno bien iluminado. Otra lámpara o incluso una linterna adicional probablemente te resulten útiles.
- Prepara algo para guardar las bolsas de plástico y los materiales de embalaje retirados para poder reciclarlos después. Asegúrate de que no se desecha ninguna pieza importante.
- OK, we are ready. Let's start!

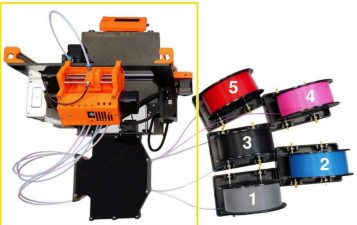
PASO 12 Continuar

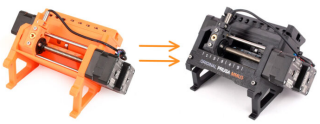


- If you're building the **MMU3 Kit** from scratch, continue to the chapter:
  - 4. Idler Body Assembly
- If you have the **Assembled MMU3**, continue to the chapter:
  - 7. Spool Holder Assembly
- Para la **actualización MMU2S a MMU3**, continua con el capítulo:
  - 2. MMU2S Disassembly (UPG)

2. Desmontaje MMU2S (UPG)

PASO 1 Introduction





- En este capítulo, tendremos que **desmontar la unidad MMU2S** parcialmente y coger algunas piezas clave que se utilizarán para el montaje de la **MMU3**.

⚠ Asegúrate de que la impresora MMU está apagada y desconectada. Descarga todos los filamentos tanto de la impresora como de la unidad MMU.

- If there is a filament loaded in the extruder, use the **Unload filament** function in the menu.

- In the upcoming steps, we'll start by detaching the MMU unit from the printer and disconnecting the buffer from it.

Presta mucha atención a la descripción. Cuando se te indique, aparta los componentes de la MMU2S. Las piezas específicas se volverán a utilizar en un paso posterior.

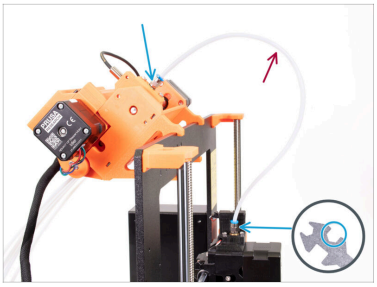
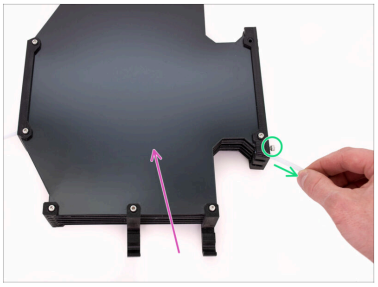
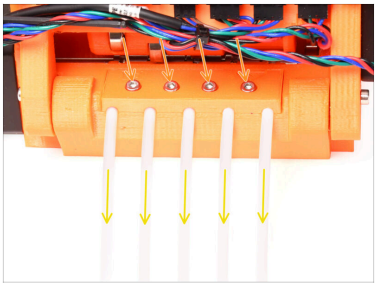
ⓘ Mantén un espacio de trabajo bien organizado para evitar mezclar las piezas antiguas con las nuevas. **Aunque algunos componentes nuevos puedan parecerse a los antiguos, en realidad son distintos.** Ten en cuenta que algunos componentes no deben reutilizarse para el MMU3, mientras que otros son necesarios para la actualización.

PASO 2 Herramientas necesarias para este capitulo

- **Por favor prepara las herramientas para este capítulo:**
  - Needle-nose pliers
  - Unikey to loosen the Festo fittings
  - Llave(s) Allen de 2.5mm para tornillos M3
  - Phillips screwdriver for power cable terminals

ⓘ Puedes usar tus propias herramientas si las encuentras más adecuadas.

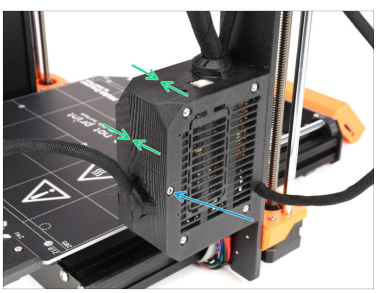
PASO 3 Disconnecting the PTFE tubes

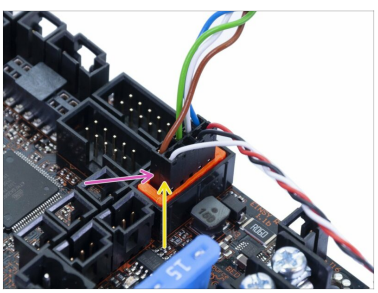




- Unscrew the M5-4 fittings from both the printer and the MMU unit. If the fittings are tight, you can use the Unikey or an 8mm wrench.
- Keep the PTFE tube with the fittings aside for disassembly later.
- We will have to disconnect the buffer from the MMU unit.
  - Loosen all the screws on the buffer securing the PTFE tubes connected to the MMU unit. Remove all five tubes by pulling them out.
  - **Keep the buffer** for a later disassembly in the next chapter.
- On the back of the MMU unit, slightly loosen the four screws holding the rear-PTFE holder.
- Remove all five PTFE tubes and **dispose of them immediately. These tubes will not be used again for MMU3.**

⚠ **MMU3 is designed to work with differently-sized PTFE tubes.** Reusing MMU2S tubes during the assembly of MMU3 will result in incorrect operation.

PASO 4 Disconnecting the MMU2S (part 1)



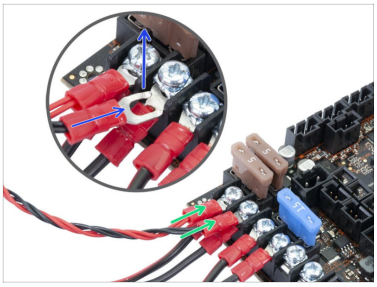


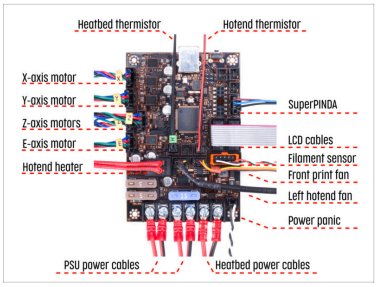
- Loosen the M3x40 screw on the printer's electronics box.
- Open up the electronics box.
- From the MMU, you'll see a **data cable** along with two **power cables**, all connected to the Einsy control board of the printer.

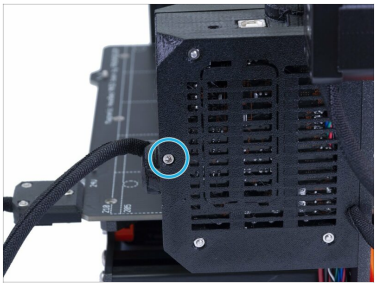
⚠ Never move, connect, or disconnect cables while the printer is powered on. Doing so can cause damage to the electronics.

- Begin by disconnecting the MMU data cable.
  - Be careful not to disconnect the Filament sensor cable located just below the MMU data cable.

PASO 5 Disconnecting the MMU2S (part 2)

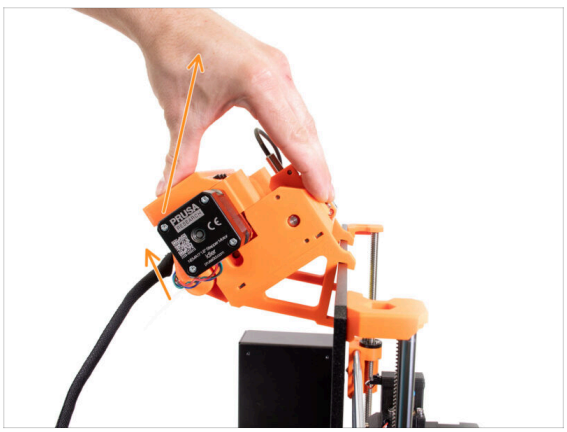


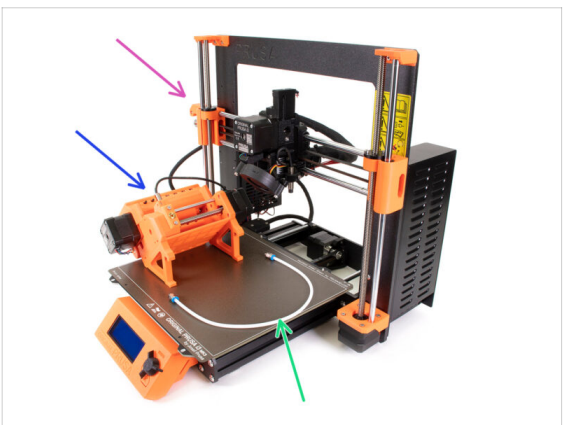




- With a Philips screwdriver, gently loosen the two power terminals located on the bottom left side of the Einsy board.
- The MMU power cable fork connectors are stacked over the main power supply connectors for the Einsy. Remove only the MMU's fork connectors individually, leaving the main supply connectors in place.
- Using the Philips screwdriver, thoroughly **secure the power terminals** with the MMU disconnected. Confirm that all connections match the picture.
- Take out the MMU cable bundle from the electronics box. Close the box and secure it using the M3x40 screw for now.

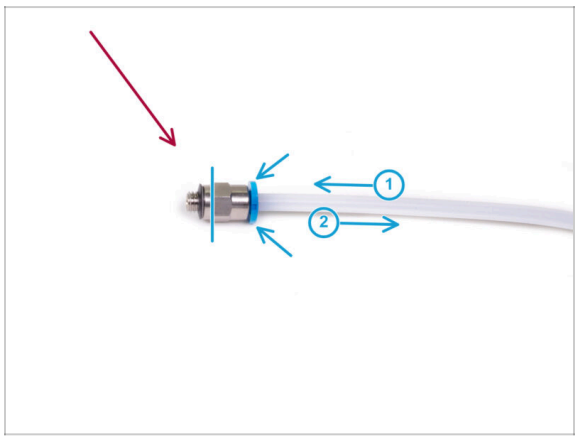
PASO 6 Removing MMU2S from the printer





- The MMU2S unit has been successfully disconnected.
- Raise the rear of the unit to detach the holders from the printer's frame. Then, remove the MMU from the printer.
- You can set the printer aside for now.
- We can move onto disassembling the MMU2S unit itself.
- For the following step, please prepare the **MMU-to-Extruder PTFE tube with the Festo fittings QSM-M5** attached.

PASO 7 MMU-to-Extruder PTFE tube disassembly



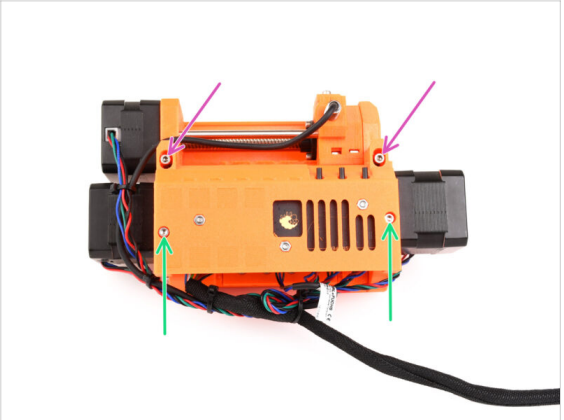
- Take the MMU-to-Extruder PTFE tube with the M5-4 fittings.
- Remove both fittings from the old PTFE tube.
  - Hold the fitting by the metal part and press the collet in. While the collet is pressed, first press the PTFE tube in, then pull it out entirely.

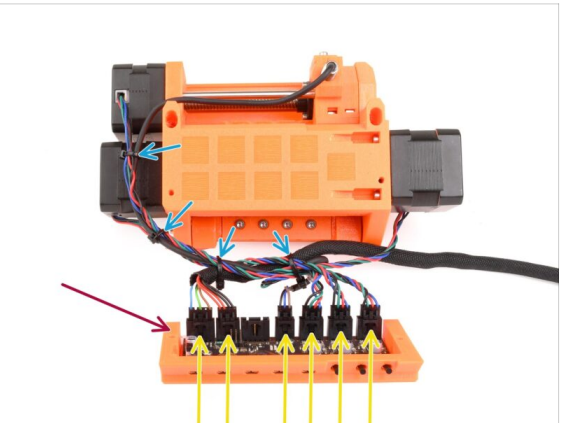
⚠ **MK3S+ & MK3.5/S owners: Save the fittings** for later use. **Discard the PTFE** tube so you don't confuse it with a new one later on!

⚠ **MK4/S & MK3.9/S owners:** Throw the fittings and the PTFE tube away now! Your package includes new ones! Mixing them may lead to issues!

⚠ **MMU3 is designed to work with differently-sized PTFE tubes.** Reusing MMU2S tubes during the assembly of MMU3 will result in incorrect operation.

PASO 8 MMU2S Unit disassembly





- Retira los dos tornillos M3x18 que sujetan la electrónica en la parte superior de la unidad.
- Retira los dos tornillos M3x30 del tensor con los muelles.
- Retira el conjunto de la placa electrónica de la unidad.
- Desconecte todos los cables de la placa electrónica. Recuerda que cada conector tiene una pestaña de seguridad que hay que empujar para poder desconectar un conector. Aparta el conjunto de la placa.
- Corta con cuidado la brida que sujetan los cables juntos.

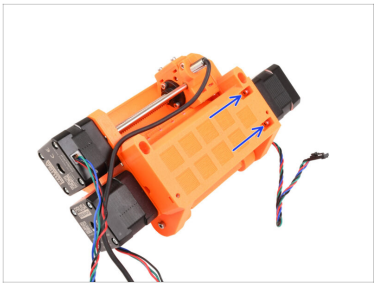
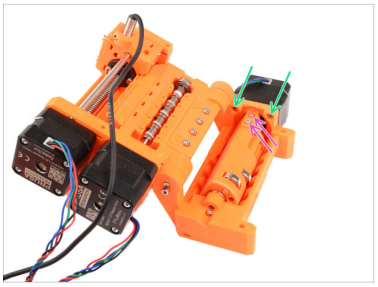
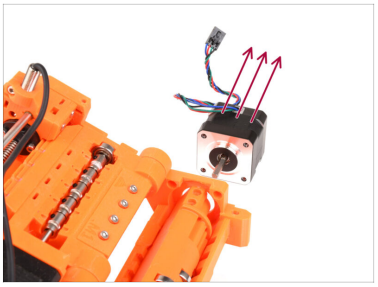
⚠ ¡Ten cuidado de no dañar los cables!

PASO 9 Textile wrap removal

- Separate the power and data cable bundle from the rest of the cables.
- Remove the textile wrap off the cables and **save the textile wrap for later use**.

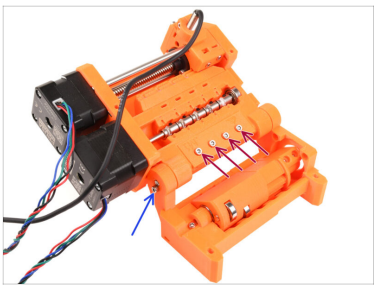
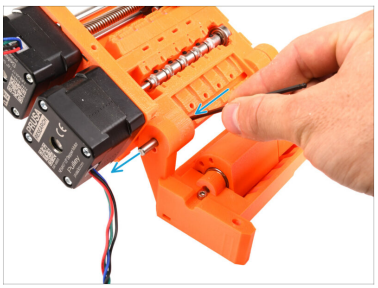
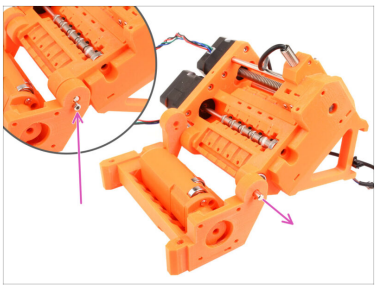
ⓘ The MMU2S power and data cables won't be used in MMU3.

PASO 10 Idler motor removal

- Usando el final en bola de la llave Allen en ángulo, retira los dos tornillos M3x10 de la parte superior que sujetan el motor tensor.
- Abre el cuerpo del tensor y retira los dos tornillos M3x10 que aseguran el motor por el otro lado.
- Retira los dos tornillos M3x10 que sujetan el eje del motor a la polea tensora.
- Saca el **motor tensor** de la unidad. **Guárdalo para un uso futuro.**

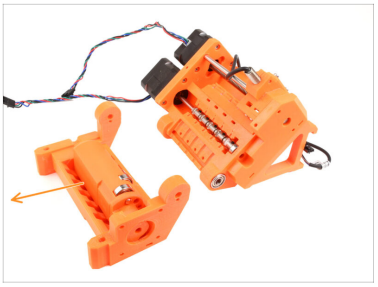
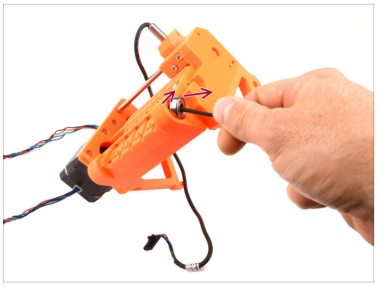
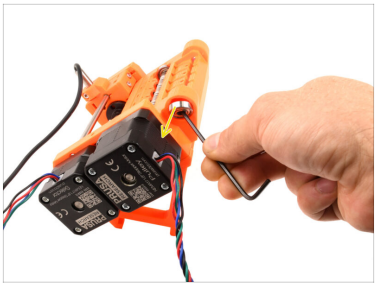
PASO 11 5x16sh shafts removal

- Remove the four M3x18 screws holding the Rear-PTFE holder. Remove the holder as well as all the PTFE tubes underneath.
- Remove the M3x10 screw on the side securing the 5x16sh shaft.
- Using the shorter side of the 2.5mm Allen key, push the **5x16sh shaft** from the inside out.
- Repeat the same process on the other side. Remove the M3x10 screw and push the 5x16sh shaft outward.

ⓘ **Save the 5x16sh shafts for later use.**

PASO 12 Bearings removal

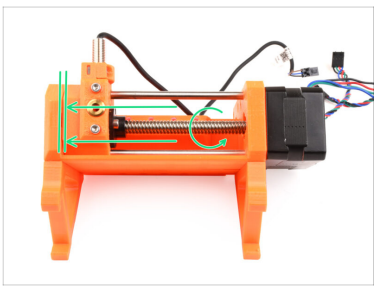
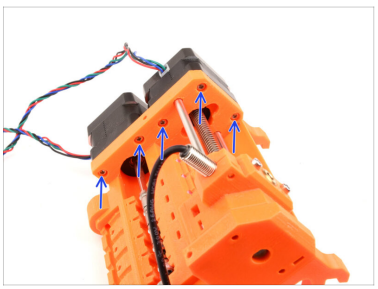
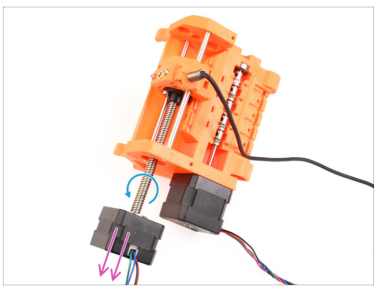
- Remove the Idler body with the Idler.

  These components are no longer needed. However, they contain valuable spare parts inside. Disassembling them can be challenging, so we won't do it at this point.

- Using the Allen key, tilt the **625ZZ bearing** on the right side of the Pulley body in order to remove it.
- Using the same technique, remove the bearing on the other side too.

Save both the 625ZZ bearings for later use.

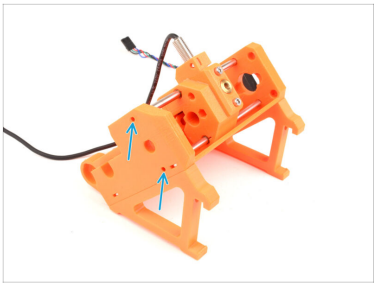
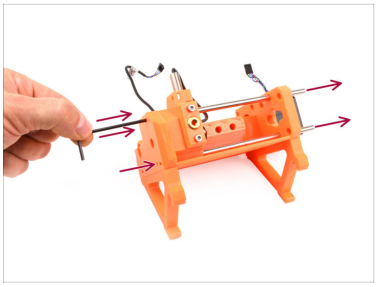
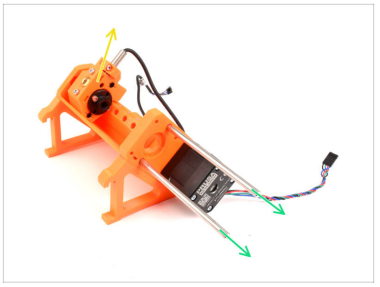
PASO 13 Selector motor removal

- Girando el eje del motor del selector, desplaza el selector completamente hacia el lado izquierdo.
- Con la llave Allen de 2.5 mm, retire los **cinco M3x10 tornillos** sujetando los motores.
- Gira un poco más el eje del motor para desengancharlo del selector.
- Tira del motor selector para extraerlo de la unidad.

Save the motor for later use.

PASO 14 Selector removal

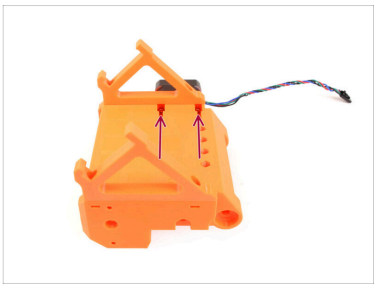
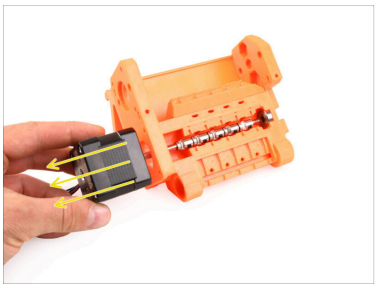
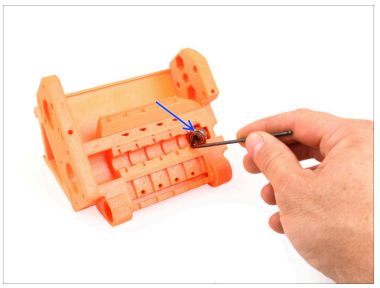




- Hay dos aberturas en el lateral de la unidad. A través de ellas se ven los extremos del eje selector.
- Inserte la llave Allen en las aberturas para empujar ambos ejes hasta el fondo.
- Pull out both the **5x120sh shafts** and **save them for later use.**

  ⚠ Si optas por utilizar los alicates de punta fina para extraer los ejes, tira de ellos mientras realizas un movimiento giratorio. **¡Ten cuidado de no arañarlos!**
- Levanta el **selector** y extráelo de la unidad. Déjalo a un lado por ahora, ya que seguiremos desmontándolo.

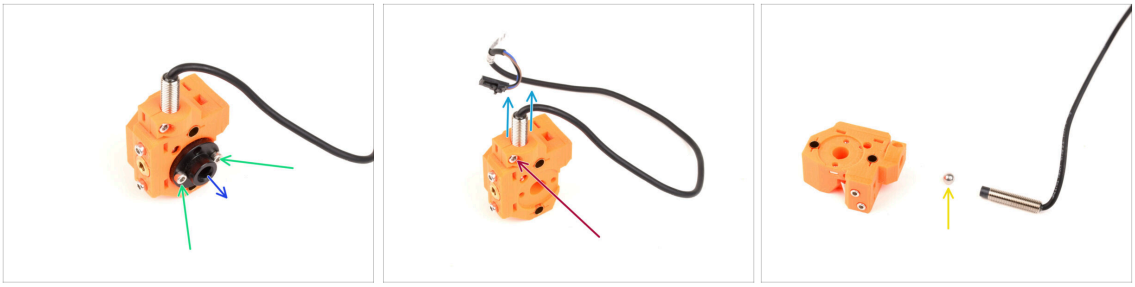
  ⚠ En la parte posterior del selector hay una cuchilla afilada. Procede con cuidado para evitar lesiones.

PASO 15 Pulley motor removal

- Dale la vuelta a la unidad.
- En la parte inferior, retira los tornillos M3x10 restantes que sujetan el motor de la polea.
- Retira el **motor de polea** de la unidad.
- ⓘ **Save the motor for later use.**
- Using the Allen key, tilt the pulley **bearing** in order to remove it. **Save it for later use too.**

PASO 16 Selector disassembly



- Remove the two M3x10 screws holding the trapezoid nut.
- Remove the trapezoid nut and **save it for later use.**
- Retira el tornillo M3x10 del lateral del selector.
- Remove the **FINDA / SuperFINDA sensor** and **save it for later use.**
- Una bola de acero caerá del selector.

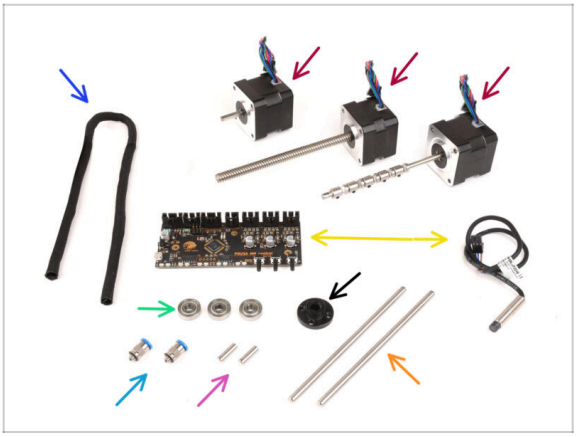
  ⚠ La bola no es magnética y **no se reutilizará.** Utilizaremos una magnética más adelante. Apartala a un lado para no confundirla con la nueva.
- You don't need the other parts in the selector anymore, but you can keep them as spares.

PASO 17 Control board disassembly

- Prepare the electronics board assembly.
- Retira con cuidado los tres tornillos M3x6 que sujetan la placa electrónica.
- Afloja suavemente la placa electrónica del conjunto, pero no la saques del todo todavía. **Mantén la placa de control dentro de la pieza de plástico** para salvaguardarla de cualquier daño, por ahora.

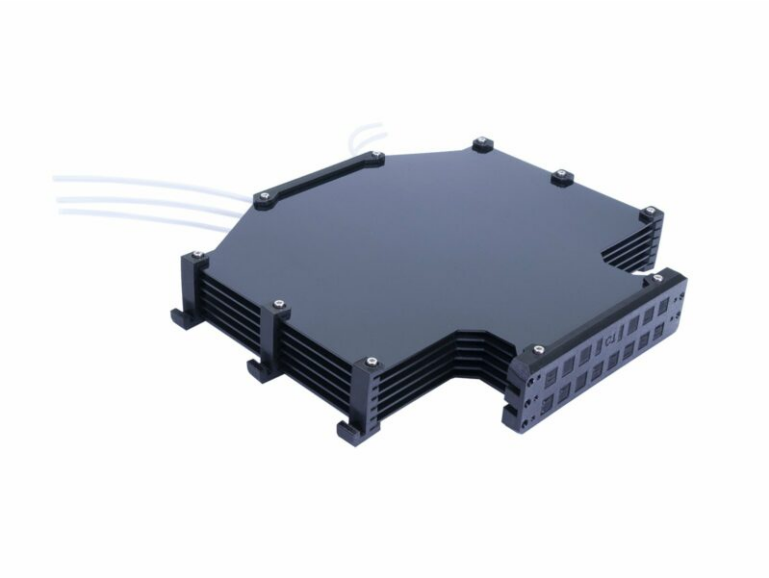
⚠ Handle the board by its sides to avoid damage. Be careful around the electronics, do not touch the individual components on the board. Remember that the board is sensitive to electrostatic discharge (ESD).

PASO 18 Summary

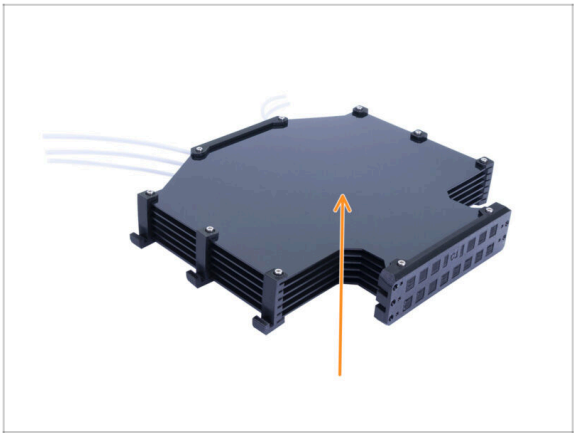


- **Here's a summary of the parts to keep for later use:**
  - Textile sleeve 450x5 (1x)
  - Stepper motor (3x) *Idler, Selector and Pulley motor (with pulleys still attached)*
  - Electronics: the control board (1x) and FINDA/SuperFINDA sensor (1x)
  - 625 bearing (3x)
  - Trapezoid nut (1x)
  - M5-4 Fittings (2x)
    - ⓘ Estos racores solo son necesarios para la versión MK3S+. Si estás montando la versión MK4, ¡utiliza los nuevos racores suministrados!
  - 5x16sh shaft (2x)
  - 5x120sh shaft (2x)

3. Desmontaje Buffer MMU2S (UPG)

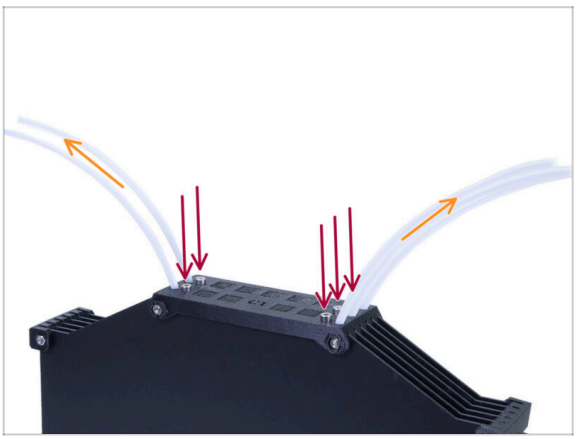


PASO 1 Preparation



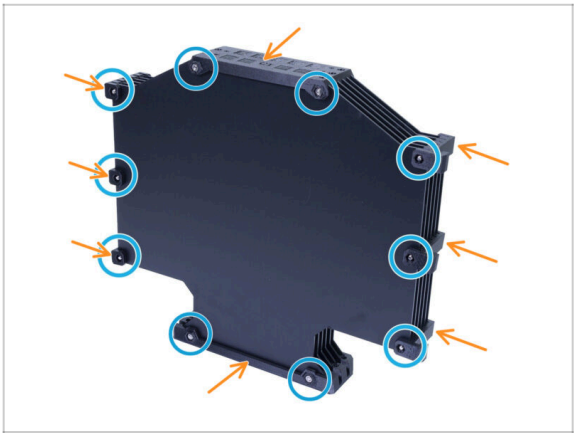
- In case you have the old version of the buffer in the assembled state, it is necessary to disassemble it first.
- We will re-use only the **six large plastic plates** from it.
- If you have the plastic sheets alone, please skip to the next chapter.

PASO 2 Disconnecting the PTFE tubes



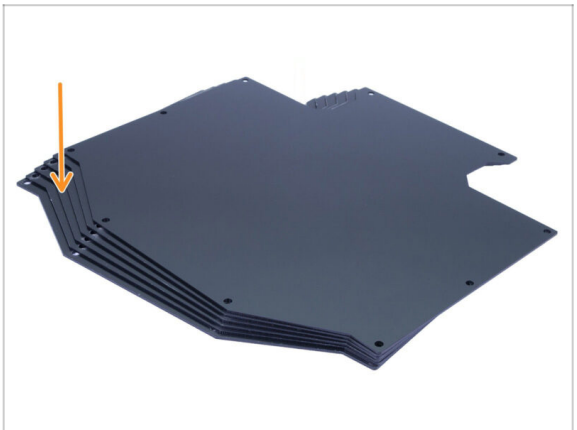
- Remove the five **M3x10** screws holding the PTFE tubes in the buffer.
- Pull all the PTFE tubes out.
- Desecha los tubos para evitar que se mezclen con los nuevos en el futuro. **Estos tubos no se volverán a utilizar.**

PASO 3 Buffer disassembly



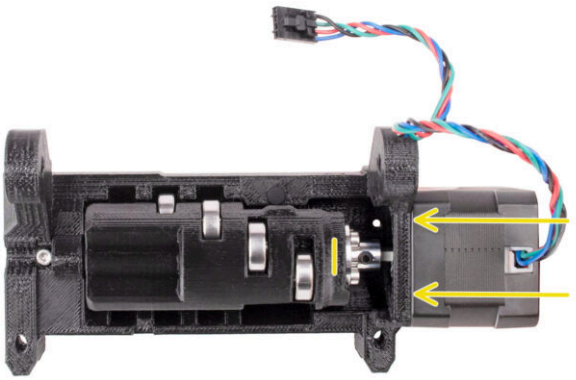
- Retira los diez tornillos M3x40.
- Retira todas las piezas impresas.
- ⚠ Aparta las piezas impresas para que no se mezclen con las nuevas. Estas piezas no se reutilizarán.

PASO 4 Summary



- Eso fue simple, ¿no?
- Del buffer desmontado, guarda los **laterales del buffer** para usarlos más tarde.

4. Montaje del cuerpo del tensor



PASO 1 Herramientas necesarias para este capitulo

- **Por favor prepara las herramientas para este capítulo:**
  - Alicates de punta fina
  - Llave Allen de 1.5mm para alinear las tuercas
  - Llave Allen de 2mm para tornillos M4
  - Llave Allen de 2.5mm para tornillos M3

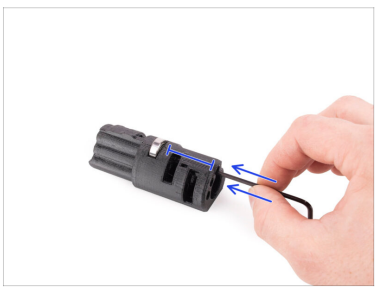
PASO 2 Versiones del tensor

- **Hay dos versiones del Idler:**
- 1. El **MMU3 Idler** para utilizar con el **Coupler** de metal
  - Esta es la pieza correcta incluida en el kit MMU3.
- 2. El **MMU2S Idler** antiguo con una pieza de acoplamiento impresa.
  - Se trata de una versión obsoleta que no debería utilizarse en el MMU3.

PASO 3 Preparación de las piezas del tensor

- **Para los siguientes pasos, por favor prepara:**
- Tensor (1x)
- Rodamiento 625 (6x)
- Eje 5x16sh (5x)
- Tenga en cuenta que necesitas 6 rodamientos, pero sólo 5 ejes ;)

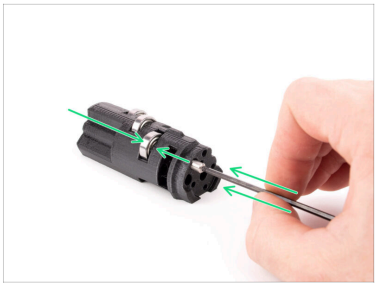
PASO 4 Montaje de los rodamientos tensores (parte 1)



⚠ **ADVERTENCIA:** lee las instrucciones cuidadosamente, debes **ensamblar los rodamientos en el orden correcto**, de lo contrario, encontrará problemas más adelante.

- Inserte uno de los rodamientos en la ranura **media** del tensor. Inserta el eje desde el lado que se ve en la imagen. Asegúrate de que lo está insertando desde el lado correcto y en la abertura correcta.
- Introduce el eje hasta el fondo con la llave Allen de 2.5 mm. **Asegúrate de que el eje esté completamente dentro** y no bloquea otras ranuras para los rodamientos.
- Instala el segundo rodamiento y el eje de la misma manera que el primero. Asegúrate de que estás insertando las piezas exactamente en las mismas aberturas que se ven en la imagen.
- Instala el tercer rodamiento y el eje en la abertura correspondiente utilizando la misma técnica.

PASO 5 Montaje de los rodamientos tensores (parte 2)

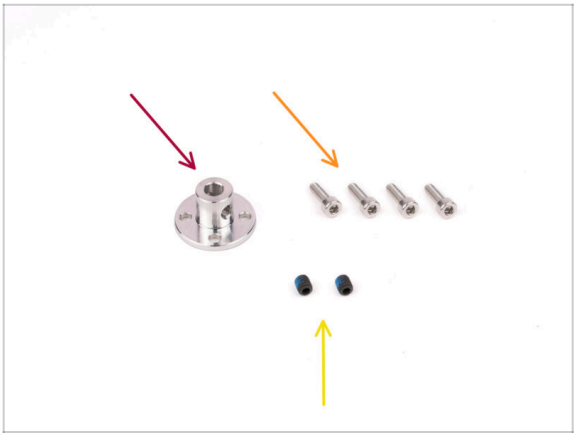

- Gire la polea tensora para continuar con el montaje del rodamiento desde el otro lado.
- Inserta un rodamiento y luego un eje en la ranura vacía más cercana al centro del tensor.
- Termina montaje de los rodamientos con la última ranura en el lateral.
- Asegúrate de que todos los rodamientos pueden girar libremente. No debes sentir fricción significativa o golpes al girar el rodamiento.

ⓘ Hay pequeñas aberturas, que se pueden utilizar para empujar un eje hacia fuera en caso de un desmontaje. Los ejes pueden extraerse con una llave Allen de 2 mm en orden inverso al de montaje.

PASO 6 Montaje del rodamiento central del tensor

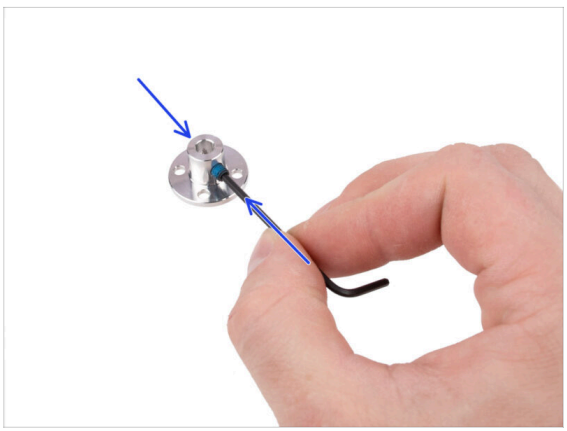

- Coge el rodamiento restante y empújalo en la abertura del lateral del tensor.
- Asegúrate de que el rodamiento está plano (alineado) con la superficie.

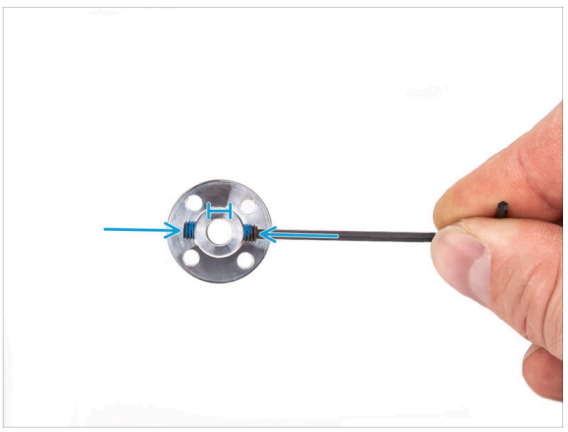
PASO 7 Preparación de las piezas del acoplador



- **Para los siguientes pasos, por favor prepara:**
- Acoplador 5mm (1x)
- Tornillos M3x10 (4x)
- Tornillos prisioneros M4x5 (2x)
  - Etiquetado M4x5. El color puede variar.

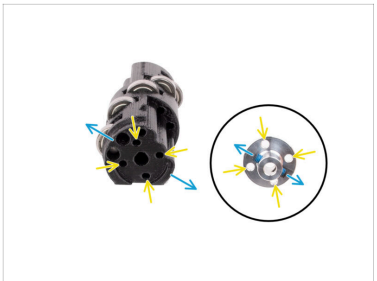
PASO 8 Preparación del acoplador





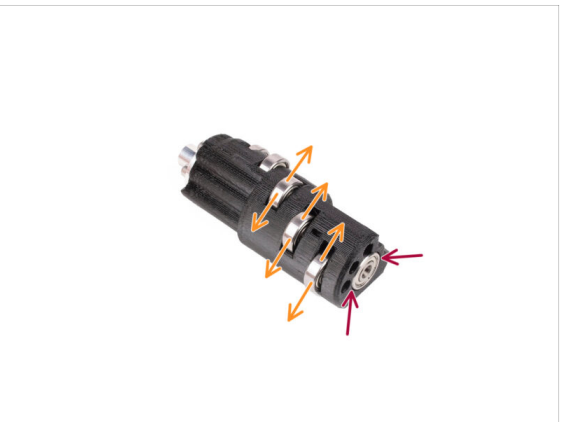
- Con la llave Allen de 2 mm, instala los tornillos prisioneros M4 en las aberturas roscadas de los laterales del acoplador.
  Solo tiene que iniciar la rosca para que el tornillo prisionero se sujeta.
- Asegúrate de que ninguno de los dos tornillos prisioneros sobresale en la abertura del centro. De lo contrario, el acoplador será difícil de deslizar en el eje del motor más adelante.

PASO 9 Ensamblaje del acoplador



- Antes de instalar el Acoplador en el Tensor, observa ambas piezas. Hay cuatro aberturas para tornillos que deben alinearse.
- Oriente el acoplador de modo que los dos tornillos prisioneros queden orientados exactamente como en la imagen.
- Coloca el Acoplador en el lateral del tensor de forma que las cuatro aberturas para tornillos queden alineadas.
- Antes de continuar, asegúrate de que los tornillos prisioneros M4 están orientados como se ve en la imagen.
- Fije el Acoplador al Tensor con cuatro tornillos M3x10.

PASO 10 Comprobación final

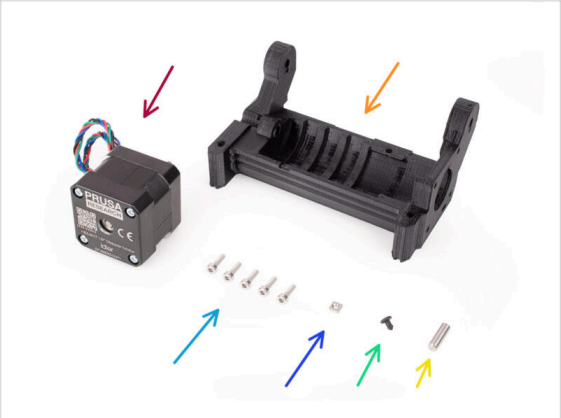


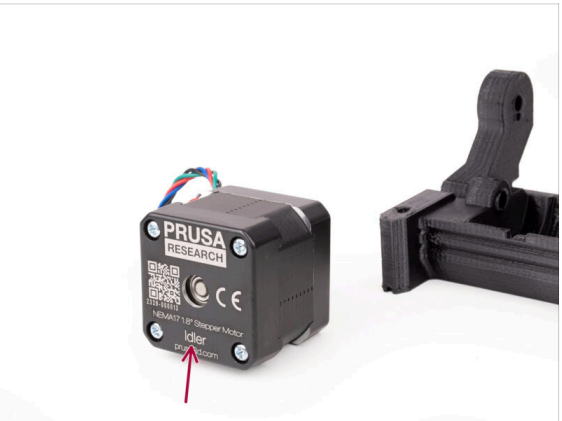
- **Antes de proceder, comprueba lo siguiente:**
- Todos los tornillos M3x10 están apretados.
- Los tornillos prisioneros están orientados correctamente y no sobresalen en la abertura central del acoplador.

⚠ La **orientación de los tornillos prisioneros** es importante para que estos permanezcan accesibles incluso después de instalar el tensor dentro de la unidad MMU.

- Los cinco rodamientos son capaces de girar.
- El sexto rodamiento está a ras con la superficie.

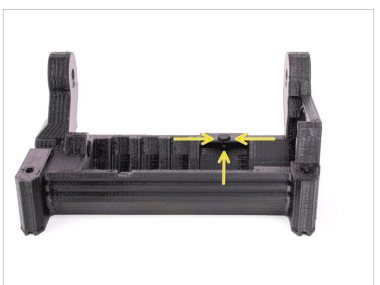
PASO 11 Preparación de las piezas del Idler Body





- **Para los siguientes pasos, por favor prepara:**
- Motor tensor (1x) *(el que tiene el eje corto)*
- Cuerpo Tensor (1x)
- Tornillo M3x10 (5x)
- Tuerca M3nS (1x)
- Tope de silicona (1x)
- Eje 5x16sh (1x)

PASO 12 Instalación del tope de silicona

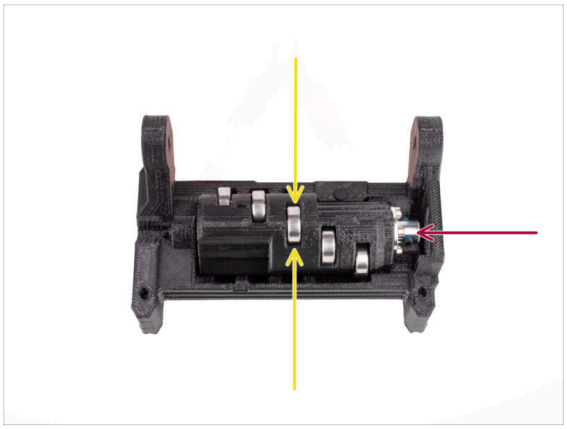


- Orienta el Cuerpo del tensor como se ve en la imagen.
- Introduce el tope de silicona en la pequeña abertura del cuerpo del tensor.
- Empújalo y mantenlo presionado con el dedo hasta que note que encaja completamente en la abertura. Si no encaja, prueba a limpiar la abertura con una llave Allen y gira el tope mientras lo introduces.

  ⓘ Si no encaja, prueba a limpiar la abertura con una llave Allen y a girar el tope mientras lo introduces.

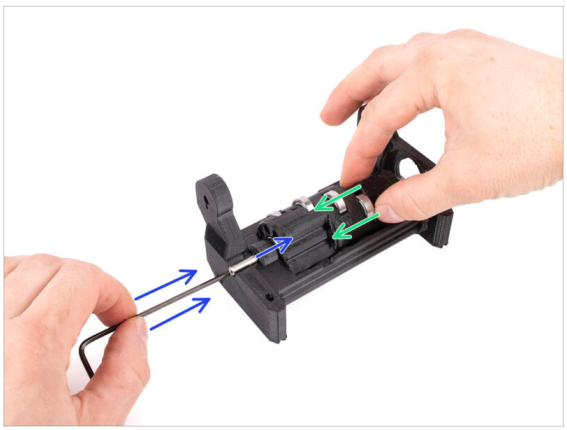
  - Comprueba que está bien asentado y que no se sale.
    Cuando esté completamente insertado, la parte inferior del tope debe ser visible desde el lateral.

PASO 13 Instalación del tensor



- Inserte el tensor en el cuerpo del tensor. Es importante que la orientación sea correcta. Asegúrate de que el rodamiento central apunta hacia arriba.
- Asegúrate de que el acoplador metálico apunte hacia la abertura grande del cuerpo del tensor.
- Empuja el tensor hacia la izquierda de forma que quede el menor hueco posible.

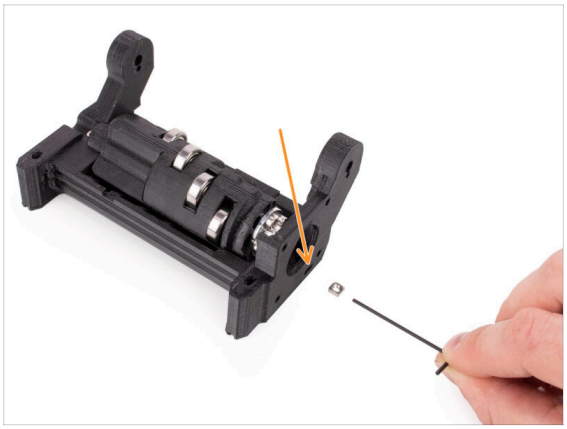
PASO 14 Montaje del eje central del tensor



- Sujeta el Idler con la mano y sigue empujándolo hacia el lado izquierdo.
- Inserta el eje de 5x16 en la abertura del lado izquierdo del cuerpo del tensor y empújalo hasta el fondo.

  El eje debe encajar en el rodamiento del tensor. Presiona el eje hasta el fondo con la llave Allen de 2.5 mm.
- Asegura el eje en su sitio colocando un tornillo M3x10 en la posición marcada. Apriétalo.

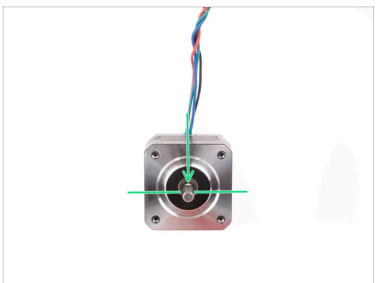
PASO 15 Tuerca M3nS idler body

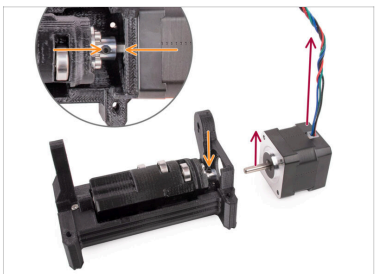


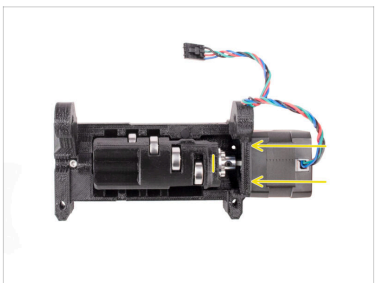
ⓘ ¡Será sencillo!

- Inserta la tuerca M3nS en la abertura marcada en el cuerpo del Idler.
- Con la llave Allen de 1.5mm, empuja la tuerca hasta el fondo.

PASO 16 Montaje del tensor del motor (parte 1)



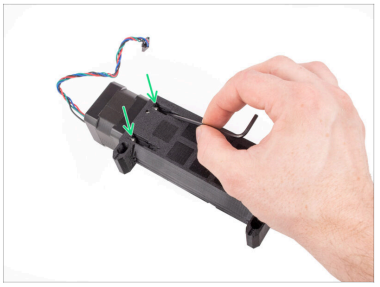




ⓘ Antes de añadir el motor al conjunto, debemos alinear el eje del motor y el acoplamiento del tensor.

- Fíjate que el eje del motor tiene una parte plana.
- Orienta el motor como se ve en la imagen, de modo que tanto la parte plana del eje como el cable apunten hacia arriba.
- Antes de empezar a instalar el motor, la parte plana del eje del motor debe estar alineada con uno de los dos tornillos prisioneros del acoplador metálico. Orienta el acoplador de modo que uno de los tornillos prisioneros apunte hacia arriba.
- Inserta el eje del motor en el acoplador metálico del tensor. Empuja el motor hacia el cuerpo del tensor hasta que quede a ras.

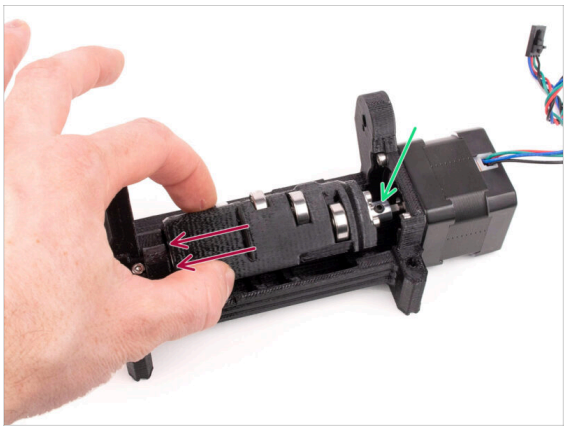
PASO 17 Montaje del tensor del motor (parte 2)


- Inserta dos tornillos M3x10 en las aberturas marcadas.
  Inicia la rosca para que los tornillos encajen en el motor. ¡No los aprietes del todo todavía!
- Dale la vuelta a la unidad.
- Desde el lado opuesto, añade otros dos tornillos M3x10 en las aberturas. Empújalos hacia el motor. Con el final de bola de la llave Allen de 2.5mm en ángulo, apriétalos a fondo.

  ⚠ Asegúrate de que el tornillo está **perfectamente perpendicular** al motor mientras lo aprietas. Si te cuesta girarlo, suelta el tornillo por completo, vuelve a alinearlo y apriétalo de nuevo **desde el principio** para evitar dañar la rosca.
- Ahora, aprieta a fondo los dos primeros tornillos M3x10.

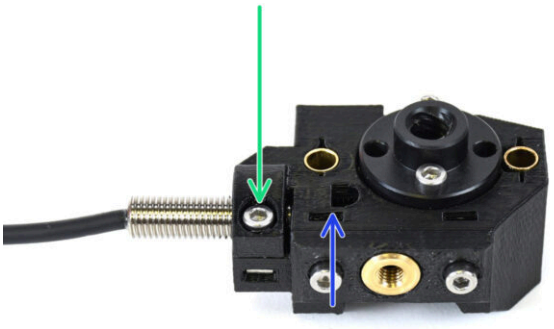
PASO 18 Montaje del tensor del motor (parte 3)




- Tira del tensor hacia el lado todo el camino lejos del motor. Debe haber apenas un hueco muy pequeño en el lado izquierdo.

  ⚠ Una separación considerable podría hacer que la MMU experimentara dificultades con la carga/descarga de filamentos, ya que los rodamientos de la polea tensora podrían no alinearse correctamente con los filamentos.
- Asegúrate de que el tornillo prisionero del acoplador metálico sigue alineado con la parte plana del eje del motor. Apriétalo a fondo con la llave Allen de 2 mm.
- Gira la polea tensora de modo que quede accesible el segundo tornillo prisionero del acoplador metálico. Aprieta también a fondo el otro tornillo prisionero.

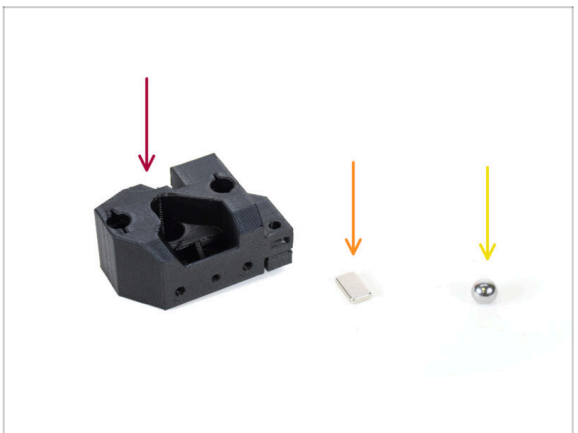
5. Montaje del selector



PASO 1 Herramientas necesarias para este capitulo

- **Por favor prepara las herramientas para este capítulo:**
  - Llave Allen de 1.5mm para alinear las tuercas
  - Llave Allen de 2.5mm para tornillos M3

PASO 2 Selector assembly: Parts preparation

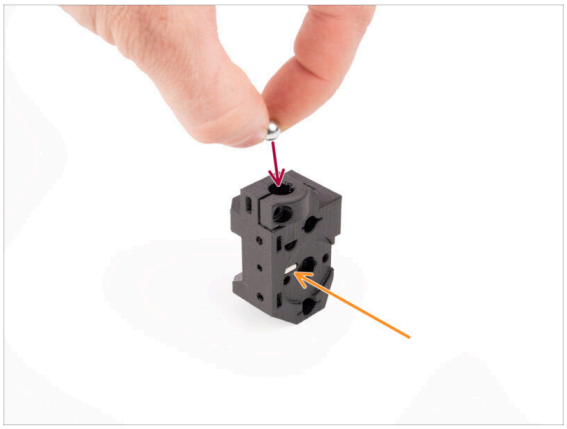


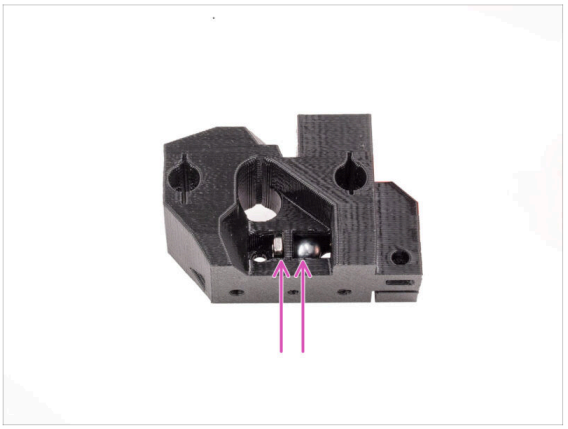
- **Para los siguientes pasos, por favor prepara:**
- Selector (1x)
- 10x6x2 Magnet (1x)
- Magnetic steel ball (1x)

Al actualizar desde la MMU2S, asegúrate de utilizar la nueva bola suministrada en el kit de actualización, no la antigua.

The new ball is made of a ferromagnetic material.

PASO 3 Selector assembly: Magnetic ball



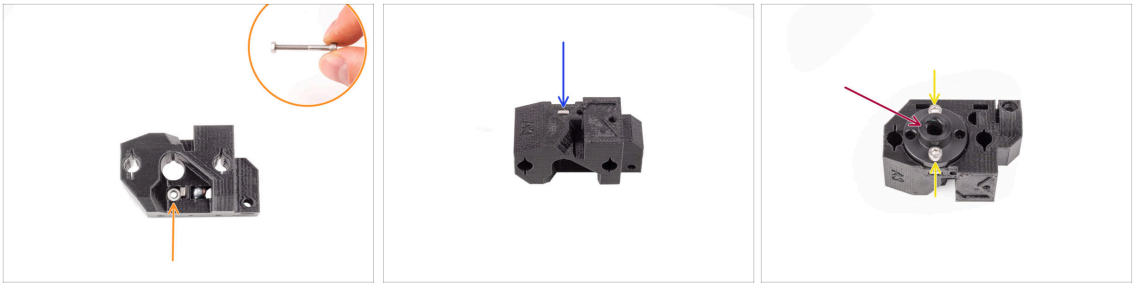


- Insert the magnet into the marked opening on the selector. Push it in until it is flush with the surrounding surface.
  - ⓘ The orientation of the magnet doesn't matter.
- Insert the magnetic ball into the marked hole on the top of the selector.
- The steel ball should be attracted to the magnet below and stay in place. If not, verify you are using a correct ball.
  - ⓘ There is an opening on the side of the selector through which you can observe the ball's position.
  - The selector ball from the older MMU2S can't be re-used as it is non-magnetic. Use only the supplied MMU3 magnetic version.

PASO 4 Selector assembly: Trapeze nut parts preparation

- **For the following steps, please prepare:**
- Trapeze nut (1x)
  - In case you're assembling the unit from scratch, the nut is inside the *Motor kit* box, attached to the selector motor.
- M3n nut (1x)
- M3nS nut (1x)
- M3x10 screw (2x)

PASO 5 Selector assembly: Trapeze nut installation

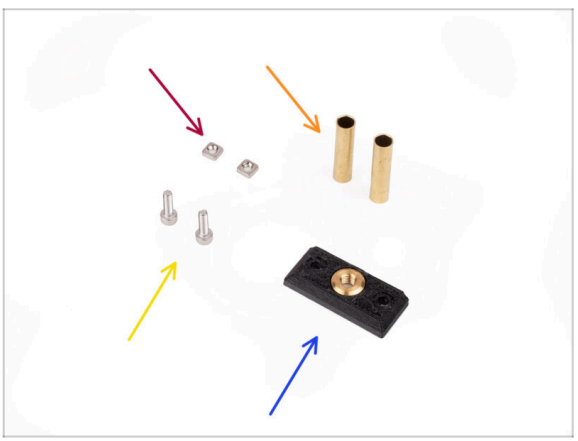


- Insert the M3n nut into the marked opening in the selector, just below the magnet. Push it all the way in. Make sure the magnet doesn't get pushed out.

  ⓘ The easiest way of inserting the M3n nut is by an M3x30 screw used as a handle.

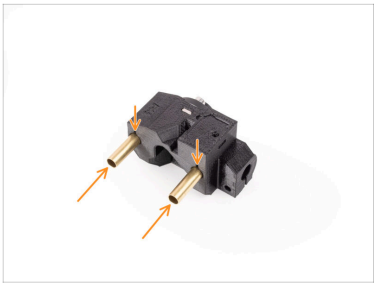
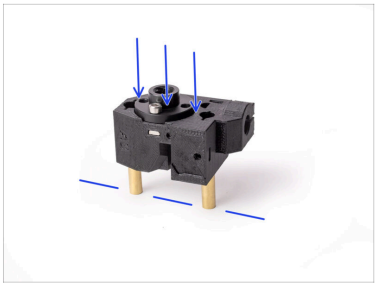
- Insert the M3nS nut into the marked opening on the other side of the selector.
- Attach the trapeze nut onto the selector. There is a recess into which it should fit nicely.
- Fix the trapeze nut in place with two M3x10 screws. Tighten them just slightly for now. We will tighten them up fully later on.

PASO 6 Selector assembly: Rods and Cover parts preparation



- **Para los siguientes pasos, por favor prepara:**
- M3nS nuts (2x)
- Bushing tube 5x6x25bt (2x)
- M3x10 screws (2x)
- Selector front plate (1x)

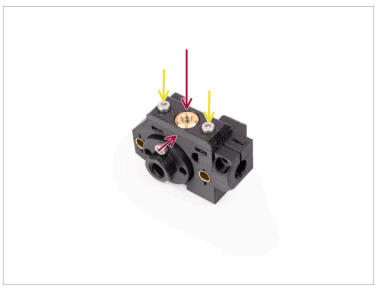
PASO 7 Selector assembly: Bronze bushing tubes


- Insert the bronze bushing tubes into the marked openings on the selector as far as you can, using your hand. Make sure you are inserting them from the correct side.
- Press the tubes in by carefully pushing the assembly against a flat surface.
- In the end, the tubes should end up flush with the surface on the other side.

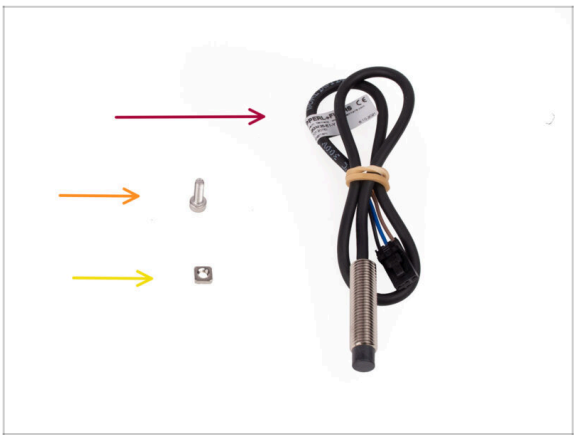
PASO 8 Selector assembly: Rods and Cover





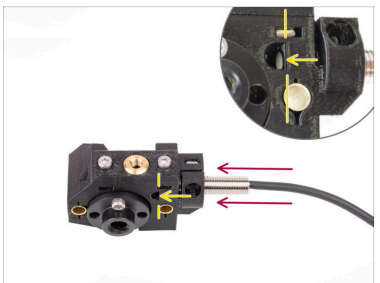
- Insert the two M3nS nuts into the marked openings on the side of the selector. Push the nuts all the way in using the 1.5mm Allen key.
- Add the front plate onto the selector. Make sure the side of it is flush with the flat part of the selector.
- Attach the front plate with two M3x10 screws. Tighten them up.

PASO 9 Selector assembly: Finda parts preparation



- **Para los siguientes pasos, por favor prepara:**
- SuperFINDA sensor (1x)
  - Your sensor might look slightly different if you are re-using the older FINDA sensor. But don't worry, it will work just as good.
- M3x10 screw (1x)
- M3nS nut (1x)

PASO 10 Selector assembly: SuperFINDA probe

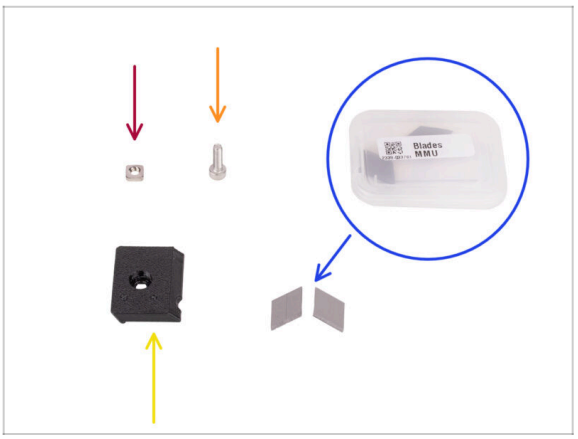


- Insert the M3nS nut into the marked opening on the front of the selector.
- Insert the SuperFINDA sensor into the corresponding opening in the selector.
- Ajusta la posición del sensor de forma que termine a ras o ligeramente por encima de la superficie interior de la abertura en forma de D situada en el lateral del selector.

  ¡Asegúrate de que la parte inferior del sensor está alineada y no sobresale en la abertura en forma de D! Aunque la altura del sensor SuperFINDA puede necesitar más ajustes, éste suele ser un buen punto de partida.
- Fija la sonda en su sitio con un tornillo M3x10. Aprieta el tornillo justo para que el sensor ya no se pueda mover.

  Avoid over-tightening the screw; if SuperFINDA is securely held in place, that's sufficient.

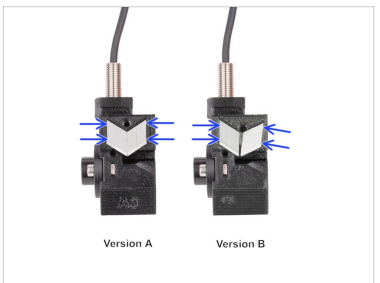
PASO 11 Selector assembly: Cutter parts preparation



- **Para los siguientes pasos, por favor prepara:**
- M3nS nut (1x)
- M3x10 screw (1x)
- Blade holder (1x)
- Blade (2x) - stored in the little plastic box

⚠ Be very careful while handling the blades! You might easily harm yourself!

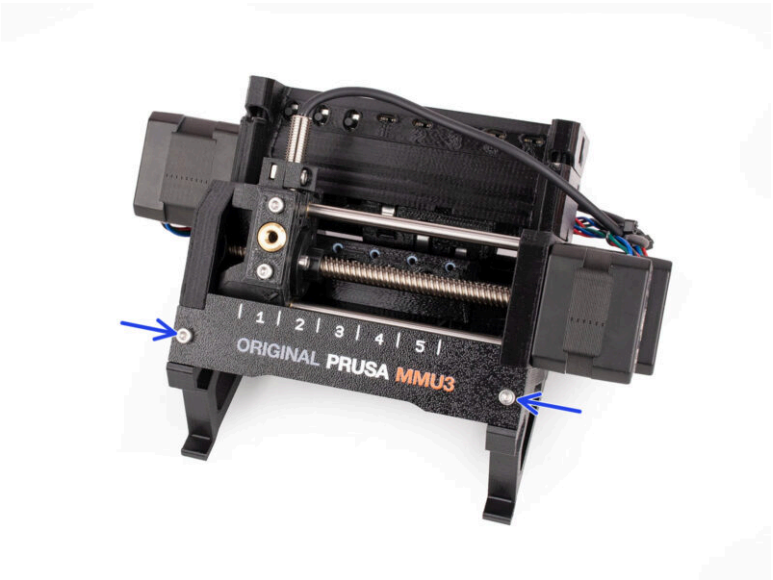
PASO 12 Selector assembly: Cutter assembly



- Insert the M3nS nut into the marked opening on top of the selector. Push it all the way in.
- Insert the two blades into the recess on the back of the selector. **Make sure the blades are seated nicely.**

  ⓘ There have been several versions of this part available, which might look slightly different. However, the assembly process remains the same. Markings on the part may be different than the ones seen in the photo.
- Cover the blades with the blade holder. Verify the blades are still seated perfectly in place while attaching the cover.
- Fix the blade holder in place with M3x10 screw. Tighten it up fully.

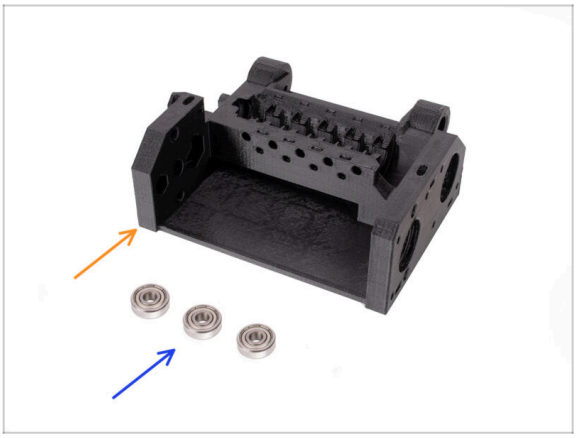
6. Montaje del cuerpo de polea



PASO 1 Herramientas necesarias para este capitulo

- **Por favor prepara las herramientas para este capítulo:**
  - Alicates de punta fina
  - Llave Allen de 1.5mm para alinear las tuercas
  - Llave Allen de 2.5mm para tornillos M3
  - Una herramienta para medir (optional), lo mejor es un calibre digital.

PASO 2 Pulley-body parts preparation



- **Para los siguientes pasos, por favor prepara:**
  - Cuerpo de la polea (1x)
  - Rodamiento 625 (3x)

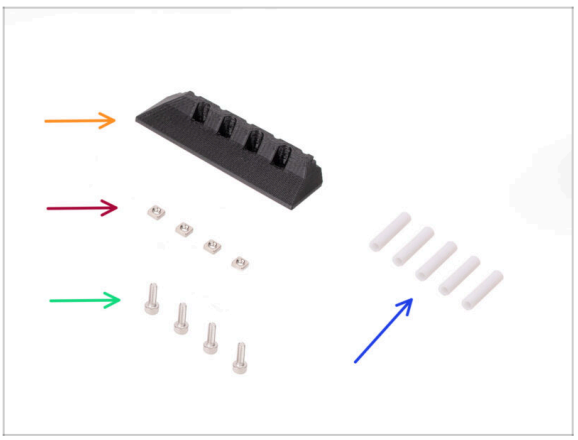
PASO 3 Pulley body: Inserting bearings

- Inserta uno de los rodamientos 625Z en la abertura lateral marcada en la parte posterior del cuerpo de la polea. Empújalo hasta que quede a ras con la superficie.

  En caso de que tengas problemas para introducir completamente el rodamiento, intenta empujarlo contra el lateral de una mesa.

- Inserta el segundo rodamiento en la ranura del lado opuesto del cuerpo de la polea.
- Inserta el tercer rodamiento en la ranura marcada en el interior del cuerpo de la polea. Insértalo en ángulo e inclínalo en su lugar.

PASO 4 Pulley-body parts preparation



Para los siguientes pasos, por favor prepara:

- PTFE-holder delantero (1x)
- Tuerca M3nS (4x)
- Tornillo M3x10 (4x)
- Tubo PTFE 19mm (5x)

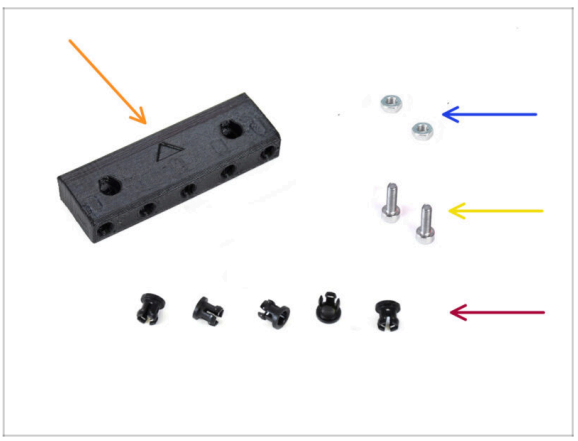
MMU2S and MMU3 PTFE tubes differ. If you are upgrading your MMU, Make sure you are not re-using the MMU2S PTFE tubes.

All the PTFE tubes are supplied pre-cut to the correct size. There is no need to cut the tubes.

PASO 5 Front-PTFE-holder assembly

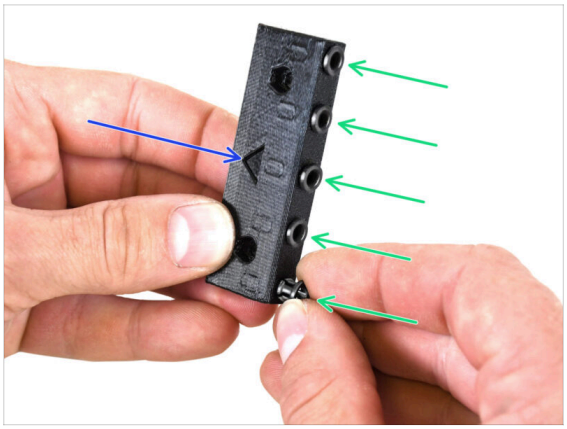
- Inserta las cuatro tuercas M3nS en las aberturas marcadas en el cuerpo de la polea tensora. Presiona las tuercas hasta el fondo con la llave Allen de 1.5mm.
- Inserta los cinco tubos de PTFE de 19 mm en las aberturas marcadas en el cuerpo de la polea.
  - ⓘ There is a small chamfer on one side of the PTFE tubes. The chamfer should be facing out.
- Coloca el soporte frontal de PTFE en los tubos de PTFE y **empújalo totalmente hacia el cuerpo de la polea.** Ten en cuenta la orientación correcta que se ve en la imagen.
- Fija el soporte con cuatro tornillos M3x10 desde la parte delantera.

PASO 6 Collet holder parts preparation



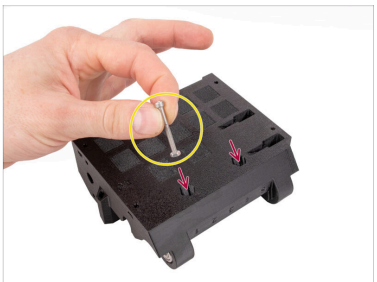
- **Para los siguientes pasos, por favor prepara:**
- Porta pinzas (1x)
- Tuerca M3n (2x)
- Tornillo M3x10 (2x)
- Pinza (5x)

PASO 7 Collets installation



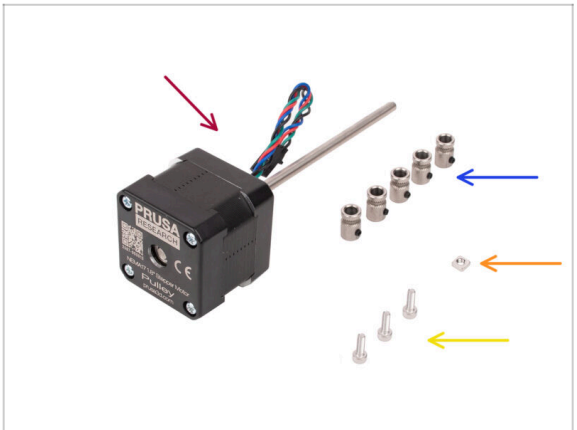
- Coge el portapinzas. Observa la orientación correcta de la pieza marcada por la flecha impresa.
- Inserta los collares en las aberturas marcadas en el porta collares.
  - Para facilitar la instalación, es posible que tengas que aplastar las aletas de la pinza con los dedos mientras insertas la pinza. Entonces encajará fácilmente.

PASO 8 Collet holder installation



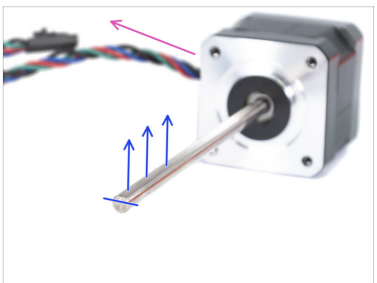
- Inserta dos tuercas M3n en las aberturas marcadas en la parte inferior del cuerpo de la polea. Empuja las tuercas hasta el fondo.
  - Attach the nut to the end of the M3x30 screw. Use the screw as a handle for inserting the nut.
- Coloca el soporte de la pinza en el cuerpo de la polea. Observa la orientación correcta de la pieza marcada por la flecha.
  - ⓘ La flecha del portapinzas debe apuntar hacia el cuerpo de la polea.
- Fija el portapinzas en su sitio con dos tornillos M3x10.

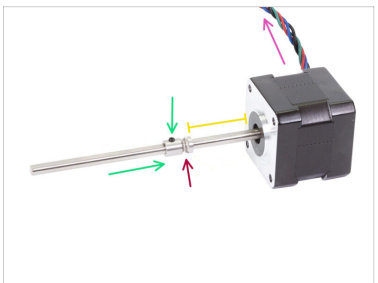
PASO 9 Preparación de las piezas de las poleas del motor

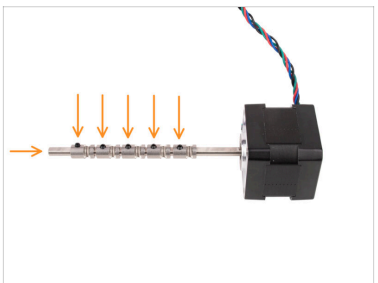


- **Para los siguientes pasos, por favor prepara:**
- Motor de la polea (1x)
- Pulley (5x)
  - In case you're upgrading from the MMU2S, the pulleys might be already attached to the motor.
- Tuerca M3nS (1x)
- Tornillo M3x10 (3x)

PASO 10 Pulley assembly

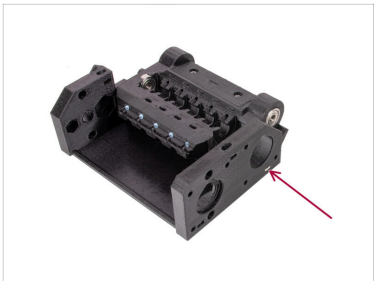
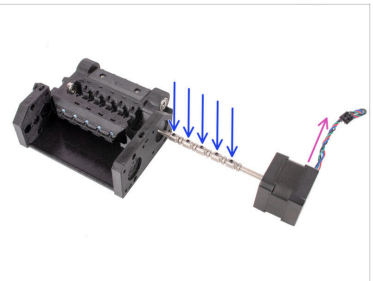
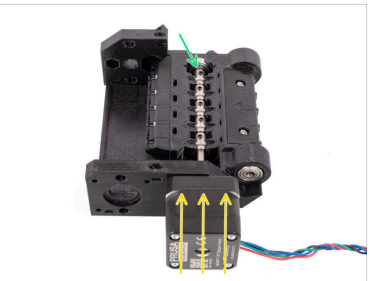






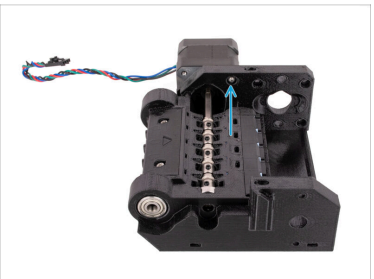
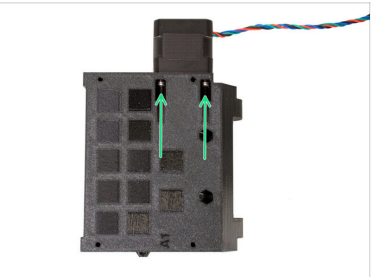
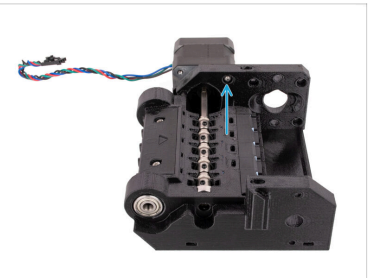
- Orient the motor as seen in the pictures. Make sure the motor cable is facing to the back.
- Rotate the motor shaft so that the flat part is facing up.
- Slide the first pulley onto the shaft. Ensure the lock screw is on top (facing the flat part of the shaft). Tighten the grub screw just slightly.
- The first pulley should be around 30 mm (1.18 inches) from the motor. Don't tighten the grub screw fully yet!
- Ensure the grooved part of the pulley is on the motor side.
- Slide the other pulleys onto the shaft using the same technique. Tighten the grub screws just slightly for now.

PASO 11 Montaje de la polea del motor (parte 1)

- **Inserta la tuerca M3nS** en la abertura marcada en el interior del cuerpo de la Polea. Empújala hasta el fondo.
- Orienta el eje del motor de modo que todos los **tornillos prisioneros de las poleas queden hacia arriba**.
- Asegúrate de que el cable del motor está orientado hacia la derecha (hacia la parte posterior de la unidad MMU).
- Inserta el motor en el cuerpo de la polea como se ve en la imagen.
- Asegúrate de que el eje del motor ha encajado en el rodamiento al final de la ranura.

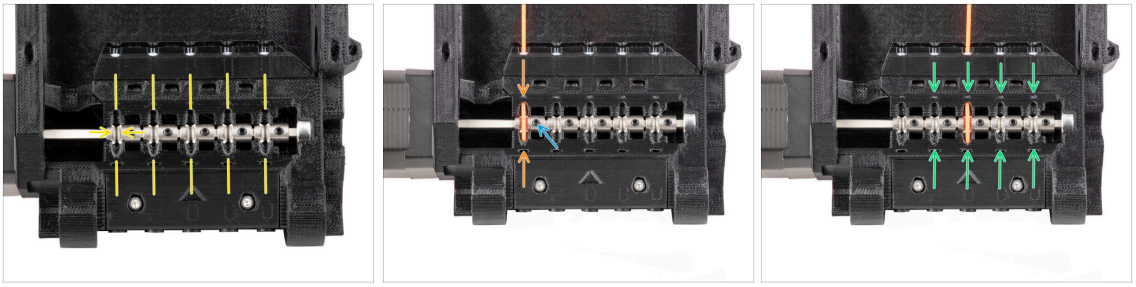
PASO 12 Montaje de la polea del motor (parte 2)

- Fija el motor con un tornillo M3x10 en la parte superior.
  Empieza el roscarlo para que se sujete, ¡no lo aprietes todavía!
- Da la vuelta a la unidad y fija el motor con los otros dos tornillos M3x10 de la parte inferior. Utiliza el final de bola de la llave Allen de 2.5mm en ángulo para apretar bien los tornillos.

  ⓘ Asegúrate de que el tornillo está **perfectamente perpendicular** al motor mientras lo aprietas. Si te cuesta girarlo, suelta el tornillo por completo, vuelve a alinearlo y apriétalo de nuevo desde el principio para evitar dañar la rosca.
- Ahora, vuelve a girar la unidad para apretar también a fondo el tornillo superior.

PASO 13 Pulley alignment

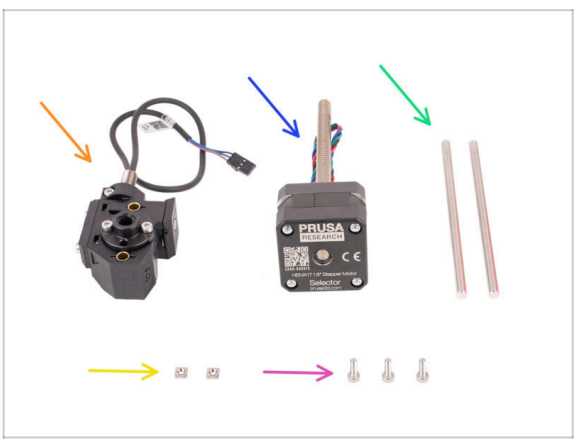


⚠ **WARNING:** this step is crucial in order for the MMU unit to work properly! **Please check your pulley alignment multiple times!!!**

- The groove inside the pulley must be perfectly aligned with the filament openings in the pulley body.
  Align the pulleys one by one.
- Take a perfectly straight piece of filament and guide it through the first opening. Align the pulley so that the filament is perfectly centered.
- Make sure the lock screw is still perpendicular to the flat part of the shaft. Then tighten it. Use reasonable force as you might strip the screw.
- Align and tighten the remaining four pulleys using the same technique.

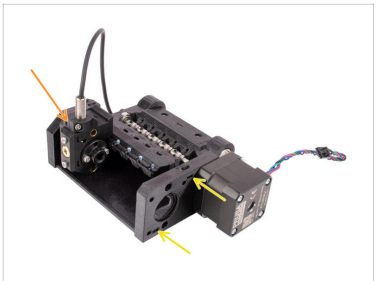
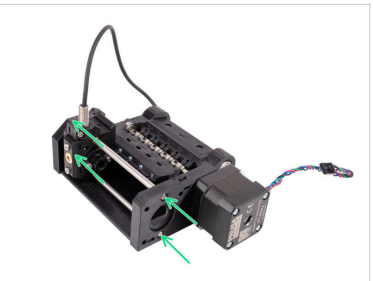
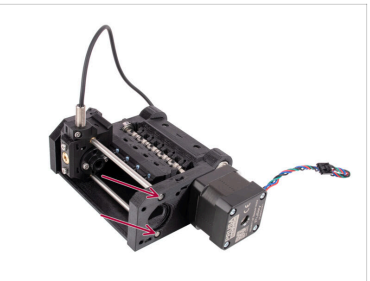
⚠ Check the proper positioning of all of the pullies again. Adjust it if necessary.

PASO 14 Selector: parts preparation



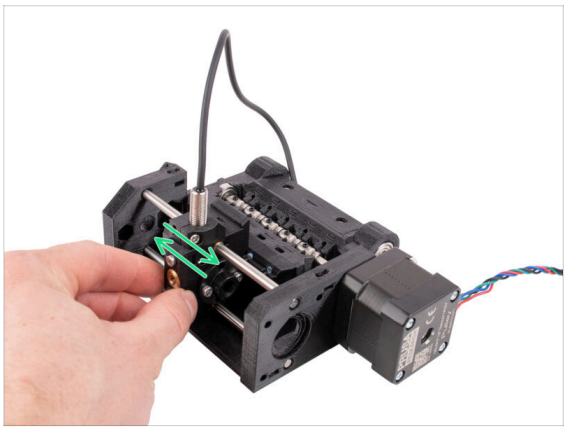
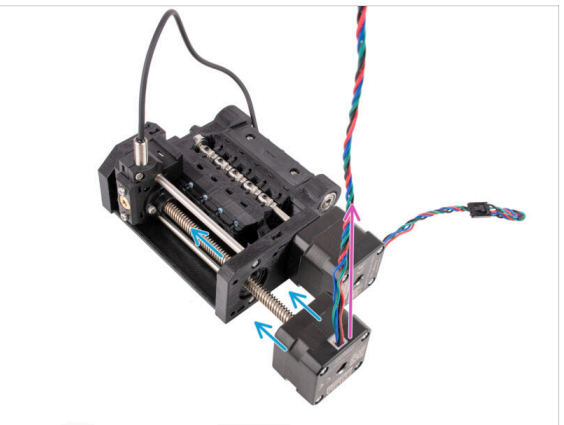
- **Para los siguientes pasos, por favor prepara:**
- Conjunto selector (1x) *que preparaste anteriormente.*
- Motor selector (1x)
- Eje 5x120sh (2x)
- Tuerca M3nS (2x)
- Tornillo M3x10 (3x)

PASO 15 Selector installation

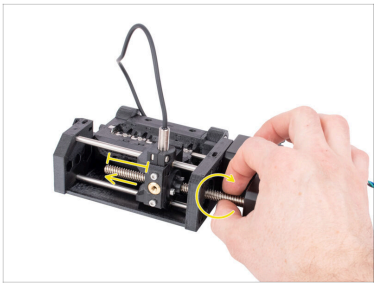
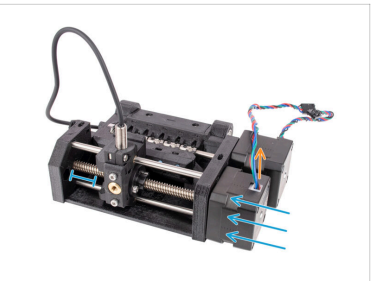
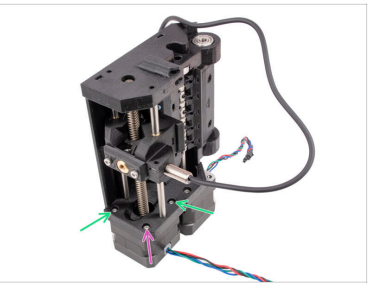
- Inserta dos tuercas M3n en las aberturas marcadas en la parte inferior del cuerpo de la polea. Empuja las tuercas hasta el fondo.
- Inserta el selector en el cuerpo de la polea como se ve en la imagen.
- Introduce los dos ejes a través de las aberturas marcadas en el cuerpo de la polea. Los ejes deben pasar por el selector y encajar en el otro lado del cuerpo de la polea.
- Empuja los ejes hasta que queden completamente introducidos, ligeramente por debajo de la superficie lateral.

PASO 16 Selector movement check / motor prep

- Comprueba que el selector puede moverse libremente mientras las varillas están colocadas.
- Inserta el motor selector de forma que su eje trapezoidal atraviese el cuerpo de la polea como se ve en la imagen.
- Make sure the selector motor cable is pointing up before you proceed to attach the motor.

PASO 17 Selector motor installation

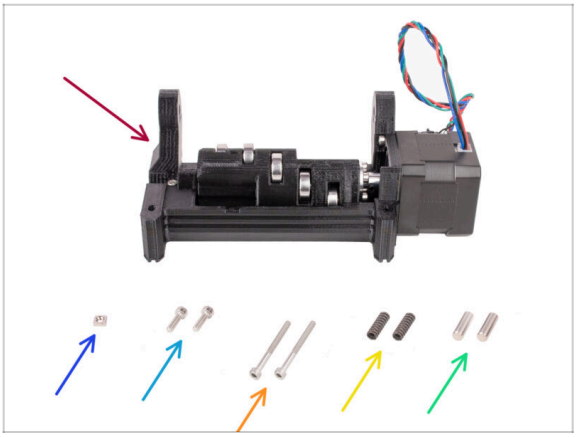
- Gira la varilla roscada mientras la empujas hacia el selector para encajarla en la tuerca trapezoidal.

  Continúa girando la varilla hasta que pase por completo, dejando unos 2 cm / 1 pulg. del eje expuesto en el lado izquierdo del selector.
- Asegúrate de que el cable del motor selector está orientado hacia arriba.
- Empuja el motor hasta el fondo. Comprueba que hay holgura entre el selector y el final de su recorrido a la izquierda.
- Fija el motor selector al cuerpo de la polea con **dos** tornillos M3x10 en las aberturas marcadas. Apriétalos con el final de bola de la llave Allen de 2.5mm.
- Add the last M3x10 screw in the corner. Tighten it snugly. **Don't overtighten the screw in the corner!** Otherwise, you might tilt the selector motor.

PASO 18 Trapezoid nut positioning

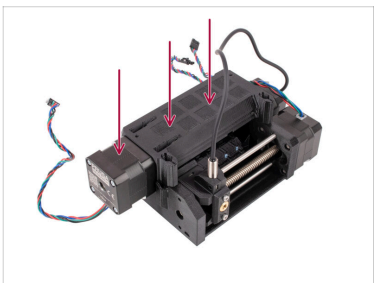

- Con la llave Allen de 2.5 mm, afloja ligeramente los dos tornillos que sujetan la tuerca trapezoidal del selector. **No los quite del todo.**
- Comprueba que el selector puede moverse cuando se fuerza a izquierda y derecha. No debe haber ningún contratiempo en el camino. Ten en cuenta que tienes que ejercer cierta fuerza para moverlo, ya que el motor tiene resistencia física.
- Mueve el selector hacia la izquierda.
- Aprieta a fondo los dos tornillos que fijan la tuerca trapezoidal.

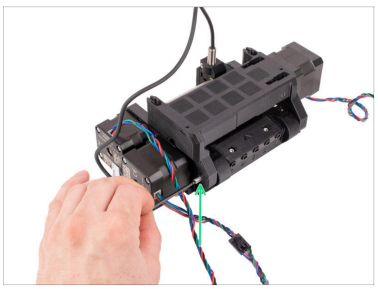
PASO 19 Idler body installation parts preparation

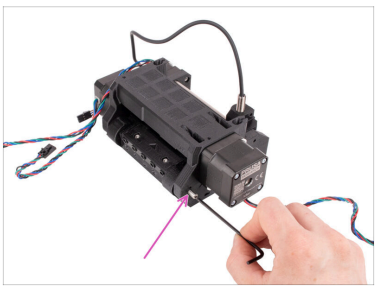


- Conjunto tensor (1x) *con el tensor y el motor instalados*
- Tuerca M3nS (1x)
- Tornillo M3x10 (2x)
- Tornillo M3x30 (2x)
- Muelle 15x5 (2x)
- Eje 5x16sh (2x)

PASO 20 Idler body installation (part 1)

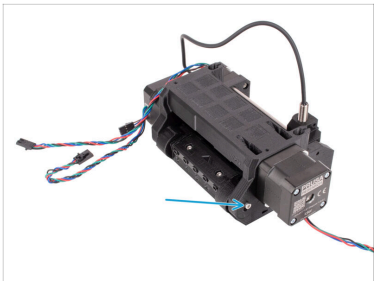
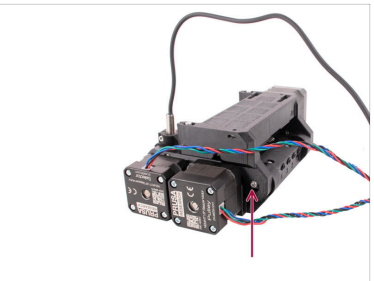
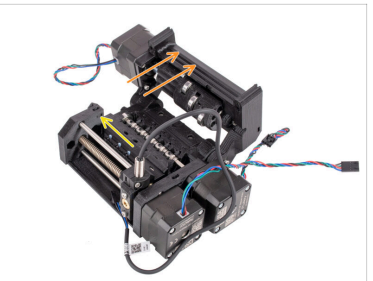






- Coloca el conjunto del tensor en el cuerpo de la polea como se ve en la imagen. El tensor debe estar a la izquierda.
- Now, take a look from the opposite side of the unit.
- Inserta el eje de 5x16 en la abertura marcada y empújalo hasta el fondo hasta que encaje en el rodamiento del cuerpo de la polea.
- Inserta el otro eje de 5x16 en la abertura marcada en el otro lado. Empújalo hasta el fondo.

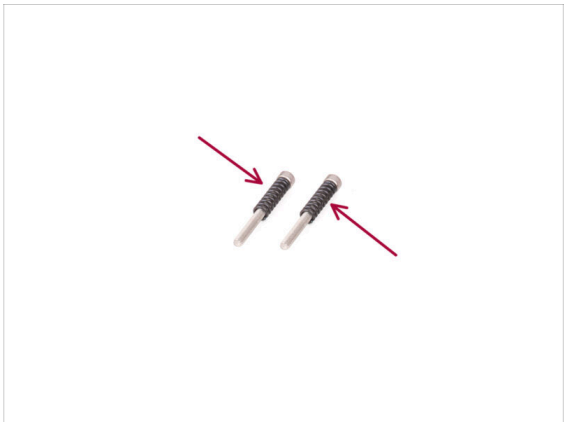
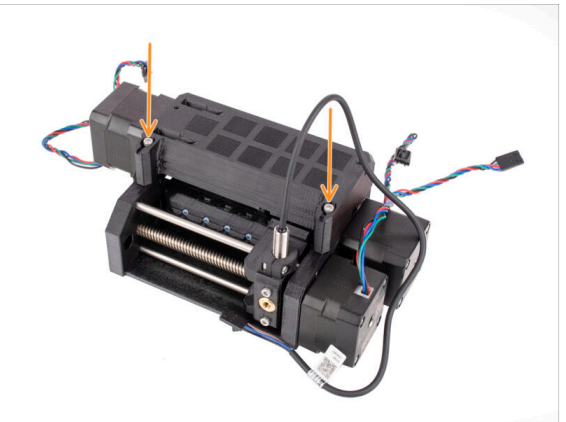
PASO 21 Idler body installation (part 2)

- Bloquea **el eje** en su lugar fijando el tornillo **M3x10** en la abertura situada encima.
- Fix the shaft on the other side in place by attaching the **M3x10** screw into the opening above it too.
- Open up the Idler body.
- Inserta la **tuerca M3nS** en la abertura marcada en el interior del cuerpo de la Polea. Empújala hasta el fondo.

  You may need to move the selector away slightly, in order to access the opening.

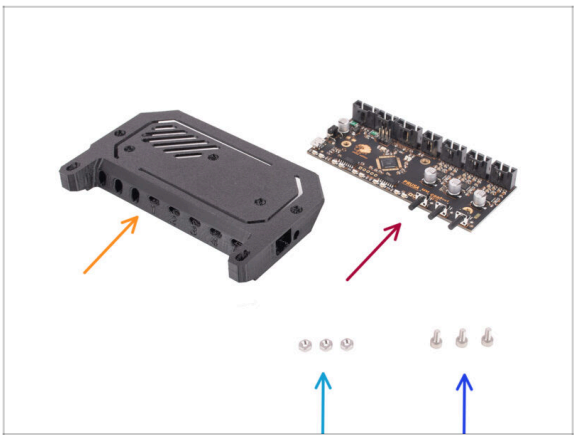
PASO 22 Idler body installation (part 3)

- Attach both **springs** onto the two **M3x30** screws.
- Cierra el tensor, inserta los tornillos **M3x30** con los muelles en las aberturas marcadas. Apriétalos hasta que los tornillos queden justo por encima de la superficie.

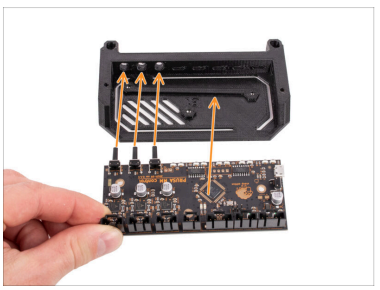
Do not tighten the screws too much. The top of the screw heads shouldn't be below the surface.
Later on, we will use these screws to set the **Idler tension.**

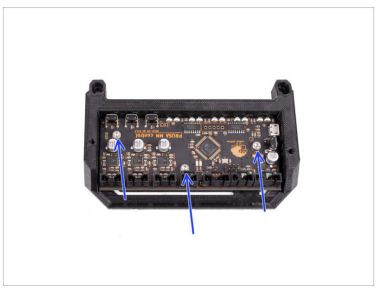
PASO 23 Control board parts preparation



- **Para los siguientes pasos, por favor prepara:**
- Cubierta de la electrónica (1x)
  - ⓘ There have been several versions of this part available, which might look slightly different. The version shipped after April 2024 is slightly taller to comply with ESD regulations.
- Electrónica MMU - Placa de Control (1x)
- Tuerca M3n (3x)
- Tornillo M3x6 (3x)

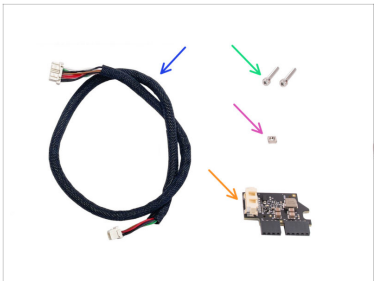
PASO 24 Control board assembly

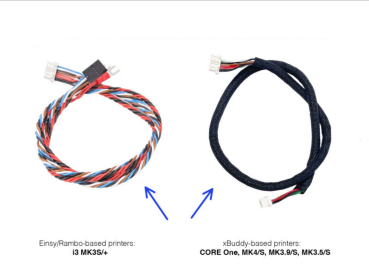




- Inserta las tres tuercas M3n en las aberturas marcadas en la parte superior de la cubierta de la electrónica. Empújalas todas hasta el fondo.
- Desliza la placa de control en la cubierta. Ten en cuenta los tres botones en la parte delantera tienen que ir en primer lugar.
  - ⚠ Para evitar daños por descarga electrostática (ESD), toca siempre los lados de la placa mientras la manipulas.. Evita tocar los chips, condensadores y otras piezas de la electrónica.
- Fija la placa en su sitio con tres tornillos M3x6.
  - ⓘ Ten cuidado de no dañar ninguno de los pequeños componentes de la placa.

PASO 25 PD-board parts preparation

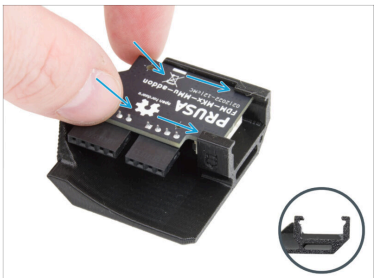




- **Para los siguientes pasos, por favor prepara:**
- MMU / printer cable (1x)

  ⚠ Use the correct cable for your printer type e.g. **CORE One, MK4/S etc.** or **MK3S+**
- M3x18 screw (2x)
- M3nS nut (1x)
- Complemento PD-board (1x)
- PD-board-cover (1x) U*sed to not be present on the early MMU3 kits. If you don't have it, you can proceed without it.*

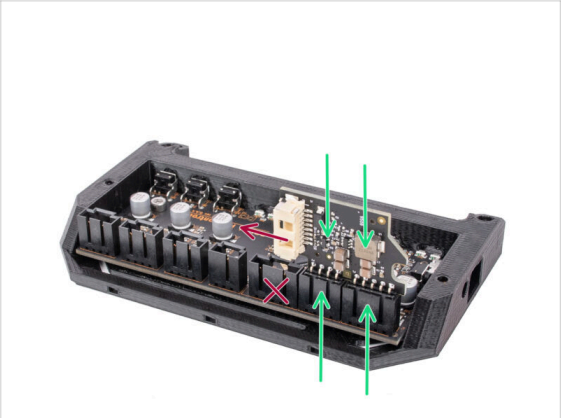
PASO 26 Installing the PD-board-cover

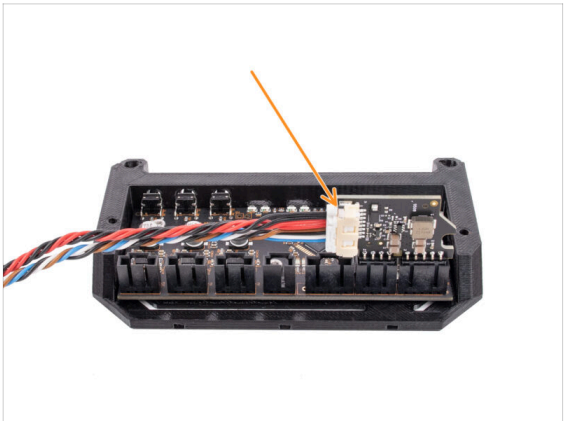


- **This step is for those units that have the PD-board-cover in the package**. If your package does not contain this part, skip this step.
- Desliza la PD-board en los soportes de la PD-board-cover. Observa la correcta orientación de las piezas.

  ⓘ Empieza a deslizarla en un ligero ángulo.
- Conecta la PD-board en los conectores situados más a la izquierda de la placa electrónica. Empuja suavemente la PD-board hacia abajo.

PASO 27 PD-board installation





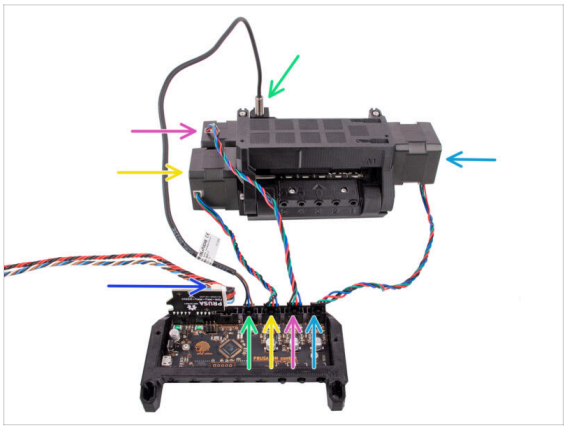
- Fija la **PD-board** en los conectores marcados de la placa electrónica de forma que ocupe los dos conectores del lateral de la placa de control.
  - El conector blanco de PD-board apunta hacia dentro.

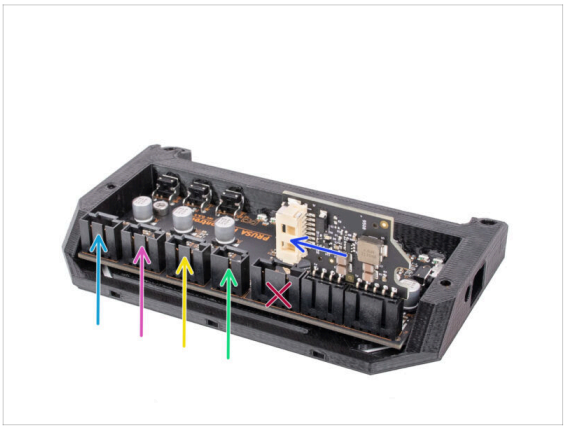
⚠ **Asegúrate de que la PD-board está conectada exactamente de la misma forma que se ve en la imagen.**
Si conecta la PD-board de forma incorrecta, dañarás la electrónica. Cualquier daño causado a la impresora debido a un montaje incorrecto de la electrónica no está cubierto por la garantía.

⚠ No conectes ni desconectes el cable si la impresora está conectada a la toma de corriente o está encendida.

- Conecte el **cable MMU/impresora** en la PD-board.

PASO 28 Connecting the cables

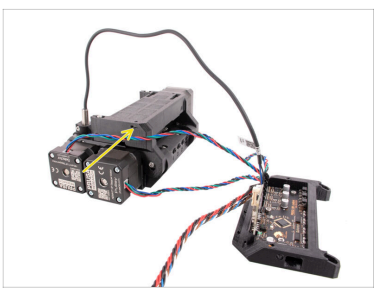


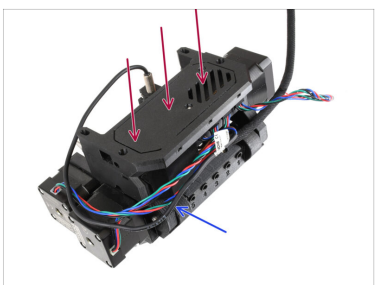


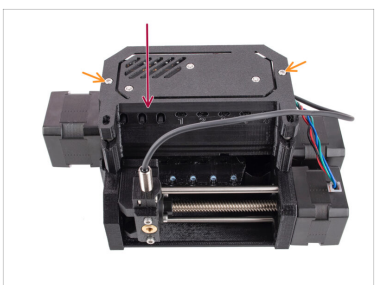
- Prepara la unidad y el conjunto de la placa electrónica como se ve en la imagen. Sigue los cables para conectarlos en el orden correcto.
- Cable MMU/Impresora
- Cable sonda SuperFINDA
- Cable del motor de la polea
- Cable del motor selector
- Cable del motor del tensor

ⓘ La regla general para los cables del motor es: si miras desde la parte trasera de la unidad, los conectores del motor están en los mismos lados que los motores, mientras que el motor de la parte delantera (selector) ocupa el conector central.

PASO 29 Electronics assembly







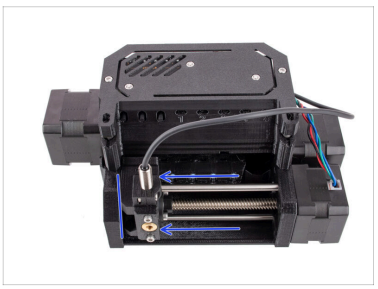
- Insert the **M3nS nut** into the marked opening and press it all the way in.
- Fija el conjunto de electrónica a la unidad MMU.
  Asegúrate de que el lado con los botones apunta hacia delante.
- Mira en la parte trasera para ver si la PD-board no interfiere con los cables. Los cables deben guiarse **por encima** de la PD-board, no debajo.
- Fija la electrónica en su sitio con dos tornillos M3x18.

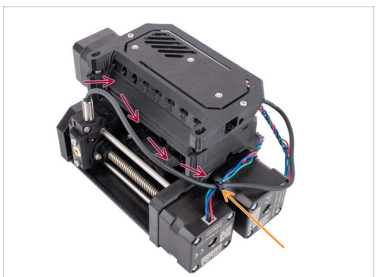
  ⓘ Utiliza el tipo correcto de tornillos. Si utilizas tornillos más largos, es posible que la unidad no funcione correctamente.

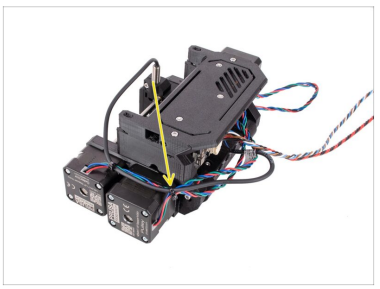
PASO 30 Preparación de las piezas de la funda textil

- **Para los siguientes pasos, por favor prepara:**
- Textile sleeve 5x450 (1x) *In case of MK3S/+ cable*
  - The textile sleeve isn't required for the CORE One / MK4 / MK3.9 / MK3.5 Cable, as it already comes pre-installed.
- Zip-tie (4x)

PASO 31 Organización del cableado (primera parte)





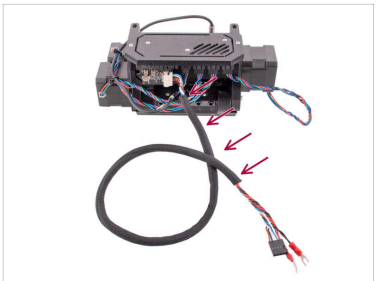
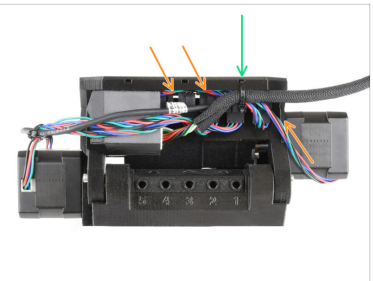
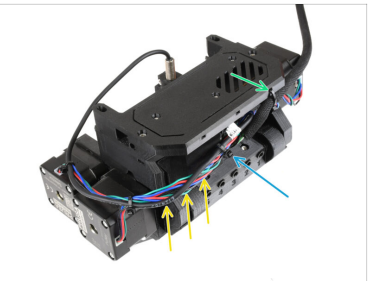


- Asegúrate de que el selector está completamente desplazado hacia la izquierda.
- Organiza el **cable del SuperFINDA** de forma que se una a los cables del motor en el lateral de la unidad como se ve en la imagen.

⚠ ¡Deja suficiente holgura en el cable para que no se doble demasiado cuando el selector alcance incluso la primera posición de filamento!

- Une al **Cable del motor del selector** con el cable del SuperFINDA utilizando una **brida** en la posición marcada, como se ve en la imagen.
- Une los cables entre sí con el **cable del motor de la polea** en la posición marcada utilizando una **abrazadera**.

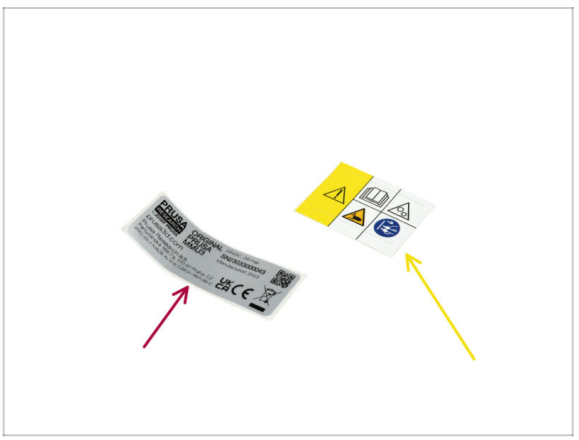
PASO 32 Organización de los cables (segunda parte)

- Envuelve el cable de la MMU/Impresora en la **funda textil** si no está ya envuelto.
- Une el cable del motor del **Tensor** con el cable del MMU/impresora en el lado derecho. Mete el cable sobrante debajo de la tapa de la electrónica.
- Fije estos cables al **punto de fijación** marcado en la ele-cover con una brida.

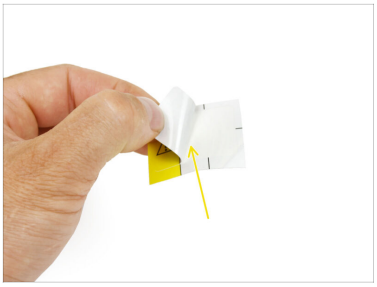
  ⚠ Asegúrate de que hay suficiente holgura en los cables para que la abrazadera no tire de ellos al apretarla.
- ¡**Deje la mayor holgura posible** en el haz de cables entre los motores y la electrónica para poder abrir la unidad posteriormente sin riesgo de dañar los cables!
- Agrupa los cables sueltos con una brida.

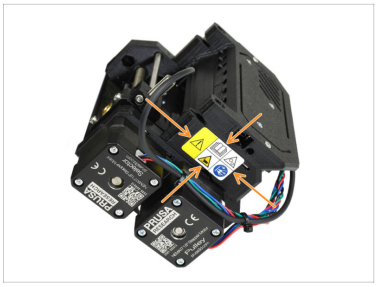
PASO 33 Stickers parts preparation

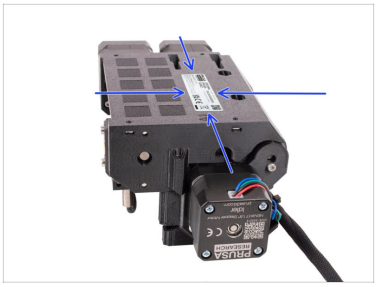


- **Para los siguientes pasos, por favor prepara:**
- Adhesivo con el número de serie (1x)
- Safety sticker (1x)

PASO 34 Applying the stickers

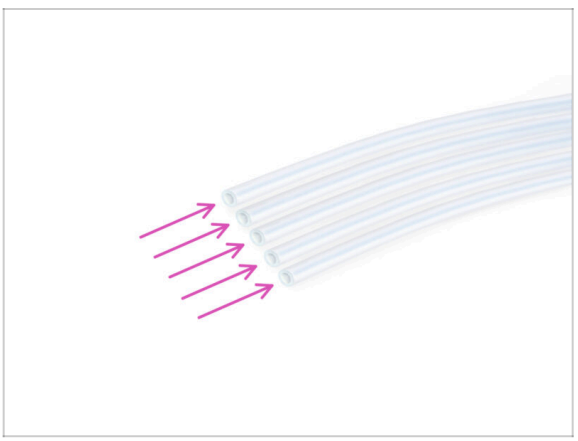






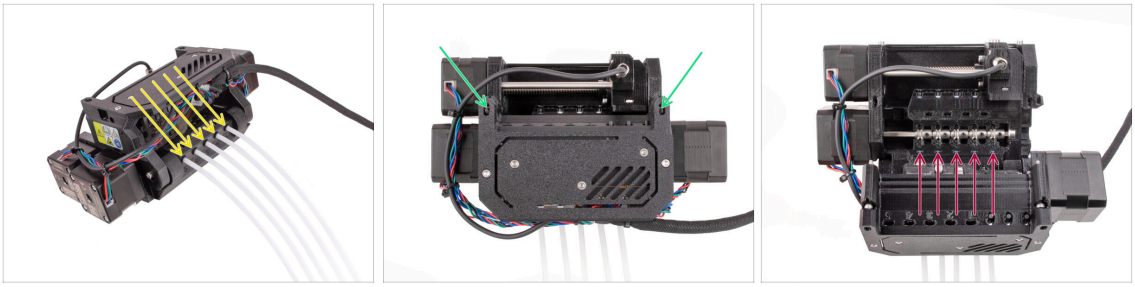
- Remove the safety sticker from the protective layer.
- Apply the **safety sticker** onto the right side of the MMU3 unit. The correct position is depicted in the second picture.
- Apply the **serial number sticker** to the bottom of the MMU3 unit using the same method as before. Ensure it adheres securely and does not obstruct the screw openings.

PASO 35 Preparación de las piezas del PTFE trasero



- **Para los siguientes pasos, por favor prepara:**
- Tubo PTFE 4x2.5x650 (5x) *cinco de los diez más largos.*

PASO 36 Rear PTFE installation



- Inserte los cinco tubos largos de PTFE en las aberturas con las pinzas negras de la parte posterior de la unidad MMU.

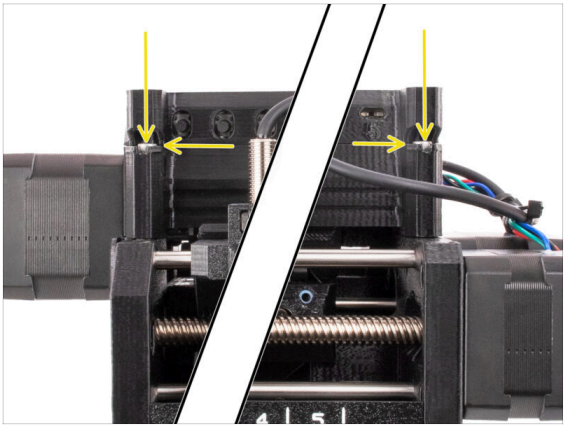
  A partir de ahora, si necesitas retirar el tubo de PTFE, empuja la pinza negra hacia dentro y tira del tubo de PTFE hacia fuera.

- Afloja los dos tornillos tensores de la polea y abre la unidad.

  No te preocupes, los tornillos no se caerán.

- Hay pequeñas ventanas junto a cada una de las posiciones de la polea. Comprueba que el tubo de PTFE está completamente insertado y que su extremo es visible dentro de la ventana. Si no es así, empuja el tubo un poco más.

PASO 37 Ajuste de la tensión del Tensor



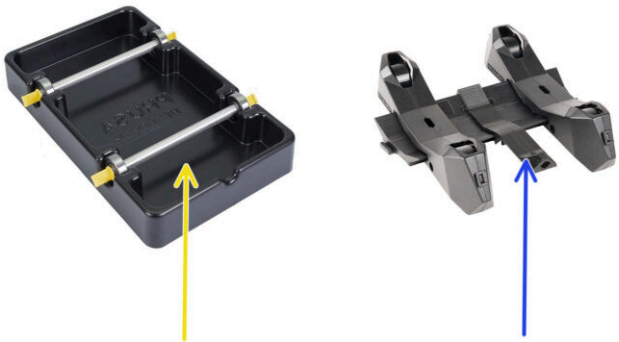
- Cierra la unidad y aprieta ligeramente los **tornillos tensores** del tensor.
- Ajuste ambos tornillos tensores del tensor de modo que la parte superior de la **cabeza del tornillo quede ligeramente por encima** de la superficie superior del idler-body.

Este es el ajuste que funciona para la mayoría de los materiales. Algunos filamentos específicos pueden requerir un ajuste de tensión ligeramente diferente.

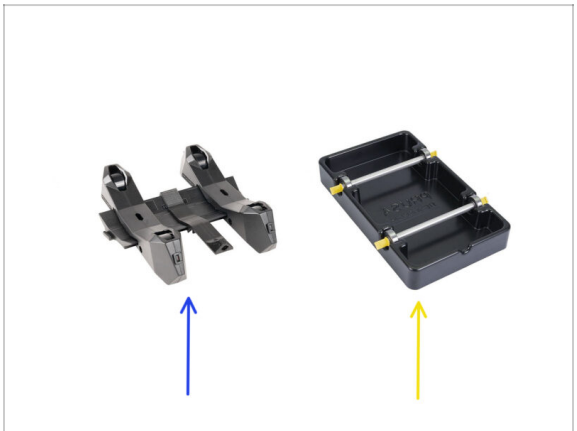
La correcta **tensión del tensor** es crucial y puede requerir un ajuste adicional en tu unidad MMU.

- With **too low** idler tension, the MMU unit might struggle with grabbing the filaments properly.
- With **too high** idler tension, the idler will struggle with determining its home position and the MMU unit won't work properly.

7. Montaje Porta bobinas



PASO 1 Two Spoolholder types



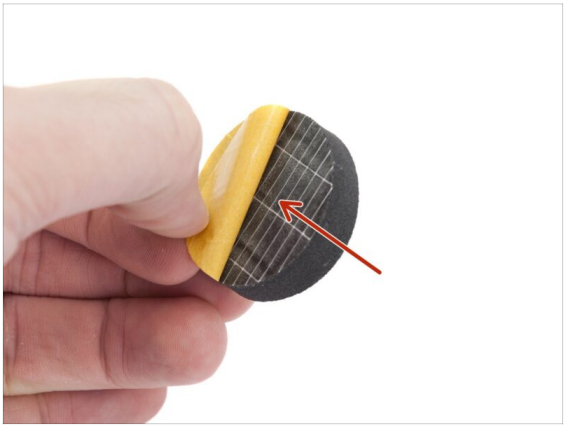
⚠ In this chapter, we will assemble the **spool holders**. Before proceeding, note that there are two types:

- **1. Current Injection-molded** spoolholder
  - Currently shipped in the MK4/S or CORE One versions. Continue to Injection molded spoolholder: parts preparation
- **2. Legacy vacuum-formed** spoolholder
  - This old version used to come with the first MK3S versions or older upgraded units.
    Continue to the Vacuum formed holder parts preparation
  - ⓘ If the large portion of the box is occupied by the rectangular black trays, you have the first version, the older vacuum-formed spoolholders.

PASO 2 Vacuum formed holder parts preparation

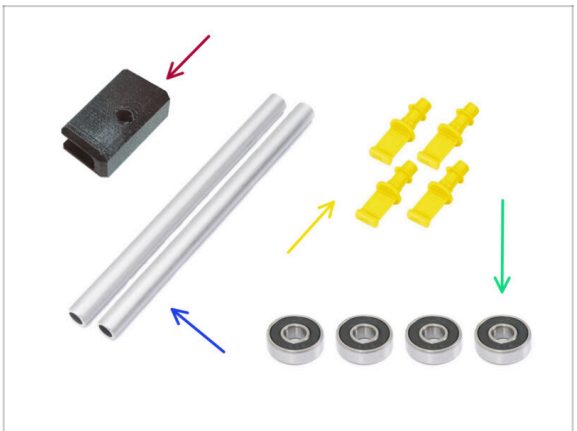
- **Para los siguientes pasos, por favor prepara:**
- Spoolholder base (1x)
- Foam pad (4x)
  - ⓘ Note, this is a legacy version of the spool holder. If you have the newer injection-molded spool holders, skip these steps.

PASO 3 Foam pads installation



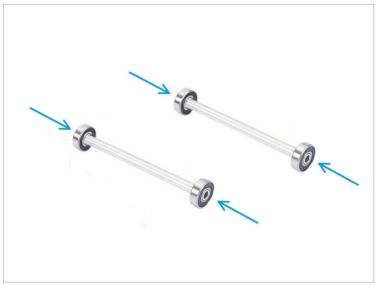
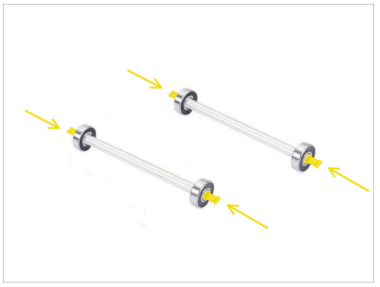
- Turn the spoolholder base upside down.
- Peel off the yellow protective layer off the foam pads.
- Attach the four foam pads into the bottom corners of the spoolholder base.

PASO 4 Rods, Bearings parts preparation



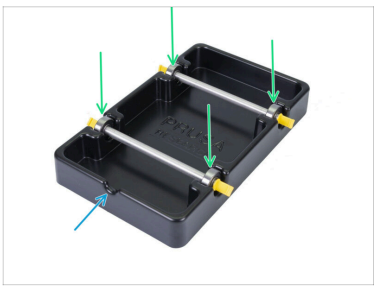
- **Para los siguientes pasos, por favor prepara:**
- PTFE holder (1x)
- Shaft (2x)
- Plug (4x)
- Bearing (4x)

PASO 5 Rods and bearings assembly

- Attach a bearing onto each end of both rods.
- Attach the plugs onto the rod ends to fix the bearings on each rod.

PASO 6 Finishing up the Spoolholders (vac. form.)



- Attach the rods with bearings into the base part so that the bearings engage into the corresponding grooves on the base.
- There is a notch on the front part of the spoolholder.
- Attach the PTFE holder onto the notched front part of the spoolholder.
- Repeat the same steps to build the remaining spool holders until you finish all five.

PASO 7 Injection molded spoolholder: parts preparation

⚠ **If you have the injection-molded spoolholders instead, continue from here.**

- If you already assembled your **rectangular vacuum-formed spoolholders**, please, **skip to the next chapter.**

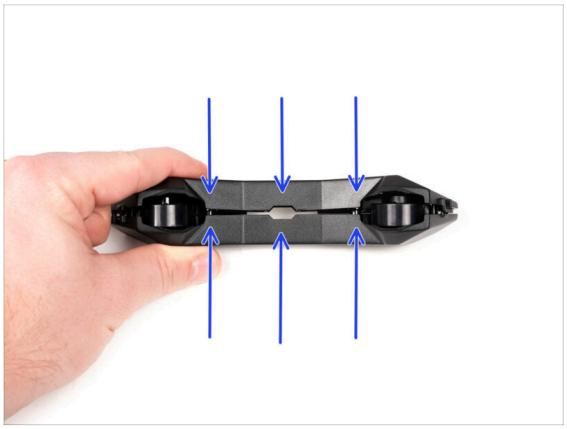
PASO 8 Injection molded holder parts preparation

- **Para los siguientes pasos, por favor prepara:**
- Base soporte bobina (4x)
- Guía de soporte de bobina (1x)
- Rueda Soporte bobina (4x)
  - ⓘ Wheels shipped after April 2024 are made of POM. We recommend using this version over the earlier models made from ABS.
- sheet of Foam Pads (1x)
- PTFE holder (1x)

PASO 9 Montaje de la base (parte 1)

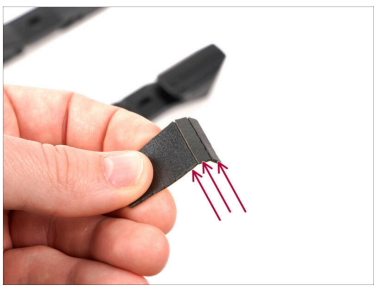
- Coge una pieza Base. Colócala como en la imagen.
- Inserta las dos ruedas en la Base.
- Cubre el montaje con otra pieza Base encima.

PASO 10 Montaje de la base (parte 2)



- Empuja ambas piezas Base hasta que encajen completamente una en la otra.
- Comprueba que las piezas de la base se mantienen unidas correctamente.
- Repite los mismos pasos para el otro lado del soporte de bobina de filamento, hasta que tengas dos de estos.

PASO 11 Instalación de las almohadillas de espuma (parte 1)



- Coge la lámina de almohadilla de espuma. Dóblala para separar las tiras individuales de almohadilla de espuma.
- Hay una línea de doblado dentro de la abertura interior en la parte inferior de la pieza lateral del portabobinas.
- Coloca una tira de almohadilla de espuma individual en el medio de la línea de doblado dentro de la abertura, como se muestra en la imagen.

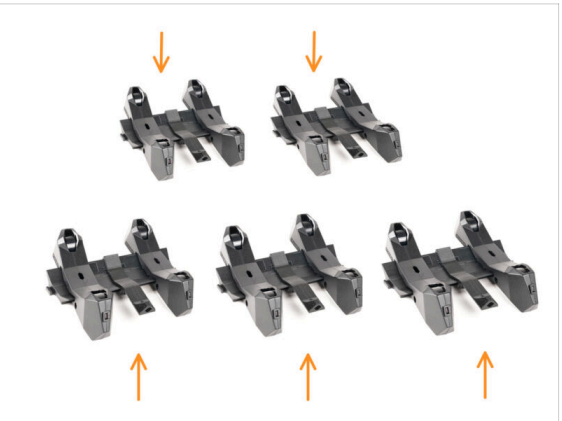
PASO 12 Instalación de las almohadillas de espuma (parte 2)

- Coloca otras cuatro tiras de almohadilla de espuma en las posiciones marcadas en la parte inferior de la pieza lateral del portabobinas.
- Instala otras seis tiras de almohadilla de espuma en la otra parte lateral del portabobinas.

PASO 13 PTFE holder assembly

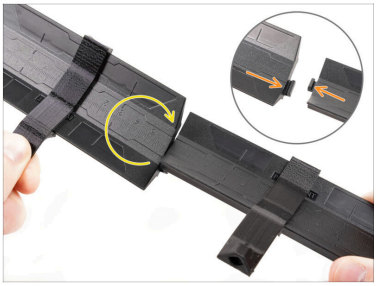
- Take the spoolholder Guide part. Hook the end of the PTFE holder onto the Guide
- Make sure the longer part of the PTFE holder is located at the narrower side of the Guide part.
- Push the PTFE holder down onto the Guide until it fully engages and locks in place.

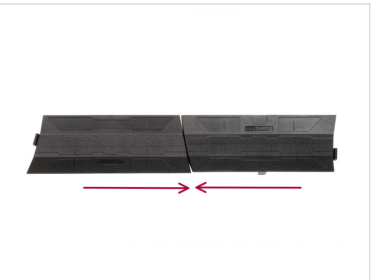
PASO 14 Finishing up the Spoolholders (inj. mol.)



- Desliza las partes laterales sobre la parte Guía.
- Repeat the same steps for the remaining Spool holders, until you assemble all five. (Don't forget about the foam pads on the bottom!)

PASO 15 Joining the Spoolholder Guides





- There are protrusions on each side of the Guide part.
- Using these protrusions, the Guide parts can be joined together. To join them together, simply tilt in the Guide parts one into the other until the protrusions click in.
- The Guides can be joined together in form of a straight line.
- Or, if you flip one of the Guides around, they can be joined in an arc pattern. This is handy to form an arc of spool holders around the Buffer so that each filament path is as straight as possible.

PASO 16 Buffer Types

- In the upcoming chapter, we will be assembling the **Buffer**.

⚠ There are two basic types, depending on your **printer type**.

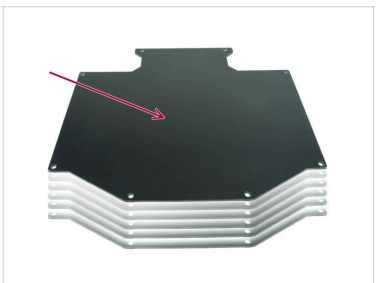
- If you have the CORE One printer, continue to the 8B. Core One Buffer Assembly
- If you have the MK4/S, MK3.9/S, MK3.5/S or MK3S/+, continue to the 8A. Cassette Buffer Assembly

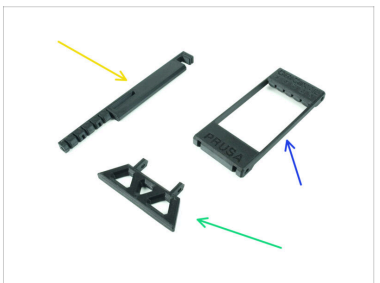
8A. Montaje del Casete del buffer

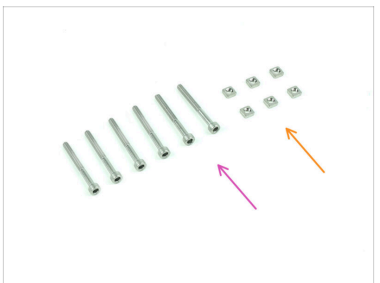
PASO 1 Herramientas necesarias para este capitulo

- **Por favor prepara las herramientas para este capítulo:**
  - Llave Allen de 1.5mm para alinear las tuercas
  - Llave Allen de 2.5mm para tornillos M3

PASO 2 Parts preparation

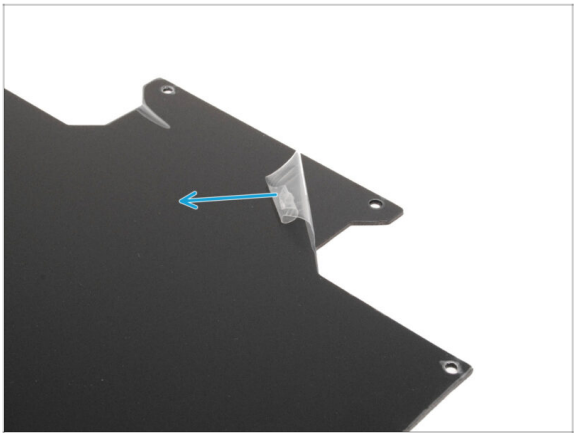






- **Para los siguientes pasos, por favor prepara:**
- Buffer plate (6x)
- Printer holder (1x)
- Buffer-leg (1x)
- Segmenter (1x)
- M3x30 screws (6x)
- M3nS nuts (6x)

PASO 3 Peeling the plates

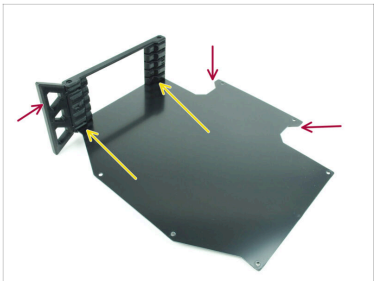


- Despega las **capas protectoras** de ambos lados de las placas buffer.

PASO 4 Assembly (part 1)

- Introduce las partes salientes de la pata del Buffer en las aberturas marcadas en el segmentador. Empújala hasta el fondo.
- Introduce cuatro tuercas M3nS en las pequeñas aberturas marcadas en el Segmentador. Empújalas hasta el fondo.
- Inserta las dos tuercas M3nS restantes en las aberturas marcadas en el Soporte de la impresora. Empújalas hasta el fondo.

PASO 5 Assembly (part 2)

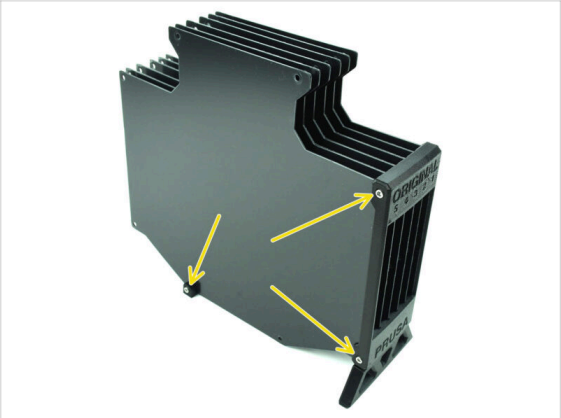


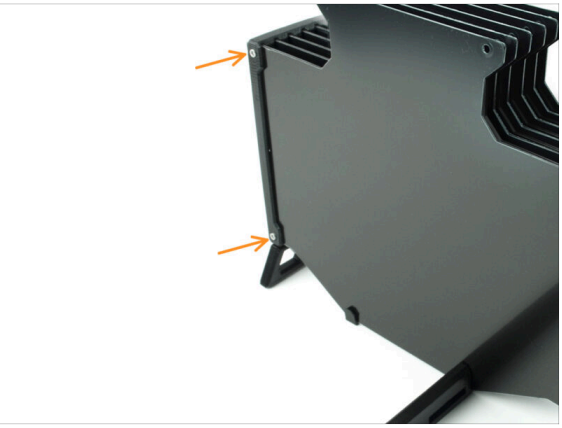
- Introduce la primera placa del buffer en la abertura inferior marcada en el Segmentador. Empújala hasta el fondo para que las aberturas de los tornillos queden alineadas.
- Asegúrate de que la pata del buffer y las partes recortadas de la lámina están en lados opuestos - como se ve en la imagen.
- Coloca el soporte de la impresora en la posición marcada en la lámina del buffer. Por ahora, debe apuntar hacia arriba. La lámina debe fijarse a la abertura inferior del soporte de la impresora.
- Orienta todo el conjunto de modo que la lámina intermedia quede de pie. Tanto el soporte de la impresora como la Pata deben estar en el suelo.

PASO 6 Assembly (part 3)


- Introduce las 5 placas buffer restantes en las aberturas correspondientes del soporte del segmentador y de la impresora.
- Ahora todo el conjunto debe parecerse al de la segunda imagen.

PASO 7 Assembly (part 4)





- Inserta tres tornillos M3x30 en las aberturas marcadas en el lateral del Segmentador y del Soporte de la impresora. Apriétalos.

(i) Si el tornillo no entra, asegúrate de que todos los orificios están alineados con las placas.

⚠ No aprietes demasiado el tornillo. De lo contrario, las placas buffer podrían deformarse.

- Coloca otros dos tornillos M3x30 en las aberturas del otro lado del Segmentador.

PASO 8 Assembly (part 5)

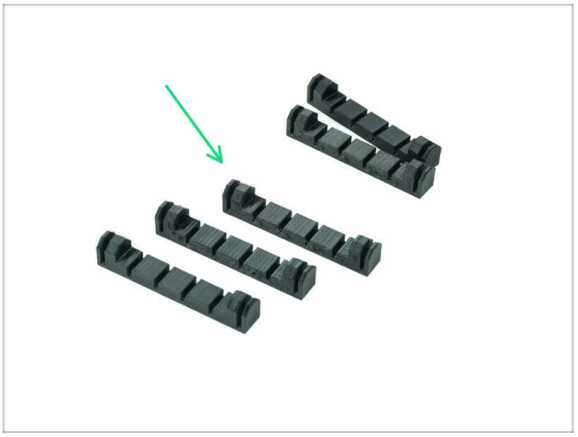
- Inserta el último tornillo M3x30 en la abertura marcada en el Printer-holder.

(i) Note that some versions of the part may have the opening on the opposite side, but the assembly process remains the same.

⚠ **No aprietes demasiado el tornillo.** De lo contrario, las placas buffer podrían deformarse.

- Introduce el tornillo en el conjunto hasta que llegue a la tuerca. Apriétalo.

PASO 9 Parts preparation: Plate-holders

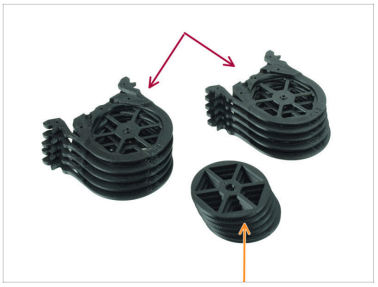
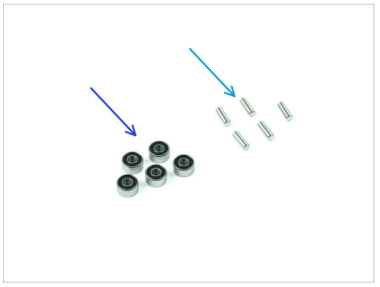
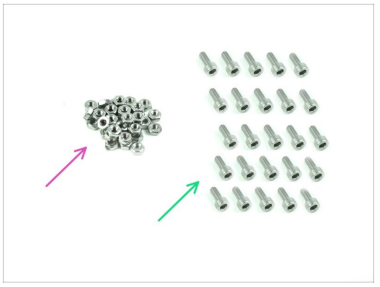


- **Para los siguientes pasos, por favor prepara:**
- Plate-holder (5x)

PASO 10 Assembly (part 6)

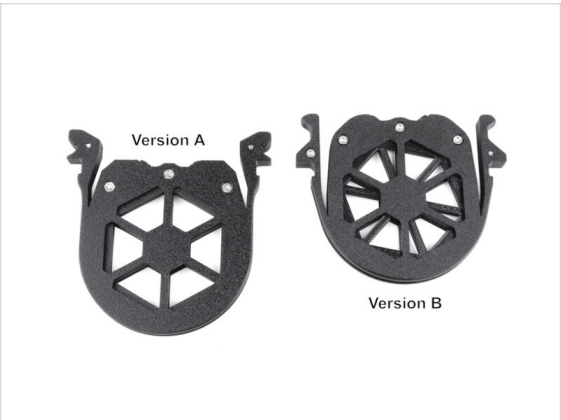
- Fija los portaplacas a las placas en las posiciones marcadas.

PASO 11 Preparación de las piezas del segmento del buffer

- **Para los siguientes pasos, por favor prepara:**
- Buffer Segment (10x)
- Wheel (5x)
- Rodamiento de bolas 693-2rs (5x)
- Eje 2.9x8.5 (5x)
- M3n nut (15x)
- M3x6 screw (25x)

PASO 12 INFO Cartucho buffer



ⓘ There have been several versions of this part available, which might look slightly different. However, the assembly process remains the same.

- La MMU3 para la impresora **MK4** requiere el uso del diseño de cartucho de buffer más reciente, la versión B.

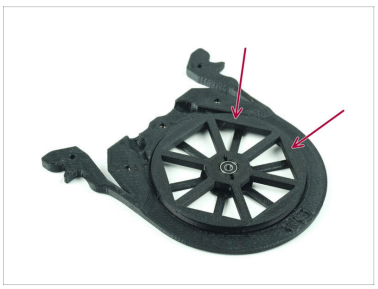
  La versión B se ha incluido en los packs MMU3 enviados después de abril de 2024.

  La versión B se adapta a la distancia de descarga ligeramente mayor del Nextruder. Si estás **adaptando una unidad MMU3 antigua a la MK4**, es necesario volver a imprimir las piezas de plástico del cartucho del buffer para garantizar una compatibilidad adecuada.

PASO 13 Segment assembly (part 1)

- Inserte el **rodamiento** en la abertura central de la rueda.
- Asegúrate de que el rodamiento se introduce hasta el fondo, hasta que quede enrasado con la superficie.
- Repeat for the remaining four wheels.

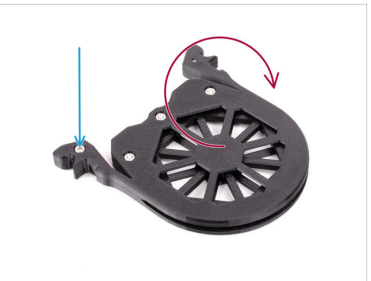
PASO 14 Segment assembly (part 2)



- Insert three **M3n nuts** into the marked openings on the Segment and push them all the way in.
- Add the wheel into the center of the segment.
- Empuja el **Ee** hasta el centro del rodamiento, hasta que encaje en el segmento inferior.

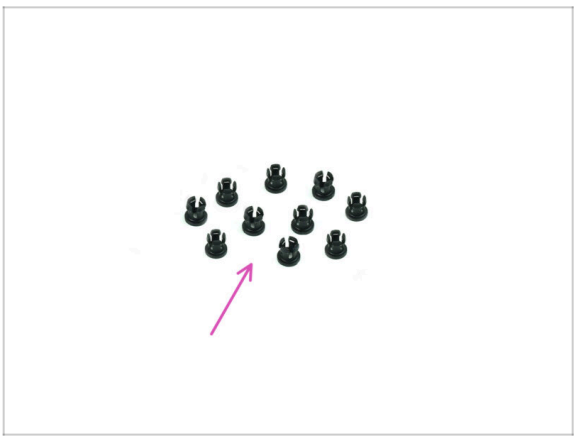
PASO 15 Segment assembly (part 3)





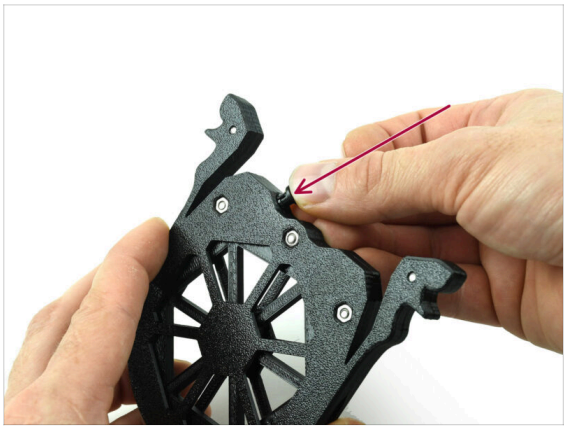
- Cover the assembly with another **Segment** part. Push both parts together to make sure the center shaft engaged into the top segment too.
- Join both parts together using four **M3x6** screws.
- Gira el conjunto.
- Add the fifth **M3x6** screw from the other side.
- **Monta todos los segmentos restantes**, utilizando la misma técnica.

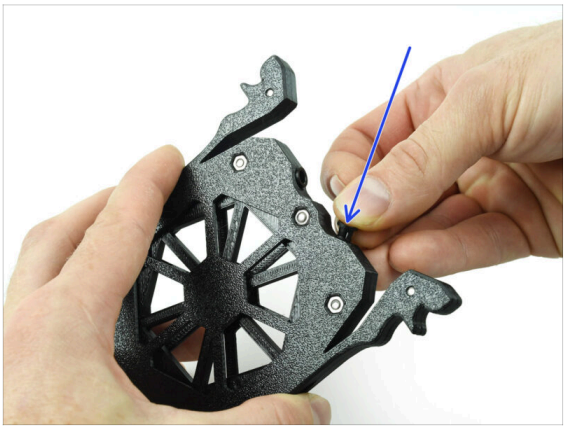
PASO 16 Collets: parts preparation



- **Para los siguientes pasos, por favor prepara:**
- Collet (10x)

PASO 17 Collet installation





- Insert one of the **collets** into the marked position on the cartridge.

⚠ Note, for an easier instalation, you might want to squish the small fins together while you insert the collet into the opening. Otherwise, one of the fins might spread outwards, resulting in a damaged collet.

- Inserta otro collar en la otra abertura.
- Instale también los collares en los cuatro cartuchos restantes.

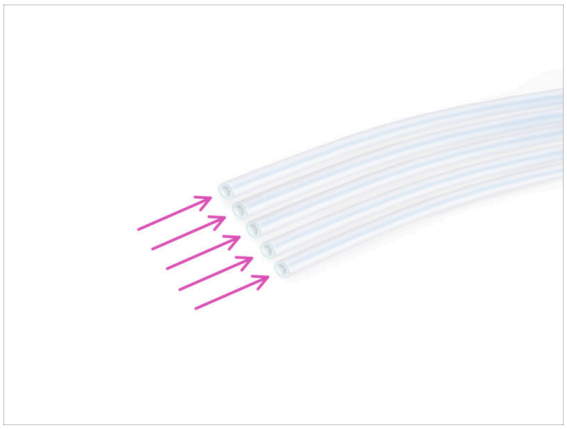
PASO 18 Cartridge installation

- Ahora, prepara los 5 cartuchos y el cuerpo del buffer.
- Coje uno de los cartuchos y sujétalo por las dos asas. Aprieta las asas para insertarlo.
- Inserta el cartucho en el cuerpo del buffer.
- Asegúrate de que el cartucho está correctamente insertado.

Para extraer el cartucho más tarde, aprieta las dos asas y tira de él.

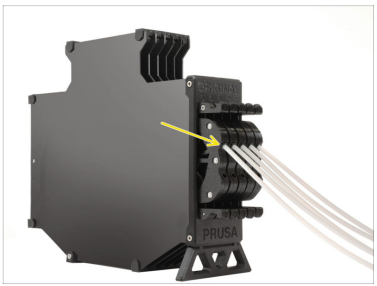
- Inserta **todos los cartuchos** en el cuerpo del buffer.

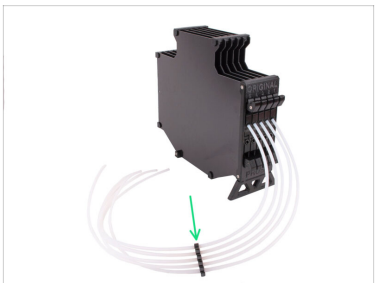
PASO 19 Preparación de las piezas de los tubos PTFE



- **Para los siguientes pasos, por favor prepara:**
- PTFE 650mm (5x)
- PTFE-clip (1x)

PASO 20 PTFE tubes installation





- Insert the PTFE tubes into the upper collet in each of the cartridges. Push them all the way in.
- Join the PTFE tubes together using the PTFE clip approximately in the middle.

PASO 21 Continue

⚠ If you're installing the **MMU3** on an **MK4/S** printer, move to the chapter:

- **MK4/S Nextruder mod**

⚠ If you're installing the **MMU3** on an **MK3S+** or **MK3.5/S** printer, move to the chapter:

- **MK3S+ / MK3.5 Extruder mod (KIT)**

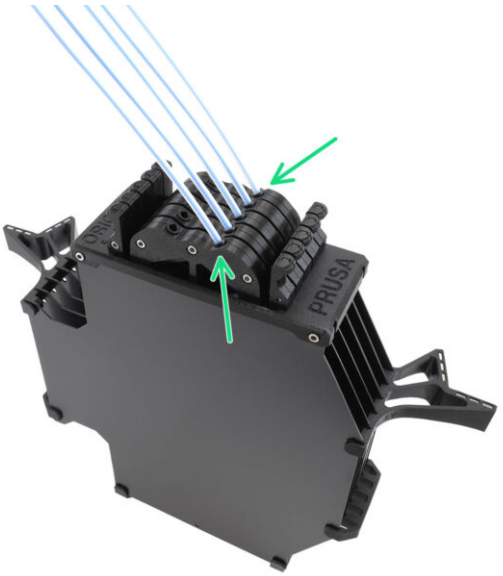
ⓘ In these chapters, we will convert the single-material extruder into the MMU3 version.

⚠ If you're doing the **MMU2S to MMU3 Upgrade** on **MK3S+**, continue to the chapter:

- **The MK3S+ Extruder (UPG)**

ⓘ This chapter will take you through the MMU2S Extruder to MMU3 Extruder upgrade.

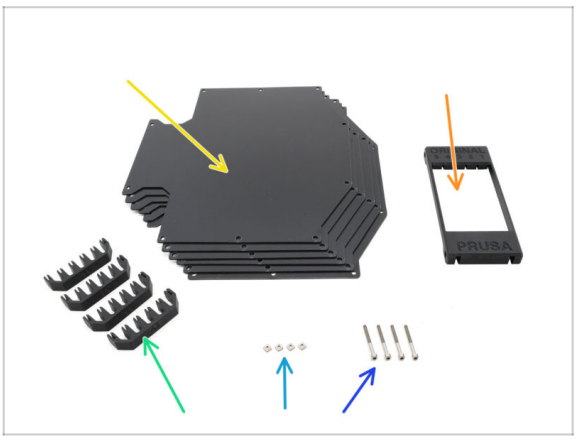
8. Montaje Buffer CORE One



PASO 1 Herramientas necesarias para este capitulo

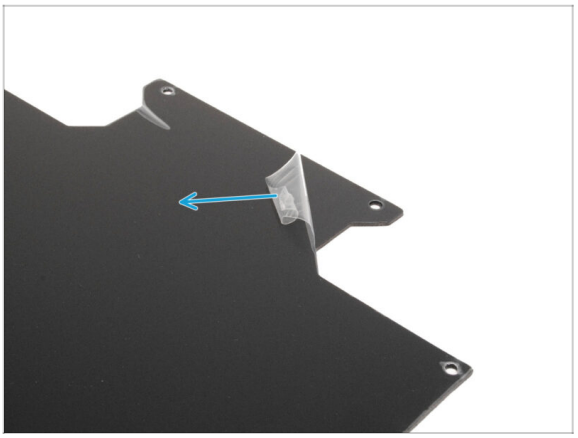
- **Por favor prepara las herramientas para este capítulo:**
  - Llave Allen de 1.5mm para alinear las tuercas
  - Llave Allen de 2.5mm para tornillos M3

PASO 2 Buffer Plates Preparation



- **Para los siguientes pasos, prepara:**
- Placas del buffer (6x)
- Segmentador (1x)
- Plate Holders (4x)
- M3x30 Screw (4x)
- M3nS nut (4x)

PASO 3 Plates Peeling

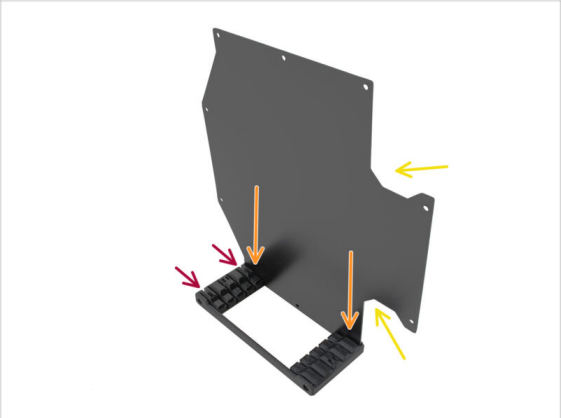


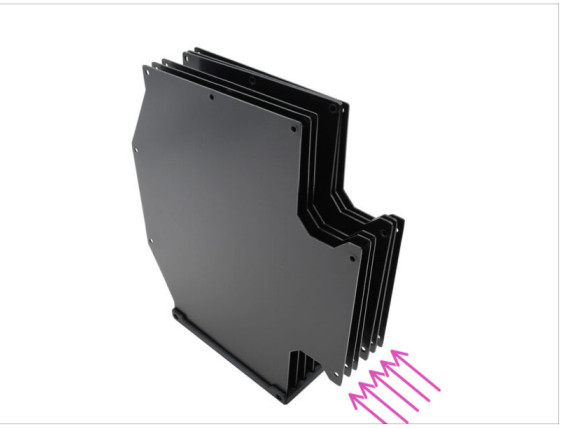
- Despega las **capas protectoras** de ambos lados de las placas buffer.

PASO 4 Segmenter Nuts

- Take the Segmenter part and position it as shown in the picture.
  Lay it on its flat side and rotate it so the **larger cutouts face away** from you.
- Insert the four M3nS nuts into the correspoinding pockets in the center. Push them all the way in.

PASO 5 Plates Installation



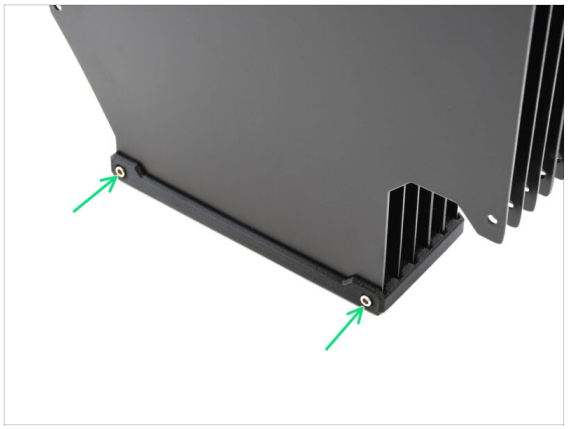


- Install the first buffer plate into the Segmenter.
  - Make sure the large cutouts in the plate are facing you.
  - Make sure the two larger slits in the Segmenter are facing away from you.
- Insert the remaining five sheets into the corresponding openings in the Segmenter.

PASO 6 Plate Holder Installation

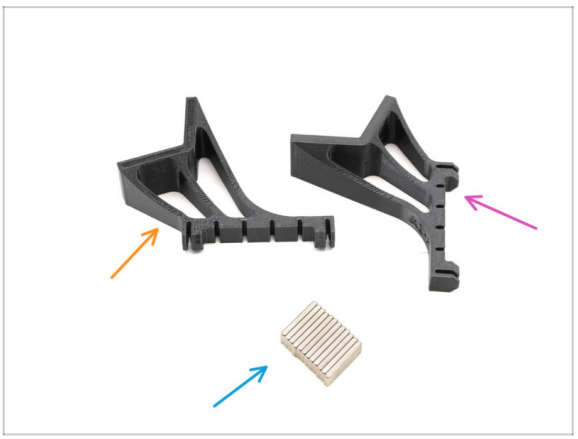
- Fix the plates together using the Plate holder in the marked position.
  - Make sure all the plates are seated properly.
- Install the remaining plate holders so that the assembly is held together in the marked positions.

PASO 7 Segmenter Screws



- Secure the plates to the Segmenter part using two M3x30 screws from one side.
  - ⓘ Tighten the screws in the position shown to prevent the M3nS nuts from falling out of the Segmenter part.
- Tighten the remaining two M3x30 screws from the other side.

PASO 8 Plate Holder L & R Preparation



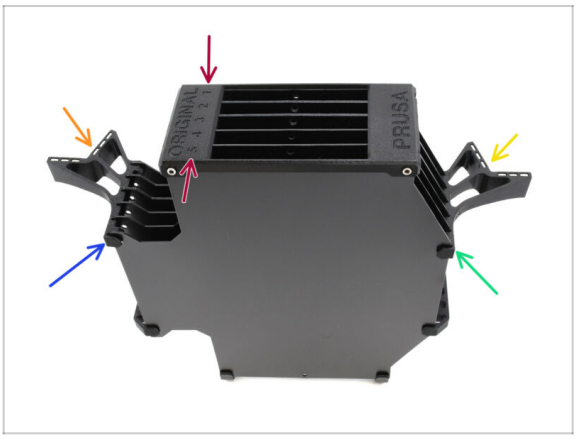
- **Para los siguientes pasos, prepara:**
- Plate holder L (1x)
- Plate holder R (1x)
- Magnet 2x5x20 (12x)

PASO 9 Magnet Installation

- Install all twelve magnets into the marked openings on both the Plate holder L and R parts.

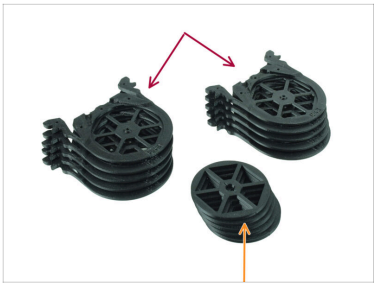
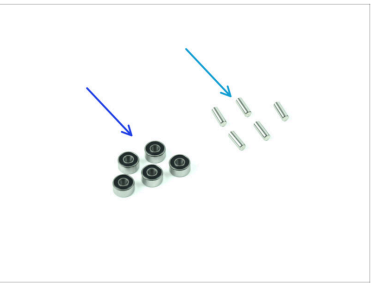
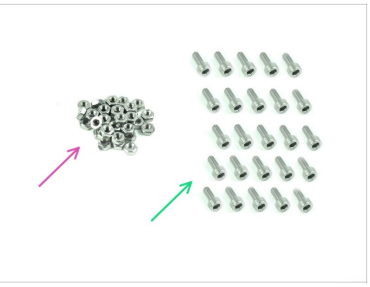
  ⓘ Make sure all the magnets are fully inserted.
  The orientation of the magnets is not important.

PASO 10 Plate Holder L & R Installation R Installation



- Orient the assembly so that the segmenter is on top, with the position labeled 1 facing away from you and position 5 toward you.
- Install the Plate Holder L onto the left side of the assembly.
  - The magnets should face away from you, toward position 1.
- Install the Plate Holder R onto the right side of the assembly.
  - The magnets should face away from you, toward position 1.

PASO 11 Buffer segment preparation

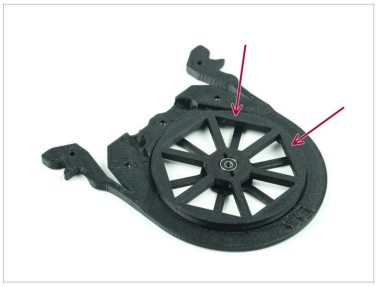
- **Para los siguientes pasos, prepara:**
- Buffer Segment (10x)

  ⚠ Make sure you are using the latest version of the Buffer segment.
- Wheel (5x)
- Rodamiento de bolas 693-2rs (5x)
- Shaft 2.9x8.5 (5x)
- M3n nut (15x)
- M3x6 screw (25x)

PASO 12 Segment assembly (part 1)

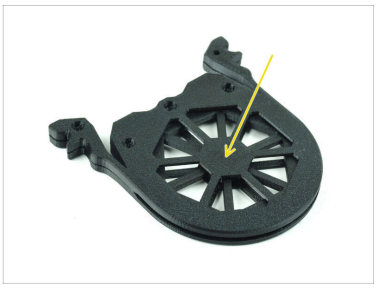
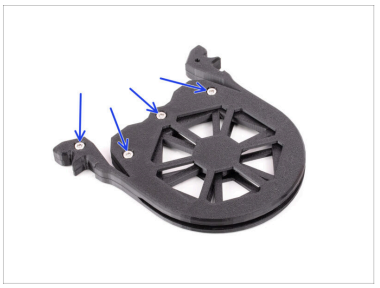
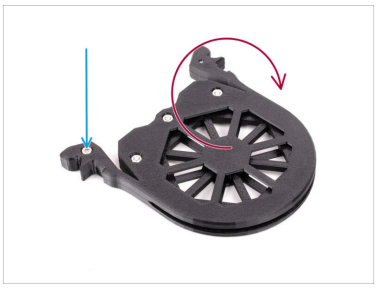

- Insert the bearing into the center opening in the wheel.
- Asegúrate de que el rodamiento se introduce hasta el fondo, hasta que quede enrasado con la superficie.
- Repeat for the remaining four wheels.

PASO 13 Segment assembly (part 2)

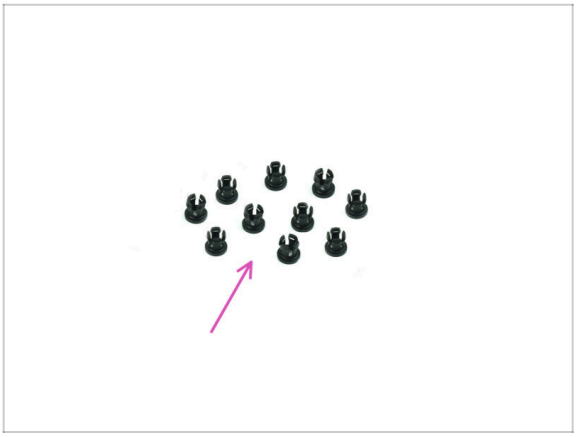

- Insert three M3n nuts into the marked openings on the Segment and push them all the way in.
- Add the wheel into the center of the segment.
- Push the Shaft all the way through the middle of the bearing, until it engages into the segment below.

PASO 14 Segment assembly (part 3)

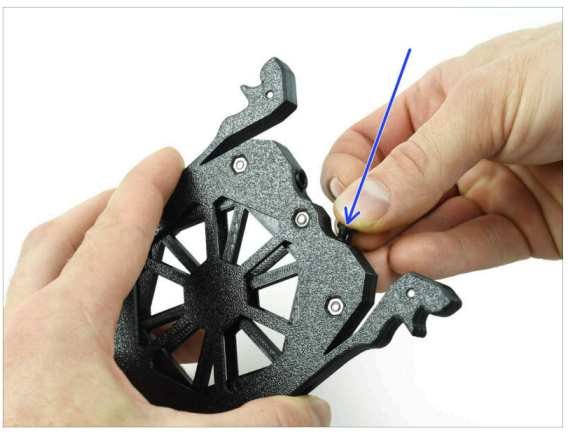
- Cover the assembly with another Segment part. Push both parts together to make sure the center shaft engaged into the top segment too.
- Join both parts together using four M3x6 screws.
- Gira el conjunto.
- Add the fifth M3x6 screw from the other side.
- Assemble all the remaining segments, using the same technique.

PASO 15 Collets: parts preparation



- **Para los siguientes pasos, prepara:**
- Collet (10x)

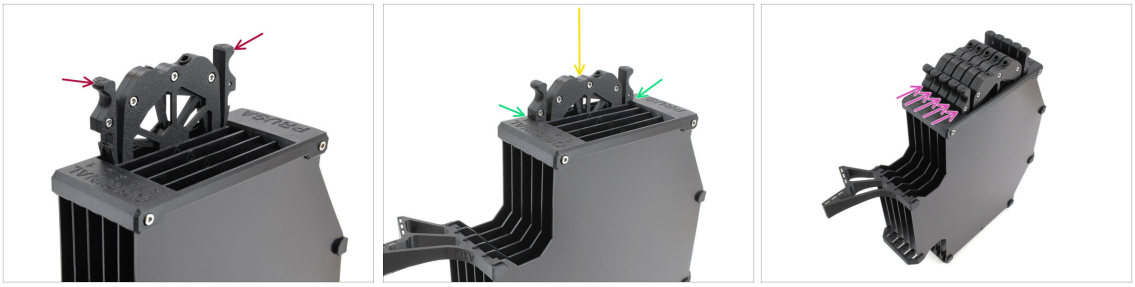
PASO 16 Collet installation



- Insert one of the collets into the marked position on the cartridge.

  ⚠ Note, for an easier instalation, you might want to squish the small fins together while you insert the collet into the opening. Otherwise, one of the fins might spread outwards, resulting in a damaged collet.
- Inserta otro collar en la otra abertura.
- Instale también los collares en los cuatro cartuchos restantes.

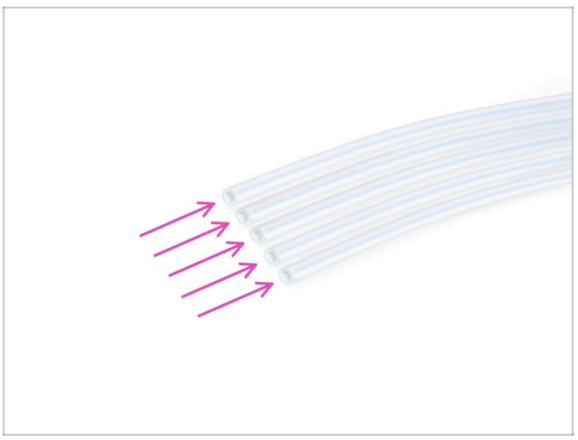
PASO 17 Cartridge installation



- Ahora, prepara los 5 cartuchos y el cuerpo del buffer.
- Coje uno de los cartuchos y sujétalo por las dos asas. Aprieta las asas para insertarlo.
- Inserta el cartucho en el cuerpo del buffer.
- Asegúrate de que el cartucho está correctamente insertado.

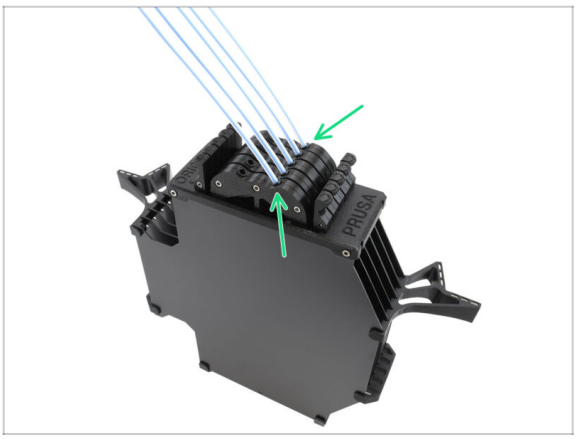
  Para extraer el cartucho más tarde, aprieta las dos asas y tira de él.
- Insert all the cartridges into the buffer body.

PASO 18 Preparación de las piezas de los tubos PTFE



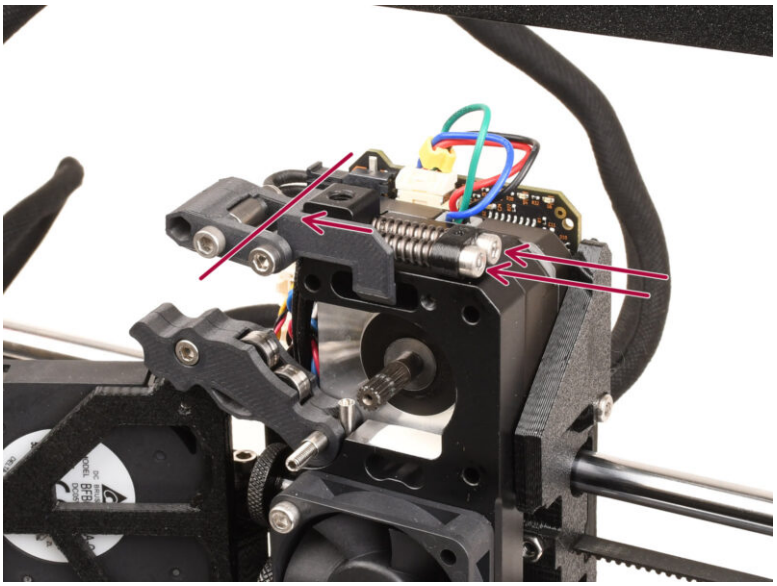
- **Para los siguientes pasos, prepara:**
- PTFE 650mm (5x)

PASO 19 PTFE tubes installation

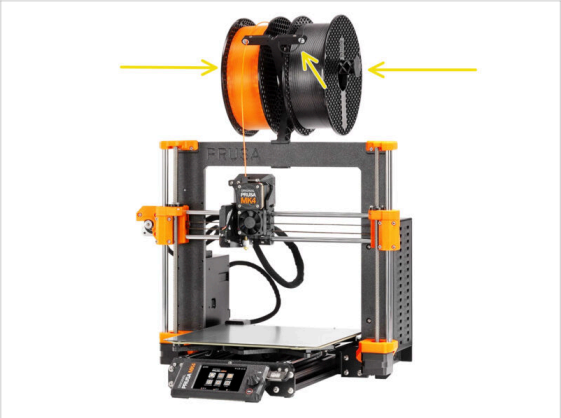


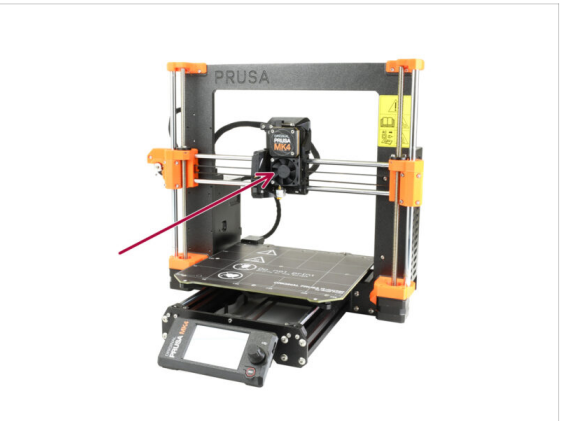
- Insert the PTFE tubes into the row of collets on the right of the cartridges. Push them all the way in.

9A. MK4/S, MK3.9/S Mod Nextruder



PASO 1 Introduction





- In this guide, we're going to **modify the Nextruder** on your MK4/S, MK3.9/S to accomodate the MMU functionality.

  If you are using another printer type, please refer to the respective chapter for the given printer.

  The MK3.9/S printer is functionally equivalent to the MK4/S.

  The instructions are shown using the MK4 printer, so some parts may look different. This does not affect the procedure.

- Descarga el filamento de la impresora y retira el portabobinas.
- Make sure the extruder on your printer is in the middle of both the X and Z axes.
- Power off your printer and disconnect it from the power.

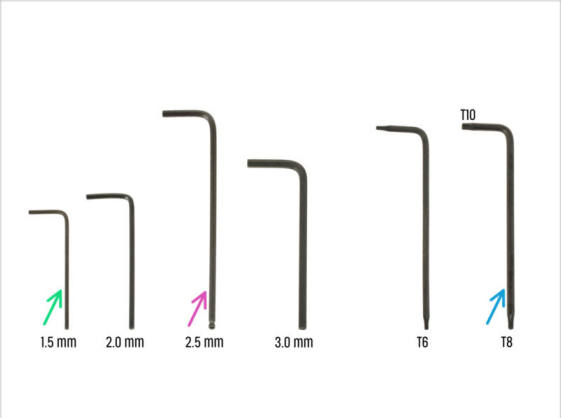
PASO 2 Spare parts bag

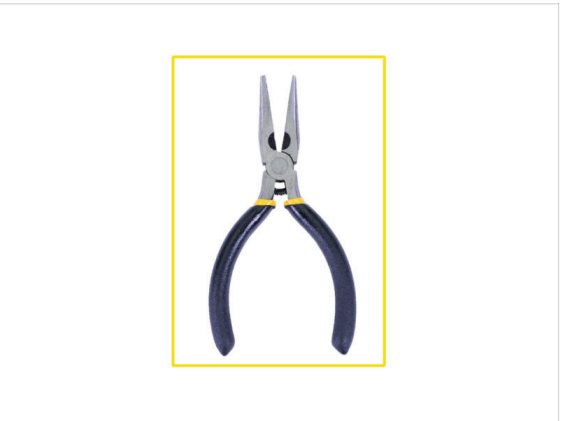
- During the conversion of the Nextruder to the multi-material version, you'll handle many parts that look similar but are different. We recommend setting aside a bag for spare parts to store components that won't be needed anymore.

  Rest assured, our guide will clearly indicate which parts will be reused and which won't.

- Let's begin!

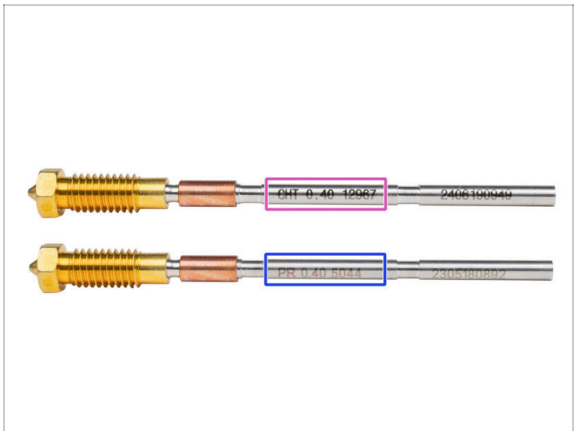
PASO 3 Herramientas necesarias para este capitulo





- **Para este capítulo, prepara por favor:**
- 2.5mm Allen key
- Llave Allen de 1.5mm
- Torx key TX10/8
- Needle-nose pliers

PASO 4 Prusa Nozzle info (MK4S only)



⚠ There are two variants of the Prusa Nozzle that we ship with the printers:

- Prusa Nozzle brass CHT high flow *(marked CHT)*
- Prusa Nozzle brass *(marked PR)*

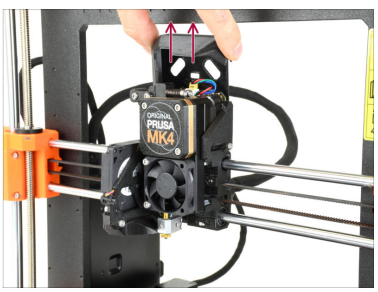
- The **MK4S** comes equipped with the Prusa Nozzle CHT by default. However, for optimal performance with the MMU3, **we recommend switching to a standard Prusa Nozzle**.

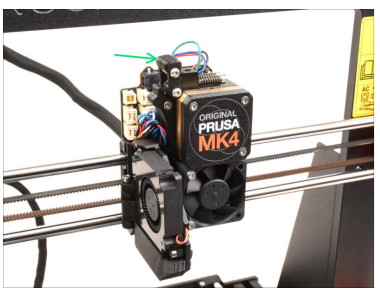
ⓘ While high-flow nozzles can be used too, they require specific HF Nozzle Slicer profiles with large purge volumes.

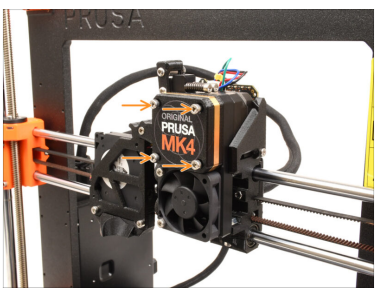
- The standard Prusa Nozzle is included in your MMU3 package.
- To replace the nozzle on the MK4S, please follow the instructions provided in the dedicated manual How to replace the Prusa Nozzle (MK4S/MK3.9S).

⚠ Once completed, return to this manual to continue with the assembly.

PASO 5 Nextruder disassembly (part 1)



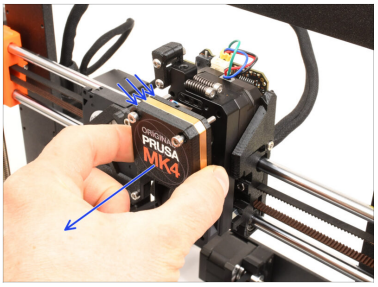
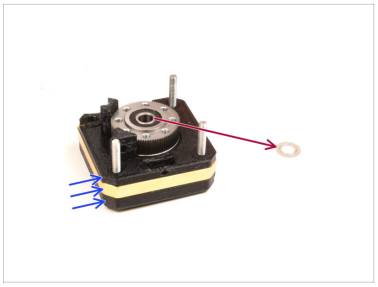
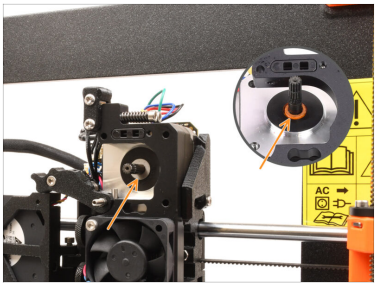




- Remove the top Loveboard-cover from the extruder by pulling it up.
- Open the Idler swivel.
- Fully loosen the M3x25 screws holding the gearbox cover.
  Leave the screws in place. Do not remove them entirely yet.

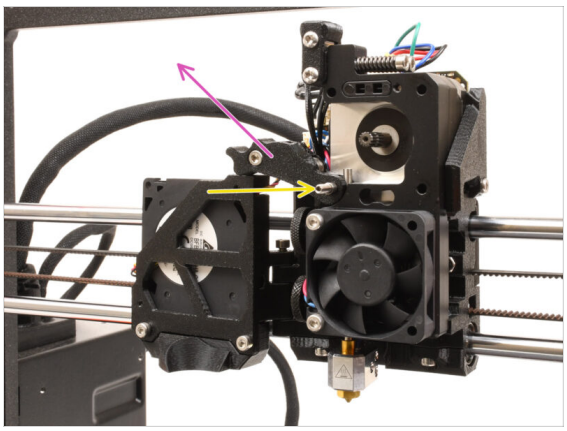
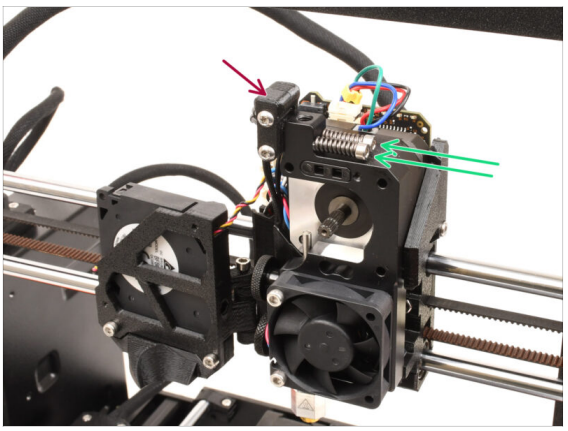
⚠ There were multiple versions of the Nextruder. The earlier models have **four screws** on the front. The newer model has **three screws**.

PASO 6 Nextruder disassembly (part 2)

- Remove the whole **gearbox assembly** from the Nextruder.
- Locate the **metal washer** that should be between the gearbox and the motor. It might be stuck to the gearbox assembly.
  - Earlier versions of the Nextruder use an **orange spacer** instead of the **metal washer**.
- Reseat the washer / spacer on the motor shaft, in case it has come off the shaft.
- The parts might be greasy. Clean off any excess grease.

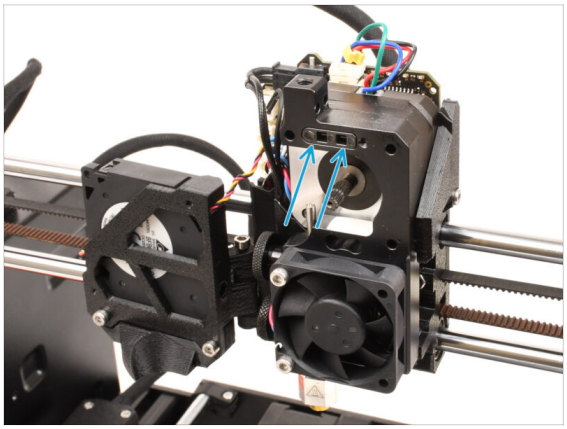
PASO 7 Nextruder disassembly (part 3)

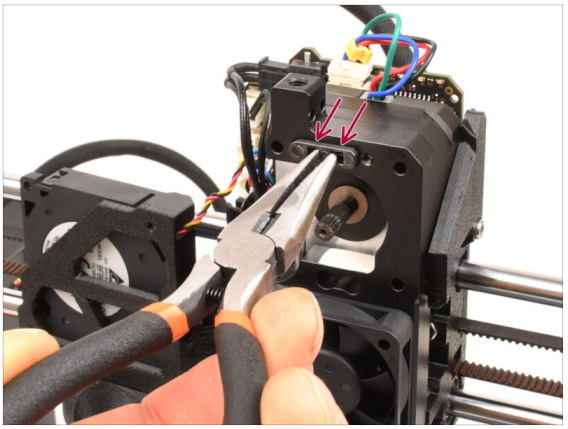



- Con la llave Allen de 1.5mm, retira el **tornillo prisionero**.

  ⓘ If you own the 4-screw version of the Nextruder, this specific type of set screw is not included.
- Remove the Idler.
- Remove the two M3x30 screws with the springs.
- Remove the idler swivel assembly.

PASO 8 Nextruder disassembly (part 4)



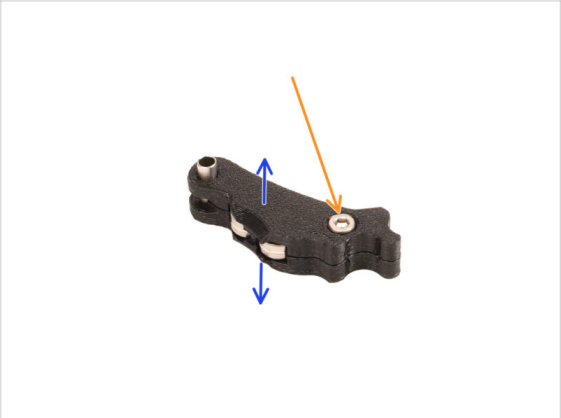


- On top of the **Nextruder heatsink**, there is a **filament sensor assembly.** We will need to remove it.
- Using the needle-nose pliers, gently pull the filament sensor assembly out of the heatsink.

  Proceed very carefully, there is a spring and a very tiny ball that can fall out!

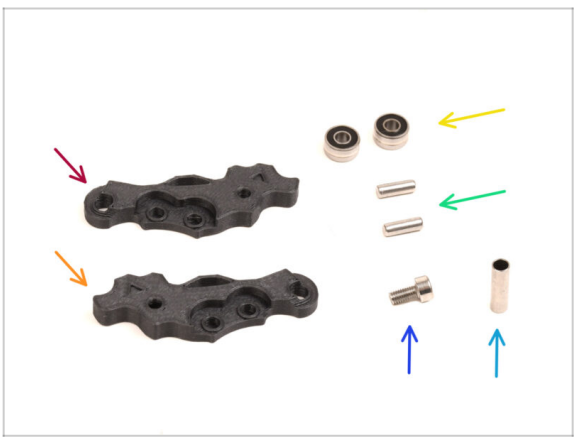
  En caso de que el conjunto del sensor de filamento sea difícil de extraer, introduce la llave Allen de 2.5 mm en la abertura del filamento situada en la parte superior para empujar la bola de acero del interior del conjunto hacia dentro. A continuación, extrae el conjunto del sensor de filamento.
- This filament sensor assembly will not be used with the multi-material Nextruder. It's recommended to store it in a spare parts bag.

PASO 9 Idler disassembly



- We will need to take the Idler assembly apart.
- Remove the M3x6 screw.
- Split the printed parts to open it up.
- Set aside for later use: **Bearings, pins, spacer and the screw.**
- The printed parts won't be re-used. Set them aside so that they don't mix up with the new parts.

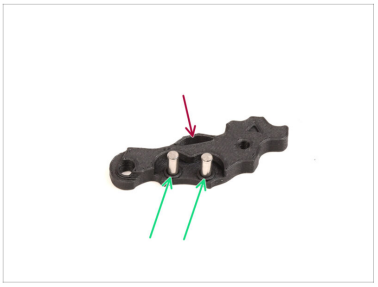
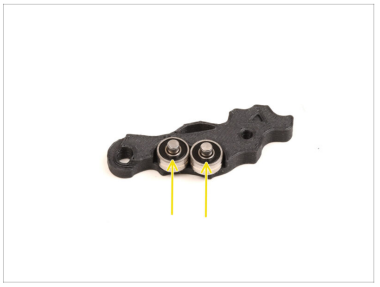
PASO 10 New Idler parts preparation



- **Para los siguientes pasos, por favor prepara:**
- Idler-lever-a (1x) *the new part*
- Idler-lever-b (1x) *the new part*

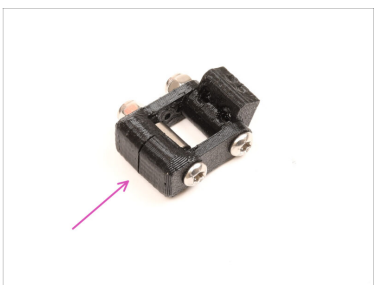
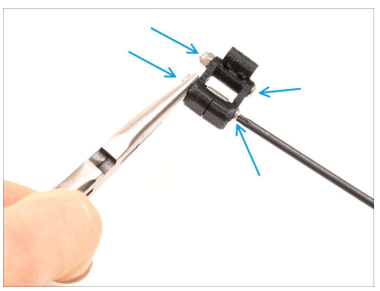
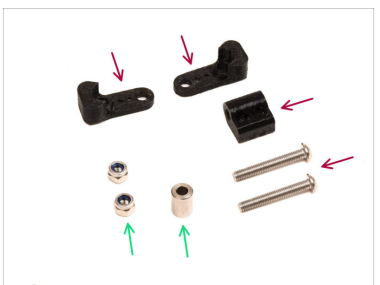
  ⚠ The older Idler printed parts, made from PETG, are prone to bending over time. Do not reuse these old parts, as they may cause the printer to malfunction.
- Bearing 693 2RS (2x) *you removed earlier*
- Pin 2.9x8.5 (2x) *you removed earlier*
- M3x6 screw (1x) *you removed earlier*
- Spacer tube 13.2x3.8x0.35 (1x) *you removed earlier*

PASO 11 New Idler assembly

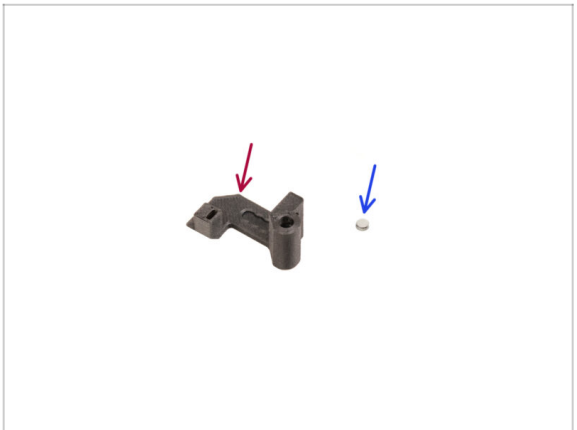

- Take the new Idler-lever-a part.
- Insert the two pins into the corresponding openings.
- Mount the bearings onto the pins.
- Cover the assembly with the Idler-lever-b part.
- Insert the spacer tube into the corresponding opening.
- Fix the assembly together using the M3x6 screw.

PASO 12 Swivel disassembly

- We will need to take the Swivel assembly apart.
- Using the T10 Torx key, remove the screws while you hold the nuts using the needle-nose pliers.
- Set aside for later use: **M3nN nuts and spacer**.
- The printed parts and the screws won't be re-used. Set them aside so that they don't mix up with the new parts.

PASO 13 Idler nut FS parts preparation



- **Para los siguientes pasos, por favor prepara:**
- Idler nut FS (1x) the new part
- Magnet 3x1mm (1x)

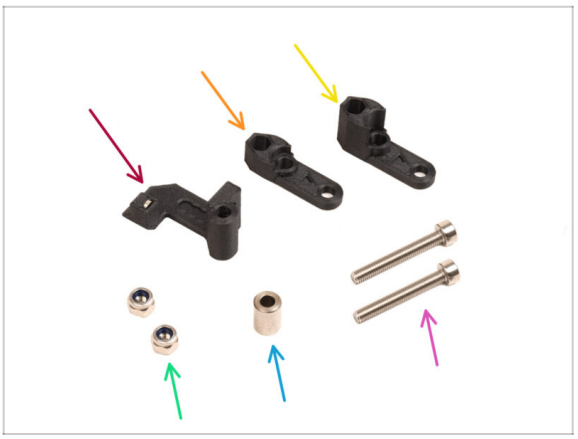
  ⓘ There are two of these tiny magnets included in the package. Please separate them and use only one; the other magnet serves as a spare.

PASO 14 Idler nut FS assembly

- Arrange the **Idler nut FS** part as seen in the picture.
- Install the tiny 3x1mm magnet into the marked opening on the Idler nut FS part.
- Push the magnet all the way in, until it stops.

  ⓘ The polarity / orientation of the magnet isn't important. The printer will automatically adapt to it during the filament sensor calibration process.

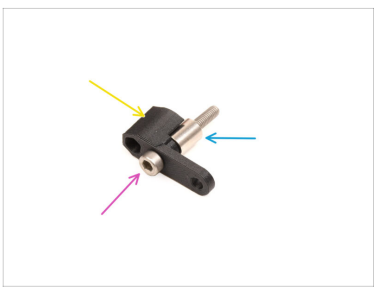
PASO 15 New Swivel parts preparation



- **Para los siguientes pasos, por favor prepara:**
- Idler nut FS (1x) *with the 3x1mm magnet installed*
- Swivel B (1x) *the new part*
- Swivel A (1x) the new part
- Tuerca M3nN (2x)
- Spacer 6x3.1x8 (1x) *you removed earlier*
- M3x22 screw (2x)

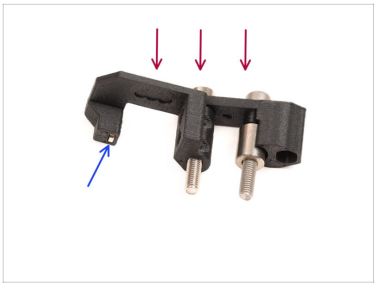
⚠ This screw is a new type not previously used on a printer! Do not reuse old screws, as they are a different size and would not fit properly!

PASO 16 New Swivel assembly (part 1)



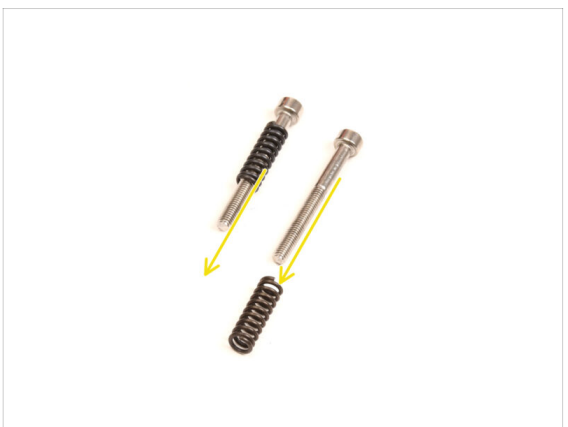
- Take the Swivel A part and orient it as seen in the picture.
- Insert the **M3x22 screw** into the opening near the thick part of the Swivel A.
- Slide the **spacer** onto the screw.
- Insert the second **M3x22 screw** into the other opening on the side.
- Slide the **Idler nut FS** part onto the M3x22 screw.

PASO 17 New Swivel assembly (part 2)



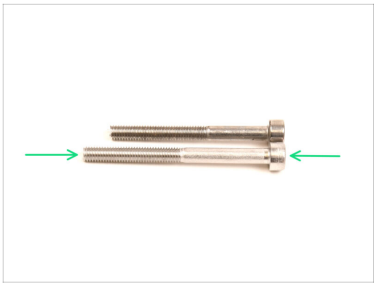
- Orient the Swivel assembly as seen in the picture.
- There is a tiny magnet in the Idler nut FS part. Make sure it is in place.
  - ⓘ In case the magnet has fallen out, there is a replacement one in the package.
- Slide the **Swivel B** part onto the screws.
- Attach the M3nN nuts onto the screws. Tighten the screws gently while holding the nuts using the neeedle-nose pliers.
  - ⚠ Do not overtighten the nuts. The Swivel must be able to move freely.

PASO 18 Tension screws parts preparation

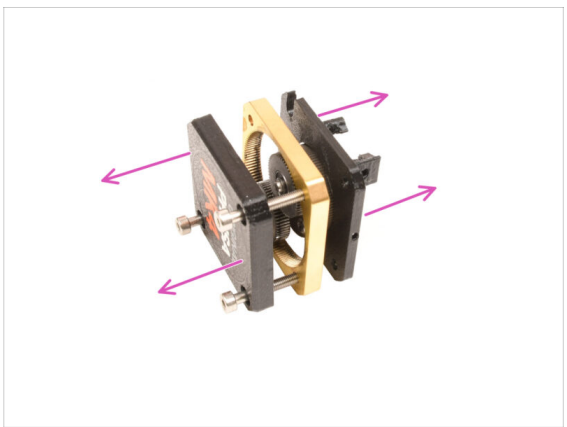
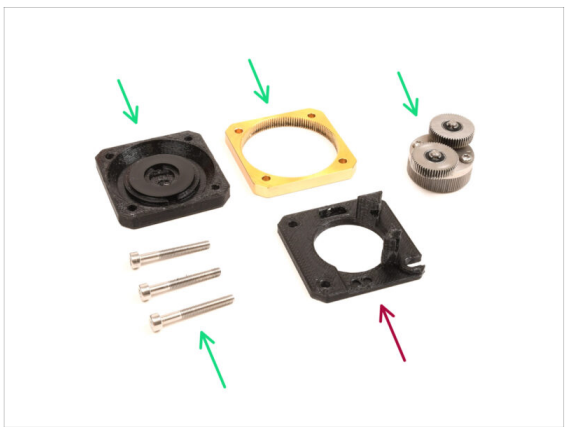
- **Para los siguientes pasos, por favor prepara:**
- **M3x30** screws with the springs (2x) *you have removed earlier*
  - ⓘ We will need the **springs alone**. The old M3x30 screws won't be re-used.
    - Remove the springs from the old M3x30 screws.
- **M3x35** screws (2x) *the new, slightly **longer** ones.*
  - ⚠ This screw is a new type not previously used on a printer! Do not reuse old screws, as they are a different size and would not fit properly!
- Screw guide (1x)

PASO 19 Tension screws assembly



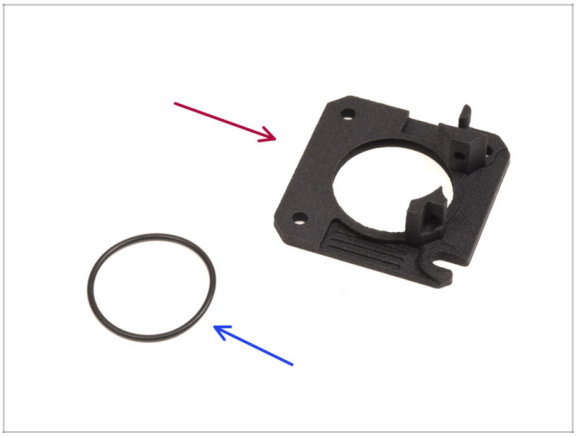
- Take the new M3x35 screws.
  - ⚠ Compare the size of the screws. Set the old M3x30 and the **new M3x35** screws apart so that they don't mix up.
  - The old shorter M3x30 screws won't be re-used.
- Push the M3x35 screws through the screw guide.
- Attach the springs onto the end of both the screws.

PASO 20 Gearbox disassembly

- Take the gearbox assembly and split it apart.
- The parts might be greasy. Clean off any excess grease.
- Set aside for later use: **PG-case, PG-ring, PG-assembly, M3x25 screws.**
- The printed main-plate won't be re-used. Set it aside so that it doesn't mix up with a new part.

PASO 21 Main plate parts preparation

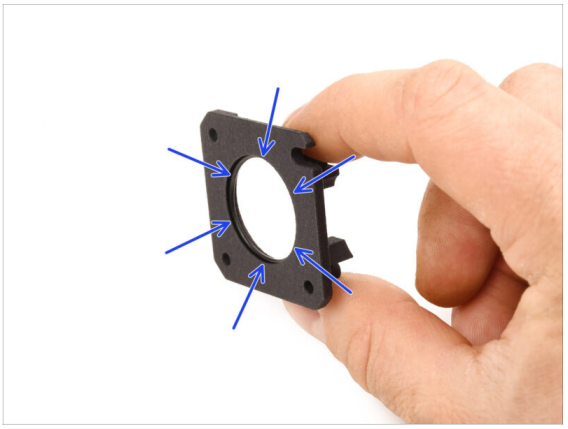


- **Para los siguientes pasos, por favor prepara:**
- new Main Plate (1x)

  ⚠ We will need the newly supplied main-plate. It is different than the original one in the gearbox assembly, printed from PETG. Do not reuse the old main plate, as it may cause the printer to malfunction!

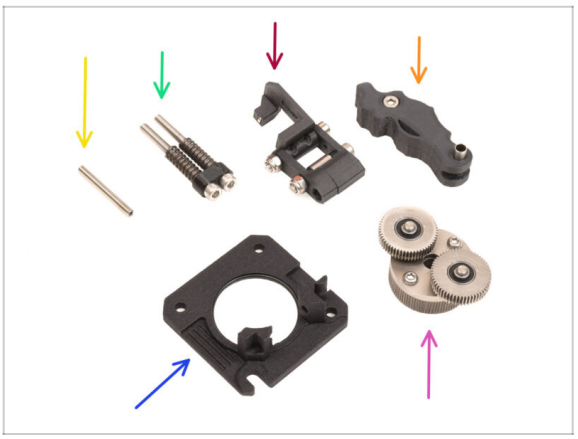
  ⓘ The new main plate is 3D printed using MJF technology. It cannot be replicated with the same quality using FDM printing.
- O-ring 24,5x1,5 (1x)

PASO 22 Main plate assembly



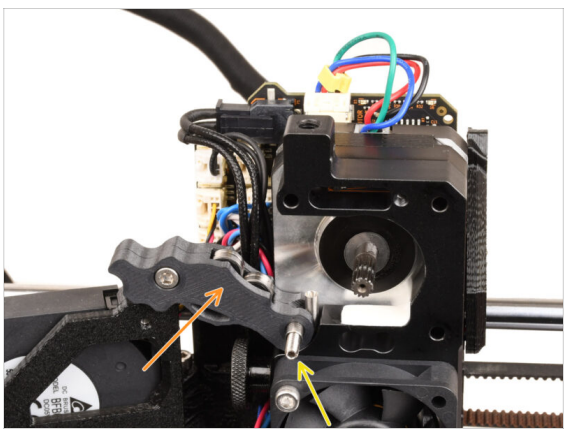
- There is a V-shaped groove on the inside of the large round opening on the new main-plate.
- Insert the O-ring into the groove. Make sure it is seated properly.

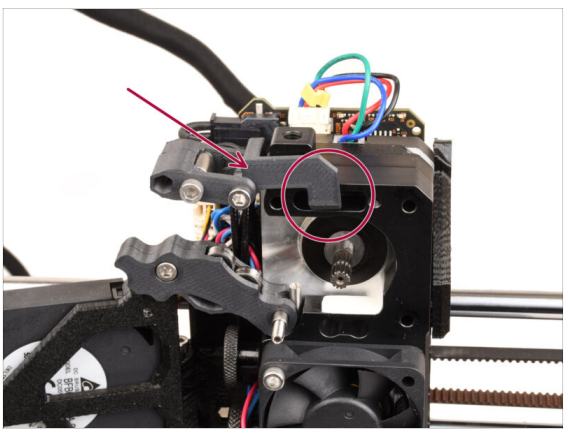
PASO 23 MMU Nextruder: parts preparation



- **Para los siguientes pasos, por favor prepara:**
- Set screw M3x25 (1x)
  - ⓘ If you own the 4-screw version of the Nextruder, this specific type of set screw is not included.
- Tension screws assembly (1x)
- Swivel assembly (1x)
- Idler assembly (1x)
- Main plate assembly (1x)
- PG-assembly (1x)

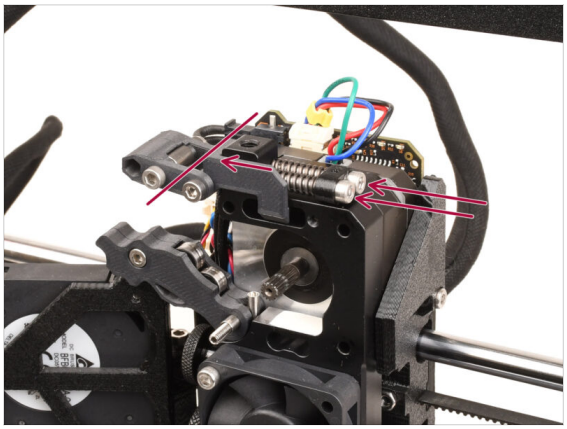
PASO 24 MMU Nextruder assembly (part 1)

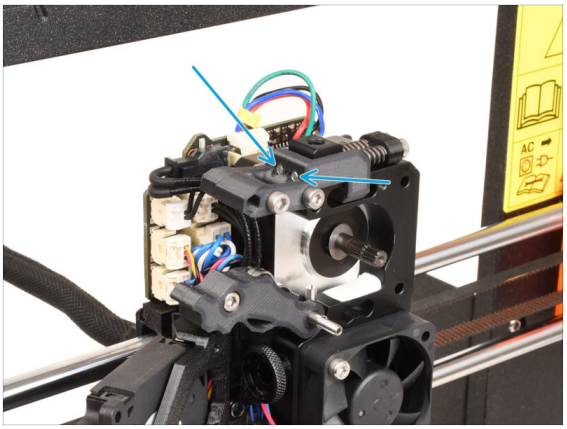




- Add the **Idler assembly** onto the extruder.
- Fix it in place using the **M3x25 Set screw**.
  - ⓘ In case you have the 4-screw version of the Nextruder, you might use the M3x25 screw to temporarily hold the Idler assembly in place.
- Add the **Swivel assembly** onto the extruder. The protruding part of the Idler nut FS component should fit inside the filament sensor pocket in the heatsink, as seen in the picture.

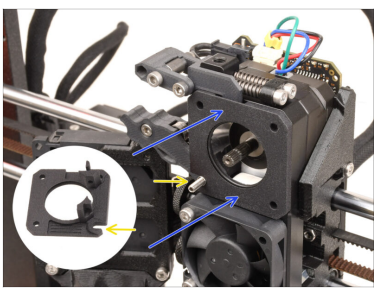
PASO 25 MMU Nextruder assembly (part 2)

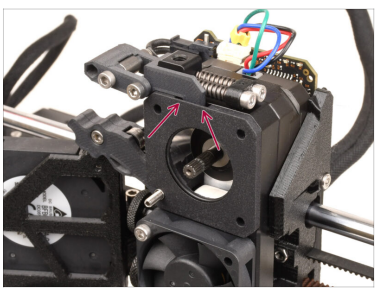


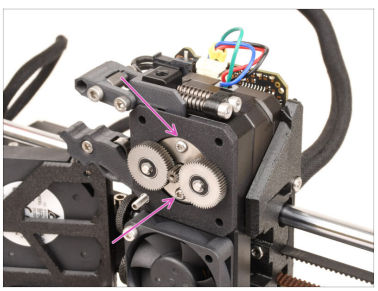


- Insert the **tension screw assembly** through the heatsink and direct it towards the Swivel assembly.
- **Tighten the tension screws gradually**, one at a time, until the ends of the screws are flush with the surface of the Idler nut part on the opposite side, as shown in the picture.

PASO 26 MMU Nextruder assembly (part 3)



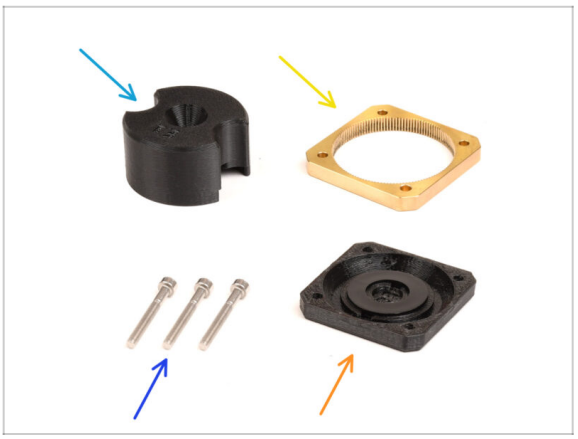




- Attach the new **main plate assembly** to the extruder, ensuring the protruding parts fit correctly into the heatsink.
  - The **notch** in one of the corners is designed to fit over the Idler spacer / set screw.
- Ensure the lever on the Swivel assembly fits correctly into the cutout on the main plate.
- Attach the **PG-assembly** to the motor shaft. Be very careful when inserting the assembly into the opening with the O-ring. Watch out for any deformation or damage to the O-ring. Ensure the O-ring stays properly seated in its groove on the main plate. A slight wiggling motion can assist with this.

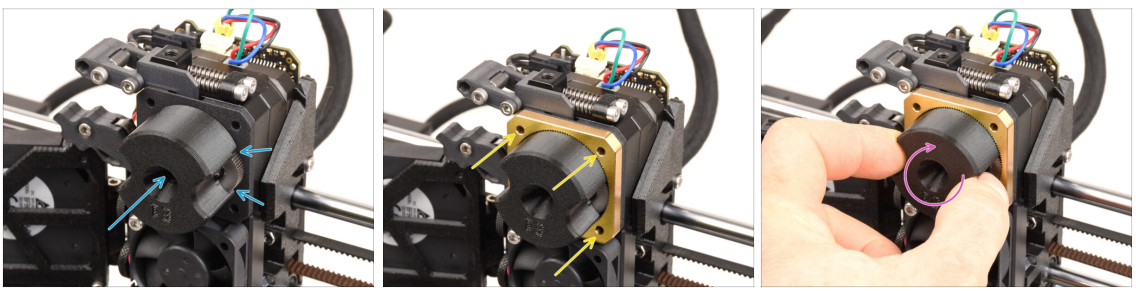
  ⚠ Watch out for any deformation or damage to the O-ring. **Ensure the O-ring stays properly seated** in its groove on the main plate. A slight wiggling motion can assist with this.

PASO 27 Gearbox assembly: Parts preparation



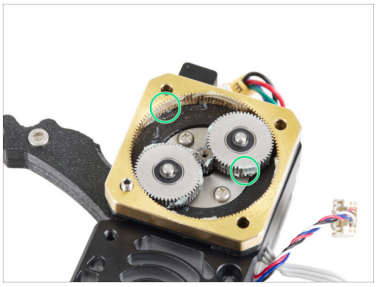
- **Para los siguientes pasos, por favor prepara:**
- PG-assembly adapter (1x)
- PG-ring (1x)
- M3x25 screws (3x or 4x depending on the Nextruder version)
- PG-case assembly (1x)

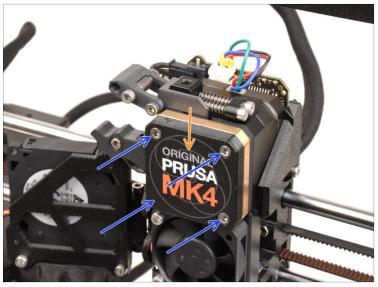
PASO 28 Gearbox assembly (part 1)

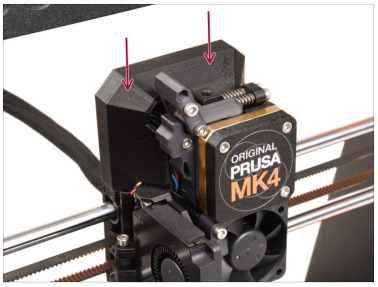


- Attach the **adapter** to the PG-assembly, making sure the spur gears are correctly aligned and fit snugly into the pockets on the adapter.
- Carefully slide the **PG-ring** onto the adapter, pushing it all the way in gently, until it locks onto the gears.
  - ⓘ Note there is a chamfer on one side of the PG-ring. This side should be facing the gears, while inserting the PG-ring.
  - Gently rotate the adapter while sliding the PG-ring onto the gears to align the gearbox properly.
- Retira el adaptador, mientras sujetas la caja de engranajes en su lugar.

PASO 29 Gearbox assembly (part 2)







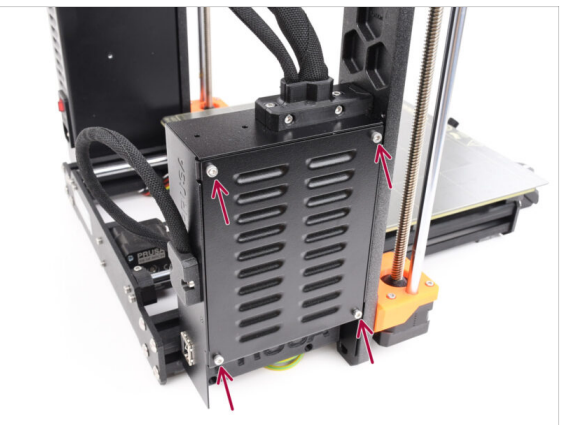
- Check the PG ring for adequate lubrication. If necessary, apply a slight amount of grease, similar to the procedure for the MK4 kit.
- Cover the gearbox using the **PG-case.**
- Secure the case using the M3x25 screws. Do not overtighten the screws!
- Attach the top Loveboard cover back onto the extruder.

9B. Mod extrusor MK3S+ / MK3.5 (KIT)

PASO 1 Herramientas necesarias para este capitulo

- **Por favor prepara las herramientas para este capítulo:**
  - Needle-nose pliers
  - Llave Allen de 1.5mm para alinear las tuercas
  - Llave Allen de 2.5mm para tornillos M3
  - Una herramienta para medir (optional), lo mejor es un calibre digital.

PASO 2 Printer preparation

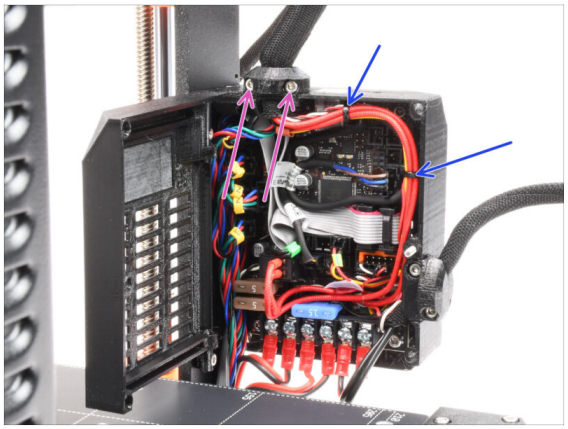


- This chapter will describe a modification of the **single-material MK3S+ / MK3.5** extruder to accomodate **MMU3.**

⚠ Keep all the parts. Some of them will need to be re-installed back in place.

- **Antes de empezar**, comprueba que:
  - The filament is unloaded and the print head is at a height it is easily accessible at.
  - The printer is properly cooled down and the steel sheet has been removed.
  - La impresora está apagada y desenchufada.
  - On the **MK3.5** printer, ensure you have easy access to the electronics box on the left side.

PASO 3 Aflojar el conjunto de cables MK3S+

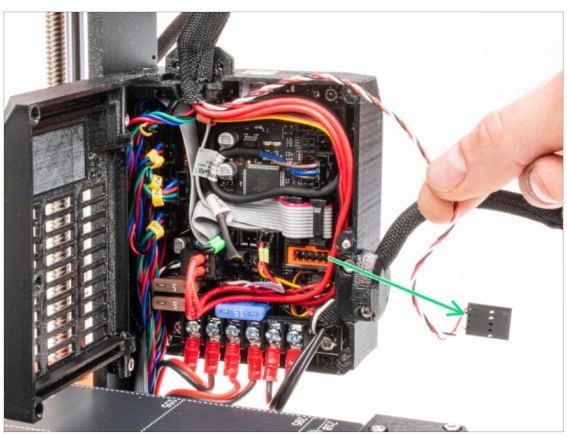


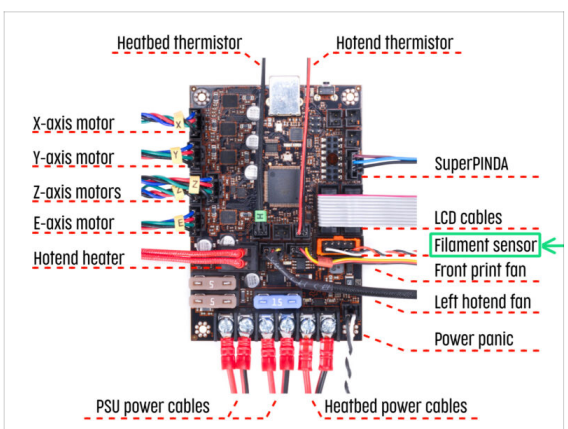
⚠ In order to use **MMU3** on your **MK3S+**, a few components on the print head need to be changed. First, we need to release the extruder cable bundle.

⚠ If you use **MK3.5** printer, skip two steps ahead.

- Using an Allen key release the M3x40 screw on the **electronics box** and open the door on the other side.
- Release two M3x10 screws and remove the extruder-cable-clip on top.
- In case there are zip ties holding the cables inside the electronics box, carefully cut and remove them.

PASO 4 Desconectando el cable del sensor infrarrojo de filamento MK3S+

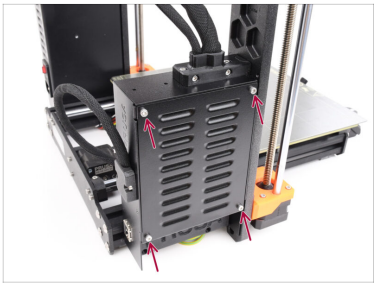
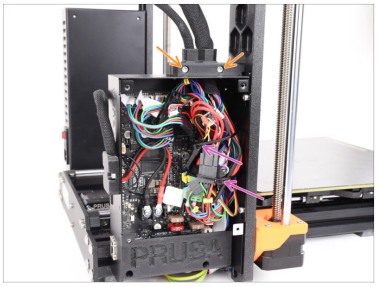
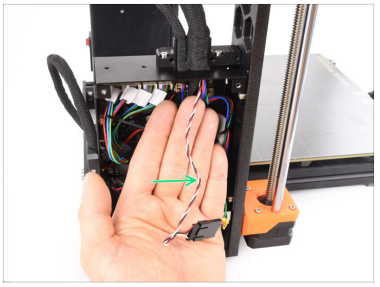




- Carefully unplug the **IR filament sensor cable** and make sure it is free inside the electronics box.

ⓘ We need to gently pull the **IR filament sensor cable** slightly towards the extruder as the sensor will be in a **different position**. Make sure the entire path of the cable is free. However there is no need for a complete disassembly.

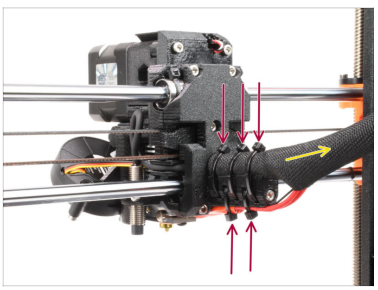
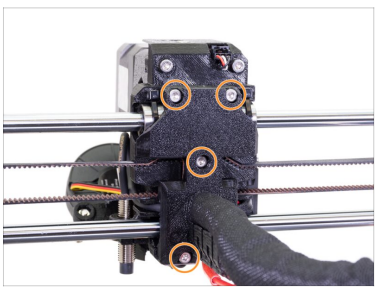
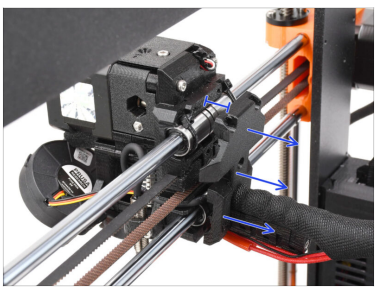
PASO 5 MK3.5 Releasing the cable bundle

⚠ This step is valid for **MK3.5** printer only. If you are using the MK3S+, skip to the next one.

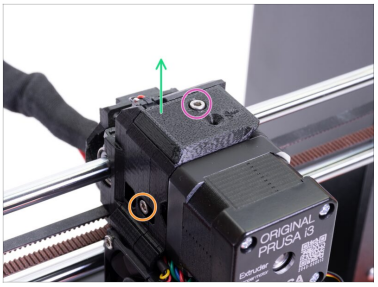
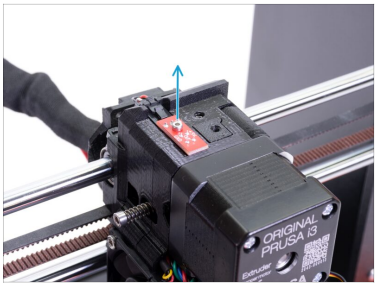
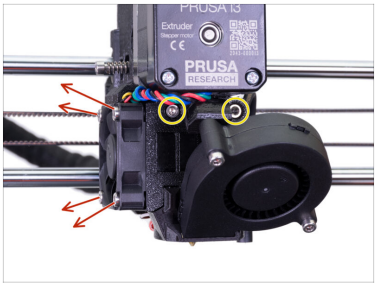
- Remove four M3x6 screws holding the xBuddy cover. Remove the cover.
- Remove the two M3x18 screws holding the front part of the cable holder and remove the Ext-cable-holder-a part.
- Carefully cut and remove the zip ties securing the cable bundle, taking care not to damage any cables.
- We need to gently pull the **IR filament sensor cable** slightly towards the extruder as the sensor will be in a **different position**. Make sure the entire path of the cable is free. However there is no need for a complete disassembly.

PASO 6 X-carriage-back disassembly

- Cut and remove all the zip ties on the cable holder behind the extruder.
- Release the textile sleeve on the cable bundle by pulling it back slightly. Usually, there is no need to remove it completely.
- Remove all four M3x10 screws on the X-carriage-back part.
- Split the x-carriage about 10 mm (0.4 inch) apart in the back to ensure the cables will be able move through more easily.

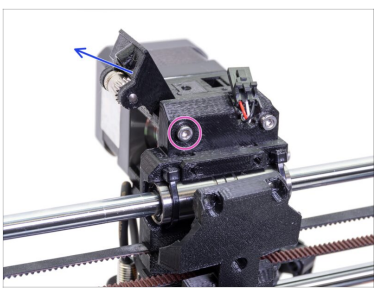
PASO 7 Desmontaje del ventilador del hotend y FS-cover

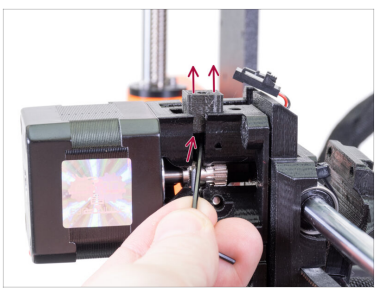




- Release and remove the M3x10 **screw on top**.
- Remove the **FS-cover**. It will be replaced with a new one.
- Release the M3x40 **Idler tension screw** with the spring on the side. You can leave it in place.
- Release the M2x8 screw, unplug and remove the IR filament sensor.

  ⚠ **Be careful** with the IR filament sensor, hold it by its sides. Try not touching the components on the PCB. **Keep it in an ESD-safe place.**
- Release both M3x40 screws on the front, just few turns to create about 0.5cm (0.2inch) gap in the extruder body.
- Release and remove all screws holding the Hotend fan on the side. **Remove the fan**. We need to reach a screw behind the fan.

PASO 8 Extruder-body disassembly





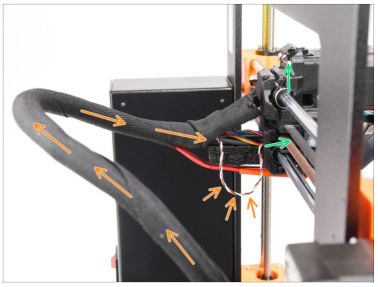
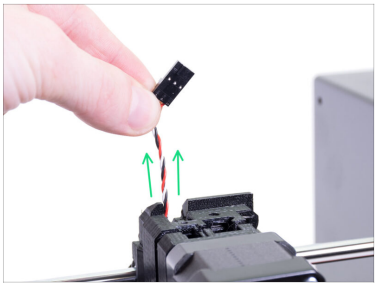
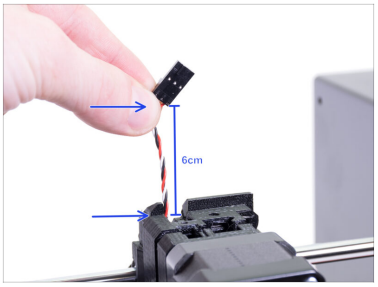
- Release and remove the M3x40 screw on the back holding the Extruder-idler on the side.
- Retira el Extrusor-tensor de la impresora.
- Remove the other M3x40 screw on the back.

⚠ From now on, try keeping the extruder parts together as it can easily fall apart while it's not being held together by the screws!

- Using an Allen key, push the black **Adapter-printer part** up. Keep in mind there is a steel ball inside, which usually falls out. Remove the part entirely.

  ⓘ We will replace Adapter-printer part with a new part.

PASO 9 IR Filament sensor cable

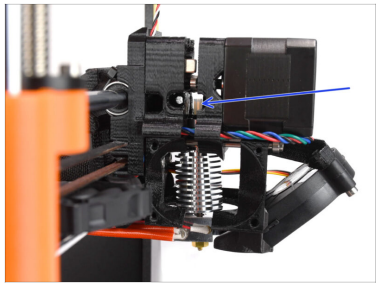
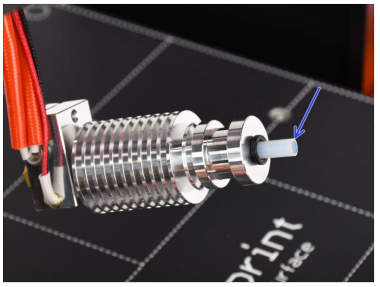
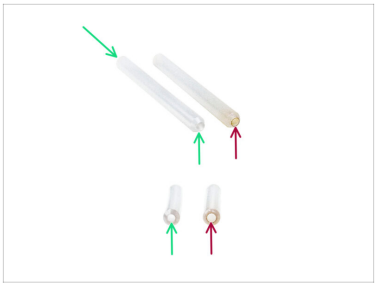




- Find the IR filament sensor cable inside the cable bundle and move it from the electronics box towards the extruder slightly.
- Grab the wires of the IR filament sensor cable and try gently pulling it up to the top of the extruder.

  ⚠ Don't pull hard on the cable.

  - **Push** the cable towards the extruder from the electronics box, while you are **pulling** the cable on top. This way, the cable should slide without a significant resistance.
  - Combine **gentle** pushing and pulling on the cable to avoid damage.
- We aim to get **6cm (2.4in) of the cable** above the top of the extruder body.

PASO 10 INFO Tubo PTFE hotend

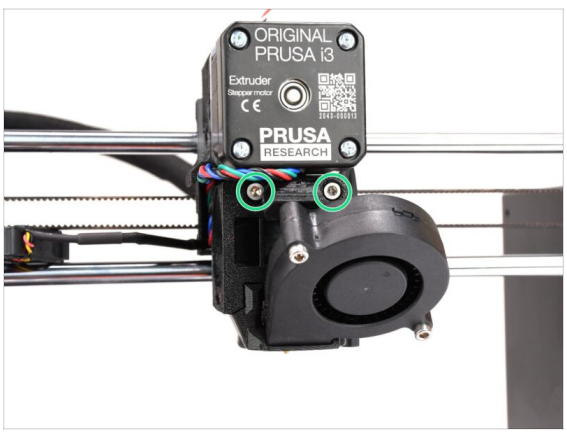
VERY IMPORTANT INFO! READ CAREFULLY!!

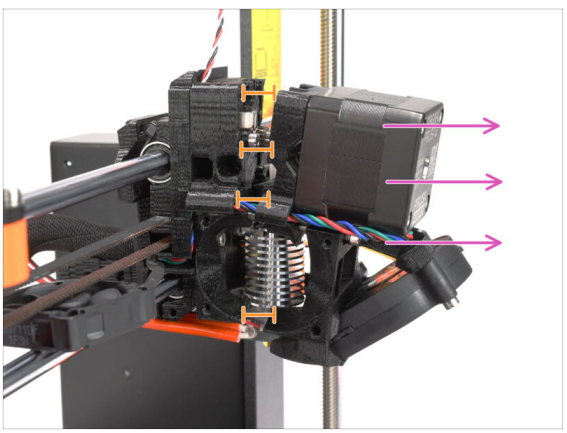
- There is a short PTFE tube inside the extruder's hotend. It plays a **major role** in the MMU operation. This tube cools down a molten filament tip to form a narrow sharp end on it, while the MMU does a material change.

  The tube is considered a consumable as it wears down over time during the regular use. Therefore, it should be replaced once in a while, after the printer went over certain amount of material changes. We strongly recommend replacing it now, since the extruder is partly disassembled already.

  - A new hotend PTFE tube has a 1.85mm internal diameter. *If your printer is new or very lightly used, you can skip the PTFE replacement in the upcoming steps and proceed to "**Adapter-printer parts preparation.**"*
  - The specimen on the right, however, was taken off a printer after approx. 20000 material changes, using a high-temperature abrasive filament that wore down the tube's bore up to 2.4mm. This caused increased stringing and malformed filament tips, leading to frequent MMU filament loading problems on that machine. The worn PTFE tube needed replacement.

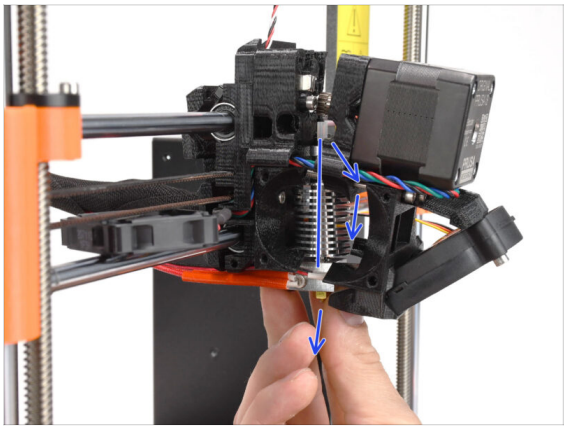
PASO 11 Splitting the extruder

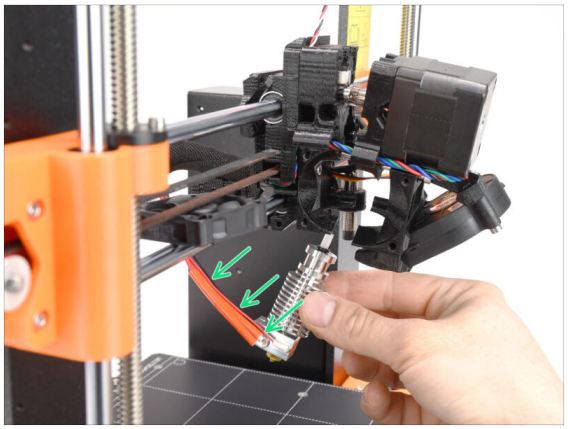




- Release both M3x40 screws at the front, just below the extruder motor. Don't remove them completely. We will use them to hold the extruder parts together.
- Carefully split the extruder apart by pulling the front out.
- Create approx. a 1cm (0.5in) gap similar to the one seen in the picture.

PASO 12 Partial extruder disassembly



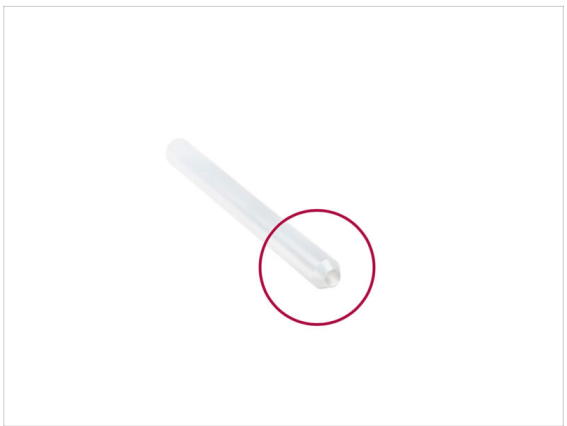


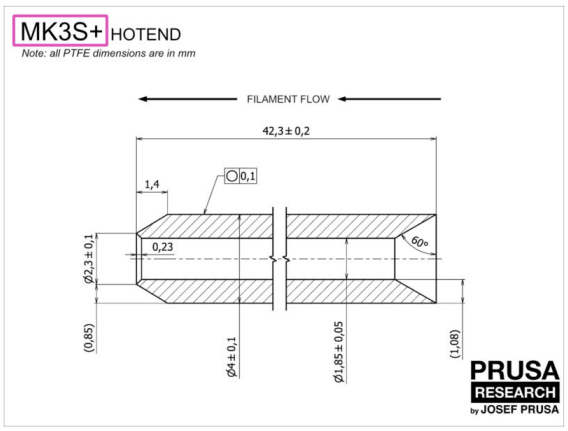
- Reach for the hotend and incline its upper part towards the motor. Wiggle it to slide it down.

ⓘ If the hotend is still stuck inside, release the screws below the motor some more to increase the gap between the printed parts.

- **BE EXTRA CAUTIOUS** with the hotend cables!!! You can break them! Use a reasonable force to pull the hotend out. Don't bend the cables too much.

PASO 13 Tubo PTFE: preparación de las piezas

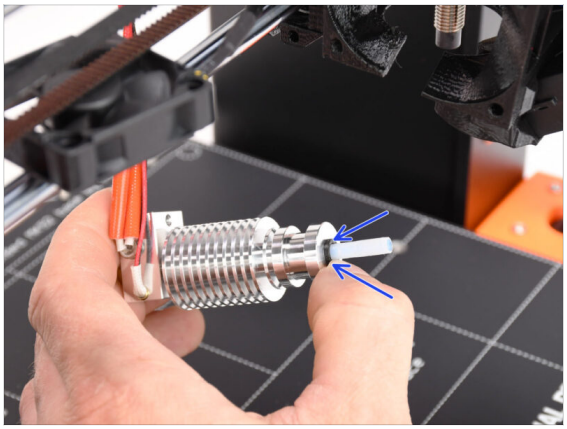


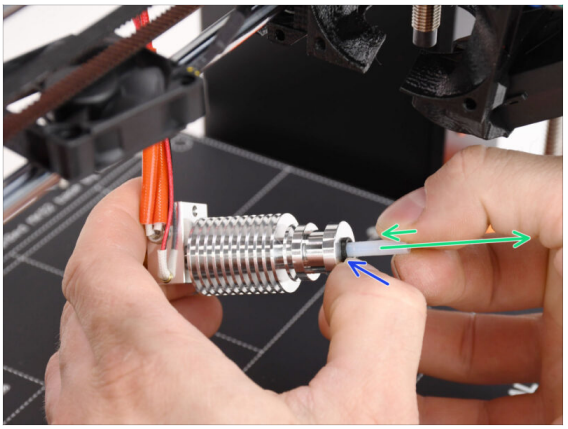


- **Para los siguientes pasos, por favor prepara:**
- Hotend PTFE tube (1x)
  - PTFE for MK3S+ is 42.3mm long, 1.85mm ID, 4mm OD, inner chamfer on one side, outer chamfer on the other.

ⓘ The bundled PTFE tube is intended for MK3S+ only. The PTFE tubes for MK3S and MK3S+ differ in length.

PASO 14 Retirando el tubo de PTFE viejo

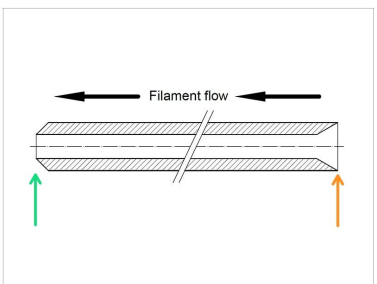


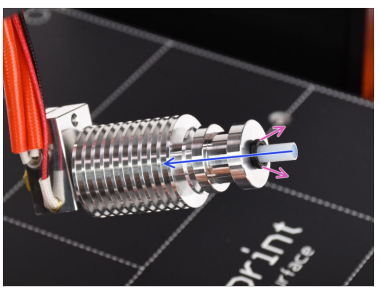


- Press the black plastic collet.
- Remove the PTFE tube from the hotend.
  - **While the black collet is still pressed down, push the PTFE tube in and then pull it out.** This way, you will disengage the small metal hooks inside the black collet first. If you force the PTFE tube out without the hooks properly disengaged, the PTFE tube can jam inside.

⚠ **Throw the worn-out PTFE tube immediately to the nearest trash** bin to avoid installing it back by accident ;)

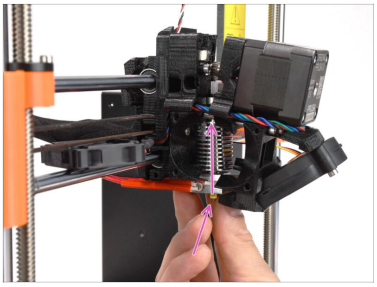
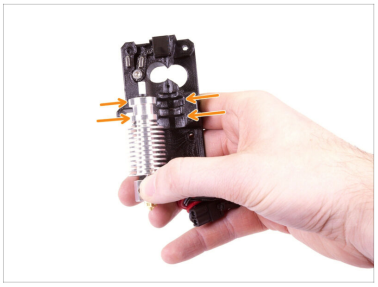
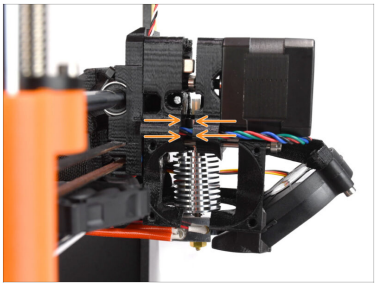
PASO 15 New PTFE tube installation





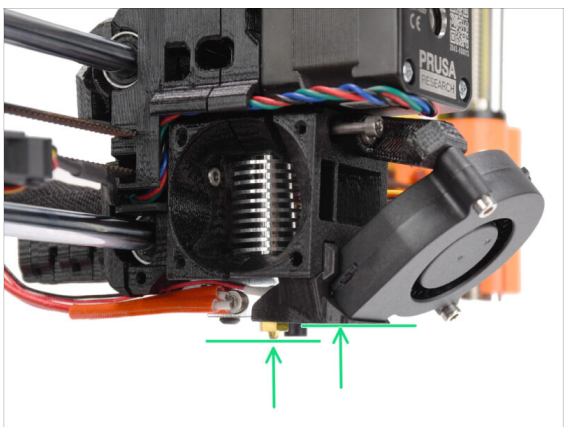
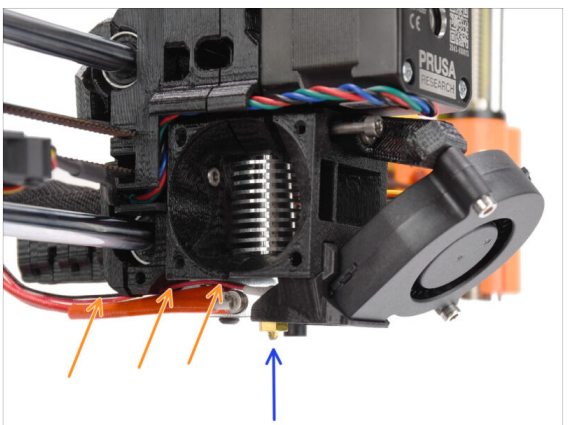
- Now it is time to insert the new PTFE tube. Note, that each end of the tube is different.
- One end of the tube has an **outer chamfer**. This end must be inside the hotend.
- The other side has an **inner chamfer**. This conical shape is the filament entry. This part must be outside the hotend.
- Push the PTFE tube in. Slide it all the way in and hold it!
- Using your other hand **pull the collet out** while you keep pushing the PTFE tube in. **THIS IS CRUCIAL** for the hotend to work properly.
- After you finish inserting the new PTFE tube, check that the whole hotend is tightened up and nothing got loose during the process.

PASO 16 Extruder reassembly (Part 1)

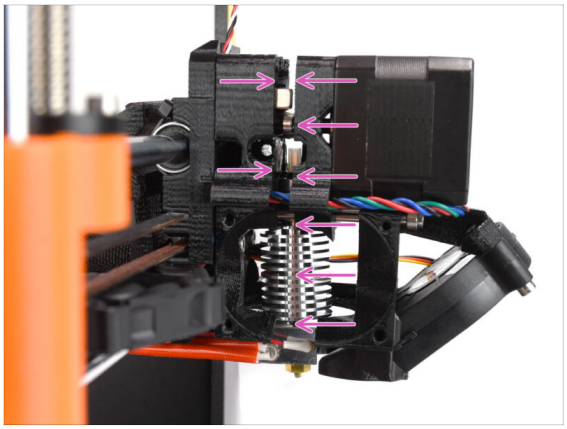
- Re-insert the hotend back into the extruder. Ensure its orientation is the same as seen in the picture.
- **IT IS CRUCIAL** to ensure the hotend is fitted properly in the extruder-body!!! The top of the hotend must fit into the correct recesses in the printed parts. See the second and the third picture for a reference!

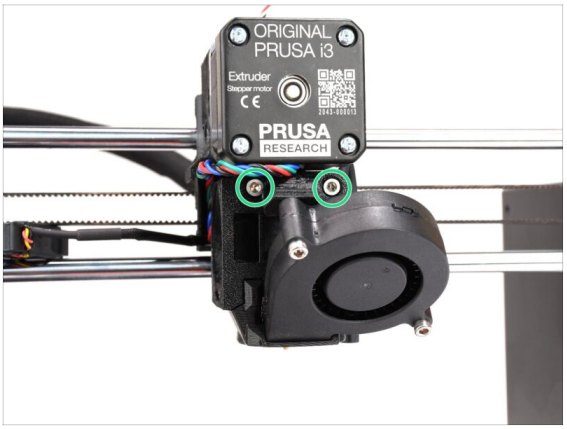
PASO 17 Extruder reassembly (Part 2)

- **Check once again the correct position of the hotend.** Look from below the extruder. The heater block should be oriented as seen in the picture. Perpendicular to the printed parts, with the cables pointing to the back.
- Guide the thermistor cables **above** the thick heater cables.
- Take a look from the side of the extruder. The nozzle should be slightly below the printed fan-shroud.
  If it is significantly lower than in the picture, your hotend isn't inserted correctly.

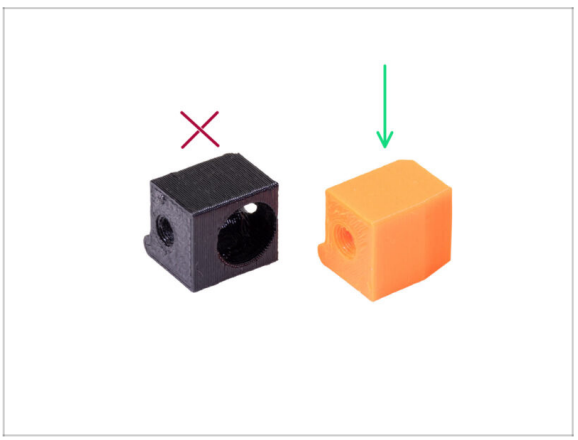
PASO 18 Extruder reassembly (Part 3)





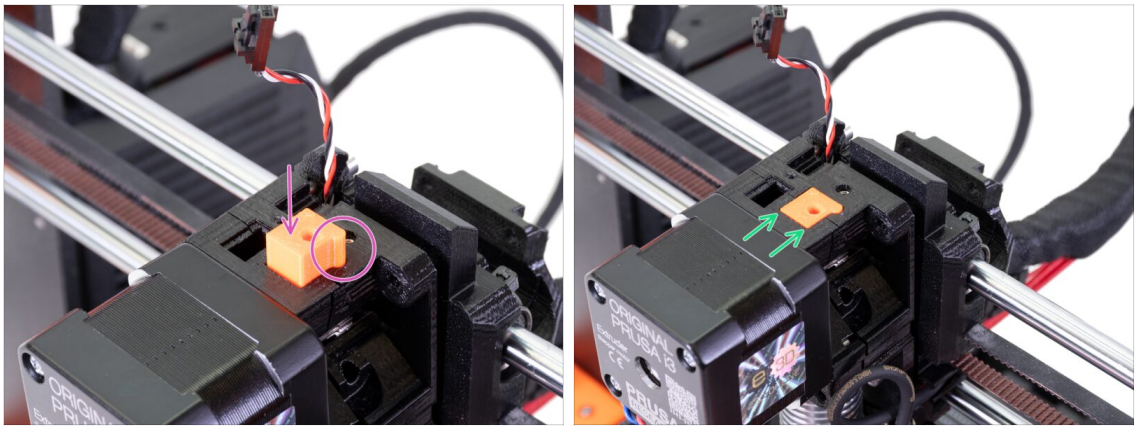
- Carefully and slowly push all the parts together.
- ⚠ **In case of any significant resistance STOP** immediately and check, which part is blocking the movement.
- Tighten the two M3x40 screws on the front of the extruder slightly - just so that the extruder parts are held closer together. We will tighten the screws fully later on.

PASO 19 Adapter-printer parts preparation



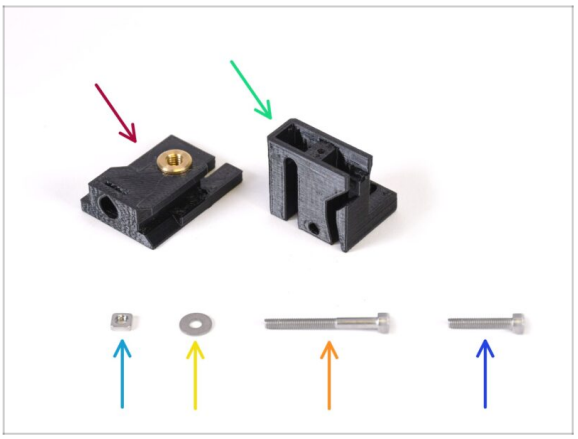
- **Para los siguientes pasos, por favor prepara:**
- Adapter-printer-mmu (1x)
- ⚠ The package should include only the orange adapter. If you have printed parts yourself, please **don't use the version with the hole for steel ball.** (used for single-material printers)

PASO 20 Adapter-printer assembly



- Insert the Adapter-printer into the opening on top of the extruder-body. See the protrusion, it must fit into the groove.
- Push it down until it's flush with the surface.

PASO 21 New chimney: parts preparation

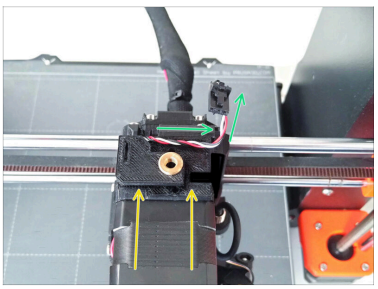


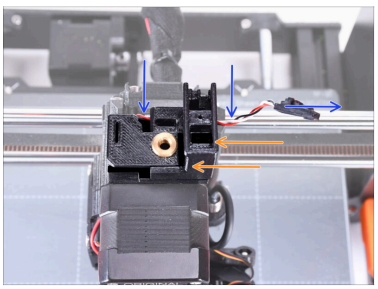
- **Para los siguientes pasos, por favor prepara:**
- Chimney base (1x) with the Tappex Microbarb 0006-M5 threaded insert
- Chimney (1x)
- M3nS nut (1x)
- M3 washer (1x)
- M3x30 screw (1x)
- M3x18 screw (1x)

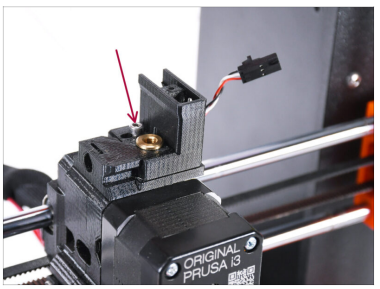
PASO 22 New chimney assembly (Part 1)

- Take the Chimney part and orient it as seen in the picture.
- Inserta la tuerca M3nS en la abertura marcada en la parte inferior de la pieza impresa.

PASO 23 New chimney assembly (Part 2)

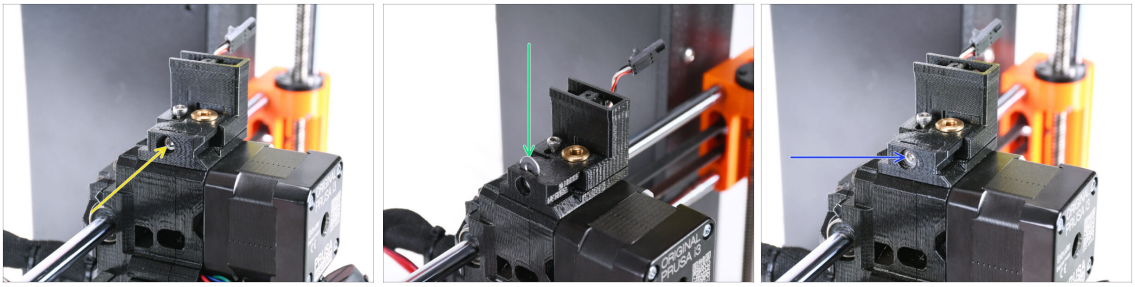






- Añade la base de la Chimenea al extrusor. Observa la orientación correcta en la imagen.
- Asegúrate de que el cable está por encima de la base de la chimenea y orientado como se ve en la imagen.
- Desliza la Chimenea en la parte de la base desde el lado derecho.
  - Asegúrate de que el cable pasa por el canal de la parte inferior de la base de la chimenea y sale por el lado derecho.
- Fija las piezas entre sí con un tornillo M3x18. Apriétalo lo justo para que las piezas se sujeten al extrusor. No lo aprietes del todo todavía. Necesitaremos mover las piezas más adelante.

PASO 24 New chimney assembly (part 3)



- Introduce el tornillo M3x30 en la abertura marcada en el lateral de la base de la chimenea. Atorníllalo hasta que tire de la chimenea hasta el fondo.

  ⚠ Stop tightening after you feel a slight resistance. Do not over-tighten the screw!

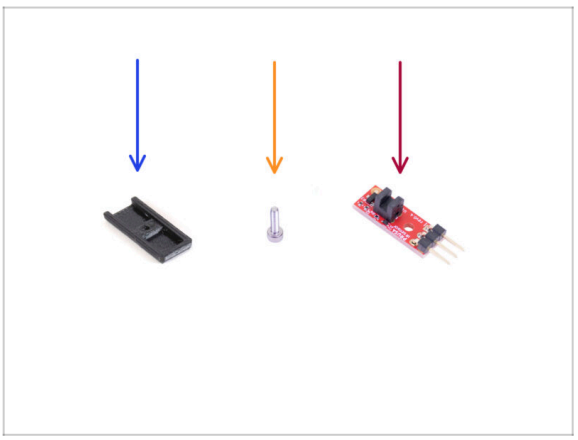
- Insert the M3 washer into the marked opening on top of the Chimney Base.

  Push it all the way in so that it locks the screw head in place.

  ⚠ Make sure **the screw head is behind the washer.** This way, you will be able to move the chimney precisely in both directions, by rotating the screw.

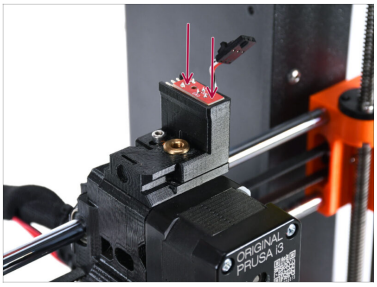
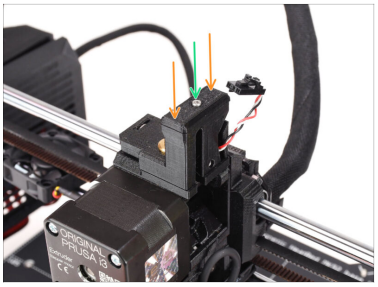
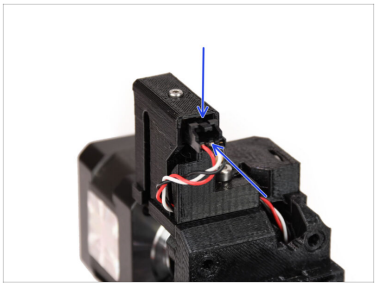
- Con la llave Allen de 2.5mm, ajusta la posición de la arandela para que quede centrada y puedas alcanzar la cabeza del tornillo por debajo más adelante.

PASO 25 IR Filament sensor: parts preparation



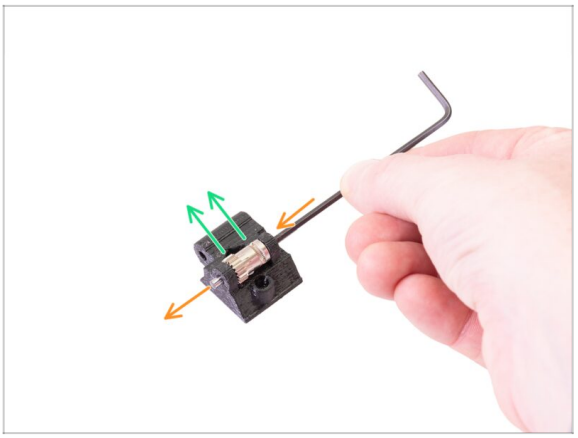
- **Para los siguientes pasos, por favor prepara:**
- Chimney cover (1x)
- M2x8 screw (1x) you removed from the printer earlier
- Prusa IR filament sensor (1x) you removed from the printer earlier

PASO 26 IR Filament sensor assembly

- Attach the IR filament sensor onto the top of the chimney.
  - ⚠ Asegúrate de que los componentes electrónicos de la placa del sensor están orientados hacia abajo y las tres patillas de conexión están en la parte posterior.
- Añade la cubierta al sensor.
- Con la llave Allen de 1.5 mm, fija la cubierta en su sitio con el tornillo pequeño M2x8.
- Mira la parte trasera del extrusor. Conecta el cable al sensor de filamento.
  - ⚠ Make sure the safety latch on the connector is pointing up and the connector aligns with the pins.
  - ⚠ Si enchufas el conector de forma incorrecta, ¡¡¡puedes dañar la eletrónica!!!

PASO 27 Extruder-idler disassembly



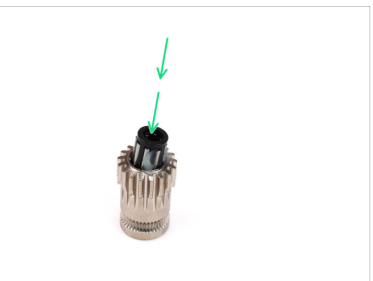
- Now, take the **Extruder-idler part** you removed from the extruder earlier. We need to get the Bondtech gear, the bearings and the shaft out of it.
  - ⓘ La pieza impresa se cambiará por una nueva.
- Using a 2.5mm Allen key, push the shaft out. Keep it for later use.
- Take the Bondtech gear out, **BUT BE CAREFUL**, there are two bearings inside. Don't lose them!!!

PASO 28 Extruder-idler-mmu parts preparation



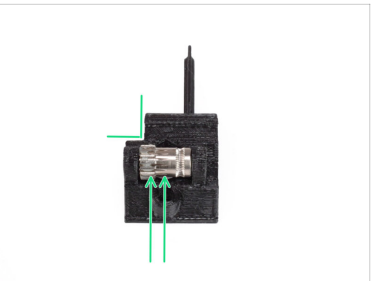
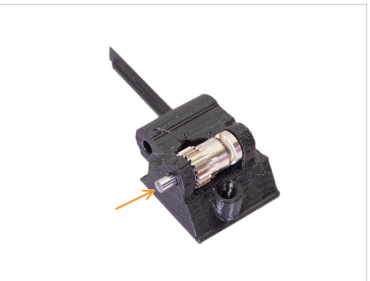
- **Para los siguientes pasos, por favor prepara:**
- Extruder-idler-mmu (1x)
  - ⓘ Make sure you're using the correct new part.
- Engranaje Bondtech (1x) *que has retirado previamente del tensor original.*
- Needle Bearing (2x) *you have removed from the original idler before. Might still be inside the gear.*
- M3n nut (1x)
- Shaft (1x) *you have removed from the original idler before.*
- PrusaLube (1x) the supplied lubricant

PASO 29 Bearing assembly & Greasing



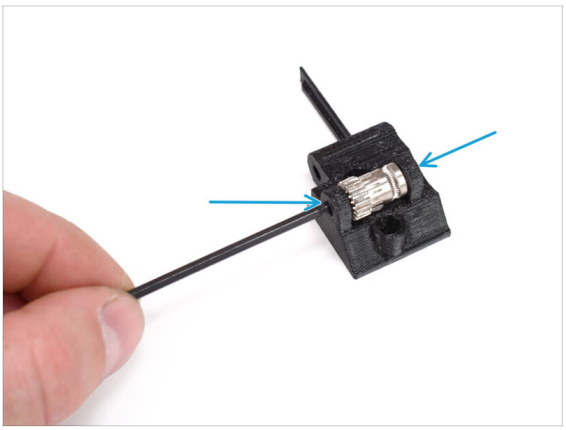

- Add a **tiny bit of lubricant** into the needles in both of the bearings. Wipe off the excess grease to prevent spreading it all over the place.
- **Insert both bearings** into the Bondtech gear. Make sure the bearings do not slip out during the assembly.
- Add a tiny bit of lubricant into the **geared part** of the Bondtech gear.
  - Make sure the lubricant doesn't get into the filament groove.
  - ⚠ Do not use excessive amount of lubricant. Just a tiny bit will do.

PASO 30 Extruder-idler-mmu assembly (Part 1)

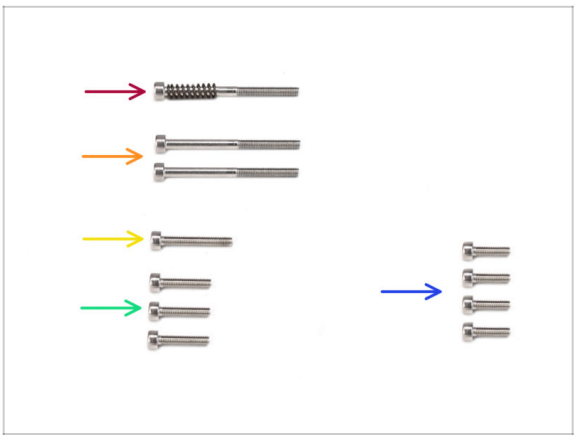
- Toma la tuerca M3n y colócala en el Extruder-idler-mmu2s.
  - ⓘ Usa el método de tirar con el tornillo.
- Insert the Bondtech gear into the idler as shown in the picture. Make sure the geared part of the Bondtech is on the side of the plastic part with the cutout.
- Slide the shaft in through the idler and the Bondtech gear. Use reasonable force to prevent breaking the plastic part.

PASO 31 Extruder-idler-mmu assembly (Part 2)




- Using the 2.5mm Allen key, push the shaft in so that it is inserted evenly on both sides.
- Ensure the Bondtech gear is able to rotate freely.

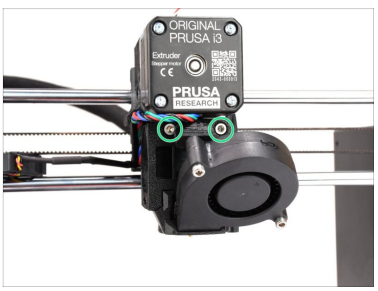
PASO 32 Extruder fasteners parts preparation

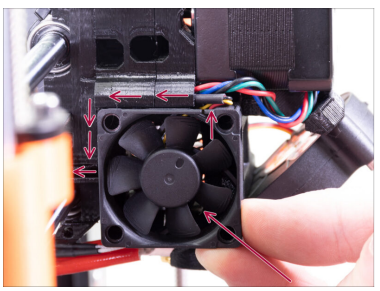


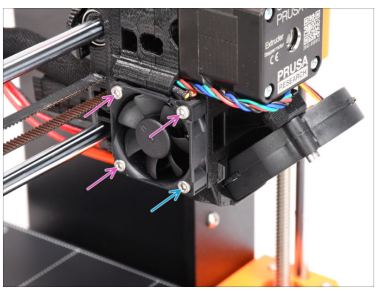
- **Para los siguientes pasos, por favor prepara:**
- M3x40 screw with spring (1x) (Extruder Idler tension screw. *Might be still in the extruder.*)
- M3x40 screw (2x)
- M3x20 screw (1x) (Extruder fan bottom corner)
- M3x14 screw (3x) (Extruder fan)

  ⓘ There were two versions of the Extruder fan supplied. Most printers have Noctua fan, but if you have Delta fan, there are slightly different M3x16b and M3x22b screws. Use the screws you removed from the fan earlier.
- M3x10 screw (4x) (x-carriage-back)

PASO 33 Extruder reassembly





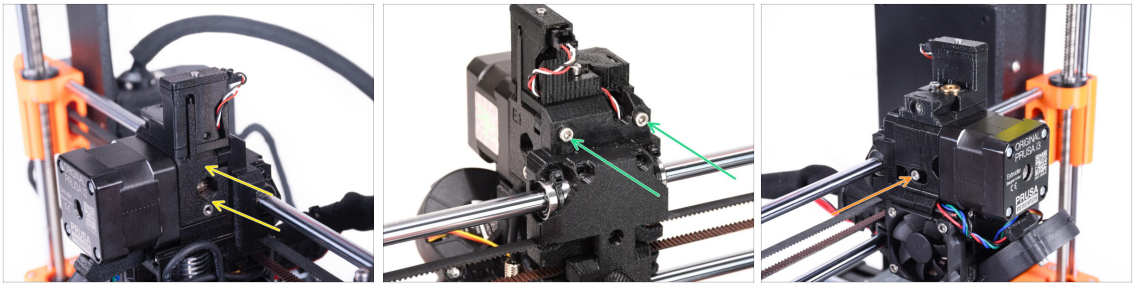


- Fully tighten the two M3x40 bolts at the front of the extruder.
- Add the fan to the extruder and push it to the back. There are cables behind the fan. You can GENTLY push the cables into the dedicated channel using an Allen key.

  ⚠ Before you proceed to attach the fan, make sure all the cables are inside the channel.

  ⚠ **The fan has two sides**, one has a sticker with markings on it. Make sure, this side is facing to the inside of the extruder.
- Fix the fan using the following screws (depending on the fan version):
  - **M3x14** / M3x16b screw (3x)
  - **M3x20** / M3x22b screw (1x) in the bottom corner.

PASO 34 Extruder-idler-mmu installation

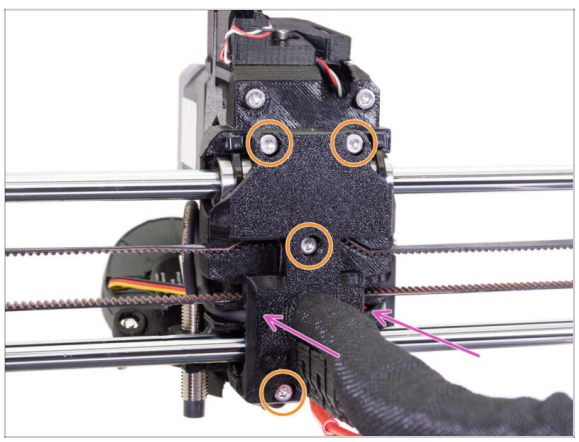


- Add the Extruder-idler-mmu onto the extruder.
- Add two M3x40 screws into the openings at the back of the extruder. Tighten them up slightly.

  ⚠ Do not overtighten the screw holding the extruder-idler part. Otherwise, the idler won't be able to move freely.
- Add the M3x40 Idler tension screw **with the spring** into the opening on the left side of the extruder.

  ⓘ Sujeta el tensor con una mano mientras aprieta el tornillo tensor desde el otro lado. La cabeza del tornillo debe quedar alineada o ligeramente por debajo de la superficie. De ese modo, el tensor está tensado con la fuerza correcta.

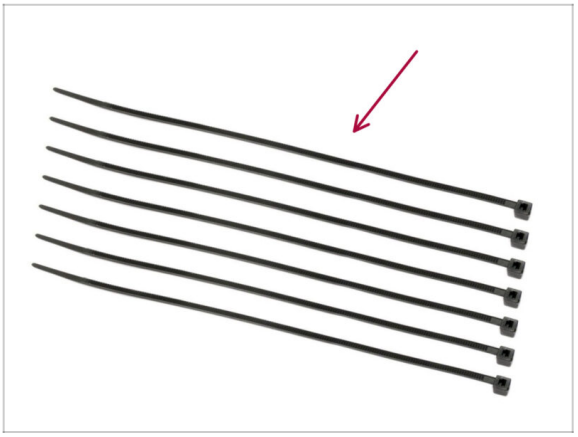
PASO 35 X-carriage-back reassembly



- Now, look from the back of the extruder. Gently push the X-carriage-back part in towards the extruder. Ensure no wires are pinched between both parts and that the cables engage into the dedicated channels properly!
- Aprieta los cuatro tornillos M3x10.

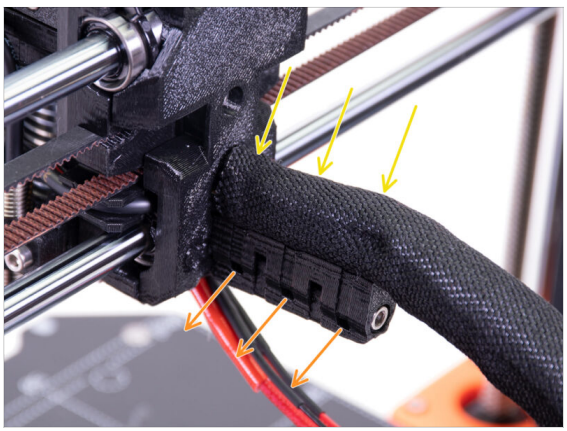
  ⚠ **Tighten the screws with a reasonable force.**
  In case the top two screws are tightened up excessively, the top two bearings will resemble a V-shape, the axis won't be able to move correctly and the top X-axis rod will get damaged. Tighten the top screws just lightly. Remember, the top two bearings are secured by the zip-ties - so the top two screws do not have to be overly tight.

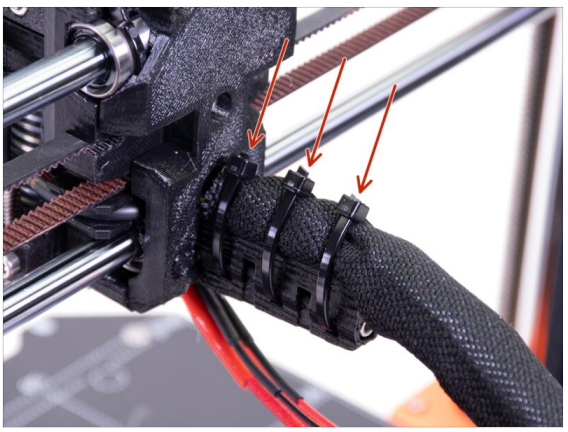
PASO 36 Zip-Ties!



- **Para los siguientes pasos, por favor prepara:**
- Zip tie (7x)

PASO 37 Apretando la funda textil

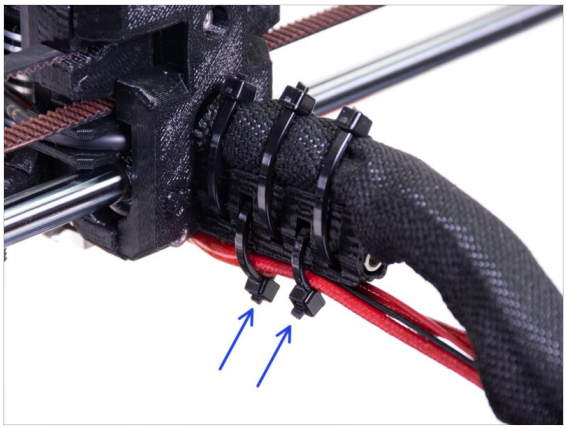


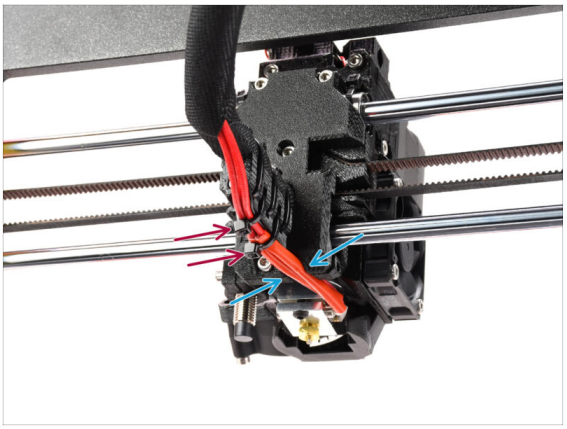


- Gently twist the sleeve to tighten it up around the cables. Slide the sleeve towards the extruder.
- Take **3 zip-ties** and insert them into the **lower row** of holes on the cable-holder.
- Tighten up the sleeve around the cable bundle (without twisting the cables inside). Hold it tight while you fix it in place with the zip ties.

⚠ IMPORTANT: Cut the remaining part of each zip tie using pliers as closest to its head as possible. Note the correct position of each zip ties's head (pointing up)

PASO 38 Attaching the hotend cables



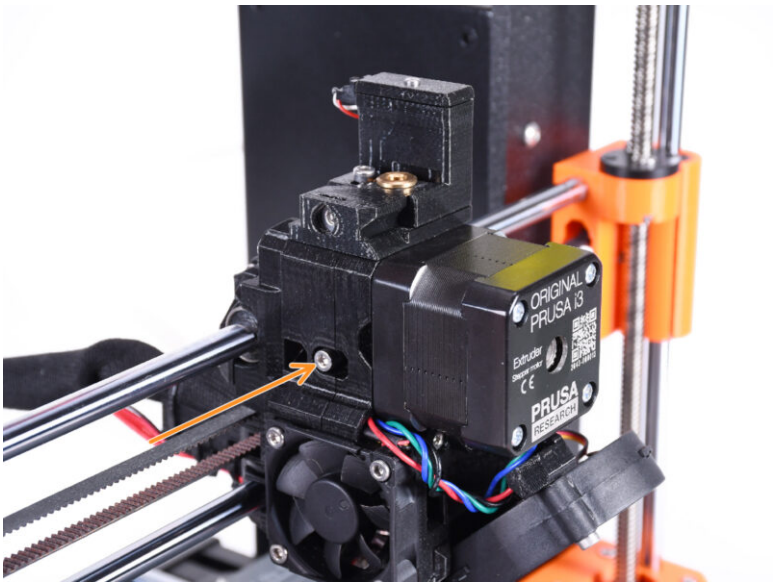


- Push two zip-ties through the upper slots on the cable-holder. Tighten the zip-ties up slightly around the hotend cables.
- Arrange the cables from the hotend into the dedicated channel on the bottom.
- Tighten up the zip-ties and cut the remaining parts of the zip-ties.

PASO 39 Continue

- If you're installing the MMU3 on an **MK3S+** printer, move to the chapter:
  - **MK3S+ Setup and Calibration**
- If you're installing the MMU3 on an **MK3.5** printer, move to the chapter:
  - **MK3.5 Setup and Calibration**

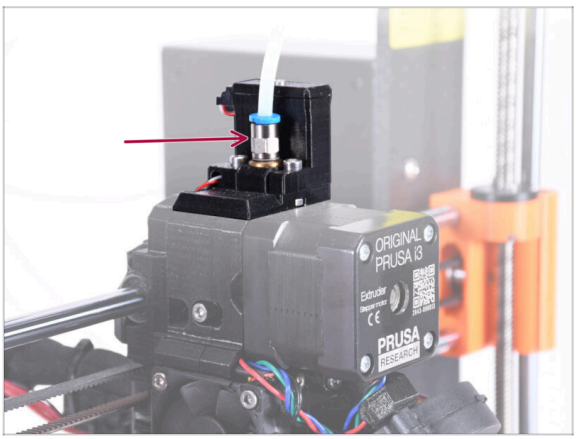
9C. Extrusor MK3S+ (UPG)



PASO 1 Herramientas necesarias para este capitulo

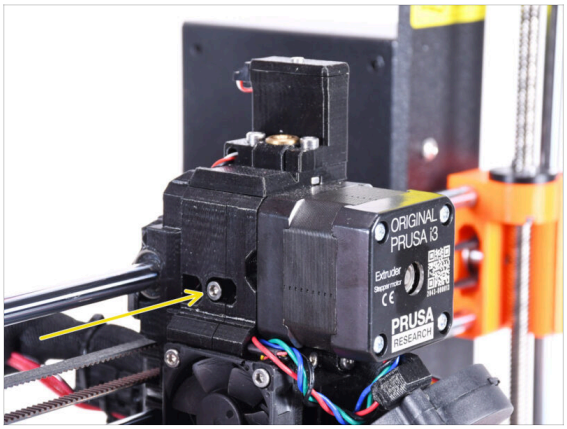
- **Por favor prepara las herramientas para este capítulo:**
  - Llave Allen de 1.5mm
  - Llave Allen de 2.5mm para tornillos M3

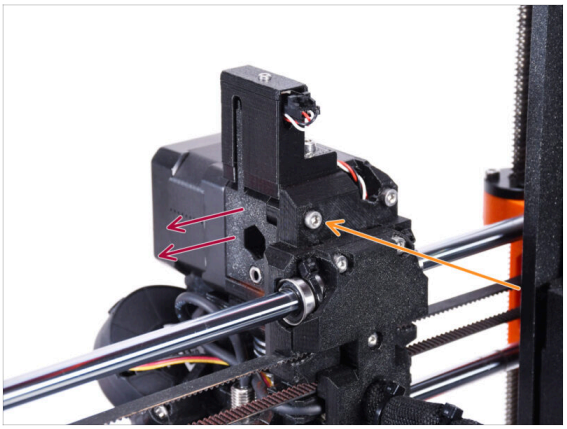
PASO 2 Introduction



- Tu unidad MMU ya está lista. En los siguientes pasos, trabajaremos en el extrusor. En concreto, el sensor de filamento dentro de la "chimenea".
- En primer lugar, asegúrate de que el tubo de PTFE del extrusor con los accesorios se retira de la impresora.

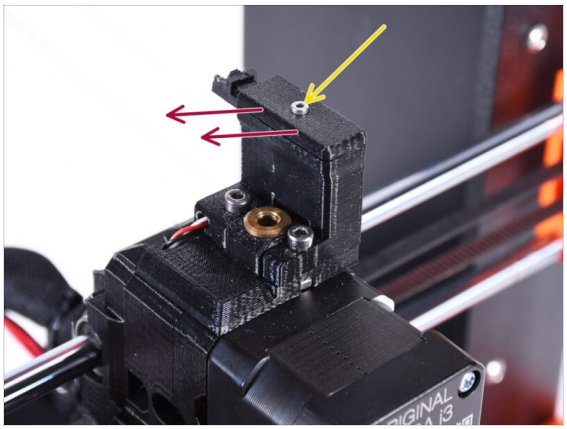
PASO 3 Old chimney disassembly (part 1)

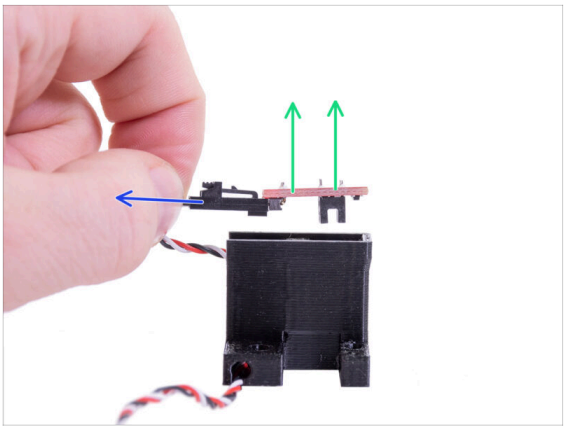




- Retira el tornillo M3x40 del tensor con el muelle y déjalo a un lado para su uso posterior.
- Retira el tornillo M3x40 de la parte posterior del extrusor.
- Retire la puerta tensora.

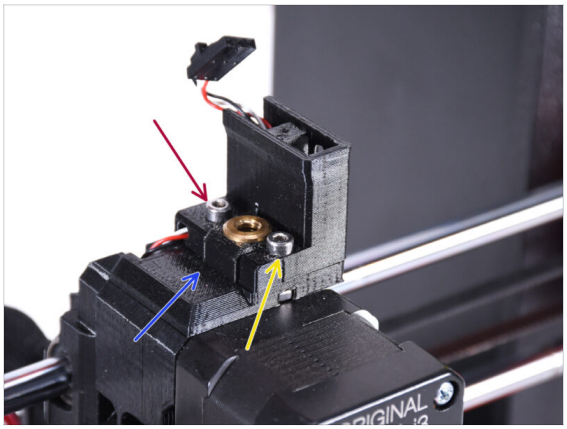
PASO 4 Old chimney disassembly (part 2)

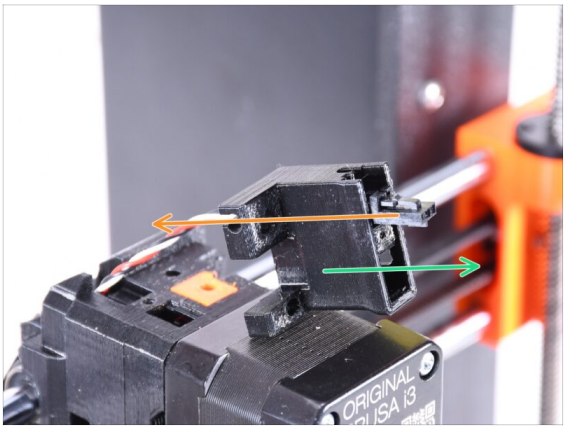




- Con la llave hexagonal de 1.5mm, retira el tornillo M2x8 y déjalo a un lado para su uso posterior.
- Retira la cubierta. Déjala a un lado para que no se mezcle con las piezas nuevas.
- Desconecta el enchufe del sensor del filamento IR.
- Retira el sensor de filamento IR y déjalo a un lado para su uso posterior.

PASO 5 Old chimney disassembly (part 3)

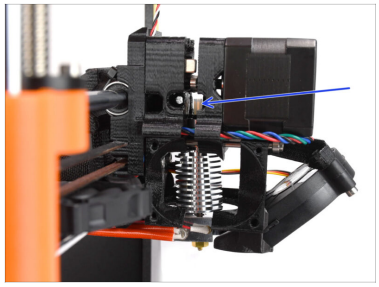
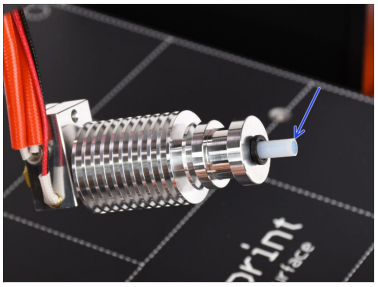
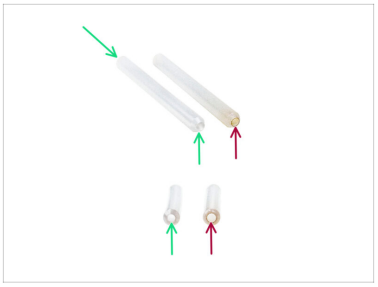




- Retira el tornillo M3x18 y déjalo a un lado para su uso posterior.
- Retira el tornillo M3x10.
- Retira la FS-cover antigua y déjala a un lado para que no se mezcle con las piezas nuevas.
- Extrae el cable de la pieza ir-sensor-holder.

  ⓘ Observa la orientación del conector en la imagen. De esta forma, el conector saldrá fácilmente de la pieza sin riesgo de dañarlo.
- Retira el ir-sensor-holder y déjalo a un lado para que no se mezcle con las piezas nuevas.

PASO 6 INFO Tubo PTFE hotend

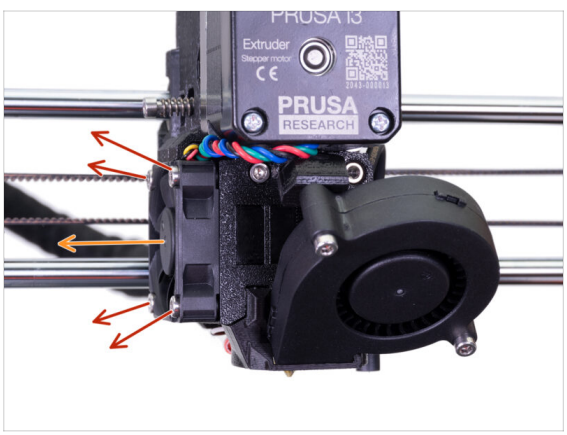
VERY IMPORTANT INFO! READ CAREFULLY!!

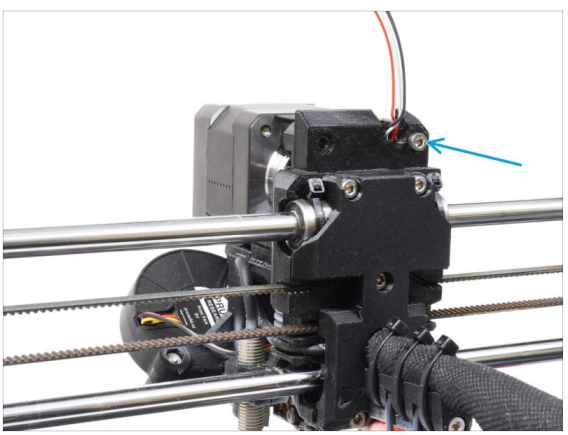
- There is a short PTFE tube inside the extruder's hotend. It plays a **major role** in the MMU operation. This tube cools down a molten filament tip to form a narrow sharp end on it, while the MMU does a material change.

  The tube is considered a consumable as it wears down over time during the regular use. Therefore, it should be replaced once in a while, after the printer went over certain amount of material changes. We strongly recommend replacing it now, since the extruder is partly disassembled already.

  - A new hotend PTFE tube has a 1.85mm internal diameter. *If your printer is new or very lightly used, you can skip the PTFE replacement in the upcoming steps and proceed to "**New chimney: parts preparation.**"*
  - The specimen on the right, however, was taken off a printer after approx. 20000 material changes, using a high-temperature abrasive filament that wore down the tube's bore up to 2.4mm. This caused increased stringing and malformed filament tips, leading to frequent MMU filament loading problems on that machine. The worn PTFE tube needed replacement.

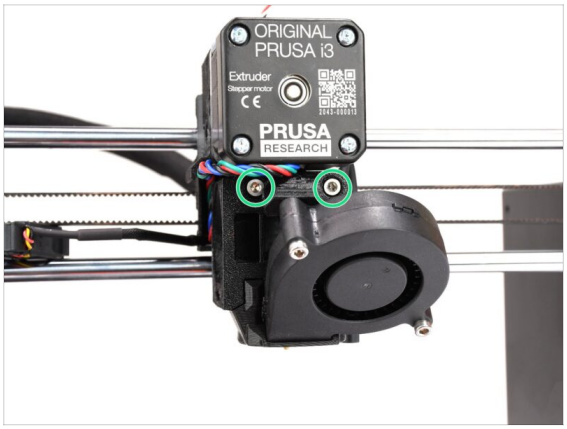
PASO 7 Extracción del ventilador

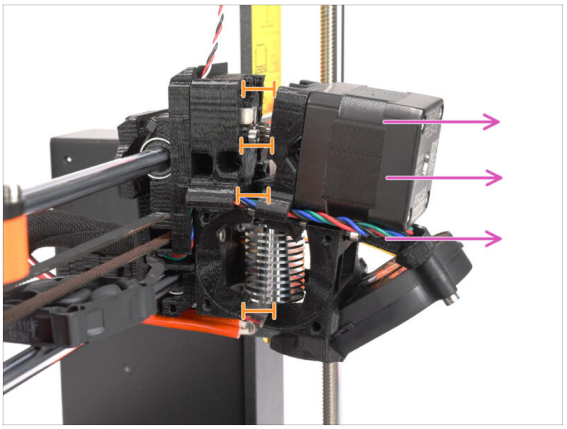




- Release and remove all screws holding the Hotend fan on the side.
- Remove the fan. We need to split the extruder in order to replace the hotend PTFE tube.
- Look at the back of the extruder. Remove the M3x40 screw in the top right corner.

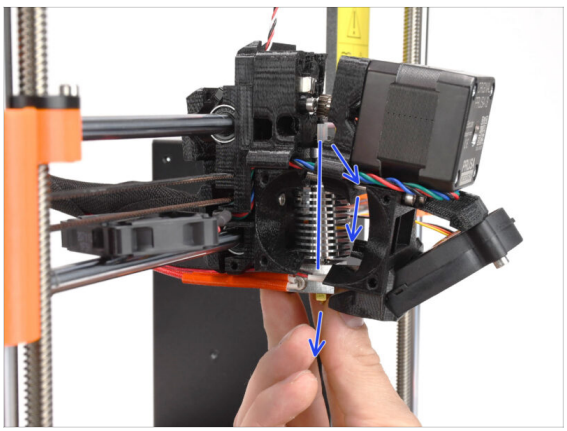
PASO 8 Dividiendo el extrusor

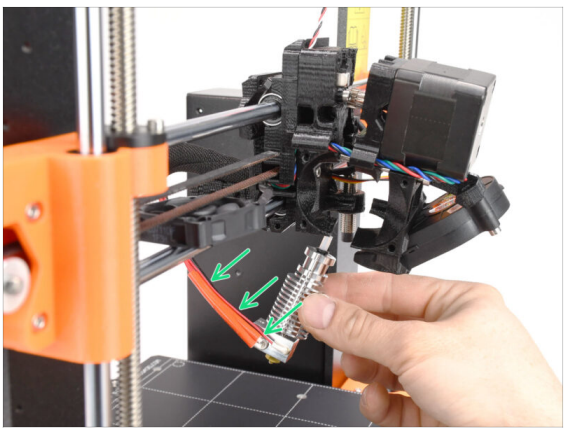




- Release both M3x40 screws at the front, just below the extruder motor. Don't remove them completely. We will use them to hold the extruder parts together.
- Carefully split the extruder apart by pulling the front out.
- Create approx. a 1cm (0.5in) gap similar to the one seen in the picture.

PASO 9 Desmontaje parcial del extrusor



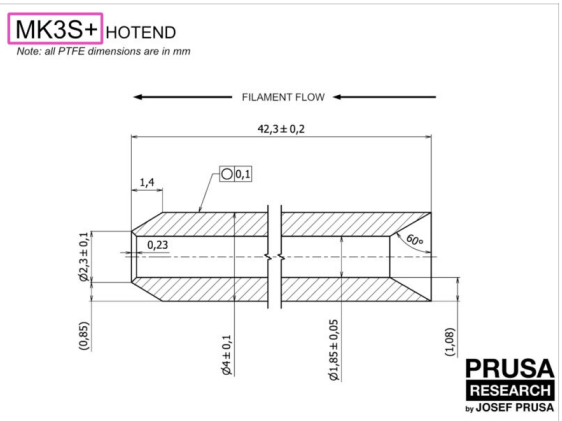


- Reach for the hotend and incline its upper part towards the motor. Wiggle it to slide it down.

ⓘ If the hotend is still stuck inside, release the screws below the motor some more to increase the gap between the printed parts.

- **BE EXTRA CAUTIOUS** with the hotend cables!!! You can break them! Use a reasonable force to pull the hotend out. Don't bend the cables too much.

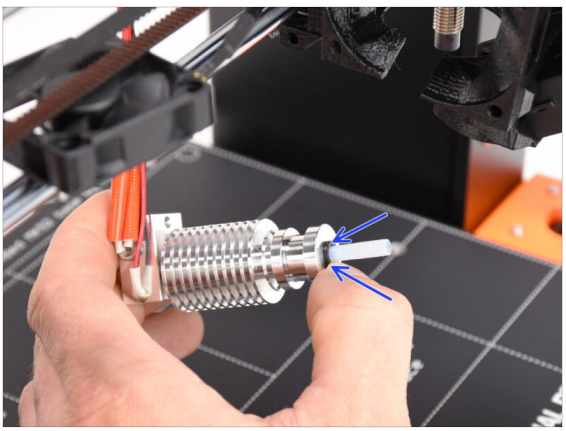
PASO 10 Tubo PTFE: preparación de las piezas

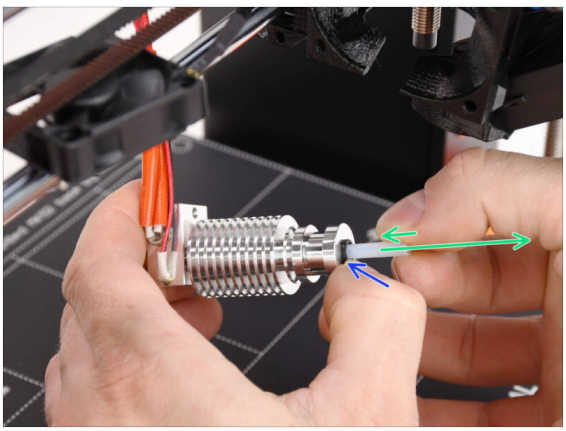


- **Para los siguientes pasos, por favor prepara:**
- Hotend PTFE tube (1x)
  - PTFE for MK3S+ is 42.3mm long, 1.85mm ID, 4mm OD, inner chamfer on one side, outer chamfer on the other.

  ⓘ The bundled PTFE tube is intended for MK3S+ only. The PTFE tubes for MK3S and MK3S+ differ in length.

PASO 11 Retirando el tubo de PTFE viejo

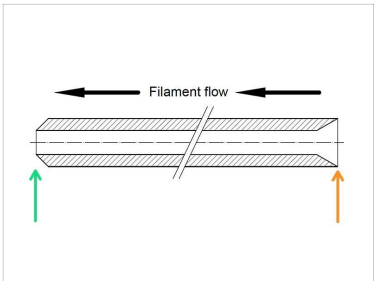


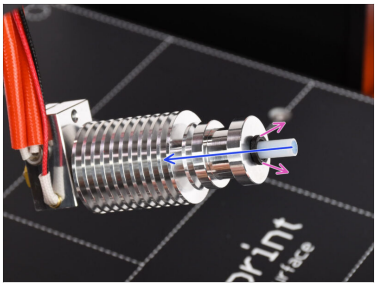


- Press the black plastic collet.
- Remove the PTFE tube from the hotend.
  - **While the black collet is still pressed down, push the PTFE tube in and then pull it out.** This way, you will disengage the small metal hooks inside the black collet first. If you force the PTFE tube out without the hooks properly disengaged, the PTFE tube can jam inside.

⚠ **Throw the worn-out PTFE tube immediately to the nearest trash** bin to avoid installing it back by accident ;)

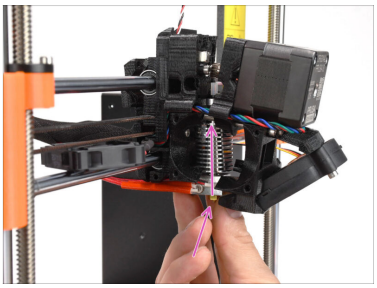
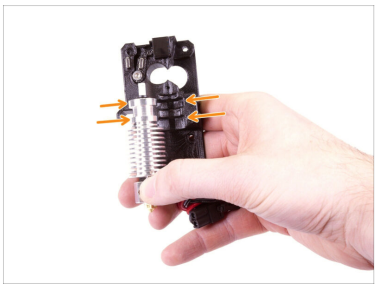
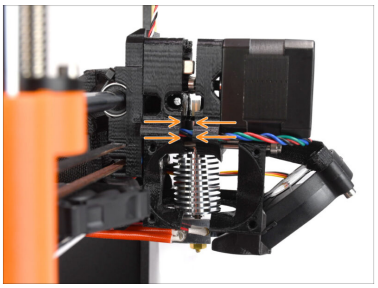
PASO 12 New PTFE tube installation



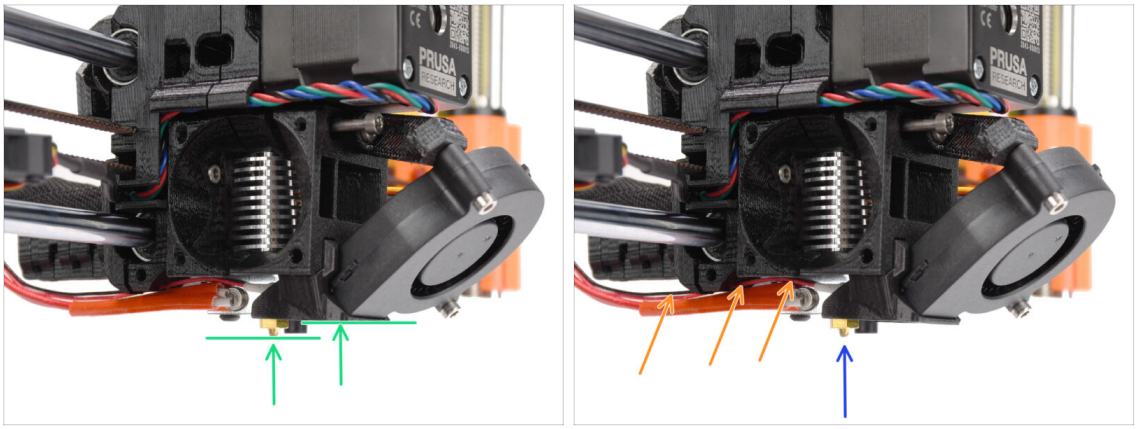
- Now it is time to insert the new PTFE tube. Note, that each end of the tube is different.
- One end of the tube has an **outer chamfer**. This end must be inside the hotend.
- The other side has an **inner chamfer**. This conical shape is the filament entry. This part must be outside the hotend.
- Push the PTFE tube in. Slide it all the way in and hold it!
- Using your other hand **pull the collet out** while you keep pushing the PTFE tube in. **THIS IS CRUCIAL** for the hotend to work properly.
- After you finish inserting the new PTFE tube, check that the whole hotend is tightened up and nothing got loose during the process.

PASO 13 Extruder reassembly (Part 1)

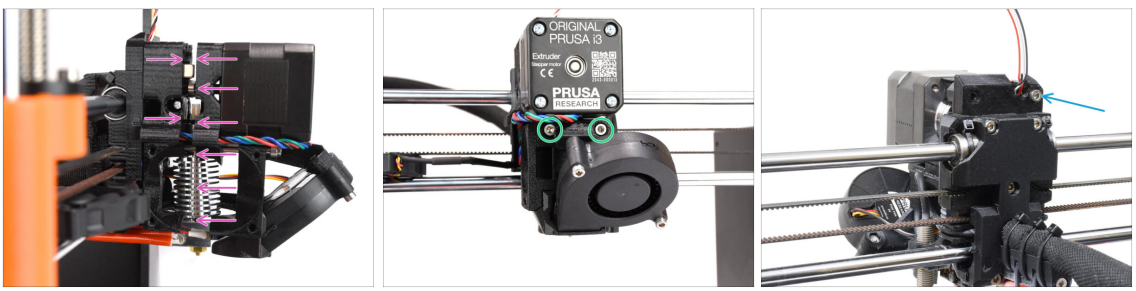
- Re-insert the hotend back into the extruder. Ensure its orientation is the same as seen in the picture.
- **IT IS CRUCIAL** to ensure the hotend is fitted properly in the extruder-body!!! The top of the hotend must fit into the correct recesses in the printed parts. See the second and the third picture for a reference!

PASO 14 Extruder reassembly (Part 2)



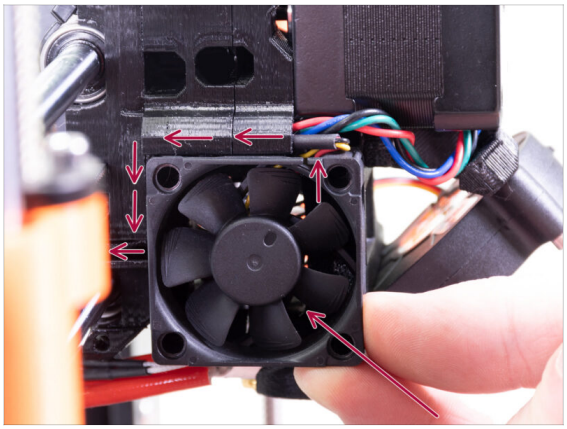
- **Check once again the correct position of the hotend.** Look from below the extruder. The heater block should be oriented as seen in the picture. Perpendicular to the printed parts, with the cables pointing to the back.
- Guide the thermistor cables **above** the thick heater cables.
- Take a look from the side of the extruder. The nozzle should be slightly below the printed fan-shroud.
  If it is significantly lower than in the picture, your hotend isn't inserted correctly.

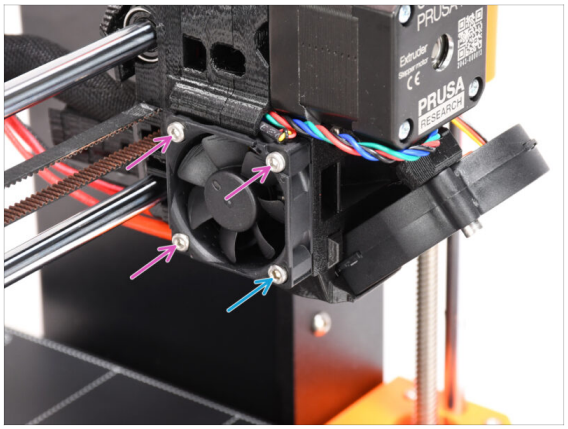
PASO 15 Extruder reassembly (Part 3)



- Carefully and slowly push all the parts together.
- ⚠ **In case of any significant resistance STOP** immediately and check, which part is blocking the movement.
- Tighten the two M3x40 screws on the front of the extruder.
- Now, look at the back of the extruder. Re-insert and tighten up the M3x40 screw on the right.

PASO 16 Reensamblaje del ventilador del extrusor





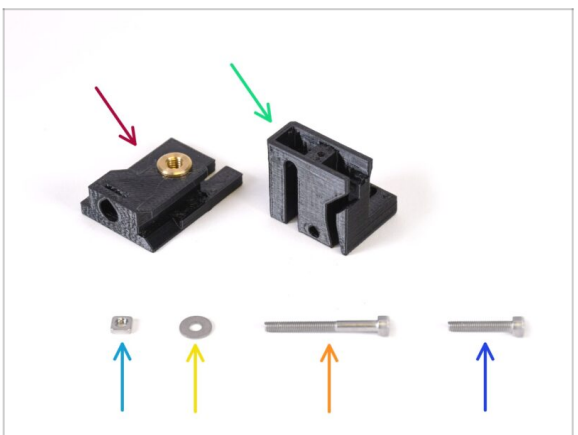
- Add the fan to the extruder and push it to the back. There are cables behind the fan. You can GENTLY push the cables into the dedicated channel using an Allen key. Before you proceed to attach the fan, make sure all the cables are inside the channel.

  ⚠ Before you proceed to attach the fan, make sure all the cables are inside the channel.

  ⚠ **The fan has two sides**, one has a sticker with markings on it. Make sure, this side is facing to the inside of the extruder.

- Fix the fan using the following screws (depending on the fan version):
  - **M3x14** / M3x16b screw (3x)
  - **M3x20** / M3x22b screw (1x) in the bottom corner.

PASO 17 New chimney: parts preparation

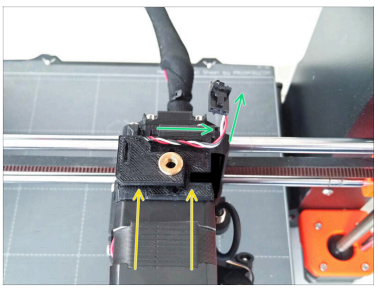


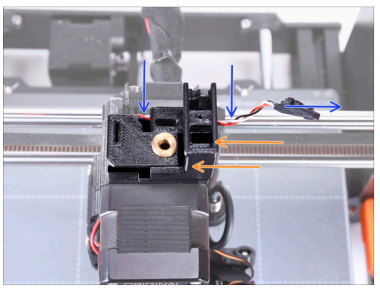
- **Para los siguientes pasos, por favor prepara:**
- Base de la chimenea (1x) *con el inserto roscado Tappex Microbarb 0006-M5*
- Chimenea (1x)
- Tuerca M3nS (1x)
- Arandela M3 (1x)
- Tornillo M3x30 (1x)
- Tornillo M3x18 (1x)

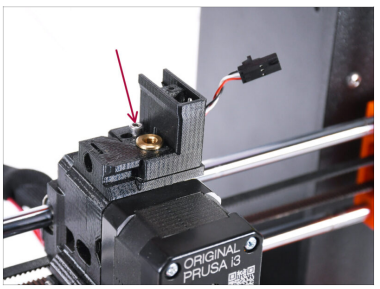
PASO 18 New chimney assembly (part1)

- Coge la parte de la chimenea.
- Inserta la tuerca M3nS en la abertura marcada en la parte inferior de la pieza impresa.

PASO 19 New chimney assembly (part 2)

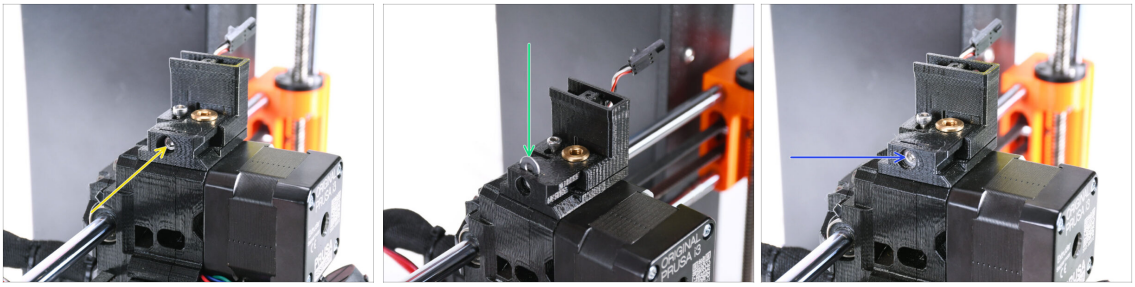






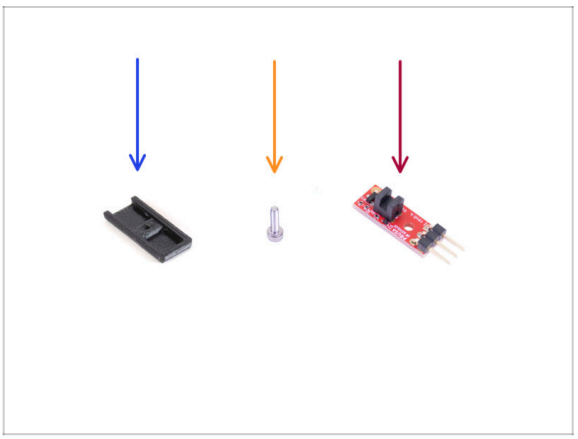
- Añade la base de la Chimenea al extrusor. Observa la orientación correcta en la imagen.
- Asegúrate de que el cable está por encima de la base de la chimenea y orientado como se ve en la imagen.
- Desliza la Chimenea en la parte de la base desde el lado derecho.
  - Asegúrate de que el cable pasa por el canal de la parte inferior de la base de la chimenea y sale por el lado derecho.
- Fija las piezas entre sí con un tornillo M3x18. Apriétalo lo justo para que las piezas se sujeten al extrusor. No lo aprietes del todo todavía. Necesitaremos mover las piezas más adelante.

PASO 20 New chimney assembly (part 3)



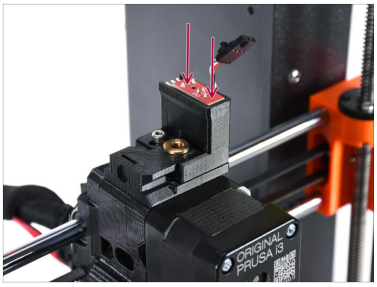
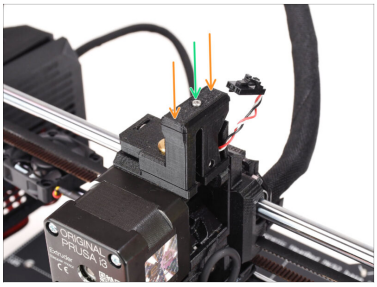
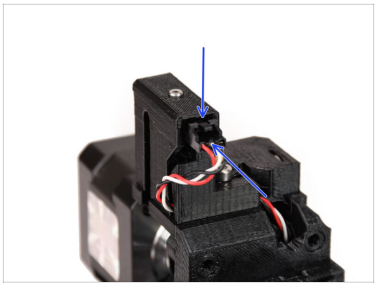
- Introduce el tornillo M3x30 en la abertura marcada en el lateral de la base de la chimenea. Atorníllalo hasta que tire de la chimenea hasta el fondo.
- Inserta la arandela M3 en la abertura marcada en la Base de la Chimenea. Presiona hasta el fondo para bloquear la cabeza del tornillo en su lugar.
- Con la llave Allen de 2.5mm, ajusta la posición de la arandela para que quede centrada y puedas alcanzar la cabeza del tornillo por debajo más adelante.

PASO 21 IR Filament sensor: parts preparation



- **Para los siguientes pasos, por favor prepara:**
- Cubierta Sensor IR (1x) *La nueva*
- Tornillo M2x8 (1x) *que quitaste antes*
- Sensor Filamento IR Prusa (1x) *que quitaste antes*

PASO 22 IR Filament sensor assembly

- Coloca el sensor de filamento IR en la parte superior de la chimenea.

  ⚠ Asegúrate de que los componentes electrónicos de la placa del sensor están orientados hacia abajo y las tres patillas de conexión están en la parte posterior.

- Añade la cubierta al sensor.
- Con la llave Allen de 1.5 mm, fija la cubierta en su sitio con el tornillo pequeño M2x8.

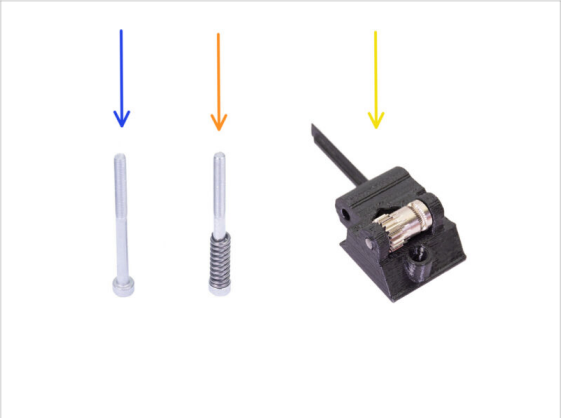
  ⓘ You can add a tiny microscopic bit of lubricant onto the thread so that it screws in more easily.

- Mira la parte trasera del extrusor. Conecta el cable al sensor de filamento.

  ⚠ Asegúrate de que la pestaña de seguridad del conector apunta hacia arriba y de que el conector está alineado con los pines.

  ⚠ Si enchufas el conector de forma incorrecta, ¡¡¡puedes dañar la eletrónica!!!

PASO 23 Extruder-idler-mmu2s parts preparation.



- **Para los siguientes pasos, por favor prepara:**
- Tornillo M3x40 (1x) *que quitaste antes*
- Tornillo M3x40 con muelle (1x) *que quitaste antes*
- Extruder-idler-mmu2s (1x) *que quitaste antes*

  ⚠ Compara la pieza de plástico antigua con la nueva del kit de actualización. Si tiene exactamente la misma forma, utiliza la antigua. Si la forma difiere, es posible que tengas que transferir el engranaje Bondtech y la tuerca en la nueva pieza de plástico.

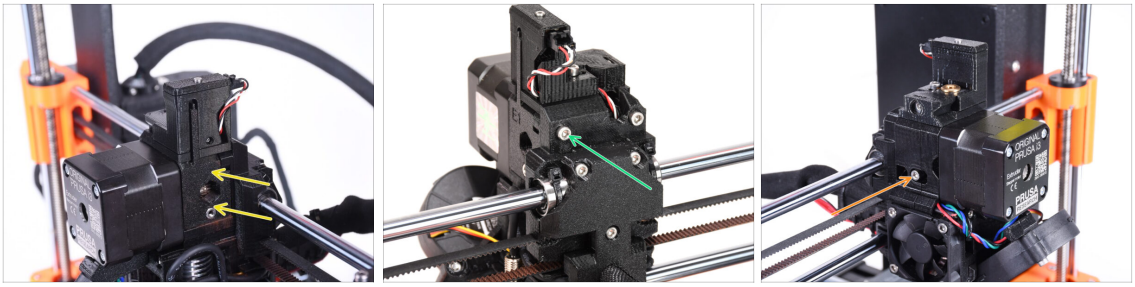
  ⓘ MK3S MMU2S Idler is different than MK3S+ MMU2S / MMU3 Idler and cannot be re-used.
- PrusaLube (1x) the supplied lubricant

PASO 24 Lubricación del Bondtech

- Add a tiny bit of lubricant into the **geared part** of the Bondtech gear.
- Make sure the lubricant doesn't get into the filament groove.

  ⚠ Do not use excessive amount of lubricant. Just a tiny bit will do.

PASO 25 Extruder-idler-mmu2s installation.

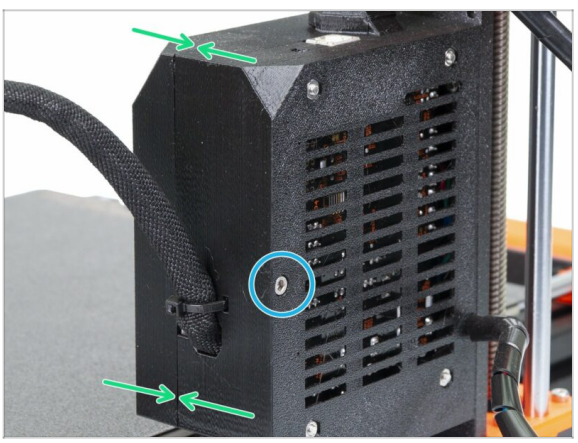


- Vuelve a instalar el extrusor-idler-mmu2s en el extrusor.
- Fija la pieza en su sitio añadiendo un tornillo M3x40 en la abertura de la parte posterior del extrusor. Apriétalo lo justo para que se sujete en su sitio.

  ⚠ No aprietes demasiado el tornillo. De lo contrario, el tensor no podrá moverse libremente.
- Añade el tornillo tensor M3x40 **con el muelle** en la abertura del lado izquierdo del extrusor.

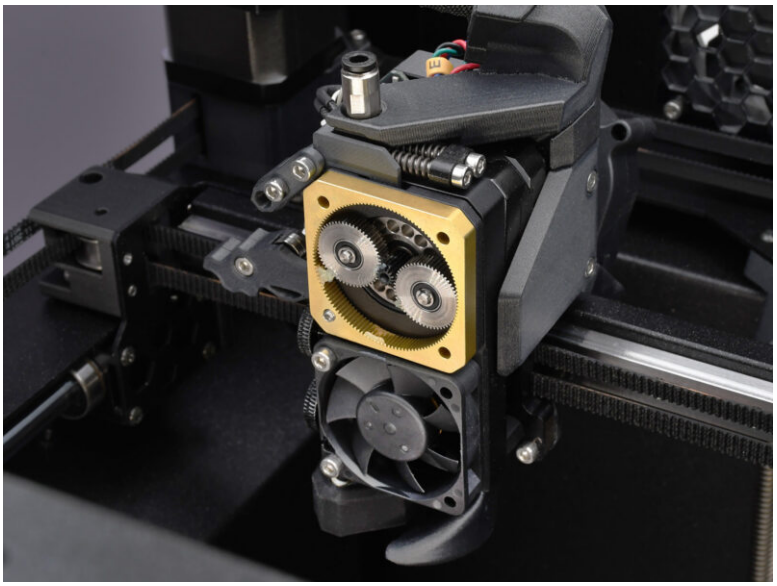
  ⓘ Sujeta el tensor con una mano mientras aprieta el tornillo tensor desde el otro lado. La cabeza del tornillo debe quedar alineada o ligeramente por debajo de la superficie. De ese modo, el tensor está tensado con la fuerza correcta.

PASO 26 Abriendo la caja de electrónica

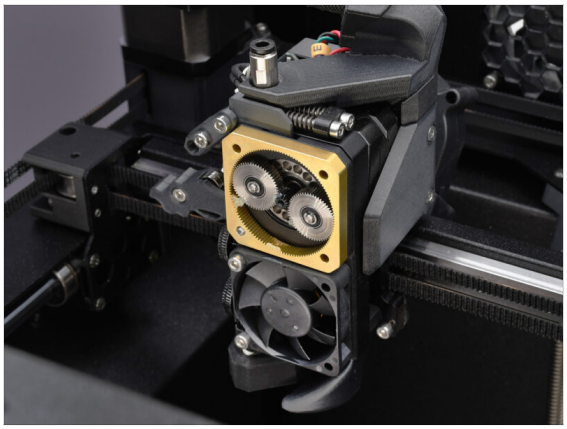


- Undo the M3x40 screw on the Einsy box to open up the electronics box on the printer.
- Open up the Einsy-door on the inner side of the electronics box.

9D. CORE One Nextruder mod



PASO 1 Introduction



- In this guide, we're going to **modify the Nextruder** on your **CORE One** to accomodate the MMU functionality.

⚠ Before continuing, make sure there is no filament loaded in the printer.

- Power off your printer and disconnect it from the power.

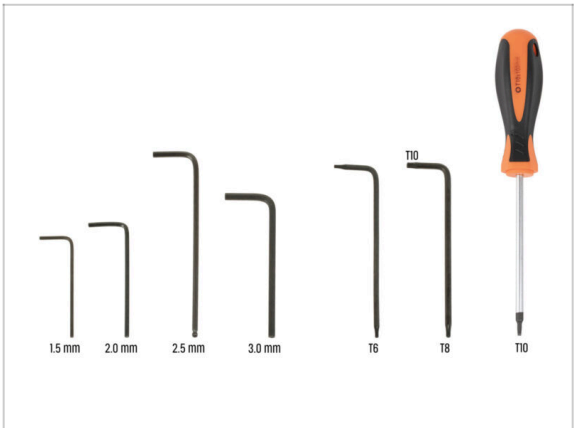
PASO 2 Spare parts bag

- During the conversion of the Nextruder to the multi-material version, you'll encounter similar but distinct parts. We suggest keeping a spare parts bag for components that will no longer be used.

Don't worry, our guide will clearly show which parts to reuse and which to set aside.

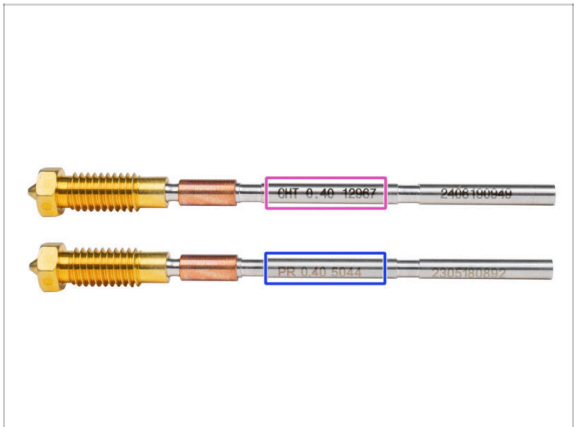
- Let's begin!

PASO 3 Tools Necessary



- **Para este capítulo, prepara por favor:**
- 2.5mm Allen key
- T8 / T10 Torx key
- T10 Torx Screwdriver

PASO 4 Prusa Nozzle Info



- There are two main versions of the Prusa Nozzle that we ship with the printers:
  - **High Flow** Prusa Nozzle brass CHT (marked CHT)
  - **Regular** Prusa Nozzle brass (marked PR)
- The **CORE One** comes with the Prusa Nozzle CHT by default. However, for best MMU3 performance, **we recommend switching to a standard Prusa Nozzle.**

ⓘ High-flow nozzles are also usable, but they need specific HF Nozzle Slicer profiles with large purge volumes.

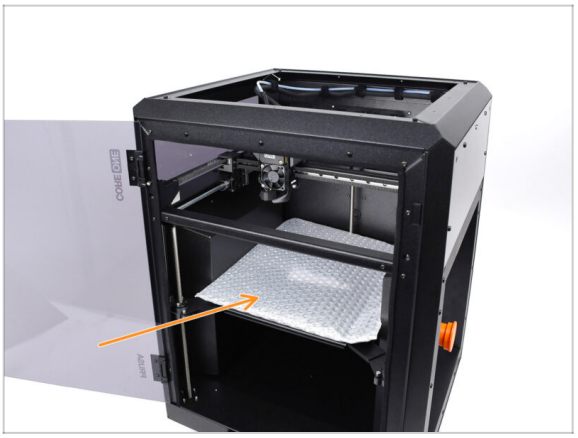
- To replace the nozzle, please follow the Nozzle Replacement guide.

⚠ Once completed, return to this manual to continue with the assembly.

PASO 5 Top Cover Removal

- Open the printer. From the inside, reach for the nylon rivets on the front right of the top cover. Push it out to unlock it.
- A continuación, retira el remache desde el exterior.
- Remove the remaining nylon rivets on the top cover using the same technique.
- Remove the top cover and store it as a spare part.

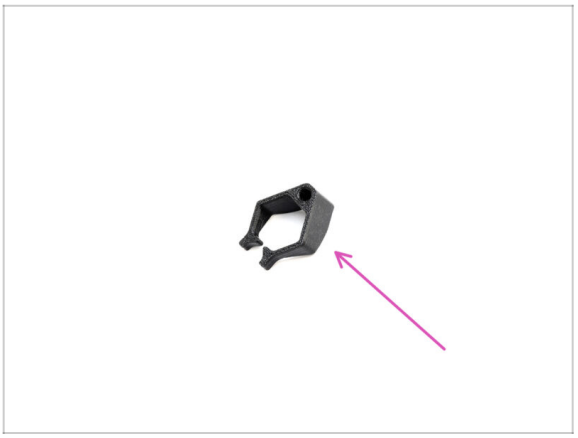
PASO 6 Heatbed Protection



⚠ ¡Antes de continuar, te recomendamos proteger primero la base calefactable!

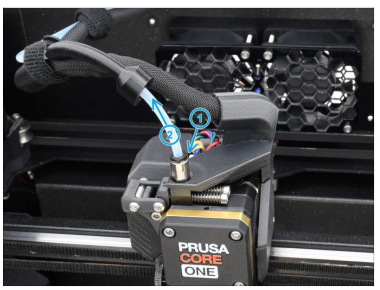
- Utiliza un trozo de tela u otro material lo suficientemente grueso como para cubrir la base calefactable. Así te asegurarás de no dañar (arañar) la superficie durante el proceso.

PASO 7 PTFE Holder Preparation



- **Para los siguientes pasos, prepara:**
- extruder_PTFE_holder (1x)

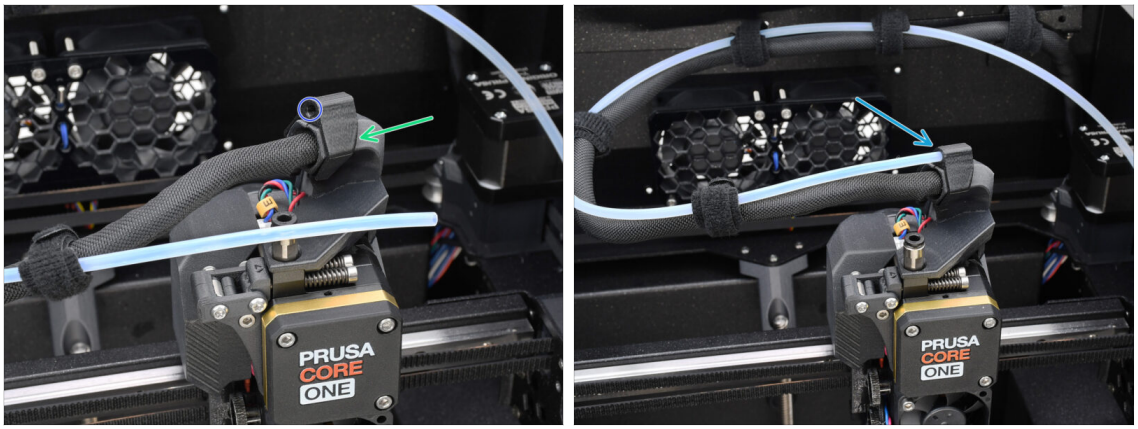
PASO 8 PTFE Tube Removal



- Lift the bowden-bend plastic part.
- Remove the PTFE tube from the extruder. by pushing the collet on the fitting, while pulling the PTFE tube.

  Press and hold the collet on the fitting. While holding it down, push the PTFE tube in, then pull it out.
- Remove the bowden-bend part and store it as a spare part.

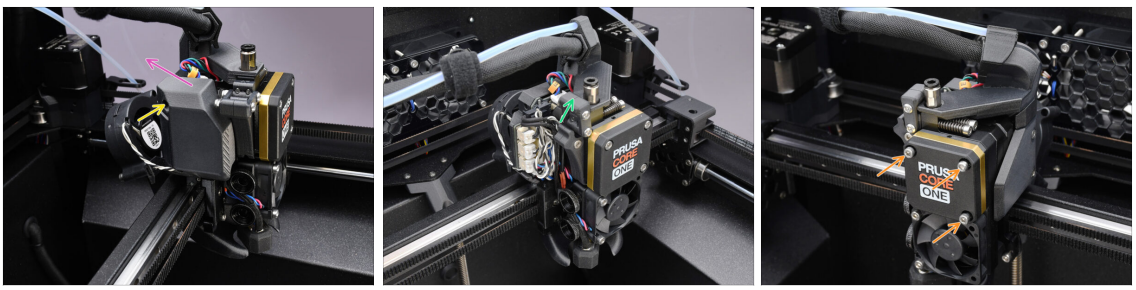
PASO 9 PTFE Holder Installation



- Install the extruder_PTFE_holder onto the main cable holder.
  - Make sure the part with the round opening faces the cable.
- Push the end of the PTFE tube into the holder.

  ⓘ This way, the original single-material PTFE tube stays in place and can be reattached if you convert the printer back to a single-material setup.

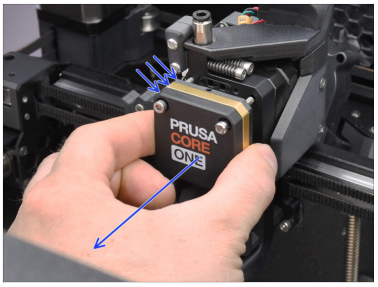
PASO 10 Nextruder disassembly (part 1)

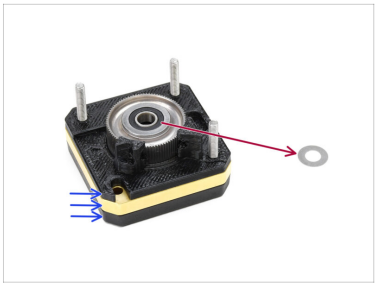
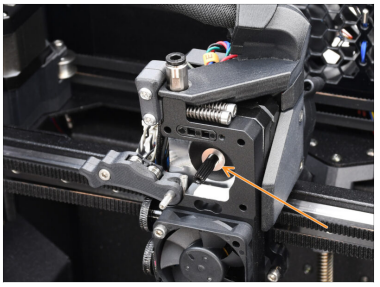


- Using the 2.5mm Allen key, remove the M3x10 screw holding the side cover.

  ⓘ Some older printer versions might have two screws with a T10 head.
- Remove the cover.
- Open the Idler swivel.
- Fully loosen the M3x25 screws holding the gearbox cover.
  Leave the screws in place. Do not remove them entirely yet.

PASO 11 Nextruder disassembly (part 2)

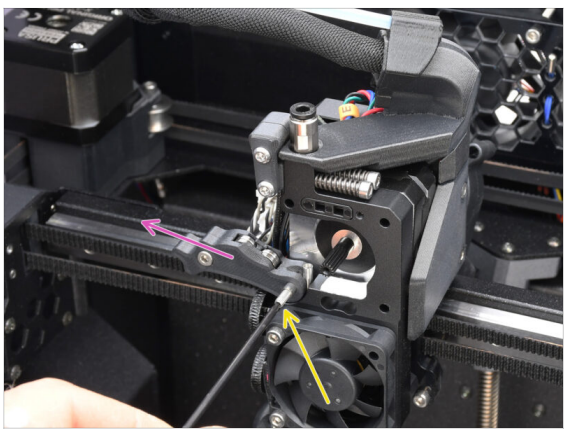
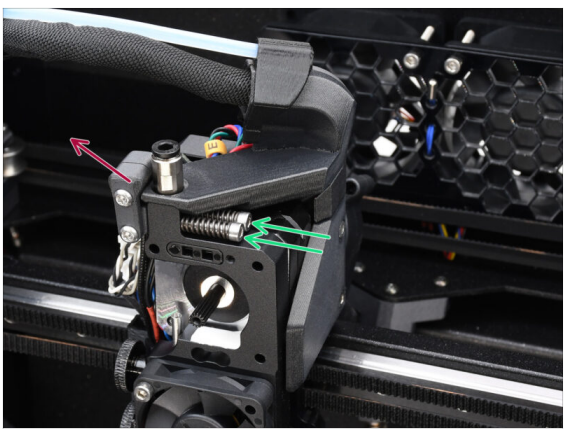


- Remove the whole **gearbox assembly** from the Nextruder.
- Locate the **metal washer** that should be between the gearbox and the motor. It might be stuck to the gearbox assembly.
- Reseat the washer / spacer on the motor shaft, in case it has come off the shaft.

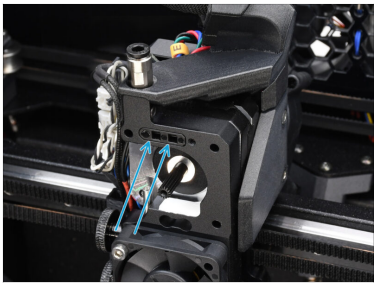
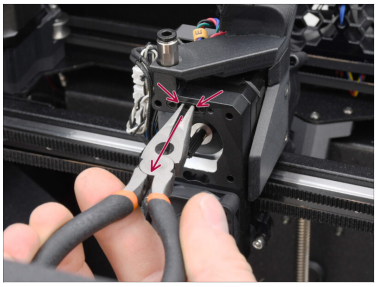
The parts might be greasy. Clean off any excess grease.

PASO 12 Nextruder disassembly (part 3)

- Con la llave Allen de 1.5mm, retira el **tornillo prisionero**.
- Remove the Idler.
- Remove the two M3x30 screws with the springs.
- Remove the idler swivel assembly.

PASO 13 Nextruder disassembly (part 4)

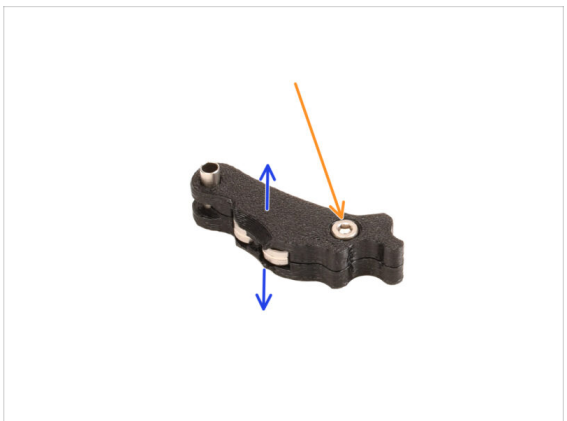




- On top of the **Nextruder heatsink**, there is a **filament sensor assembly**. We will need to remove it.
- Using the needle-nose pliers, gently pull the filament sensor assembly out of the heatsink.

  Proceed very carefully, there is a spring and a very tiny ball that can fall out!

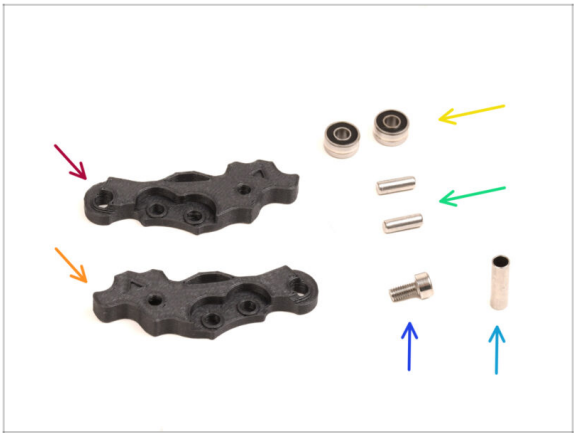
  En caso de que el conjunto del sensor de filamento sea difícil de extraer, introduce la llave Allen de 2.5 mm en la abertura del filamento situada en la parte superior para empujar la bola de acero del interior del conjunto hacia dentro. A continuación, extrae el conjunto del sensor de filamento.
- This filament sensor assembly will not be used with the multi-material Nextruder. Store it in a spare parts bag.

PASO 14 Idler disassembly



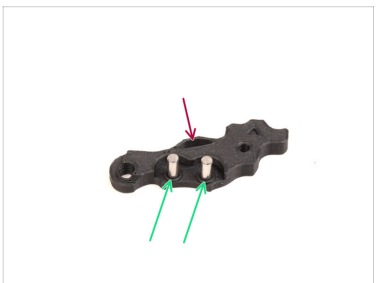

- We will need to take the Idler assembly apart.
- Remove the M3x6 screw.
- Split the printed parts to open it up.
- Set aside for later use: **Bearings, pins, spacer and the screw.**
- The printed parts won't be re-used. Set them aside so that they don't mix up with the new parts.

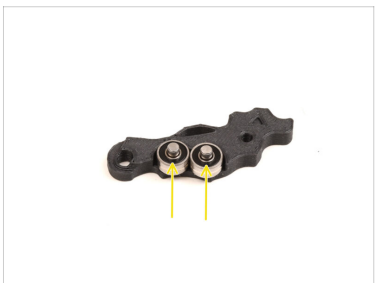
PASO 15 New Idler parts preparation



- **Para los siguientes pasos, por favor prepara:**
- Idler-lever-a (1x) *the new part*
- Idler-lever-b (1x) *the new part*
- Bearing 693 2RS (2x) *you removed earlier*
- Pin 2.9x8.5 (2x) *you removed earlier*
- M3x6 screw (1x) *you removed earlier*
- Spacer tube 13.2x3.8x0.35 (1x) *you removed earlier*

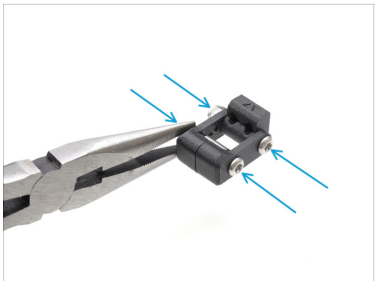
PASO 16 New Idler assembly

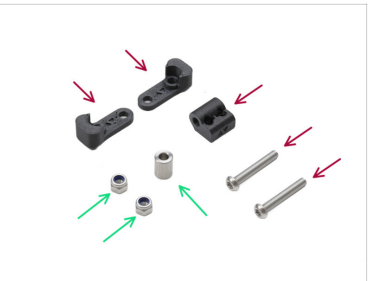




- Take the new Idler-lever-a part.
- Insert the two pins into the corresponding openings.
- Mount the bearings onto the pins.
- Cover the assembly with the Idler-lever-b part.
- Insert the spacer tube into the corresponding opening.
- Fix the assembly together using the M3x6 screw.

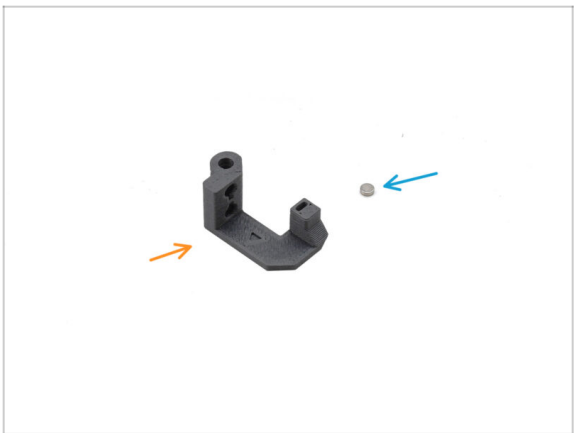
PASO 17 Swivel disassembly





- We will need to take the Swivel assembly apart.
- Using the T10 Torx key, remove the screws while you hold the nuts using the needle-nose pliers.
- Set aside for later use: **M3nN nuts and spacer**.
- The printed parts and the screws won't be re-used. Set them aside so that they don't mix up with the new parts.

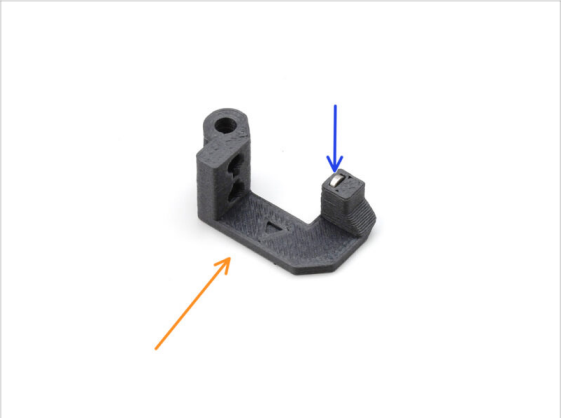
PASO 18 Idler nut FS parts preparation

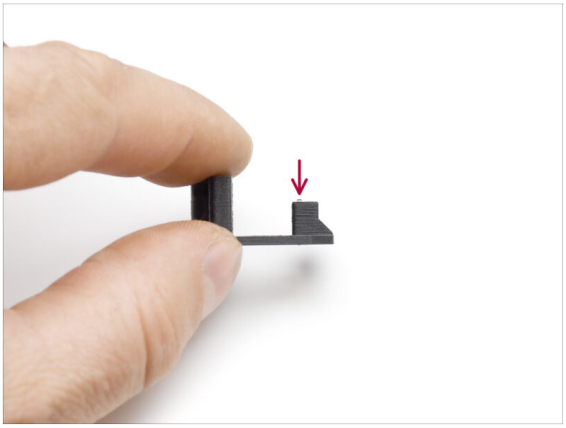


- **Para los siguientes pasos, por favor prepara:**
- Idler nut FS (1x) the new part
- Magnet 3x1mm (1x)

ⓘ Two tiny magnets are included. Separate them and use only one; the other is a spare.

PASO 19 Idler nut FS assembly





- Arrange the **Idler nut FS** part as seen in the picture.
- Install the tiny 3x1mm magnet into the marked opening on the Idler nut FS part.
- Push the magnet all the way in, until it stops.

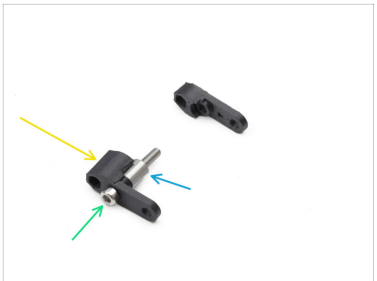
ⓘ The polarity / orientation of the magnet isn't important. The printer will automatically adapt to it during the filament sensor calibration process.

PASO 20 New Swivel Preparation

- **Para los siguientes pasos, por favor prepara:**
- Idler nut FS (1x) *with the 3x1mm magnet installed*
- Swivel B (1x) *the new part*
- Swivel A (1x) the new part
- M3nN nut (2x)
- Spacer 6x3.1x8 (1x) *you removed earlier*
- M3x22 screw (2x)

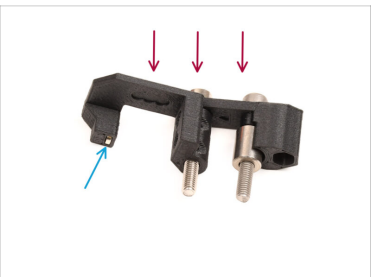
⚠ This screw is a new type not previously used on a printer! Do not reuse old screws, as they are a different size and would not fit properly!

PASO 21 New Swivel Assembly 1



- Take the Swivel A part and orient it as seen in the picture.
- Insert the **M3x22 screw** into the opening near the thick part of the Swivel A.
- Slide the **spacer** onto the screw.
- Insert the second **M3x22 screw** into the other opening on the side.
- Slide the **Idler nut FS** part onto the other M3x22 screw.

PASO 22 New Swivel Assembly 2

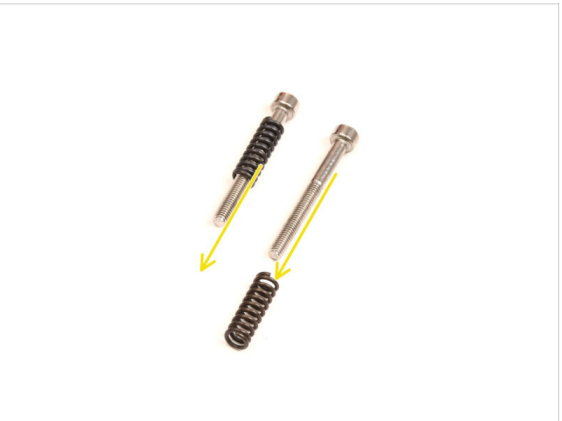


- Orient the Swivel assembly as seen in the picture.
- There is a tiny magnet in the Idler nut FS part. Make sure it is in place.

  ⓘ In case the magnet has fallen out, there is a replacement one in the package.
- Slide the **Swivel B** part onto the screws.
- Attach the M3nN nuts onto the screws. Tighten the screws gently while holding the nuts using the neeedle-nose pliers.

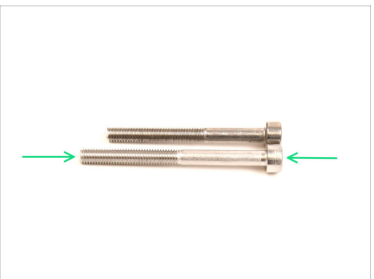
  ⚠ Do not overtighten the nuts. The Swivel must be able to move freely.

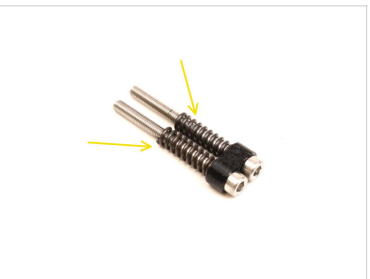
PASO 23 Tension screws parts preparation



- **Para los siguientes pasos, por favor prepara:**
- **M3x30** screws with the springs (2x) *you have removed earlier*
  - ⓘ We will need the **springs alone**. The old M3x30 screws won't be re-used.
    - Remove the springs from the old M3x30 screws.
- **M3x35** screws (2x) *the new, slightly **longer** ones.*
  - ⚠ This screw is a new type not previously used on a printer! Do not reuse old screws, as they are a different size and would not fit properly!
- Screw guide (1x)

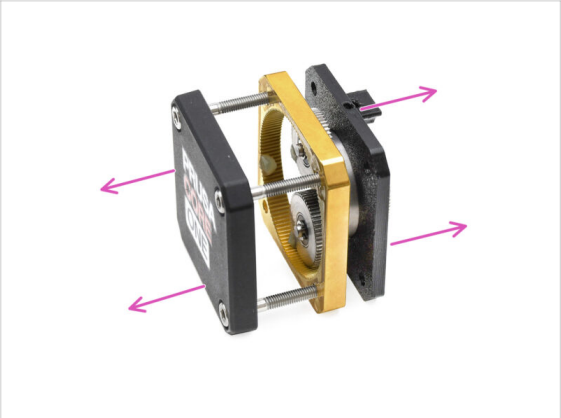
PASO 24 Tension screws assembly





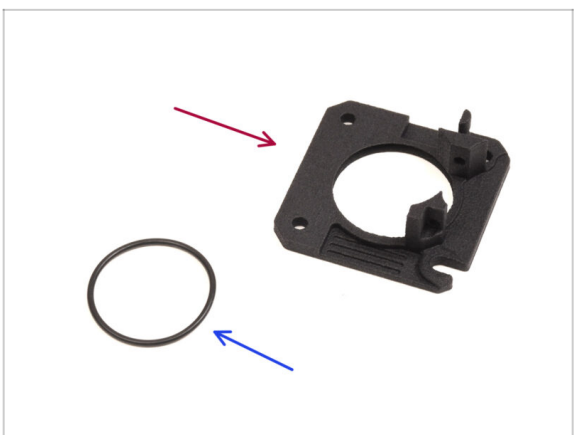
- Take the new M3x35 screws.
  - ⚠ Compare the size of the screws. Set the old M3x30 and the **new M3x35** screws apart so that they don't mix up.
    - The old shorter M3x30 screws won't be re-used.
- Push the M3x35 screws through the screw guide.
- Attach the springs onto the end of both the screws.

PASO 25 Gearbox disassembly



- Take the gearbox assembly and split it apart.
- The parts might be greasy. Clean off any excess grease.
- Set aside for later use: **PG-case, PG-ring, PG-assembly, M3x25 screws.**
- The printed main-plate won't be re-used. Set it aside so that it doesn't mix up with a new part.

PASO 26 Main Plate Preparation

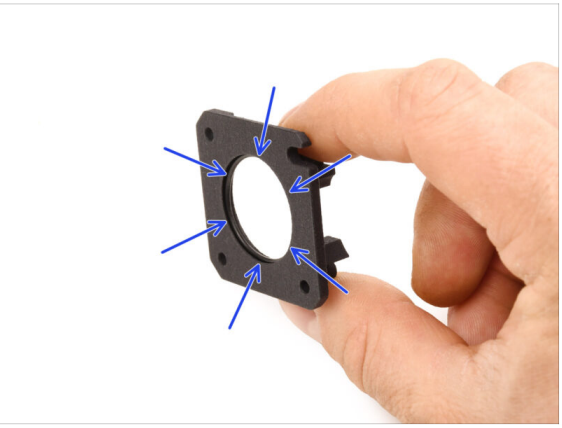


- **Para los siguientes pasos, por favor prepara:**
- new Main Plate (1x)

  ⚠ We will need the newly supplied main-plate. It is different than the original one in the gearbox assembly, printed from PETG. Do not reuse the old main plate, as it may cause the printer to malfunction!

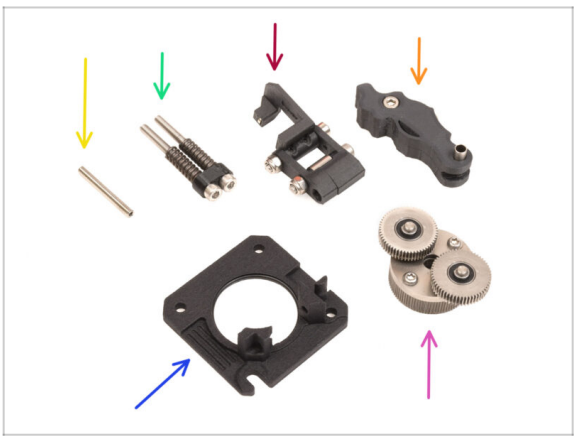
  ⓘ The new main plate is 3D printed using MJF technology. It cannot be replicated with the same quality using FDM printing.
- O-ring 24,5x1,5 (1x)

PASO 27 Main Plate Assembly



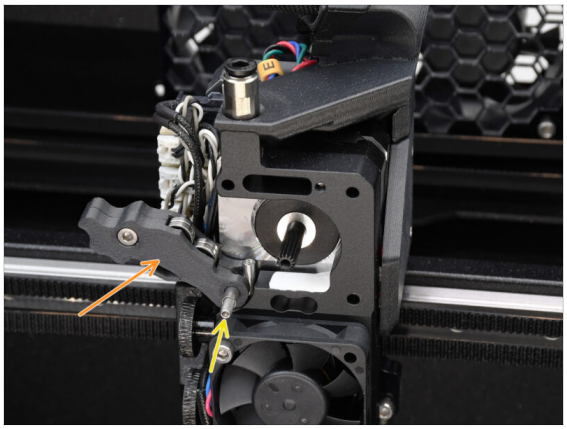
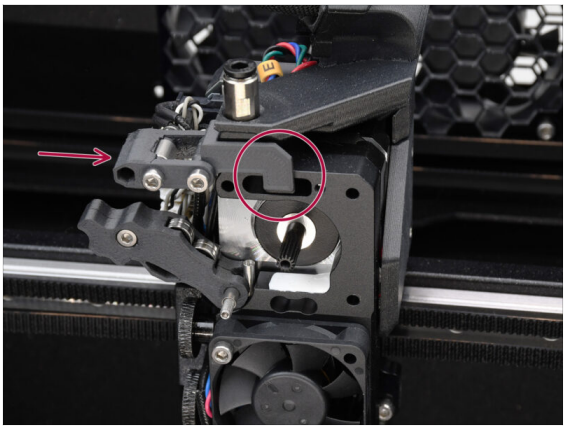
- The new main plate has a V-shaped groove inside its large round opening.
- Insert the O-ring into the groove, ensuring it's seated correctly.

PASO 28 MMU Nextruder Preparation



- **Para los siguientes pasos, por favor prepara:**
- Set screw M3x25 (1x)
  - ⓘ If you own the 4-screw version of the Nextruder, this specific type of set screw is not included.
- MMU Tension screws assembly (1x)
- MMU Swivel assembly (1x)
- MMU Idler assembly (1x)
- Main plate assembly (1x)
- PG-assembly (1x)

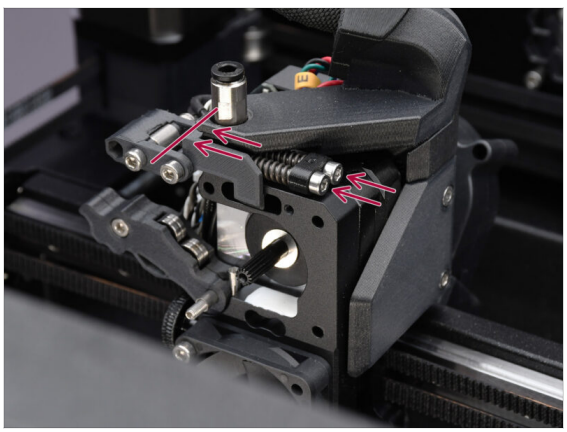
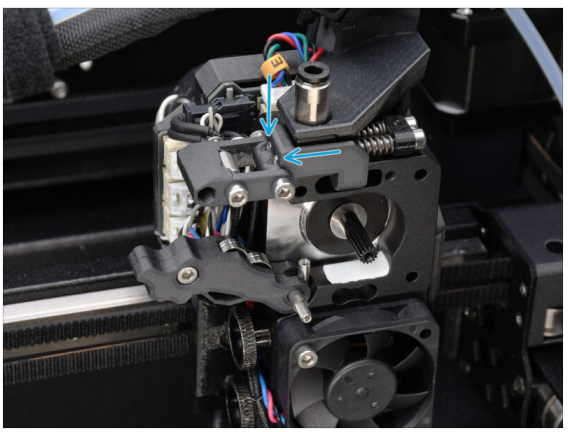
PASO 29 MMU Nextruder Assembly 1

- Add the **Idler assembly** onto the extruder.
- Fix it in place using the **M3x25 Set screw**.

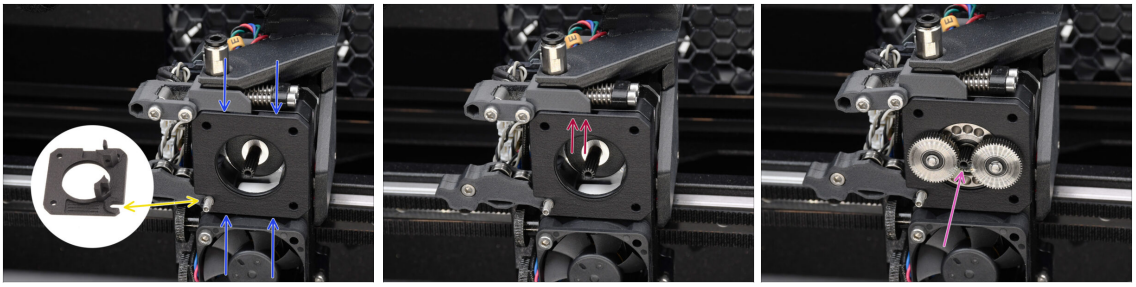
  ⓘ In case you have the 4-screw version of the Nextruder, you might use the M3x25 screw to temporarily hold the Idler assembly in place.
- Add the **Swivel assembly** onto the extruder. The protruding part of the Idler nut FS component should fit inside the filament sensor pocket in the heatsink, as seen in the picture.

PASO 30 MMU Nextruder Assembly 2

- Insert the tension screw assembly through the heatsink and guide it towards the Swivel assembly.
- Gradually tighten the tension screws one at a time until their ends are flush with the surface of the Idler nut part on the other side, as shown.

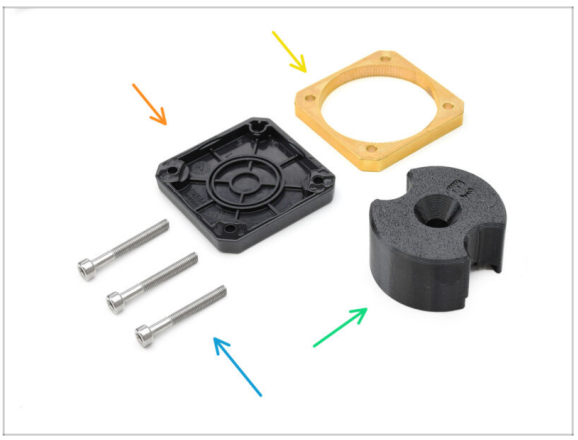
PASO 31 MMU Nextruder Assembly 3



- Attach the new **main plate assembly** to the extruder, ensuring the protruding parts fit correctly into the heatsink.
  - The **notch** in one of the corners is designed to fit over the Idler spacer / set screw.
- Ensure the lever on the Swivel assembly fits correctly into the cutout on the main plate.
- Attach the **PG-assembly** to the motor shaft. Be very careful when inserting the assembly into the opening with the O-ring.

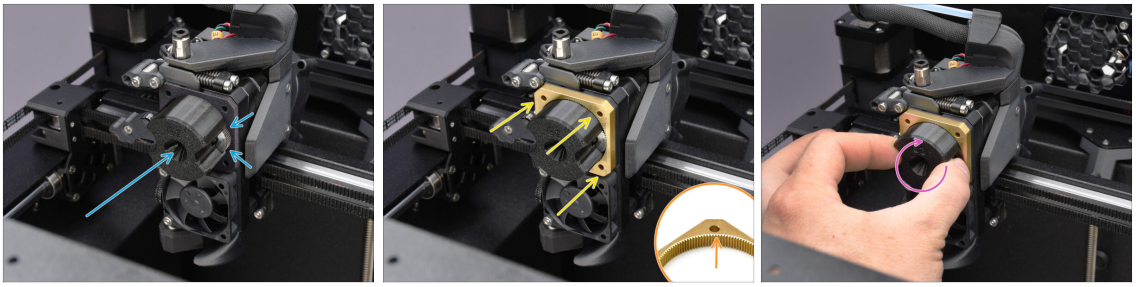
⚠ Watch out for any deformation or damage to the O-ring. **Ensure the O-ring stays properly seated** in its groove on the main plate. A slight wiggling motion, while inserting, can assist.

PASO 32 Gearbox Assembly Preparation



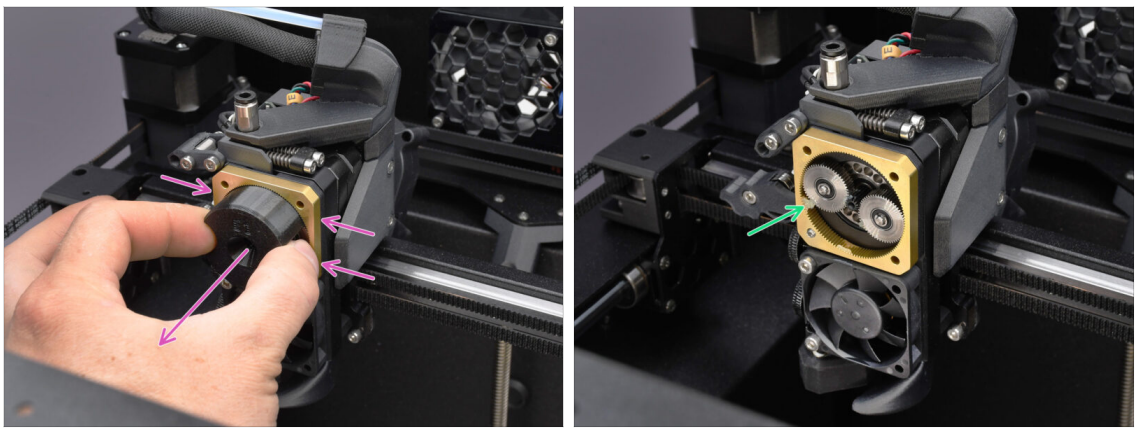
- **Para los siguientes pasos, prepara:**
- PG-case assembly (1x)
- PG-ring (1x)
- M3x25 screws (3x)
- PG-assembly adapter (1x)

PASO 33 Gearbox Assembly 1



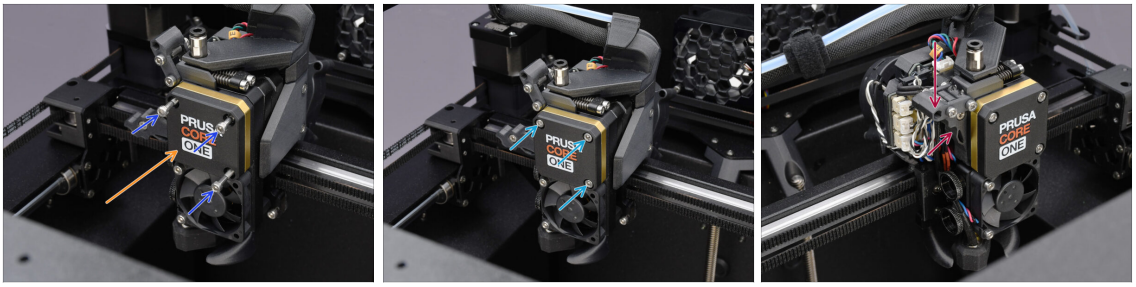
- Attach the **adapter** to the PG-assembly, making sure the spur gears are correctly aligned and fit snugly into the pockets on the adapter.
- Carefully slide the **PG-ring** onto the adapter, pushing it all the way in gently, until it locks onto the gears.
  - Note that the PG-ring has a chamfer on one side. This side should face the gears during insertion for easier assembly.
  - Gently rotate the adapter while sliding the PG-ring onto the gears to ensure proper gearbox alignment.

PASO 34 Gearbox Assembly 2



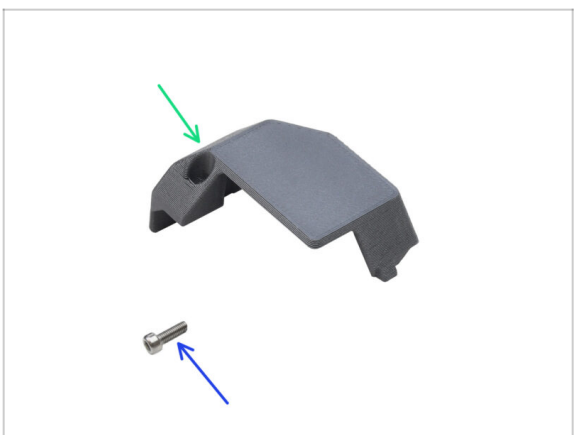
- Remove the adapter, while maintaining the gearbox assembly in place.
- Check the PG ring for adequate lubrication. If necessary, apply a slight amount of grease, as explained in the Nextruder Assembly guide.

PASO 35 Gearbox Assembly 3



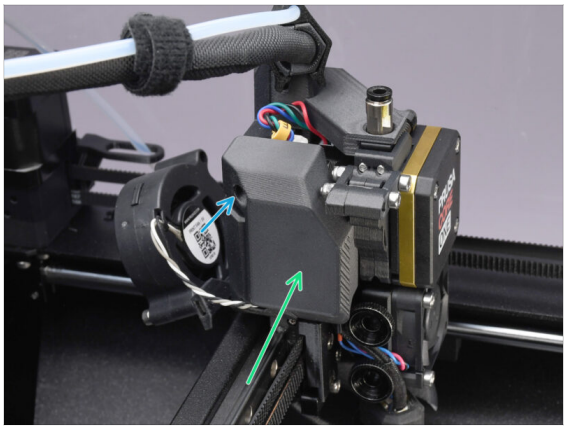
- Cover the gearbox using the **PG-case.**
  - Fix it in place using the three M3x25 screws.
  - Tighten the screws just lightly, for now.
- Close the Idler and secure it using the Swiwel.

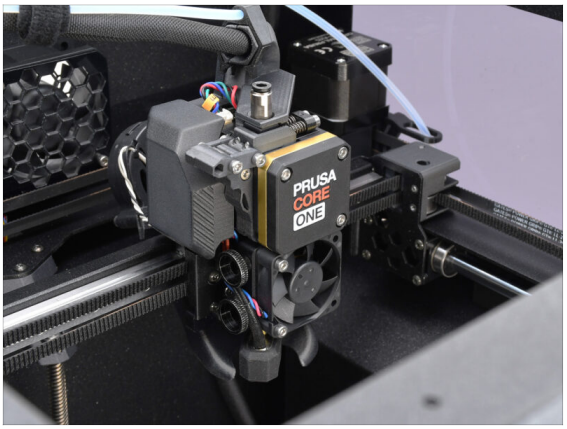
PASO 36 Nextruder Side Cover Preparation



- **Para los siguientes pasos, prepara:**
- Nextruder Side Cover (1x) *you removed earlier*
- Tornillo M3x10 (1x) *que quitaste antes*

PASO 37 Nextruder Side Cover Installation

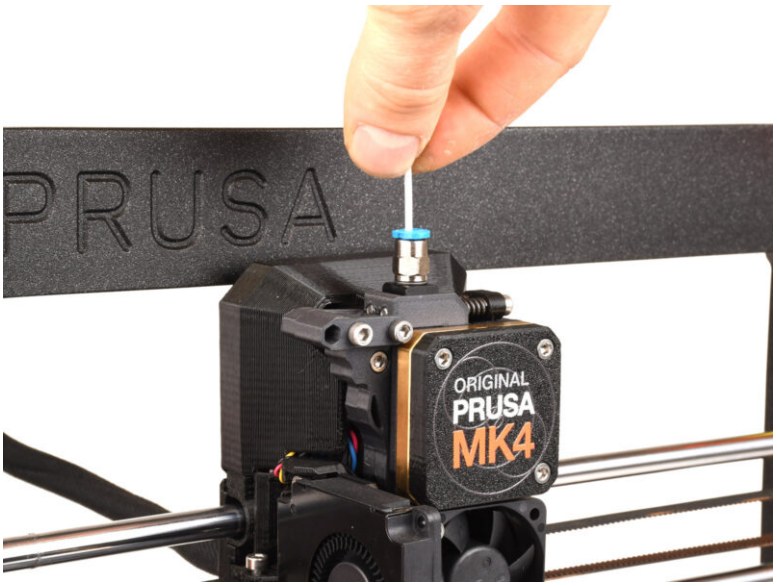




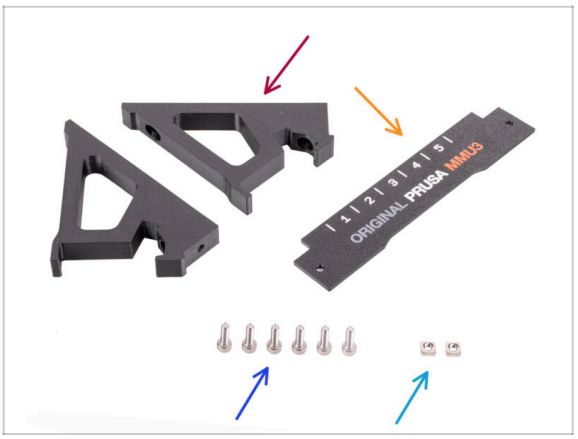
- Re-install the side cover. First, hook it on the bottom, then push the top towards the Nextruder.
- Fix it in place using the M3x10 screw.

⚠ Congratulations. Your Nextruder has been successfully reworked into the MMU version.

10A. Configuración y Calibración MK4/S, MK3.9/S



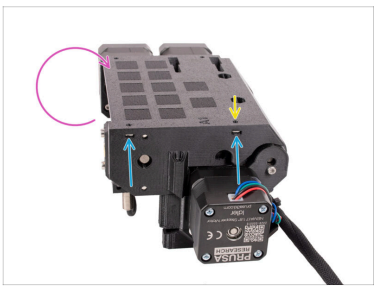
PASO 1 Frame holders parts preparation

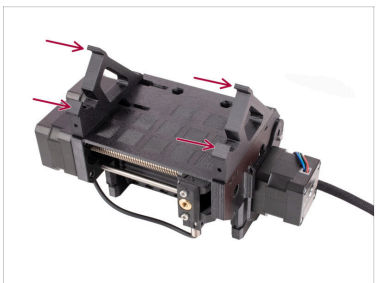


- Frame holder (2x)
- Label-plate (1x)
- M3x10 screws (6x)
- M3nS nut (2x)

ⓘ Skip these steps if the frame holders are already installed on your MMU3 unit.

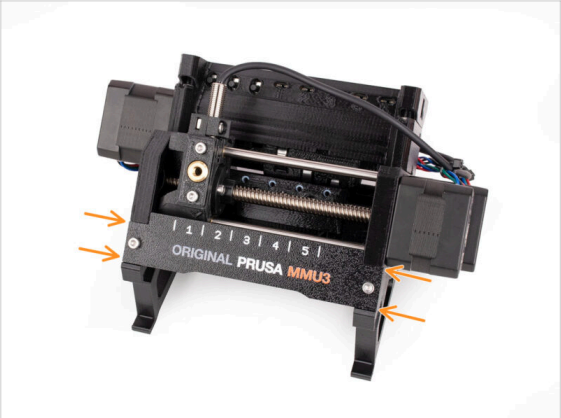
PASO 2 Frame holders assembly

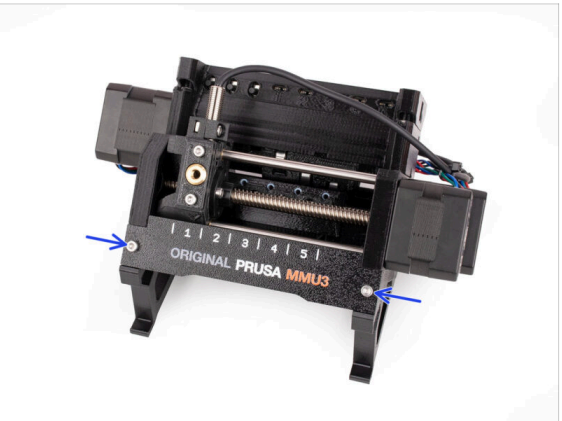




- Turn the unit around.
- Insert the two **M3nS** nuts into the marked openings on the side of the unit. Push the nuts all the way in using the 1.5mm Allen key.
- Add the **frame holders** onto the unit. Make sure the part with the hooks is on the selector side of the MMU.
- Fix the frame holders to the unit with four **M3x10** screws.
- If the bolt doesn't easily go in, use the 1.5mm Allen key to adjust the nut position inside the Pulley body.

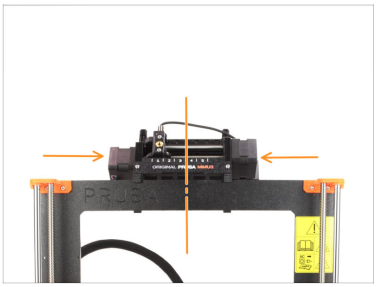
PASO 3 Label plate installation

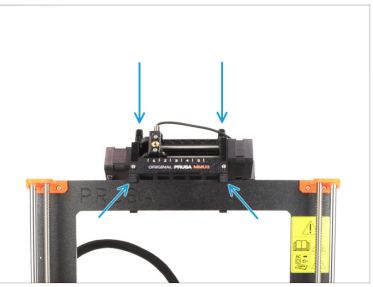


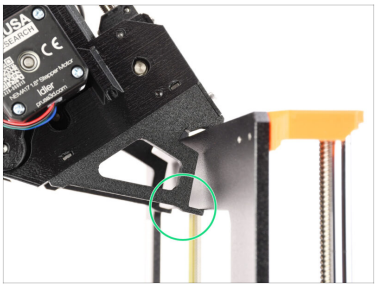


- Insert the **label plate** into the recess on the front of the frame holders.
- Fix the label plate in place using the two **M3x10** screws.

PASO 4 Attaching the MMU unit (part 1)



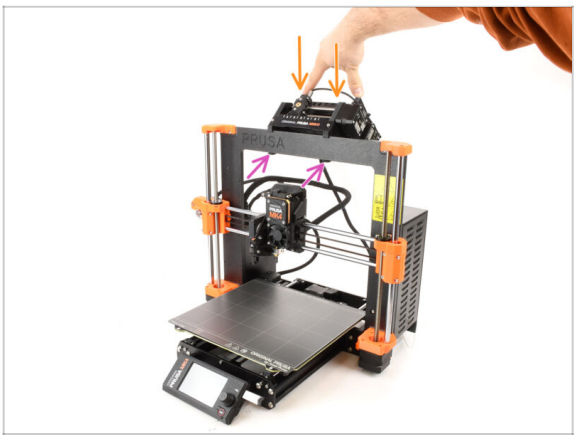




- The MMU3 unit should be placed onto the top part of the printer's frame.
- Place the MMU3 unit onto the frame.

  Attach it just by the top hooks.
- Look from behind, there are "clamps", which will be used to lock the unit to the frame in the next step.

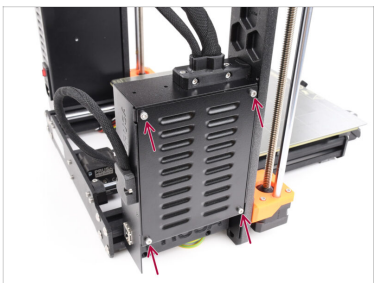
PASO 5 Attaching the MMU unit (part 2)

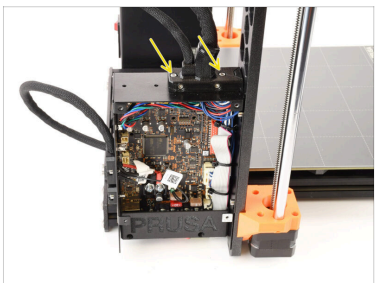


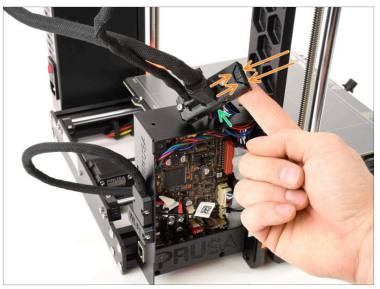
- Press the back part of the MMU3 unit downwards slightly, until the clamps lock to the frame.
- Check that both bottom clamps on the unit are fully engaged.

ⓘ If you need to remove the unit from the frame, simply lift the back part up to disengage the clamps.

PASO 6 xBuddy preparation

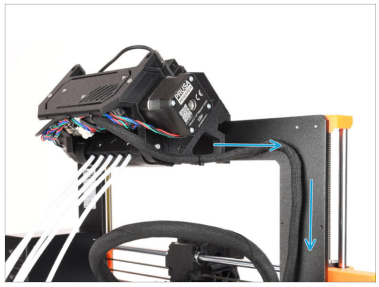
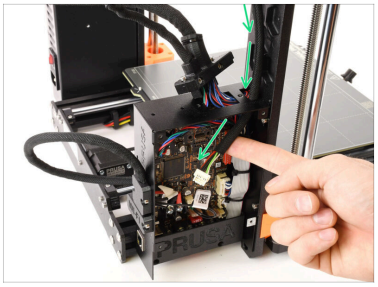
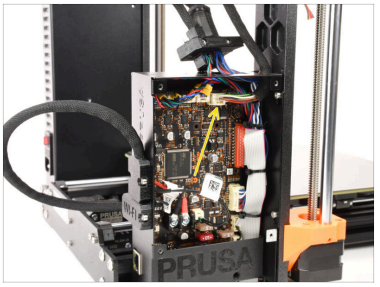






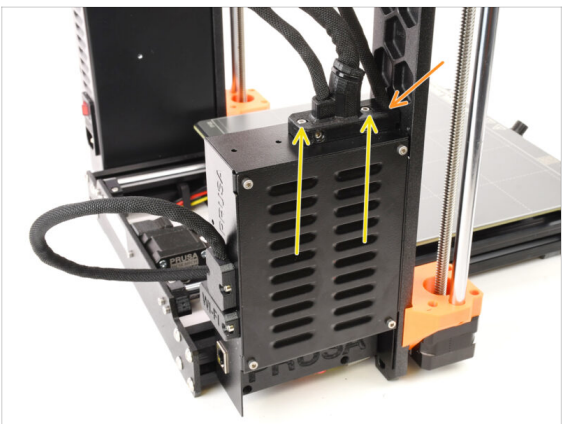
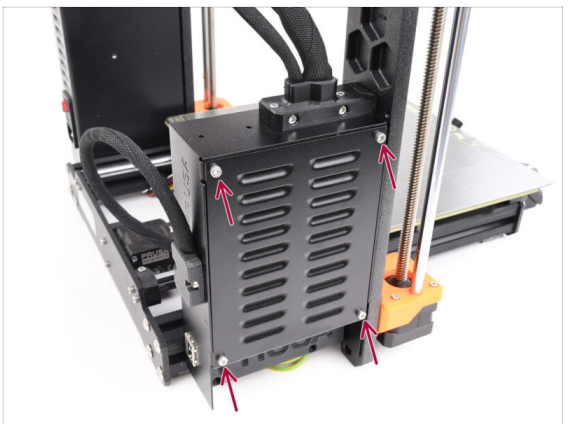
- On the left side of the printer, remove the four M3x6 screws holding the **xBuddy box cover** in place. Then, take off the cover.
- Loosen the two M3x18 screws holding the ext-cable-holder.
- Raise the cable holder.
- Use needle-nose pliers to remove the indicated part of the cable holder, creating space for the MMU cable.

PASO 7 Guiding the cable

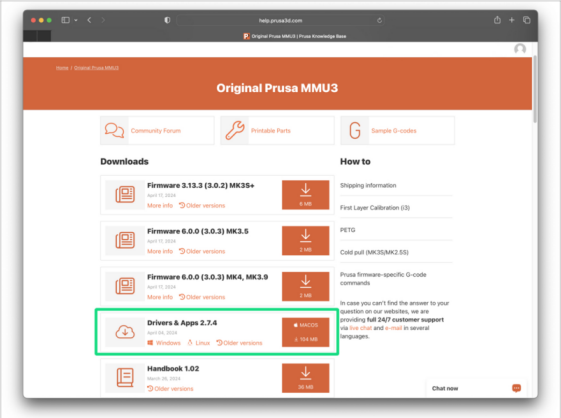
- Guide the cable from the MMU unit along the frame, directing it towards the electronics.
- Guide the cable into the xBuddy box through the opening on top.
- Connect the MMU cable into the marked connector on the xBuddy board.

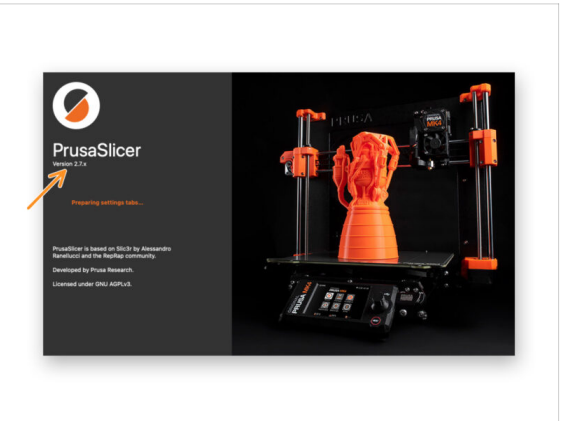
PASO 8 Closing the electronics box

- Reattach the **ext-cable-holder**, ensuring that the MMU cable on the side is properly seated and that none of the cables are being compressed.
- Tighten the two **M3x18 screws on top** of the ext-cable-holder.
- Align the xBuddy box **cover** with the xBuddy box and secure it with four M3x6 screws.

PASO 9 Software Download





- Visita la página de la MMU3 en Help.Prusa3D.com

ⓘ Necesitaremos instalar la última versión de Prusa Slicer.

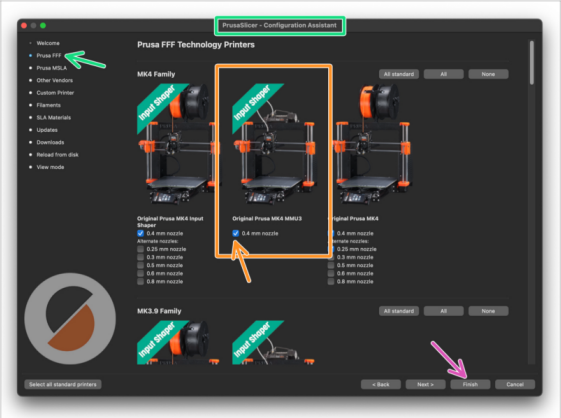
- Descarga el último pack de **Drivers y Apps**.

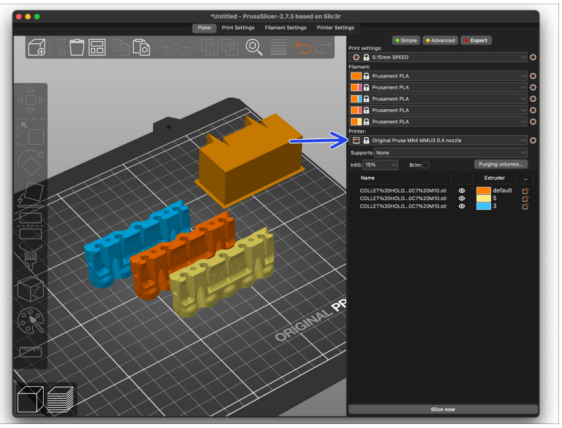
⚠ **MMU3 on MK4** requires Drivers & Apps (PrusaSlicer) version **2.7.3** or newer.

- ¡Deja esta página abierta para los siguientes pasos!
- Instala el paquete descargado en tu ordenador y abre la aplicación de **PrusaSlicer**.

PrusaSlicer es parte del paquete de controladores. Incluye la herramienta de actualización del firmware. El paquete de controladores también incluye objetos de muestra para imprimir.

PASO 10 PrusaSlicer setup for MMU3



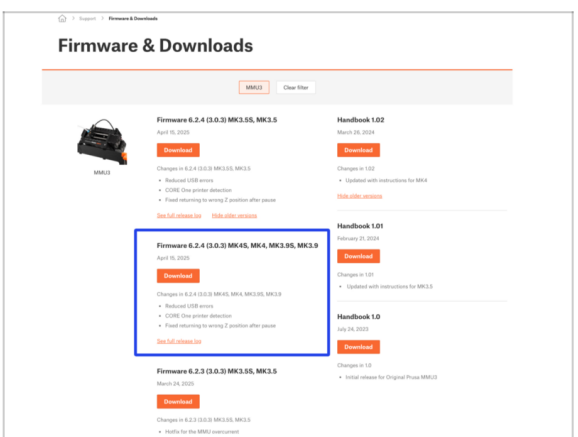


- Open the PrusaSlicer Wizard/Assistant. (from the menu **Configuration > Configuration Wizard/Assistant > Prusa Research)**
- Find the **MK4 Family** and make sure that **your printer model is selected.**
  - The default **nozzle is 0.4mm** from factory.
- Click Finish to close the Wizard.
- In **Printer:** menu, select the **MMU3** printer profile for future slicing.

⚠ Please be aware that the MMU3 on MK4 **IS NOT COMPATIBLE with older PrusaSlicer profiles or G-codes** for MMU2, MMU2S, or even MMU3 + MK3S+ or MK3.5.

Using an incompatible G-code file on the MMU3 + MK4 could lead to a failed print or potentially damage the printer!

PASO 11 Descarga de archivos de firmware

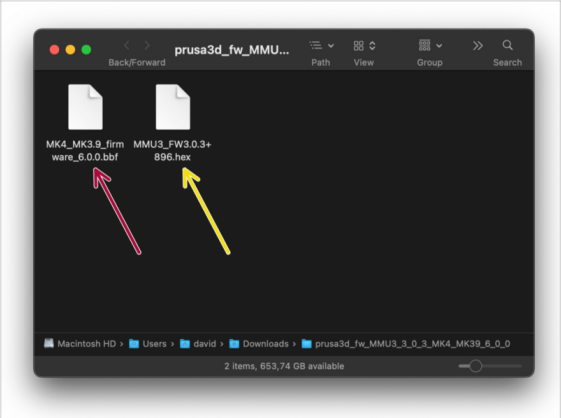


⚠ You will need to update both the firmwares for the printer as well as the MMU unit. Use just the newest firmware versions together.

⚠ Please refer to the MMU3 Firmware Compatibility article to find out exactly which firmware version you need.

- Visita la página de Descargas del MMU3 en Help.Prusa3D.com
- Descarga el último pack de **Firmware** para **tu modelo de impresora.**

PASO 12 Firmware Upgrade: Printer



⚠ IMPORTANT!!! Before you proceed further; There are two firmware files. One is for the printer. The other one is for the MMU3 unit. Both needs to be flashed to the respective device.

- **Firmware de la impresora - archivo .bbf**
  para la placa controladora de la MK4:
  (por ej. MK4_MK3.9_firmware_6.0.0.bbf)
  - Update the printer's firmware. First, transfer the firmware file onto a USB drive.
  - Turn on the printer and connect the USB drive into it. Press the RESET button to restart it. Then, select the FLASH option on the screen to begin the update.
- **Firmware de la placa controladora de la MMU3**:
  (por ej. MMU3_FW3.0.3+896.hex)
  - This firmware update must be applied directly to the MMU unit using a computer. **We will flash the MMU unit firmware in the upcoming steps.**

PASO 13 Encendido de la MMU

⚠ After finishing the firmware update, **make sure there are no filaments loaded** neither in the extruder, or in the MMU unit.

- Navigate to the **LCD menu > Settings > MMU**

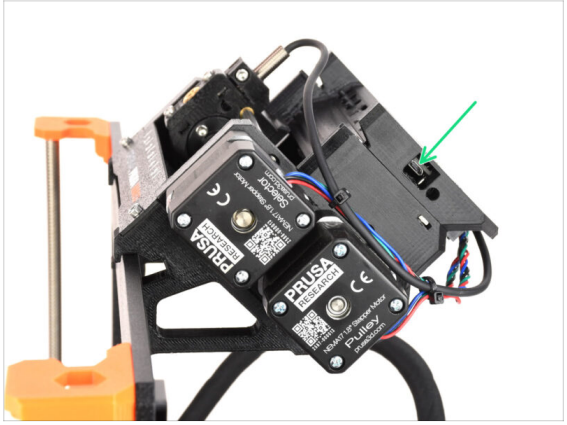
  and make sure the **MMU** is turned **on**.

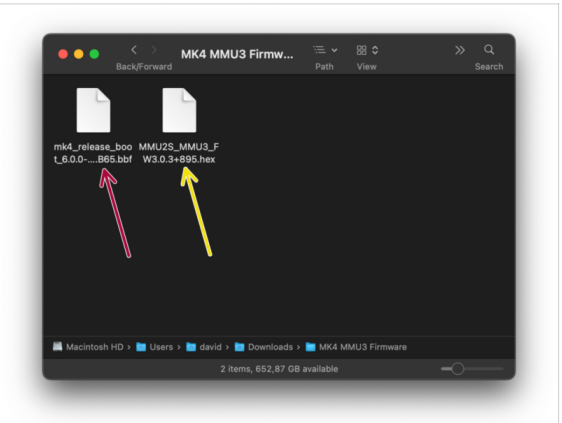
  This option not only turns on the MMU functionality in the firmware, but also turns on the power for the MMU unit, which is necessary to do a FW update.

  From now on, the reset button on the printer resets also the MMU unit. Wait for a while, the MMU unit will go through the self-test routine. (accompanied by flashing LED lights on the MMU unit) **Wait until it boots up** properly, before issuing any commands to the printer.

- Since you've converted the extruder to the MMU version, when prompted to reconfigure the filament sensor's behavior, which will appear immediately, choose '**Continue**'.

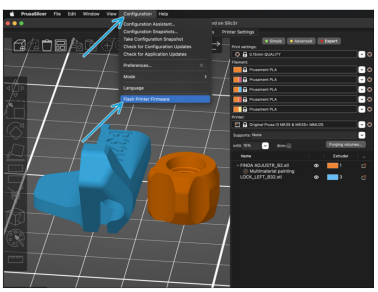
PASO 14 MMU3 Firmware flashing (part 1)

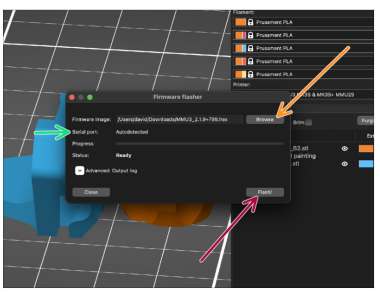


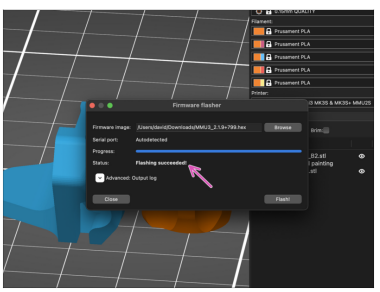


- The MMU3 firmware file needs to be flashed into the MMU unit itself. Find the **microUSB** connector on the right side of the MMU3 unit.
- Connect the unit to your computer using the bundled microUSB cable.
- On your computer, select the appropriate **MMU firmware file** compatible with your printer model.

PASO 15 MMU3 Firmware flashing (part 2)





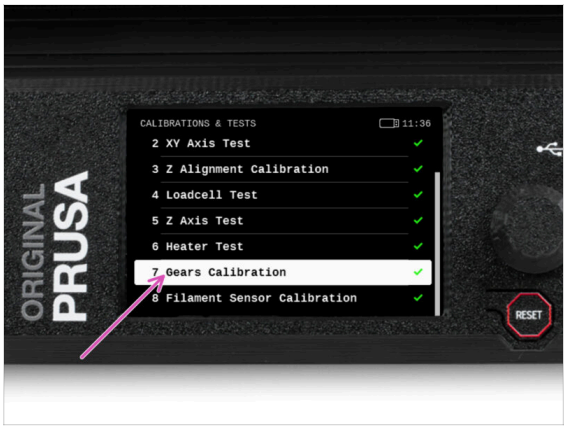


- Open PrusaSlicer and select **Configuration ->Flash Printer Firmware** from the top menu.
- Hit **Browse** and select the MMU3 firmware image file on your computer. (e.g. MMU2S_MMU3_FW3.0.3+895.hex)
- El puerto serie debería detectarse automáticamente.

  Hit **Rescan** if your printer is not listed in the Serial port: column
- Presiona el botón de **Flashear**.
- Espera hasta que aparezca el mensaje **¡Exito al flashear!**.
- Una vez finalizado el flasheo, desconecta el cable USB.

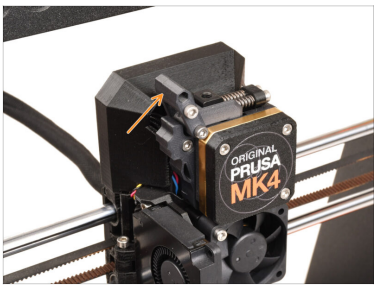
En caso de que tengas problemas al instalar el firmware, por favor visita el artículo para solucionar problemas.

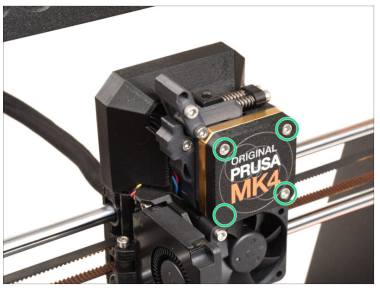
PASO 16 Gears calibration



- Now, we need to calibrate the planetary gearbox in the Nextruder.
- Go to the Home screen and navigate to *Control -> Calibrations & Tests,* scroll down and select **Gears Calibration.**
- Una vez que llegues a la parte de Alineación de la caja de engranajes, selecciona **Continuar** y sigue las instrucciones que aparecen en pantalla.

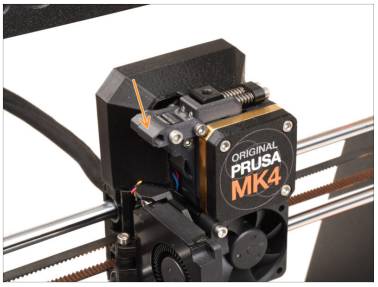
PASO 17 Gearbox Alignment

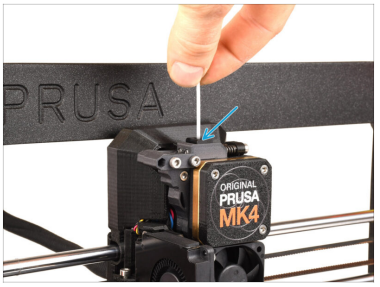




- During the Gear calibration process, you will be prompted to:
  - Make sure the **Idler lock** (swivel) is in the open position - lifted up.
  - Afloja 1,5 vueltas los tres tornillos de la parte delantera de la caja de engranajes.
  - ⓘ La impresora realizará el alineamiento automático de los engranajes. Este proceso no es visible desde el exterior.
  - Cuando se te indique, aprieta los tornillos siguiendo el patrón indicado en la pantalla.

PASO 18 MMU Filament sensor calibration



- When the Gearbox Alignment is complete, you should be prompted to continue to the **filament sensor calibration**.

ⓘ There should be no filament inside the extruder before the calibration process starts.

- Close the **Idler lock** (swivel).
- During the filament sensor calibration, you will need to use a short piece of filament. Prepare a filament and select **Continue**.

⚠ Don't insert the filament before being prompted to do so!

- Once prompted to, insert the filament.
- After successfully calibrating the filament sensor, remove the filament from the extruder.

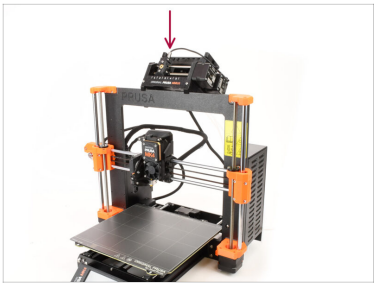
PASO 19 Footer adjustment

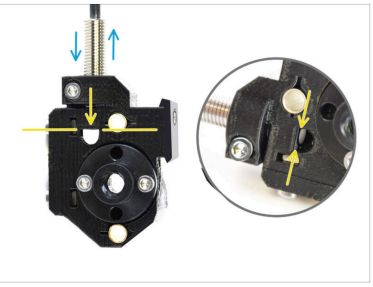

- Turning on the MMU unit automatically displays the filament sensor and Finda sensor information on the status bar on the display. If for some reason this information is not displayed or you want to adjust the order, proceed as follows.
  - On the printer, visit the **Settings > User Interface > Footer**.
  - Make sure there is **Filament sensor (FSensor)** selected in any of the fields.
  - Make sure there is **SuperFINDA sensor (Finda)** selected in any of the fields.

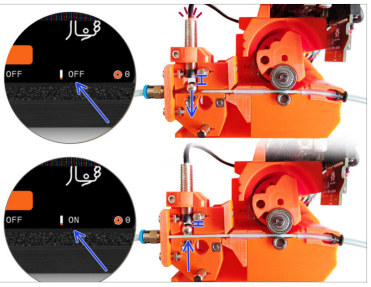
ⓘ You will see the respective symbols and sensor values displayed on the bottom of the screen.

- Los valores de los sensores también se muestran en el menú **Info > Info Sensor**.

PASO 20 SuperFINDA sensor calibration info





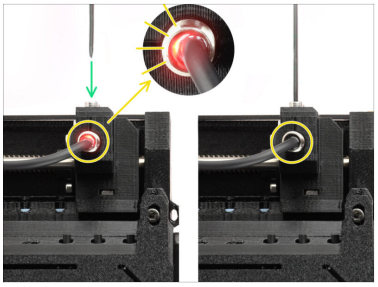


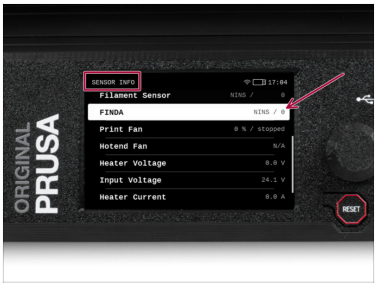
- If you built the MMU3, the **SuperFINDA sensor** inside the selector must be calibrated.
- For **factory-assembled MMU3** units, the SuperFINDA is pre-calibrated, so you can skip the calibration steps.
- In the next step, we'll calibrate the sensor's position.

⚠ **It is CRITICAL** that both the **filament sensor in the extruder and the SuperFINDA sensor function accurately**. Otherwise, you will have trouble with the device.

- Use the inspection window on the selector to align the bottom of the sensor with the top of the window, as a starting point.
- When filament is in the selector, the steel ball rises and should be detected by the SuperFINDA sensor. Ensure the distance between the ball and the sensor is perfectly calibrated.

PASO 21 SuperFINDA calibration





- Coge un trozo de filamento con la punta afilada e introdúcelo en el selector a través de la abertura roscada de latón de la parte delantera.
- Echa un vistazo a SuperFINDA desde arriba y fíjate en la lucecita roja del interior del sensor que se apaga cuando el filamento levanta la bola de acero de su interior.
  - **Red light** = no filament detected = **FINDA 0 / OFF**

    No light = filament detected = **FINDA 1 / ON**
- If the light is still on, lower the SuperFINDA slightly.

  If the light doesn't ever go on, raise the SuperFINDA probe by releasing the screw by its side, moving the probe, and tightening the screw back up.
- Observa las **lecturas del sensor en la pantalla LCD** (Info -> Info Sensor -> FINDA) Ten en cuenta que hay un ligero retraso en las lecturas del sensor en la pantalla LCD; proceda lentamente.

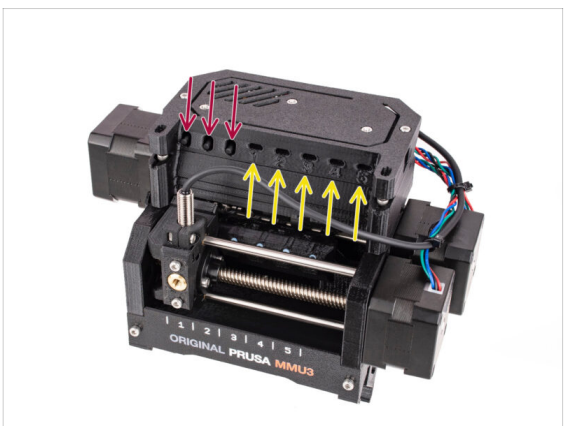
⚠ Repite la prueba introduciendo y extrayendo el filamento. Observa los valores en la pantalla LCD. Ajuste la altura de la SuperFINDA en consecuencia **hasta que obtengas lecturas fiables del sensor cada vez que insertes y retires el filamento.**

PASO 22 Error code details (Part 1)

- Later on, an **MMU error screen** will show up if something goes wrong during the operation. See the example image; the first line describes briefly, what's the error about.
  - prusa.io/04101 is a web address, where you can view a detailed article about the exact issue, and how to fix it.
- The status of the filament sensor is always displayed in the Footer section of the error screen to assist in diagnosis.
- Adjacent to it, you will find the status of the Finda sensor.

(Note the FINDA status reading on the LCD has a slight delay.)

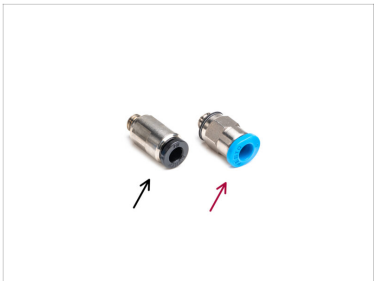
PASO 23 Detalles del código de error (Parte 2)

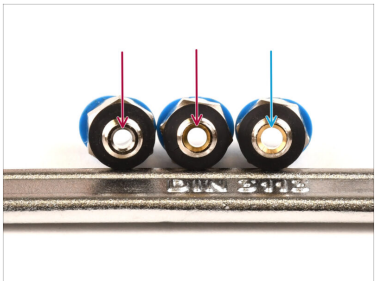


- The bottom line are the **solution buttons**. Some errors have multiple solutions.
- You can also visit a detailed error description page via the QR code.
- MMU unit being in an **error state** is also indicated by its LED lights flashing.
- While in an ERROR state, the buttons on the MMU unit can be used to resolve the error too.
  - The **middle button** usually replicates the LCD solution buttons function.

⚠ Note, if the MMU unit is in **IDLE state**, the buttons **have a different functions**; For example; If there is no filament loaded, the side buttons can be used to move the selector right and left. But more on that later.

PASO 24 Fittings INFO



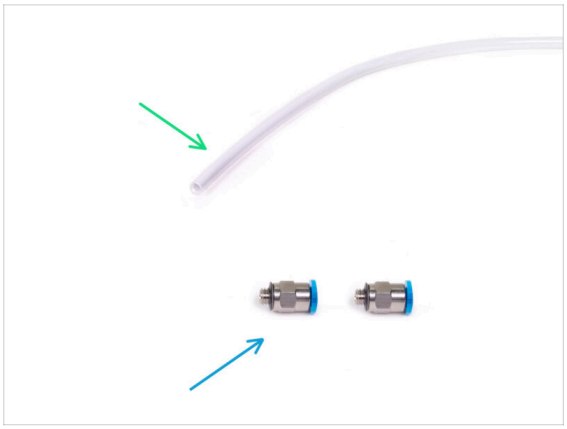


- On the MMU, the PTFE tube that guides the filament to the printer is secured using M5-4 pneumatic **fittings**.
- Older type of these fittings has a blue collet.
  Various versions of the blue fittings were included with Prusa products shipped before April 2024.
- The MMU3 on the **MK4** printer requires either the black fitting or the **latest evolution** of the blue fitting, which has an internal diameter of **2.6mm**.

⚠ Some M5-4 fittings appear identical from the outside. Be careful not to mix old with new ones.

Using an incorrect version of the fitting on the MK4 can lead to the printer malfunctioning. Ensure you **use only the fitting provided in your MMU3 MK4 package** to avoid any issues.

PASO 25 MMU-to-Extruder PTFE tube parts preparation

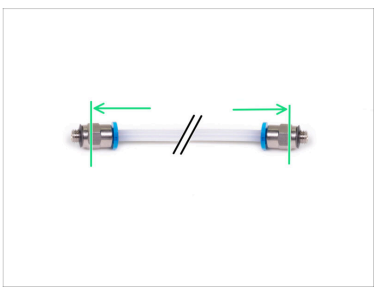


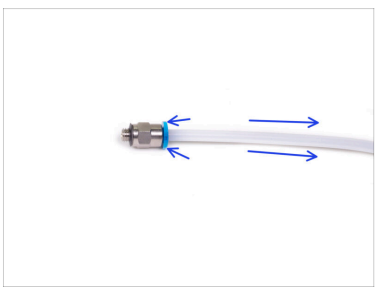
- **Para los siguientes pasos, por favor prepara:**
  - Tubo PTFE 360x2.5mm (1x)

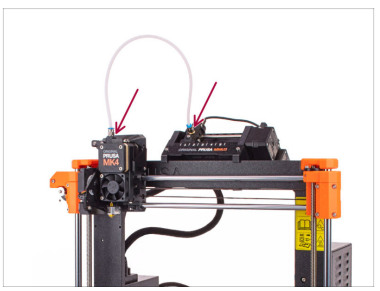
    The **PTFE** tube bundled with the MMU3 **for MK4** has an internal diameter of **2.5mm**. In case you are upgrading from the 2mm ID MMU2S tube, and you have trouble distinguishing between the old and the new one, try comparing the internal diameter of the two. See the second picture. The tube on the left is the new one.

    A 2.5mm ID PTFE tube is required for the MMU3.
  - M5-4 fittings (2x)

PASO 26 MMU-to-Extruder PTFE tube

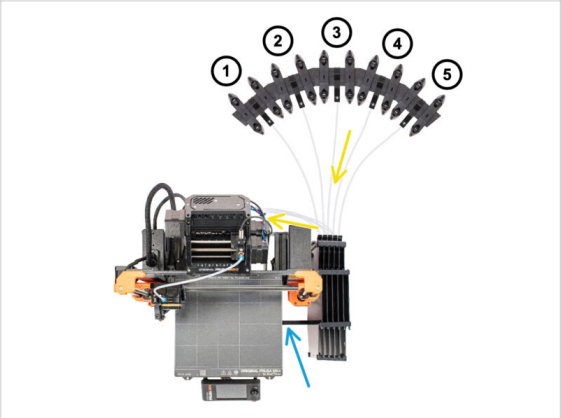


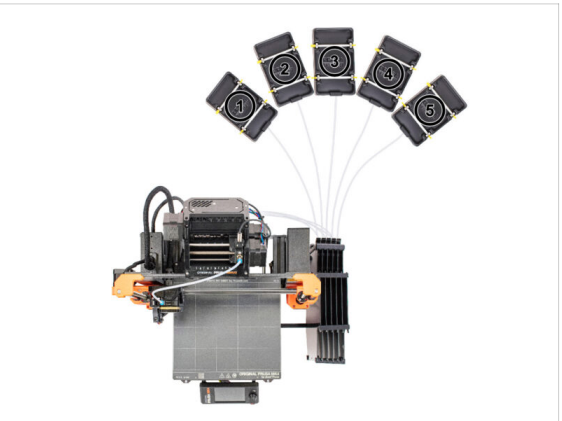




- Attach the M5-4 fittings onto both sides of the PTFE tube.
  - Push the PTFE tube fully in.
- Quick tip: **If you need to remove the PTFE tube** from the fitting, press the collet in. While the collet is pressed, first press the PTFE tube in, then pull it out entirely.
- Attach the PTFE tube onto the printer. One end goes onto the selector. The other goes onto the extruder. Tighten the fittings up using the Uniwrench.

PASO 27 Spoolholders setup





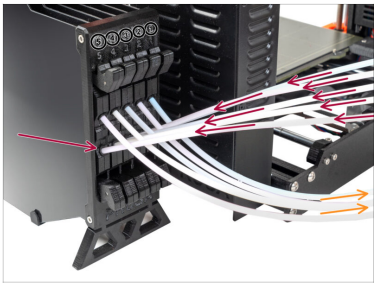
Congratulations! The hardest part is over.

- The Buffer and spools setup in the picture is the one we will be trying to achieve. Arrange the **spool holders** and the **buffer** as seen in the picture.
- Hook up the "printer holder" part on the buffer to the extrusion on the printer.
- The PTFE tubes should go from the spoolholders to the buffer. Then, from the buffer to the back of the MMU.

Note the spool holder positioning. It is important that filament has **as straight path as possible** and that nothing interferes. PTFE tubes should **not be bent too much**. Otherwise, the filaments will jam.

There were multiple versions of the spool holder available with the MMU3. Refer to one of the pictures, depending on your spool holder version.

PASO 28 Spoolholder-to-Buffer PTFE tube



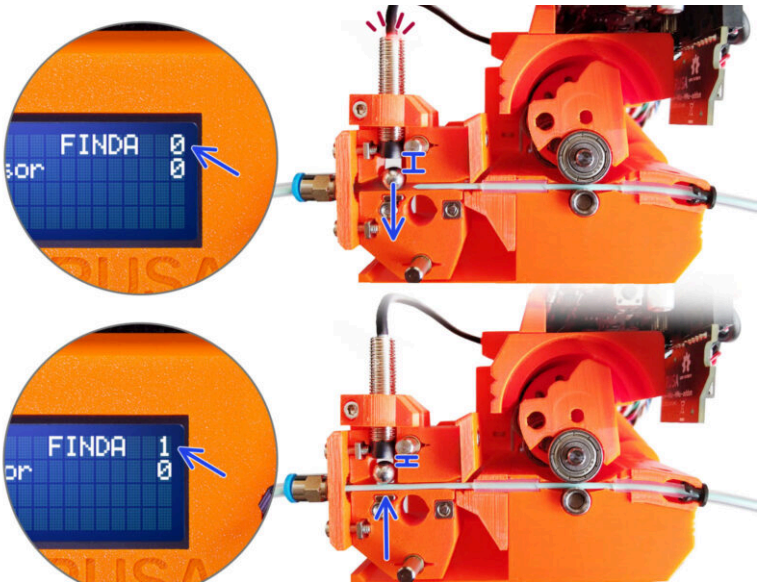
- Connect the PTFE tubes **from the MMU** unit to the **BOTTOM row of collets** on the buffer, ensuring you match the numbering on both the buffer and the MMU unit.
- Attach each end of the PTFE tube from the Buffer to the PTFE holder on each Spool holder.

  Make sure each spool holder is hooked up to the corresponding filament position number. (marked 1 to 5 on the MMU unit and the buffer.)

There have been several versions of buffer parts available, which might look slightly different. However, the assembly process remains the same.

The MMU3 for MK4 necessitates the use of the latest version of the buffer components. If you're using an older version, it's essential to rebuild the device using the most recent version available.

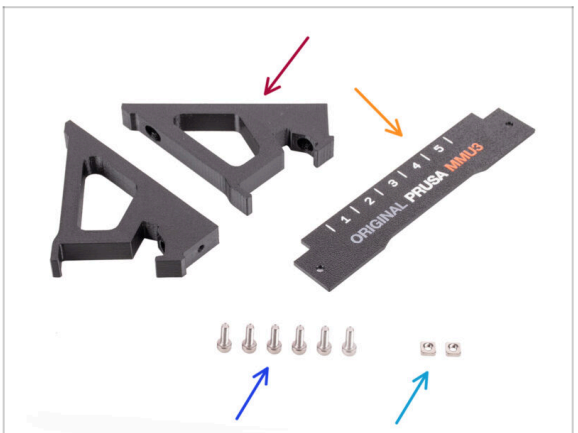
10B. Configuración y Calibración MK3S+



PASO 1 Herramientas necesarias para este capitulo

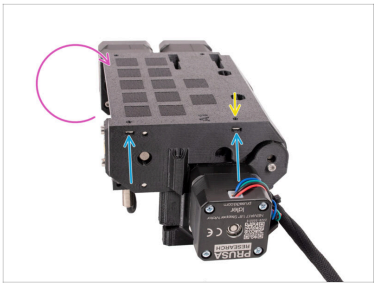
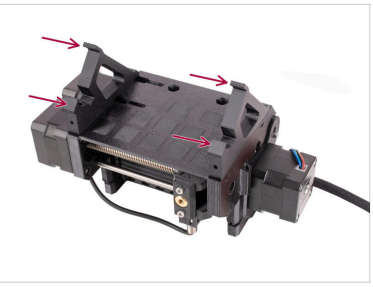
- **Por favor prepara las herramientas para este capítulo:**
- Unikey for tightening up the Festo fittings.
- 1.5mm Allen key for Filament sensor calibration
- Llave Allen de 2.5mm para tornillos M3
- Phillips screwdriver for power cable terminals

PASO 2 Frame holders parts preparation



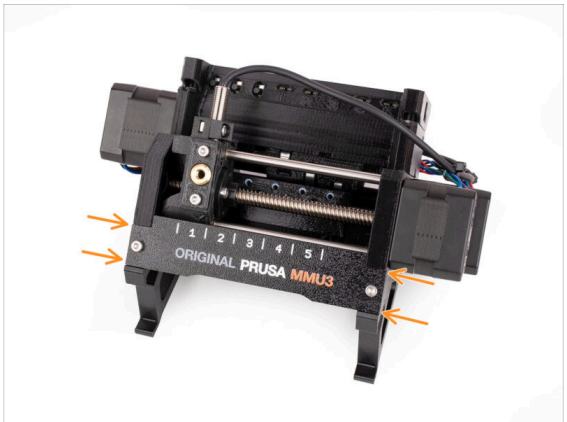
- Frame holder (2x)
- Label-plate (1x)
- M3x10 screws (6x)
- M3nS nut (2x)

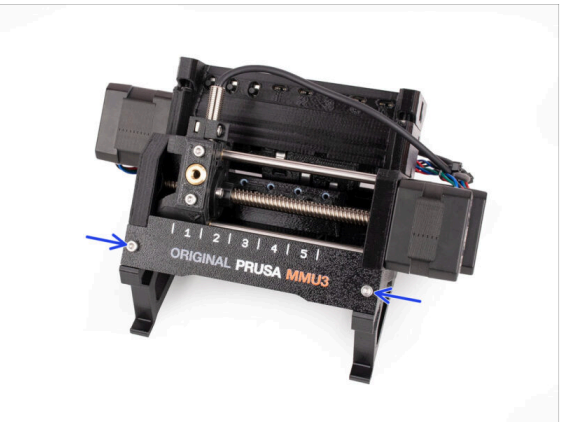
PASO 3 Frame holders assembly


- Turn the unit around.
- Insert the two **M3nS** nuts into the marked openings on the side of the unit. Push the nuts all the way in using the 1.5mm Allen key.
- Add the **frame holders** onto the unit. Make sure the part with the hooks is on the selector side of the MMU.
- Fix the frame holders to the unit with four **M3x10** screws.
- If the bolt doesn't easily go in, use the 1.5mm Allen key to adjust the nut position inside the Pulley body.

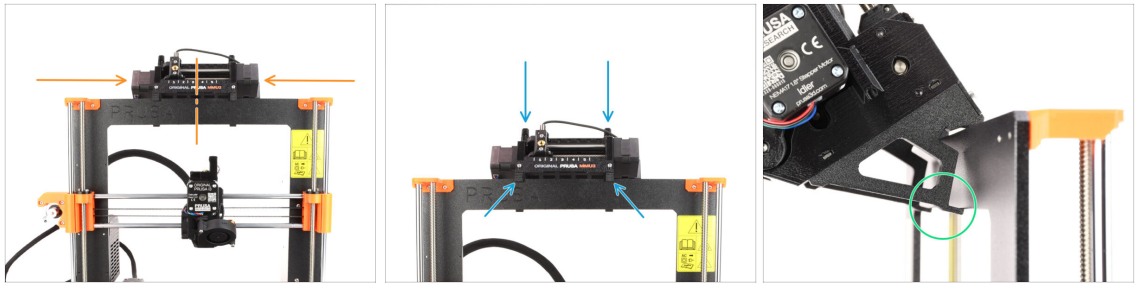
PASO 4 Label plate installation





- Insert the **label plate** into the recess on the front of the frame holders.
- Fix the label plate in place using the two **M3x10** screws.

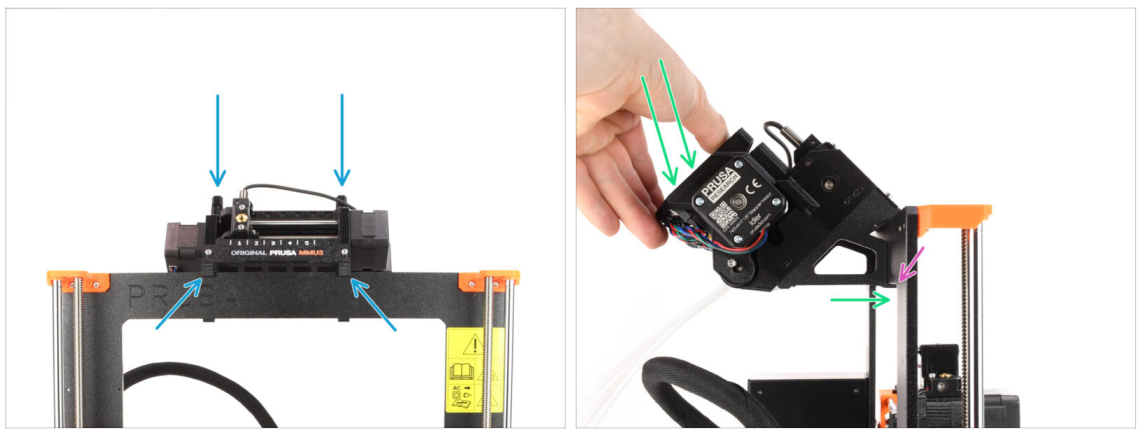
PASO 5 Attaching the MMU unit (part 1)



- The MMU3 unit should be placed in the middle of the top part of the printer's aluminum frame.
- Place the MMU3 unit onto the frame.

  Attach it just by the top hooks.
- Look from behind, there are "clamps", which will be used to lock the unit to the frame in the next step.

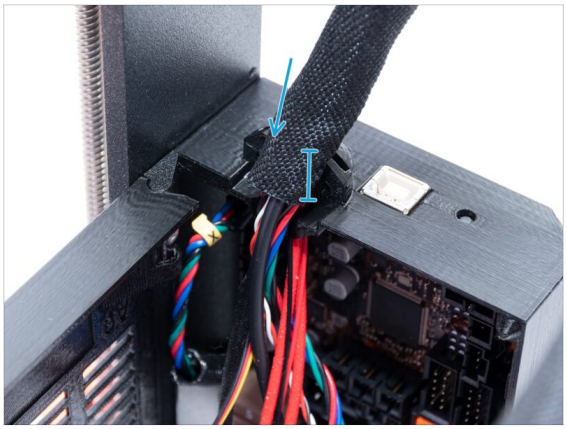
PASO 6 Attaching the MMU unit (part 2)

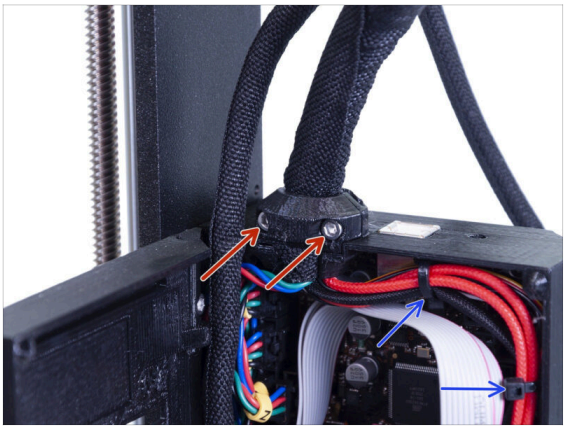


- Make sure the unit is in the middle of the frame. Once we engage the clamps, it won't move left and right as easily anymore.
- Press the back part of the MMU3 unit downwards slightly, until the clamps lock to the frame.
- Check that both bottom clamps on the unit are fully engaged.

ⓘ If you need to remove the unit from the frame, simply lift the back part up to disengage the clamps.

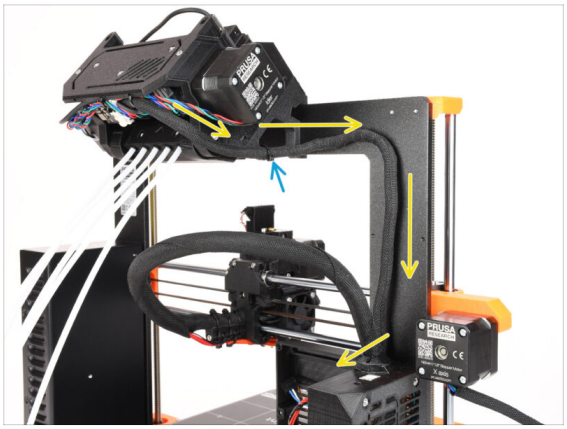
PASO 7 Attaching the cable bundle

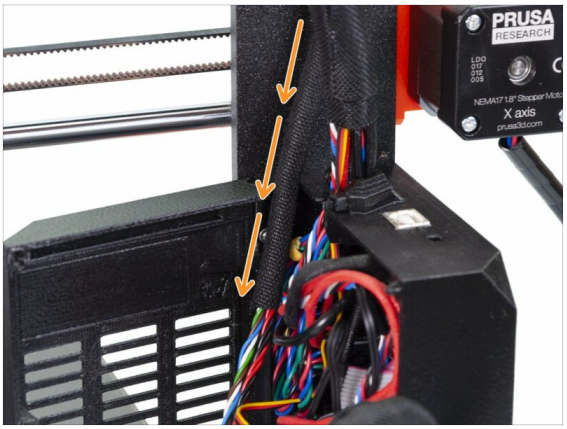




- Let's move onto the electronics box side of the **extruder cable** bundle.
- Tighten up the sleeve around the cable bundle. Hold it tight before you fix it in place with the clip and the screws. The textile sleeve should be held by the cable clip
- Fix the cable bundle in place by tightening the two **M3x10** screws holding the Extruder-cable-clip. Make sure no cable is getting pinched!
- For easier cable-management inside the electronics box, attach the extruder cable bundle to the hooks on the inside of the Einsy-base with two zip-ties in the marked positions.

PASO 8 Guiding the MMU cable



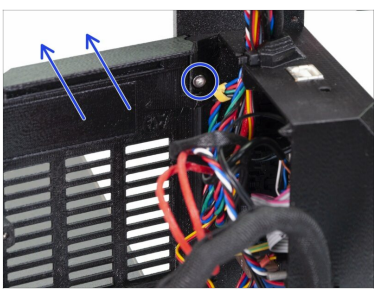


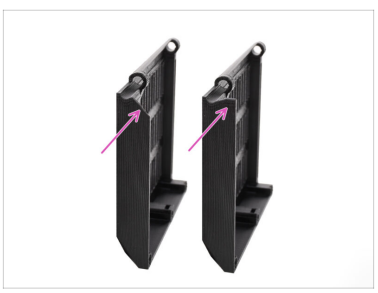
ⓘ Now, we will guide the cables from the MMU unit into the printer.

⚠ Make sure the printer is turned OFF and unplugged from the wall outlet. Do not ever connect or disconnect the MMU unit while the printer is ON.

- Introduce el haz de cables de la unidad MMU hacia la electrónica de la impresora. El cable debe colocarse justo al lado del bastidor de la impresora.
- You can fix the cable to the MMU3 holder using a zip-tie in marked location. Make sure it points to the side - not down. Otherwise, it might interfere with the extruder cable while printing.
- Guide the cable towards the electronics box.

PASO 9 MK3S+ Trimming the electronics box door



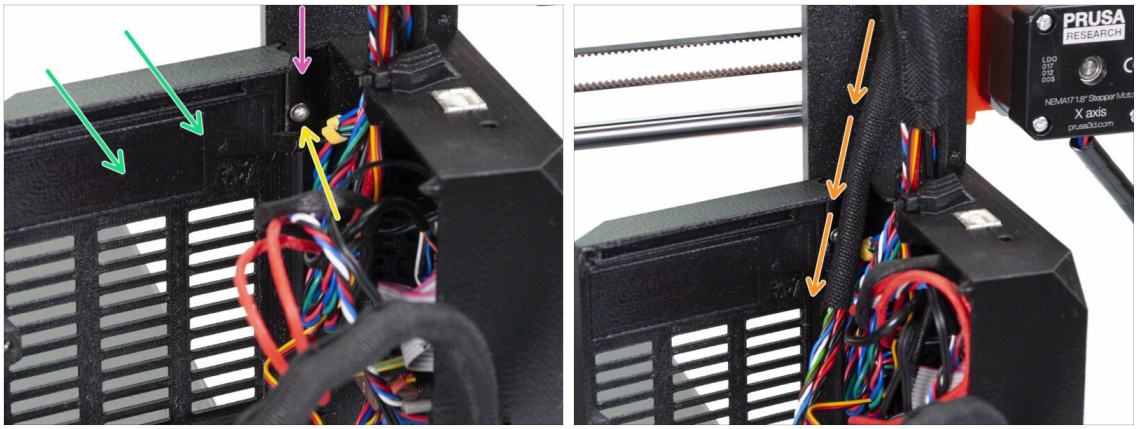


⚠ **WARNING:** We need to cut part of the plastic on the electronics box door to make some room for the MMU cable. Make sure you wear protective eyewear!

⚠ If you're upgrading from the MMU2S to MMU3 and your door has been trimmed already in the past, you can skip this step.

- Release and remove the M3x10 screw in the upper hinge. Remove the door together with the hinge by pulling it up.
- Using pliers, carefully cut the inner corner of the door. The MMU cable bundle will need some more clearance in the marked location.
- Comparison between the trimmed door (left) and its original shape (right).

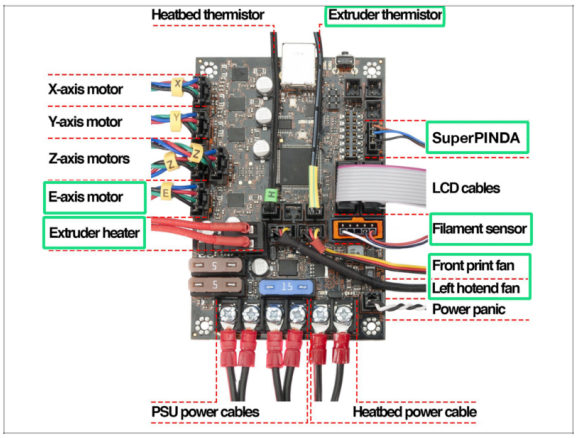
PASO 10 MK3S+ Trimmed electronics door installation



- Re-attach the door back onto the bottom hinge.
- Make sure the top hinge is in place.
- Attach the top hinge to the printers frame using the M3x10 screw.
- Make sure there is enough clearance for the MMU3 cable when you close the door.

⚠ The cable should be held by the door but must not be squished too much. Otherwise, you risk damaging the cable!

PASO 11 MK3S+ Electronics wiring diagram

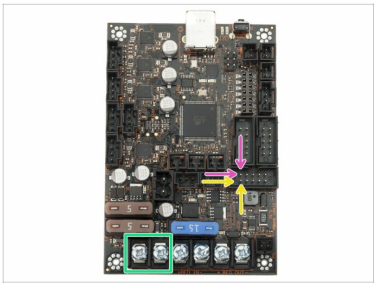
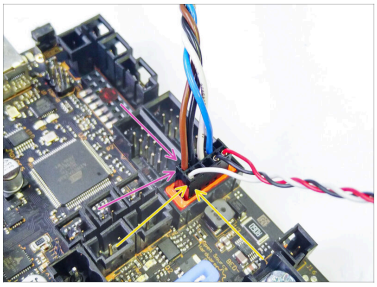
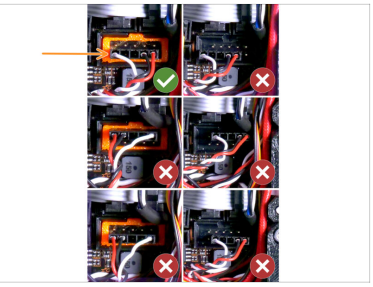


⚠ In the following step, we will connect the cables to the already existing connections on your **Original Prusa MK3S+. Please, proceed very carefully.**

- Follow the diagram shown here in case you need to reconnect any of the extruder cables into the Einsy Rambo control board.

Since, **MK2.5S** printer isn't officially supported in combination with the MMU3, this guide doesn't cover connecting the electronics on it. Instead, it is described in the MK2.5S MMU2S guide.

PASO 12 MK3S+ Connecting the data and FS cables

- Observe la posición marcada. El conector del **cable de señal del MMU** debe ir aquí. (fila superior de los pines, cable marrón en el conector debe estar mirando hacia la izquierda)

  Upper row of the pins, the **brown** wire in the plug must be facing **left**!

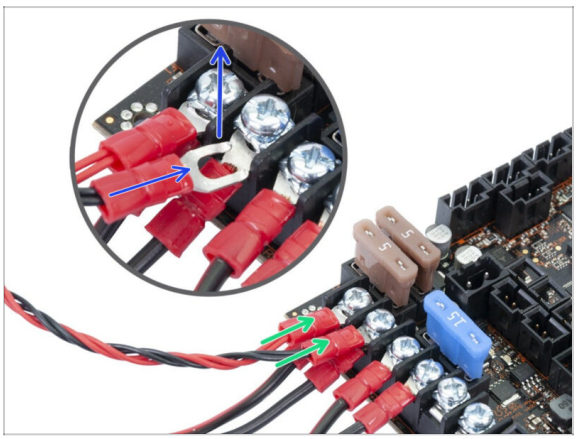
- El **cable del sensor de filamento IR** está justo debajo del cable de señal de la MMU.

  Bottom row of the pins, the **white** wire is facing **left**.

- Verify the IR Filament sensor connector is installed correctly. Make sure it is plugged in correctly as there are several ways for it to go wrong!

⚠ **¡Asegúrate de que el cable de señal está conectado adecuadamente a todos los pines!**

PASO 13 Conexión de los cables de alimentación MK3S+



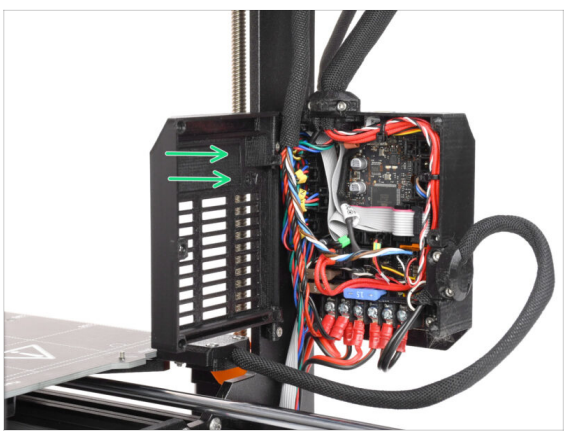
- Connect the Power cable fork connectors.
  First, loosen the screws on the terminals so that there is enough space.
  - Stack the MMU power connectors on top of the the PSU cable connections in the first two clamps on the left side of the Einsy board.
  - The power cable connector "fork" has bent ends. Make sure they point up. See the picture for a reference.
  - Red (+ / positive) wire goes into the first slot.

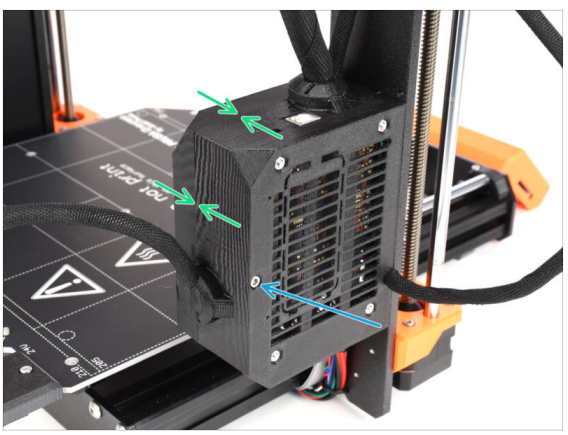
    Black (- / negative) wire goes into the second slot.

⚠ ¡Aprieta los cables de alimentación firmemente!

⚠ **Confirm that the cables are connected in the correct order to avoid causing damage to the device.**

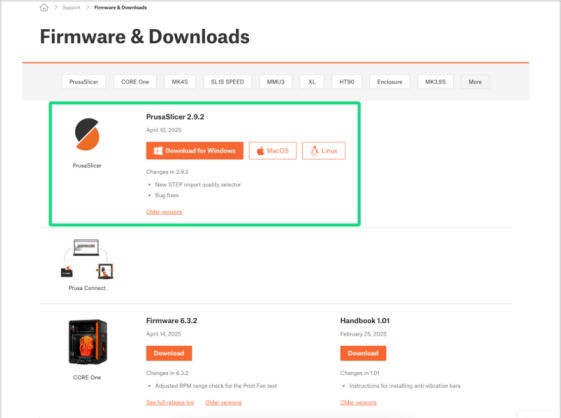
PASO 14 MK3S+ Closing the electronics box

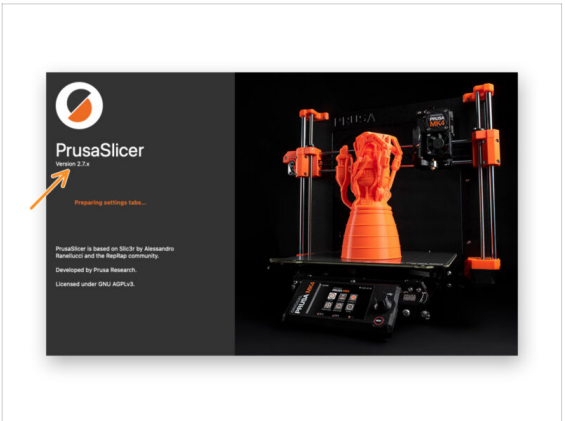




- Close the door. Make sure no wire is being pinched while you close the door.
- Tighten up the M3x40 screw from the other side to lock the door.

PASO 15 Software Download

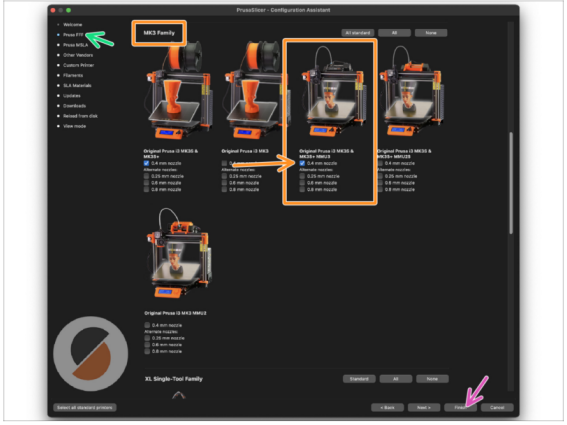


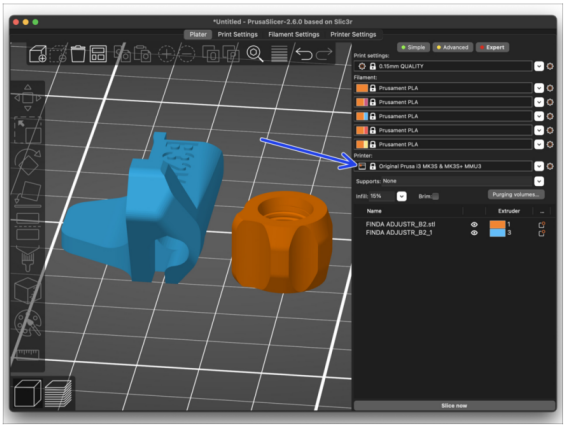


- Visita help.prusa3d.com/downloads
- Descarga el último **PrusaSlicer**.
- ¡Deja esta página abierta para los siguientes pasos!
- Instala el paquete en su ordenador y abre el **PrusaSlicer.**

  PrusaSlicer incluye la herramienta de actualización del firmware.

PASO 16 PrusaSlicer setup for MMU3



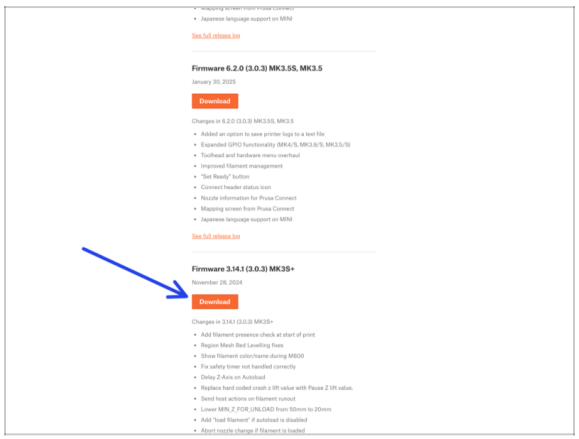


- Open the PrusaSlicer Assistant / Wizard. **(Configuration > Configuration Assistant > Prusa FFF)**
- Desplázate hasta **Familia MK3** y asegúrate de que la opción de la impresora correspondiente + **MMU3** está seleccionada, dependiendo del modelo de impresora que tengas.

  ⓘ The default **nozzle is 0.4mm** from factory.
- Click Finish to close the Wizard.
- En el menú **Impresora:**, selecciona el perfil de impresora **MMU3** para los laminados futuros.

Ten en cuenta que la MMU3 en la MK3S+ es compatible con el antiguo perfil MMU2S de Slicer y los códigos G, ¡pero no con los perfiles del MMU2!

PASO 17 Firmware files download

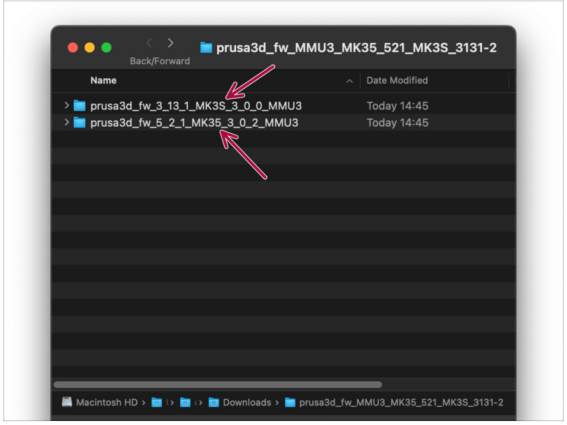


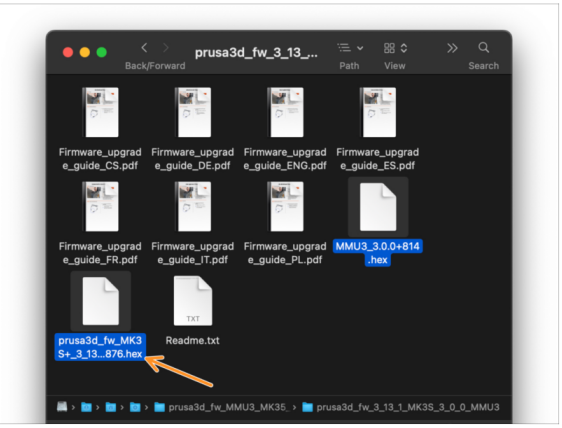
⚠ Deberás actualizar tanto el firmware de la impresora como el de la unidad MMU. Utiliza únicamente una combinación de las versiones de firmware más recientes para ambos dispositivos juntos.

⚠ Please refer to the MMU3 Firmware Compatibility article to find out exactly which firmware version you need.

- Visita la página de Descargas del MMU3 en Help.Prusa3D.com
- Find the ORIGINAL PRUSA **MMU3** on the list. Download the latest **FIRMWARE** file bundle.

PASO 18 Selecting a Printer firmware file



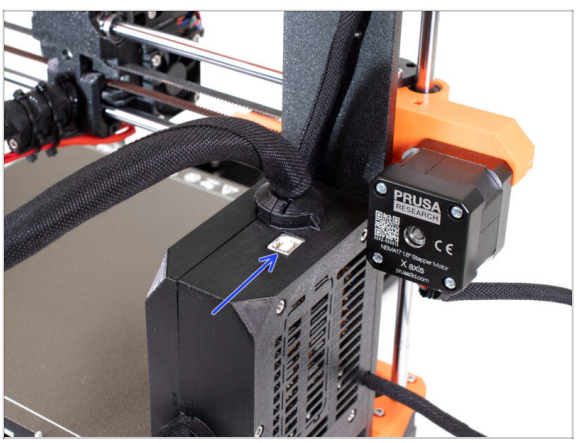


- Abre el paquete de firmware que has descargado anteriormente. Abre una de las carpetas en función del modelo de impresora que tengas (selecciona "**MK3S" para el modelo de la MK3S+**)
- There are two firmware files in the folder. One for the printer, the other one for the MMU unit.
  - As a firmware file for the **MK3S+**, select the MK3S+ **.hex** file

⚠ On MK3S+ printer, MMU3 requires printer firmware **3.13 or newer!**

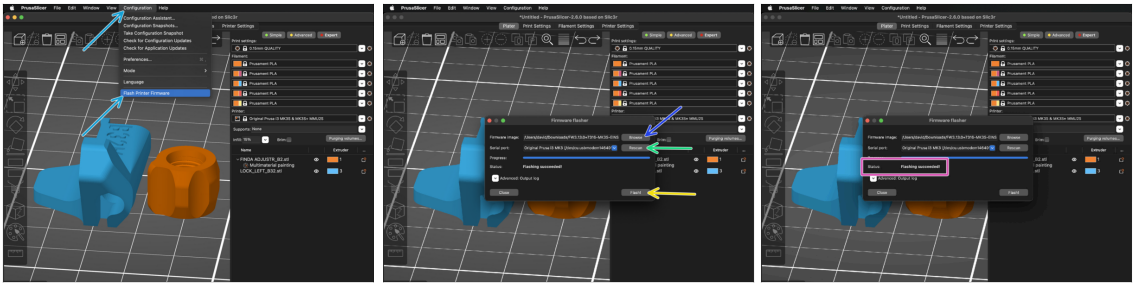
If you are updating from a printer firmware 3.11 or older, the printer will require you to do a thermal model calibration first.

PASO 19 Flasheo Firmware MK3S+ (parte 1)



- Connect the printer to the electricity and **turn it on.**
- Now, let's flash the **printer's firmware.**
- To flash the **MK3S+**, use the bundled **USB Type B** cable to connect the computer to the top of the black electronics box on the printer.
  - Then, continue to the next step.

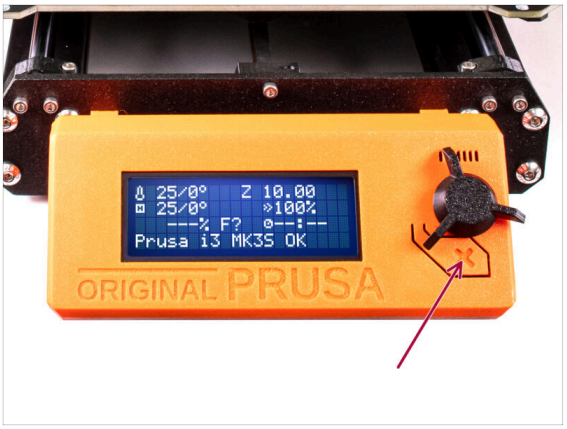
PASO 20 MK3S+ Firmware flashing (part 2)



- Abre PrusaSlicer y selecciona **Configuración ->Flashear Firmware Impresora** en el menú superior.
- First, select the **printer's firmware file** on your computer. (e.g. *FW3.13.0-MK3S-EINSY10a_MULTILANG.hex*)
- Hit **Rescan** to make sure your printer appears in the *Serial port:* column
- Presiona el botón de **Flashear**.
- Wait until you see the **Flashing succeeded** message.

En caso de que tengas problemas al instalar el firmware, por favor visita el artículo para solucionar problemas.

PASO 21 Encendido y reinicio de la MMU MK3S+



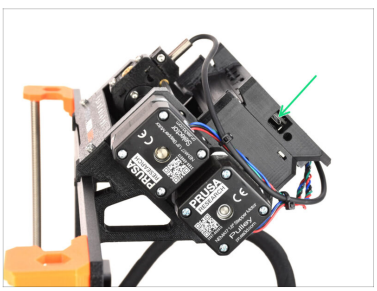
- After finishing the firmware update, **make sure there are no filaments loaded** neither in the extruder, or in the MMU unit.
- Navigate to the **LCD menu > Settings > MMU** and make sure it is set to **MMU [On]**
- Pulsa el botón de reinicio en la caja LCD de la impresora.

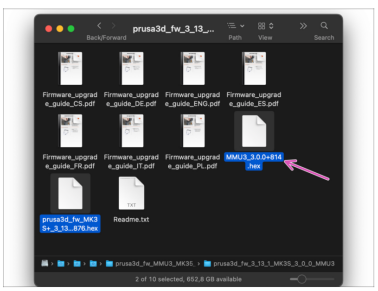
⚠ From now on, the reset button on the printer resets also the MMU unit. Wait for a while, the MMU unit will go through the self-test routine. (accompanied by flashing LED lights on the MMU unit) **Wait until it boots up** properly, before issuing any commands to the printer.

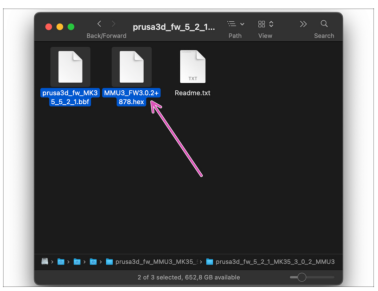
In case of necessity, the reset button is also useful to help you get out of some unrecoverable situations even for the MMU unit. But remember, it also aborts an ongoing print immediately.

ⓘ If you see the Unload manually error, check that the SuperFINDA sensor is not detecting a filament.

PASO 22 MMU3 Firmware flashing (part 1)

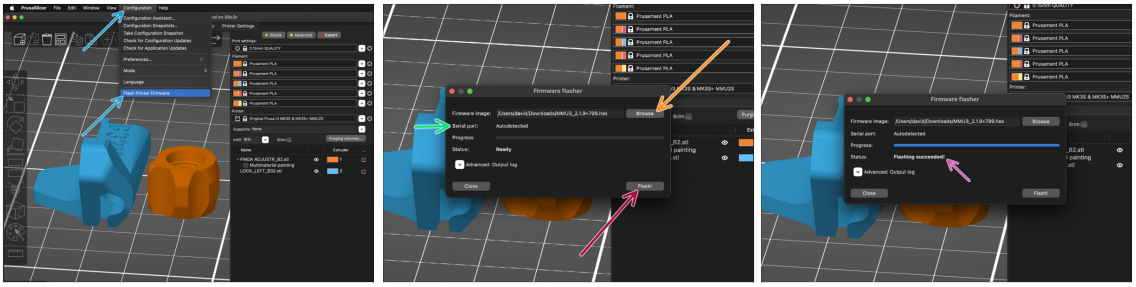






- The MMU3 firmware file needs to be flashed into the MMU unit itself. Find the **microUSB** connector on the right side of the MMU3 unit.
- Connect the unit to your computer using the bundled microUSB cable.
- On your computer, select the appropriate **MMU firmware file** compatible with your printer model.

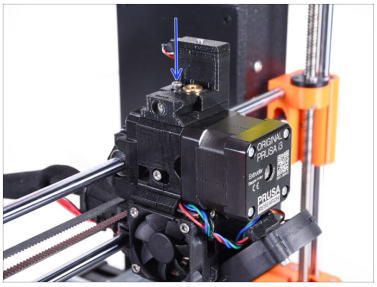
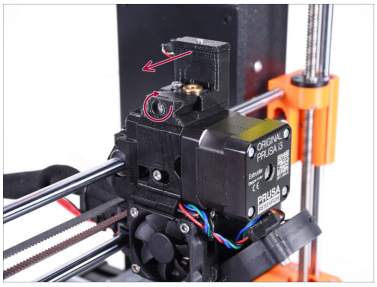
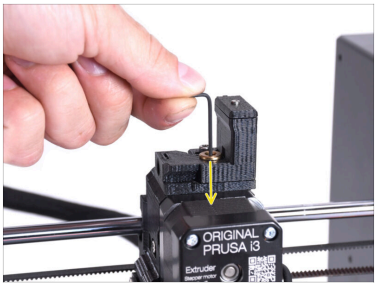
PASO 23 MMU3 Firmware flashing (part 2)



- Abre PrusaSlicer y selecciona **Configuración ->Flashear Firmware Impresora** en el menú superior.
- Haz clic en **Buscar** y selecciona el archivo de imagen del firmware MMU3 en tu ordenador.
  (por ejemplo *MMU3_3.0.0.hex*)
- El puerto serie debería detectarse automáticamente.
- Presiona el botón de **Flashear**.
- Espera hasta que aparezca el mensaje **¡Exito al flashear!**.
- Una vez finalizado el flasheo, desconecta el cable USB.

ⓘ En caso de que tengas problemas al instalar el firmware, por favor visita el artículo para solucionar problemas.

PASO 24 IR filament sensor calibration (Part 1)

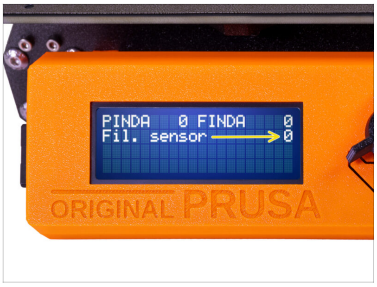




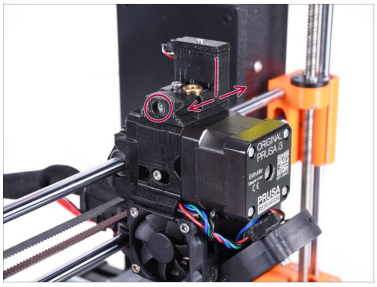
⚠ In the following steps, we will calibrate the IR Filament sensor iside the Chimney on the extruder. Follow the instructions carefully, **this part is very important!**

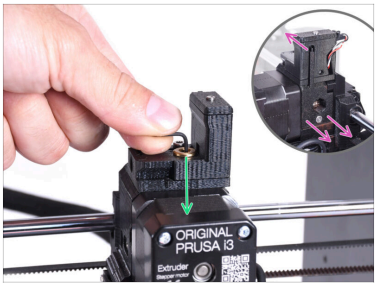
- Con una llave Allen de 2.5mm, asegúrate de que el **tornillo prisionero** de la Chimenea no esté apretado. No lo quites del todo. Mantiene unida la chimenea.
- Apriete con cuidado el **tornillo de calibración** lateral para que la chimenea se desplace completamente hacia la izquierda.
  - Al **apretar** el tornillo de calibración, la chimenea se desplaza hacia la izquierda, haciéndola **menos** sensible a la activación.
  - Al **aflojar** el tornillo de calibración, la chimenea se desplaza hacia la derecha, haciéndola **más** sensible a la activación.
- Tighten the calibration screw until the chimney moves all the way to the left.
- Inserta una llave Allen de 1.5mm en el extrusor. No la empujes hasta el fondo todavía.

⚠ Make sure you are using the thinnest of the bundled Allen keys; 1.5mm. Do not use the 2mm one!!

PASO 25 IR filament sensor calibration (Part 2)







- Ve a **Menu > Soporte > Info sensor > Sensor Fil.** en tu MK3S+

  El sensor Fil. debe indicar el valor 0 / NINS cuando la llave Allen no está presionada hasta el fondo para que la puerta tensora no esté inclinada hacia fuera.

- Ahora empuja la llave Allen de 1.5mm hacia abajo hasta que toque los engranajes Bondtech.

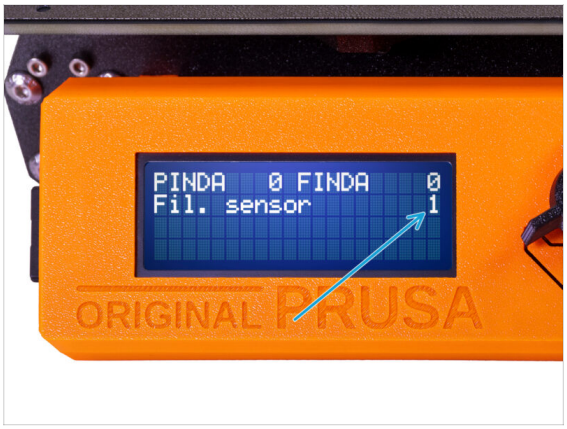
  ⓘ (no temas hacer fuerza hacia abajo para colocar la llave entre los engranajes)

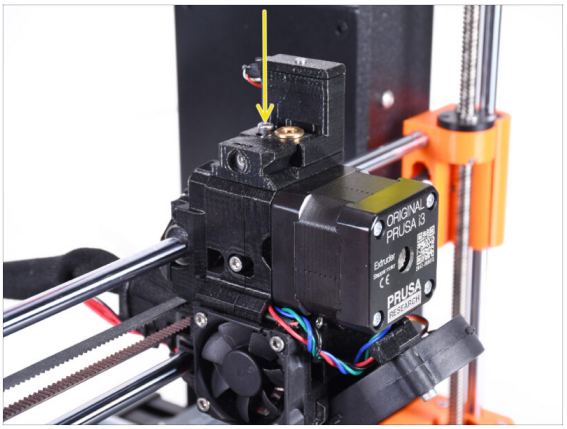
- La puerta del rodillo tensor a la derecha del extrusor debe inclinarse ligeramente hacia fuera simulando un filamento insertado.

⚠ La línea **Fil. sensor**: en la pantalla LCD debería indicar el valor **1** con la llave Allen (o un filamento) **introducido**. Sigue soltando el tornillo de calibración hasta que haya número **1 en la pantalla LCD.**
Luego, aflójalo otra media vuelta.

- **Girando el tornillo de calibración, tenemos que afinar la posición de la chimenea para que el número en la pantalla LCD cambie de forma fiable al insertar y extraer la llave Allen o el filamento de los engranajes Bontech.**

PASO 26 IR filament sensor calibration (Part 3)





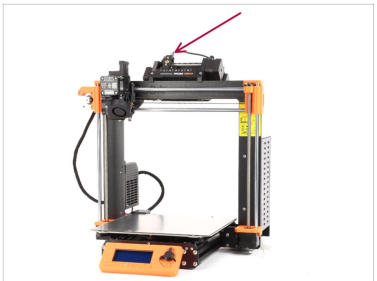
⚠ **¡Calibrar el sensor de filamento IR es supercrucial para que la unidad MMU3 funcione correctamente!**

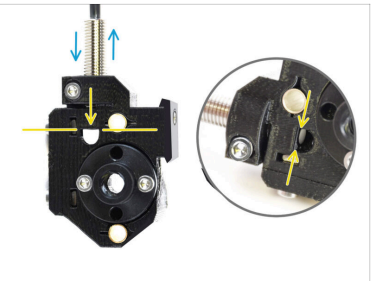
ⓘ Por favor, repite esta comprobación varias veces.

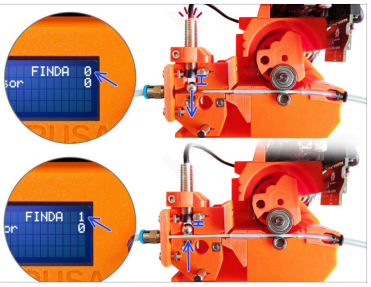
- Confirma que el sensor funciona correctamente: Vuelve a ver la pantalla LCD si el número del **sensor fil.**
  - muestra **1** cuando la llave Allen (/filamento) se introduce hasta el final
  - o **0** cuando no se introduce hasta el final.
- Cuando el sensor funcione de forma fiable y correcta, bloquea la chimenea apretando el tornillo de bloqueo desde arriba.
- Después de apretar el tornillo, verifica que las lecturas en la pantalla LCD siguen siendo correctas al insertar y retirar la llave Allen.

ⓘ Encontrará más información sobre la calibración del sensor IR de filamento en el artículo **Procedimiento de calibración del sensor IR** o en el capítulo 7.1 del Manual.

PASO 27 SuperFINDA sensor calibration info





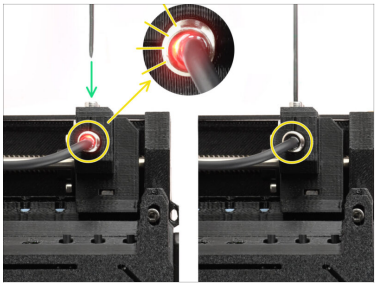


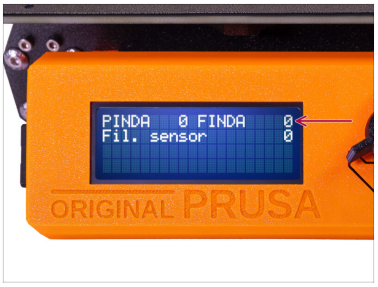
- Si montaste el MMU3, el **sensor SuperFINDA** dentro del selector debe calibrarse.
- For **factory-assembled MMU3** units, the SuperFINDA is pre-calibrated, so you can skip the calibration steps.
- En el siguiente paso, calibraremos la posición del sensor.

⚠ **Es CRíTICO** que tanto el **sensor de filamento en el extrusor como el sensor SuperFINDA funcionen con precisión.**. De lo contrario, tendrás problemas con el dispositivo.

- Utiliza la ventana de inspección del selector para alinear la parte inferior del sensor con la parte superior de la ventana, como punto de partida.
- When filament is in the selector, the steel ball rises and should be detected by the SuperFINDA sensor. Ensure the distance between the ball and the sensor is perfectly calibrated.

PASO 28 SuperFINDA calibration



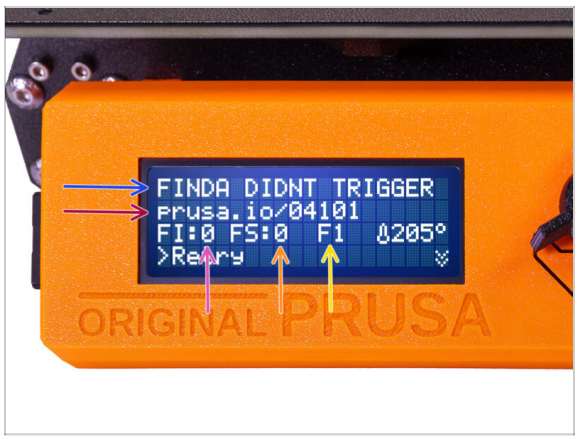


- Coge un trozo de filamento con la punta afilada e introdúcelo en el selector a través de la abertura roscada de latón de la parte delantera.
- Echa un vistazo a SuperFINDA desde arriba y fíjate en la lucecita roja del interior del sensor que se apaga cuando el filamento levanta la bola de acero de su interior.

  Red light = no filament detected = FINDA 0
  No light = filament detected = FINDA 1
- Si la luz sigue encendida, baja ligeramente la SuperFINDA.
  Si la luz no se enciende, levanta la sonda SuperFINDA soltando el tornillo de su lado, moviendo la sonda y volviendo a apretar el tornillo.
- Observa las lecturas del sensor en la pantalla LCD (**Menú > Soporte > Info sensor** o **Info > Info sensor**) Ten en cuenta que hay un ligero retraso en las lecturas del sensor en la pantalla LCD; procede lentamente.

⚠ Repite la prueba introduciendo y extrayendo el filamento. Observa los valores en la pantalla LCD. Ajuste la altura de la SuperFINDA en consecuencia **hasta que obtengas lecturas fiables del sensor cada vez que insertes y retires el filamento.**

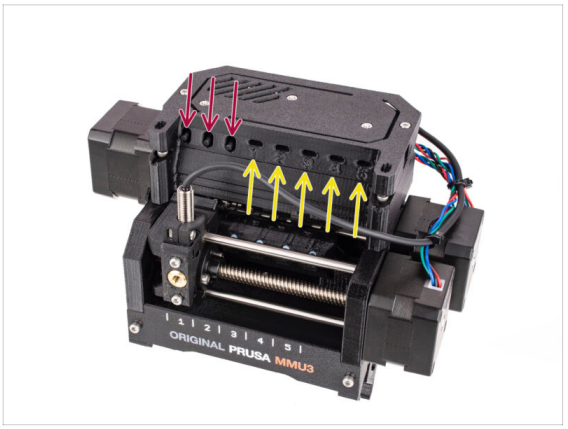
PASO 29 Error code details (Part 1)



- Later on, an **MMU error screen** will show up if something goes wrong during the operation. See the example image; the first line describes briefly, what's the error about.
  - prusa.io/04101 is a web address, where you can view a detailed article about the exact issue, and how to fix it.
  - **FI:0** / **SuperFINDA** sensor reading. **FI:0 / OFF** = no filament detected. **FI:1 / ON** = it is detecting a filament.

    (Note the FINDA status reading on the LCD has a slight delay.)
  - **FS:0** = **Filament Sensor** reading. This is the sensor inside the chimney on the extruder / print head.
  - **F1** is the expected filament position. It means, the selector is in the first position. **1>3** would mean, the selector is changing from the first to the third. **F?** = position not yet set.

PASO 30 Detalles del código de error (Parte 2)

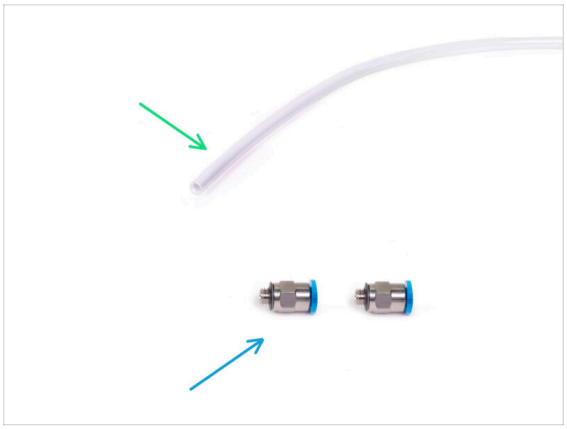


- The bottom line are the **solution buttons**. Some errors have multiple solutions.
  - In the bottom right corner, selecting the two **downward arrows** will get you a more detailed error description and possible solution, if the error persists.
- MMU unit being in an **error state** is also indicated by its LED lights flashing.
- While in an **ERROR state**, the buttons on the MMU unit can be used to resolve the error too.
  - El **botón central** suele replicar la función de los botones de solución del LCD.

⚠ Note, if the MMU unit is in **IDLE state**, the buttons **have a different functions;** For example; If there is no filament loaded, the side buttons can be used to move the selector right and left. But more on that later.

While in an error state, the printer might be beeping. You can change the **Sound setting** in the Tune or Settings menu.

PASO 31 MMU-to-Extruder PTFE tube parts preparation



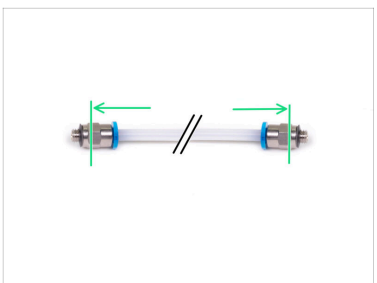
- **Para los siguientes pasos, por favor prepara:**
- Tubo PTFE 360x2.5mm (1x)

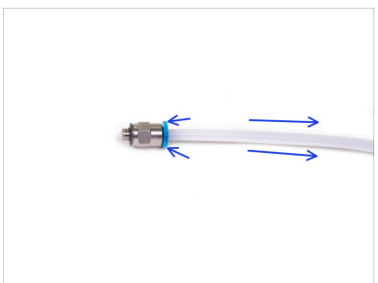
  El **nuevo tubo de PTFE** tiene un **diámetro interno de 2.5 mm**. En caso de que estés actualizando desde el tubo MMU2S de 2mm de diámetro interno, y tengas problemas para distinguir entre el antiguo y el nuevo, prueba a comparar el diámetro interno de ambos. Mira la segunda imagen. El tubo de la izquierda es el nuevo.

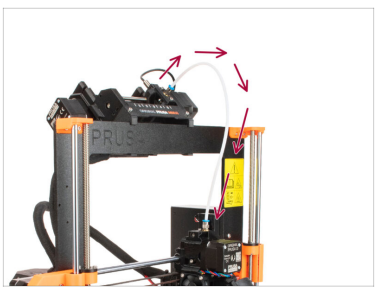
  A 2.5mm ID PTFE tube is required for the MMU3.
- Racores FESTO (2x)

  The fittings may have either a blue or a black collet. Functionally, they are the same.

PASO 32 MMU-to-Extruder PTFE tube

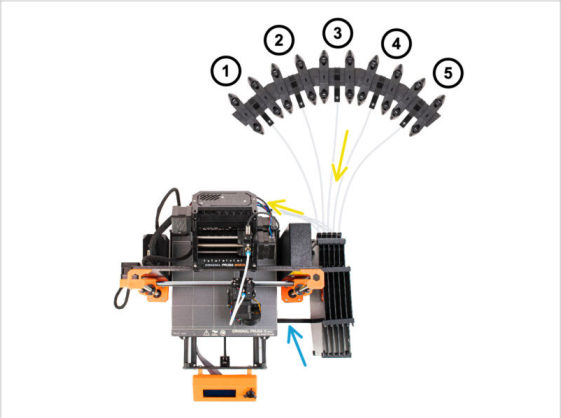






- Attach the fittings onto both sides of the new PTFE tube (4x2.5x360mm)
  - Push the PTFE tube in fully.
  - *Consejo rápido:* **Si necesita retirar el tubo de PTFE** del racor, presiona la pinza azul hacia dentro. Mientras la pinza está presionada, presiona primero el tubo de PTFE hacia dentro y, a continuación, extráelo por completo.
- Coloca el tubo de PTFE en la impresora. Un extremo va al selector. El otro en el extrusor. Aprieta los racores con la Unikey.

PASO 33 Spoolholders setup



¡Felicidades! La parte más difícil ya ha pasado.

- La configuración del buffer y las bobinas de la imagen es la que intentaremos conseguir. Coloca los **soportes de bobinas** y el **buffer** como en la imagen.
- Hook up the "printer holder" part on the buffer to the extrusion on the printer.
- The PTFE tubes go from the spoolholders to the buffer. Then, from the buffer to the back of the MMU.

Observa la posición del portabobinas. Es importante que el filamento tengas **un recorrido lo más recto posible** y que nada interfiera. Los tubos de PTFE **no se deben doblar demasiado**. De lo contrario, los filamentos se atascarán.

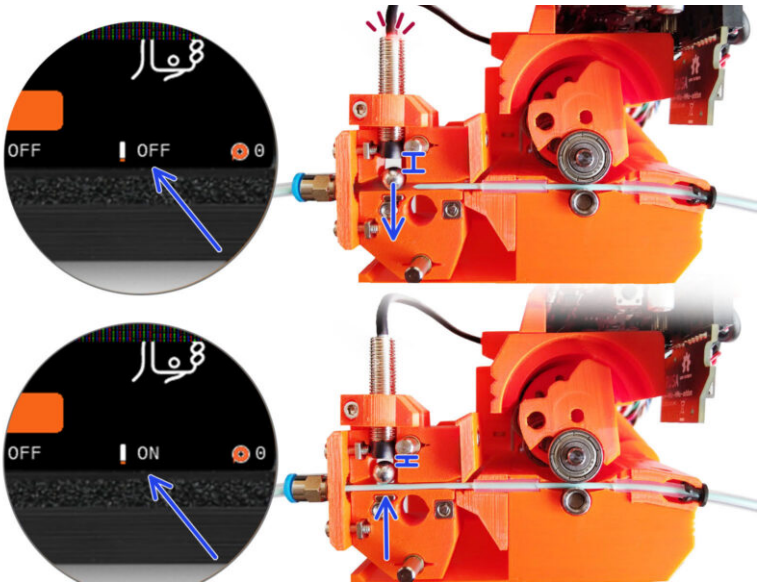
Note that due to the decreased filament friction in the MMU3 compared to the MMU2S, some of the 3rd-party MMU2S re-winding spool holders might no longer work with the MMU3.

PASO 34 Connecting Buffer PTFE tubes

- Connect the PTFE tubes **from the MMU** unit to the **BOTTOM row of collets** on the buffer, ensuring you match the numbering on both the buffer and the MMU unit.
- Attach each end of the PTFE tube from the Buffer to the PTFE holder on each Spool holder.

Make sure each spool holder is hooked up to the corresponding filament position number. (marked 1 to 5 on the MMU unit and the buffer.)

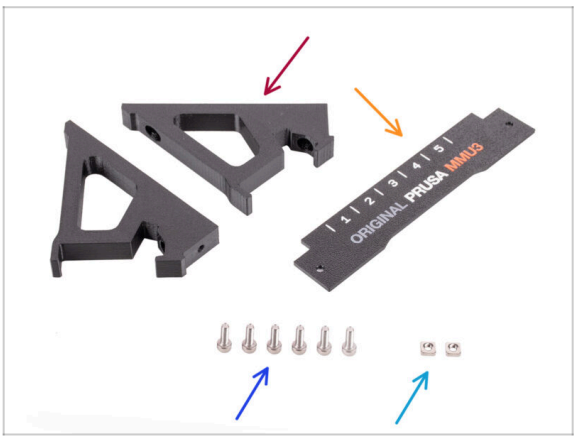
10C. Configuración y Calibración MK3.5



PASO 1 Herramientas necesarias para este capitulo

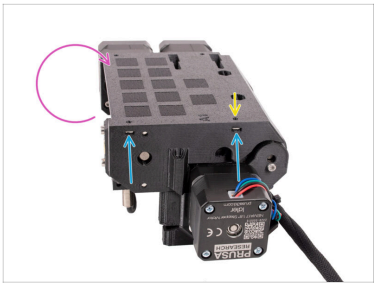
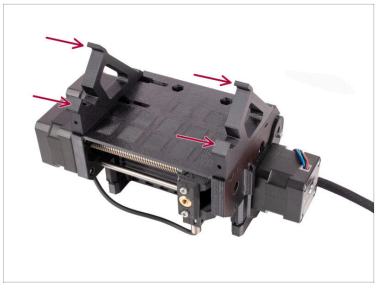
- **Por favor prepara las herramientas para este capítulo:**
- Unikey for tightening up the Festo fittings.
- 1.5mm Allen key for Filament sensor calibration
- Llave Allen de 2.5mm para tornillos M3
- Phillips screwdriver for power cable terminals

PASO 2 Frame holders parts preparation



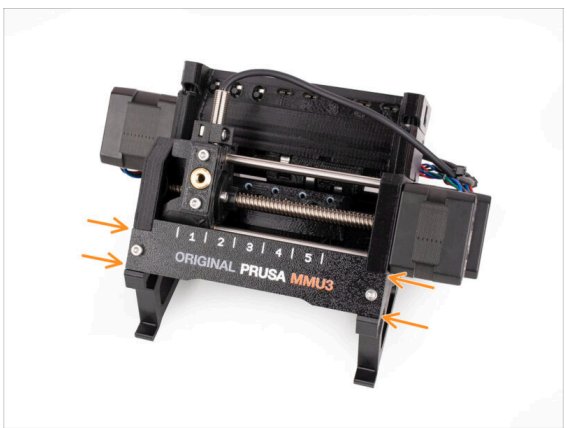
- Frame holder (2x)
- Label-plate (1x)
- M3x10 screws (6x)
- M3nS nut (2x)

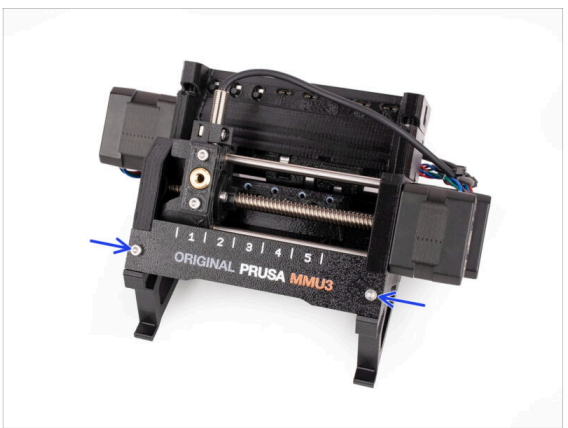
PASO 3 Frame holders assembly


- Turn the unit around.
- Insert the two **M3nS** nuts into the marked openings on the side of the unit. Push the nuts all the way in using the 1.5mm Allen key.
- Add the **frame holders** onto the unit. Make sure the part with the hooks is on the selector side of the MMU.
- Fix the frame holders to the unit with four **M3x10** screws.
- If the bolt doesn't easily go in, use the 1.5mm Allen key to adjust the nut position inside the Pulley body.

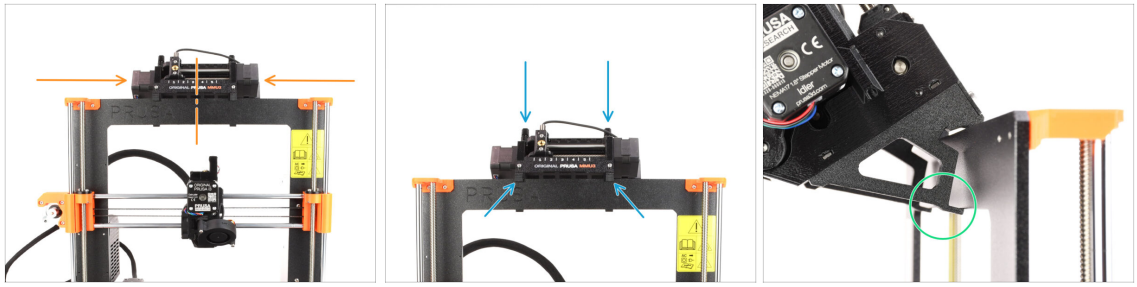
PASO 4 Label plate installation





- Insert the **label plate** into the recess on the front of the frame holders.
- Fix the label plate in place using the two **M3x10** screws.

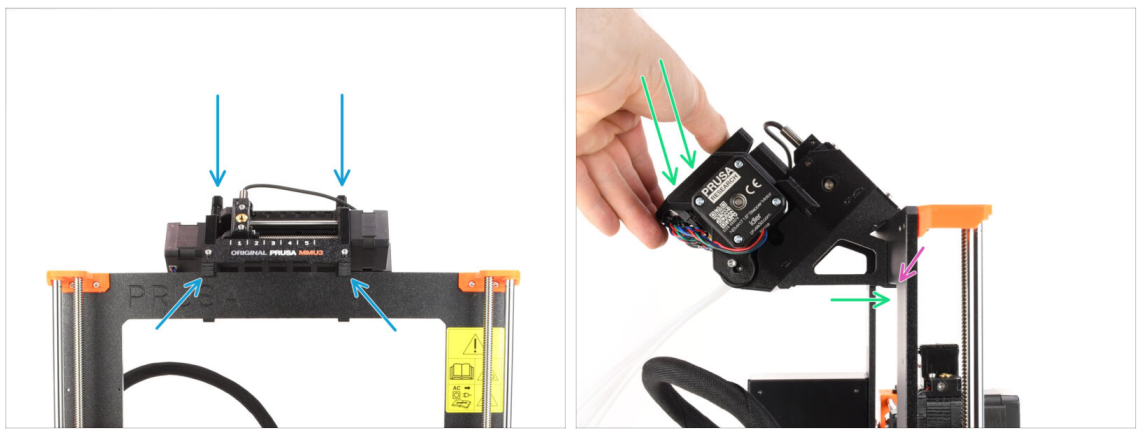
PASO 5 Attaching the MMU unit (part 1)



- The MMU3 unit should be placed in the middle of the top part of the printer's aluminum frame.
- Place the MMU3 unit onto the frame.

  Attach it just by the top hooks.
- Look from behind, there are "clamps", which will be used to lock the unit to the frame in the next step.

PASO 6 Attaching the MMU unit (part 2)



- Make sure the unit is in the middle of the frame. Once we engage the clamps, it won't move left and right as easily anymore.
- Press the back part of the MMU3 unit downwards slightly, until the clamps lock to the frame.
- Check that both bottom clamps on the unit are fully engaged.

ⓘ If you need to remove the unit from the frame, simply lift the back part up to disengage the clamps.

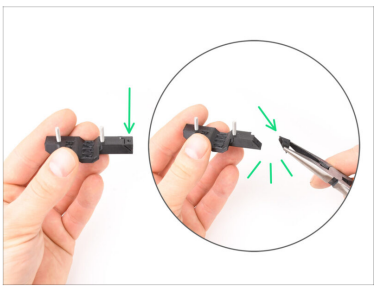
PASO 7 Guiding the cable

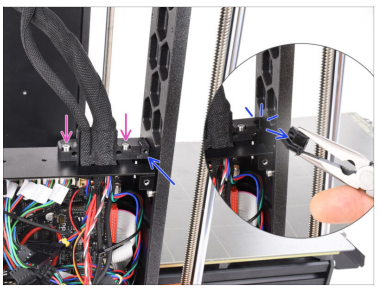
Now, we will guide the cables from the MMU unit into the printer.

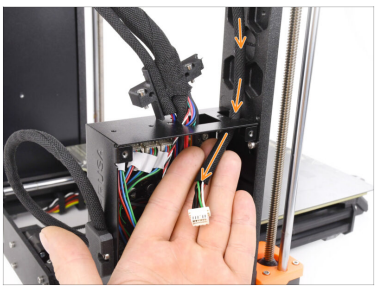
Make sure the printer is turned OFF and unplugged from the wall outlet. Do not ever connect or disconnect the MMU unit while the printer is ON.

- Introduce el haz de cables de la unidad MMU hacia la electrónica de la impresora. El cable debe colocarse justo al lado del bastidor de la impresora.

PASO 8 MK3.5 Cable installation

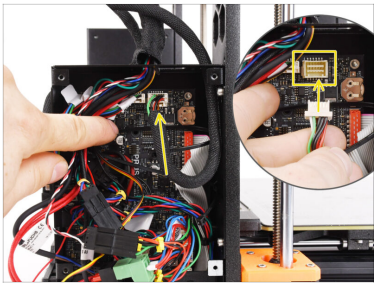
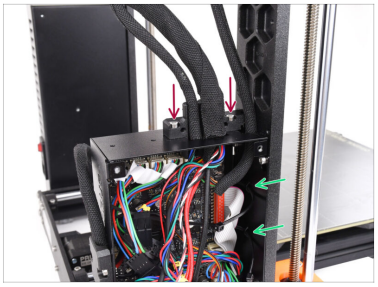
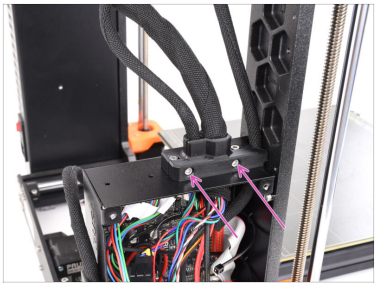






- Take the **Ext-cable-holder-a** plastic component. There is a small part that needs to be breaked off in order to make space for the MMU cable. Remove the part using needle-nose pliers.
- Similarly, remove the break-off part on the **Ext-cable-holder-b**.
- Loosen the two M3x10 screws on top of the cable cover.
- Guide the **MMU/Printer cable** through the corresponding opening into the xBuddy box.

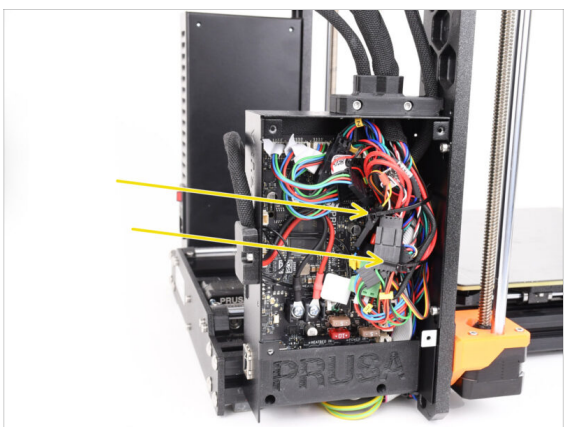
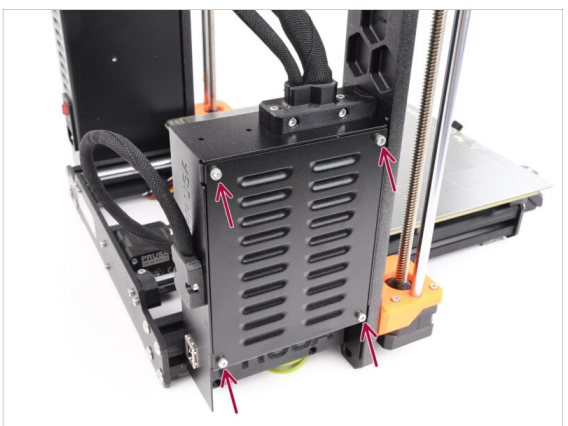
PASO 9 MK3.5 Cable management

- **Plug the MMU/Printer cable** into the corresponding connector on top of the xBuddy board.
- Attach the **cable-holder-b** back onto the xBuddy box using two M3x10 screws.
- Insert two new zip-ties into the marked opening on the inside of the xBuddy box. Make sure the zip-ties wrap around the cable bundle.
- Attach the **cable-holder-a** part using two M3x18 screws. Make sure no cable is getting pinched.

ⓘ To verify the remaining cable connections are connected properly, refer to the MK3.5 assembly guide

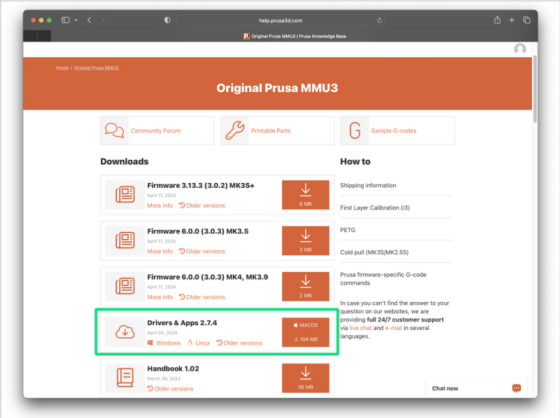
PASO 10 Cerrando la caja de electrónica MK3.5

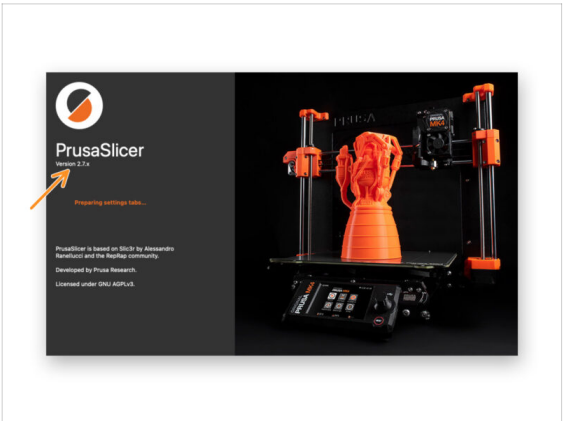



- Ensure all connectors in the cable bundle remain fully inserted.
- Wrap the **zip-ties** around the cable bundle and **gently tighten**. Cut off the remaining zip-tie.

  ⚠ Secure the zip-ties snugly but not too tight to avoid the risk of accidentally disconnecting or damaging the cables.
- Alinea la tapa de la caja xBuddy con la caja xBuddy y fíjala con cuatro tornillos M3x6.

PASO 11 Software Download

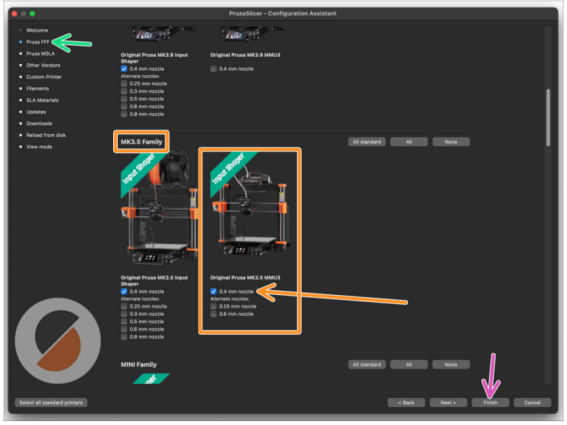


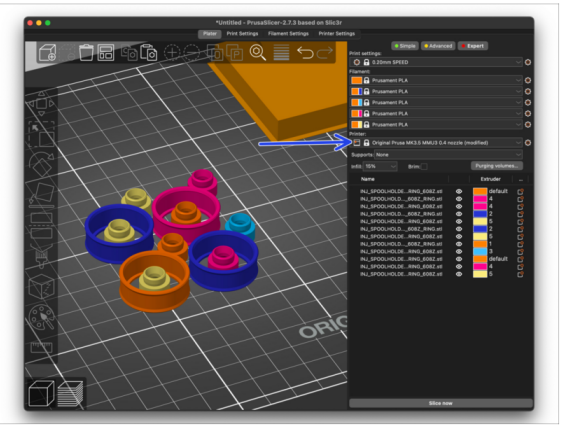


- Visita la página de la MMU3 en Help.Prusa3D.com
- Descarga el último pack de **Drivers y Apps**.
- ¡Deja esta página abierta para los siguientes pasos!
- Instala el paquete descargado en tu ordenador y abre la aplicación de **PrusaSlicer**.

  ⓘ **PrusaSlicer** es parte del paquete de controladores. Incluye la herramienta de actualización del firmware. El paquete de controladores también incluye objetos de muestra para imprimir.

PASO 12 PrusaSlicer setup for MMU3

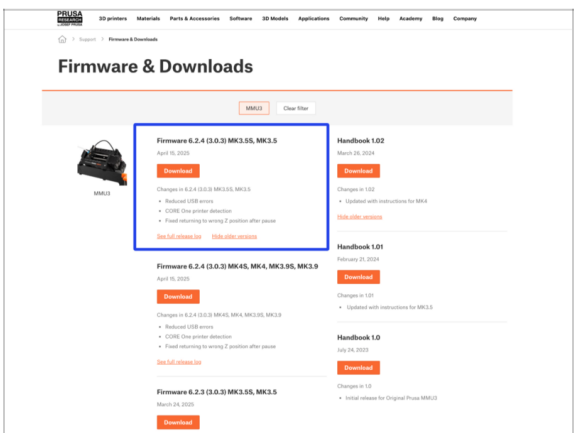




- Open the PrusaSlicer Assistant / Wizard. (Configuration > Configuration Assistant > Prusa FFF)
- Scroll down to **MK3.5 Family** and make sure that the corresponding printer + **MMU3** option is selected.
  - The default **nozzle is 0.4mm** from factory.
- Click Finish to close the Wizard.
- In **Printer:** menu, select the **MMU3** printer profile for future slicing.

Note, the MMU3 on MK3.5 is reverse-compatible with the older MK3S+ MMU3 or MMU2S Slicer profile and G-codes - but not with the MMU2 profiles!

PASO 13 Firmware files download

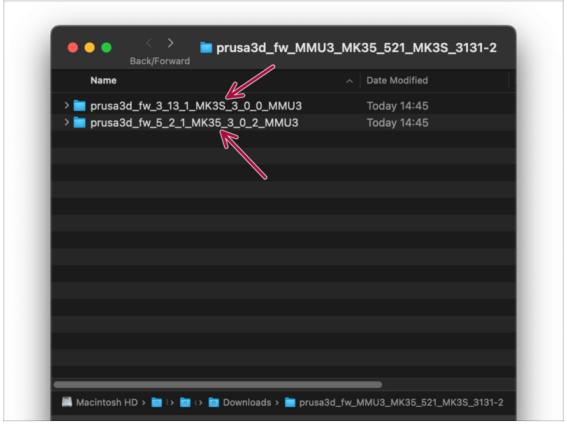


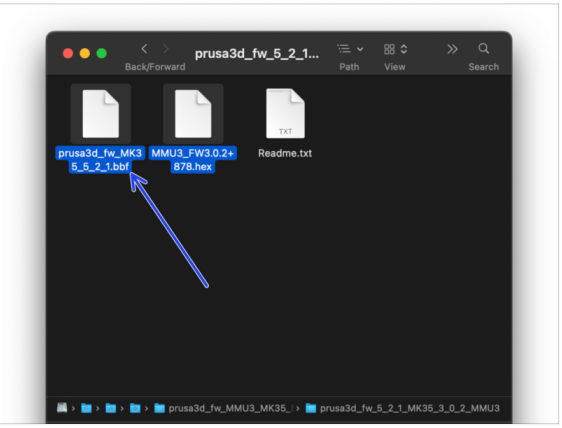
You will need to update both the firmwares for the printer as well as the MMU unit. Use only a combination of the newest firmware versions for both devices together.

Please refer to the MMU3 Firmware Compatibility article to find out exactly which firmware version you need.

- Visita la página de Descargas del MMU3 en Help.Prusa3D.com
- Descarga el último pack de **Firmware** para **tu modelo de impresora.**

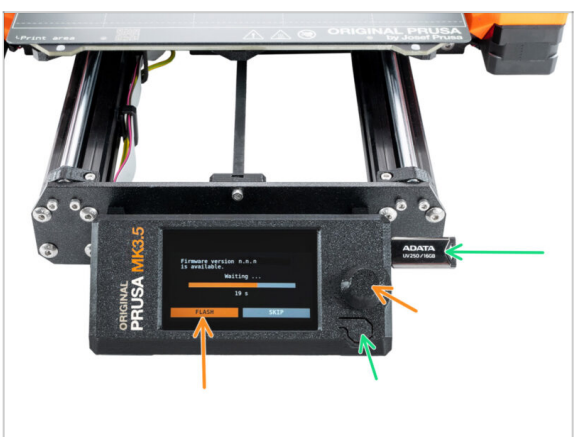
PASO 14 Selecting a Printer firmware file





- Open up the firmware bundle you have downloaded earlier. Open one of the folders dedicated to the MK3.5 printer (marked by **MK35**)
- There are two firmware files in the folder. One for the printer, the other one for the MMU unit.
  - As a firmware file for the **MK3.5**, select the MK35 **.bbf** file

PASO 15 MK3.5 Firmware flashing (part 1)



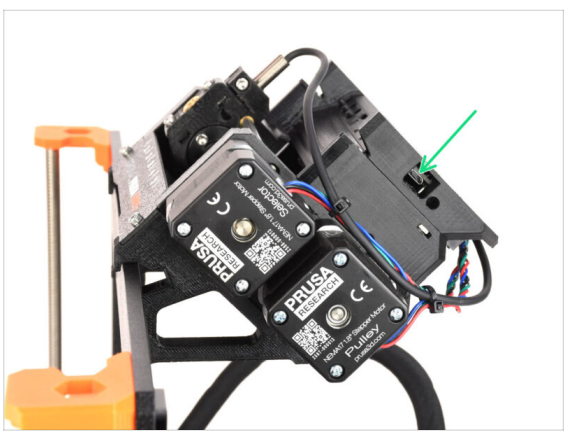
- Connect the printer to the electricity and **turn it on**.
- Now, let's flash the **printer's firmware**.
- To flash the **MK3.5** printer, insert a USB drive with the firmware file into the printer. Then, restart the printer using the reset button.
  - On the Firmware update screen, choose **"FLASH"** and wait for the process to complete.

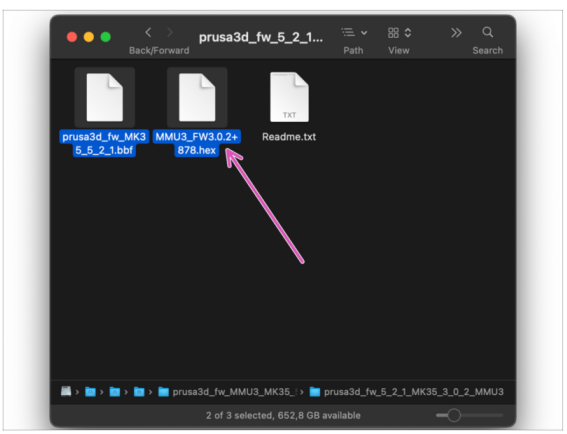
PASO 16 Encendido del MMU MK3.5

- After finishing the firmware update, **make sure there are no filaments loaded** neither in the extruder, or in the MMU unit.
- Navigate to the **LCD menu > Settings > MMU**

  and make sure the **MMU** is turned **on**.
  - This option not only turns on the MMU functionality in the firmware, but also turns on the power for the MMU unit, which is necessary to do a FW update.
  - From now on, the reset button on the printer resets also the MMU unit. Wait for a while, the MMU unit will go through the self-test routine. (accompanied by flashing LED lights on the MMU unit) **Wait until it boots up** properly, before issuing any commands to the printer.
- Since you've converted the extruder to the MMU version, when prompted to reconfigure the filament sensor's behavior, which will appear immediately, choose '**Continue**'.
  - Extruder type can be changed in **Settings > Hardware > Extruder**

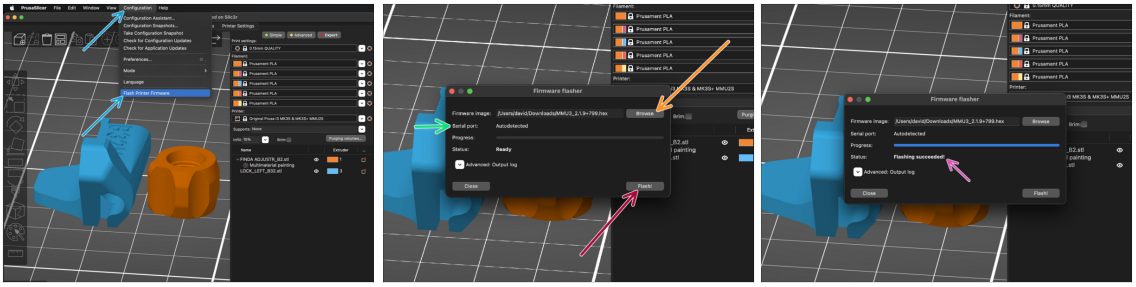
PASO 17 MMU3 Firmware flashing (part 1)





- The MMU3 firmware file needs to be flashed into the MMU unit itself. Find the **microUSB** connector on the right side of the MMU3 unit.
- Connect the unit to your computer using the bundled microUSB cable.
- On your computer, select the appropriate **MMU firmware file** compatible with your printer model.

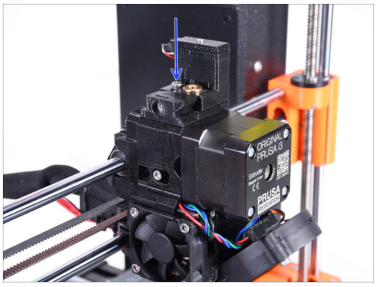
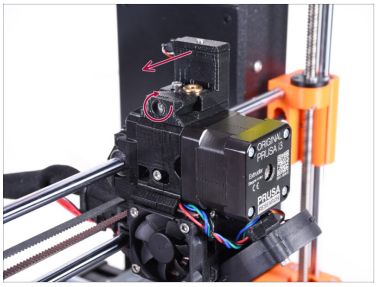
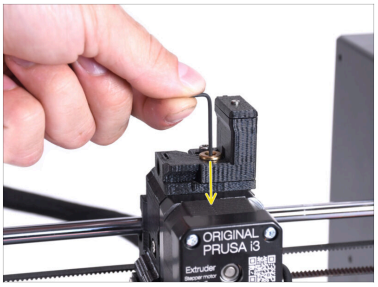
PASO 18 MMU3 Firmware flashing (part 2)



- Abre PrusaSlicer y selecciona **Configuración ->Flashear Firmware Impresora** en el menú superior.
- Hit **Browse** and select the MMU3 firmware image file on your computer. (e.g. MMU3_3.0.0.hex)
- El puerto serie debería detectarse automáticamente.
- Presiona el botón de **Flashear**.
- Espera hasta que aparezca el mensaje **¡Exito al flashear!**.
- Una vez finalizado el flasheo, desconecta el cable USB.

ⓘ En caso de que tengas problemas al instalar el firmware, por favor visita el artículo para solucionar problemas.

PASO 19 IR filament sensor calibration (Part 1)

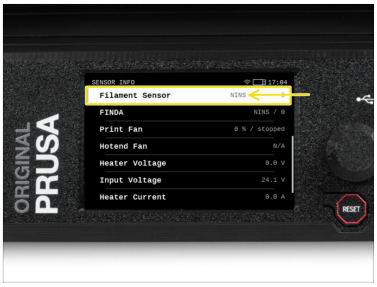




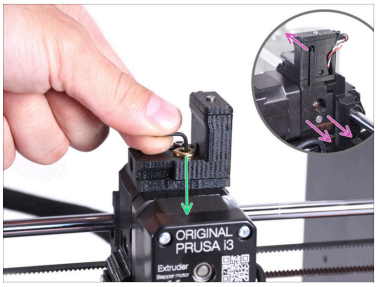
⚠ In the following steps, we will calibrate the IR Filament sensor iside the Chimney on the extruder. Follow the instructions carefully, **this part is very important!**

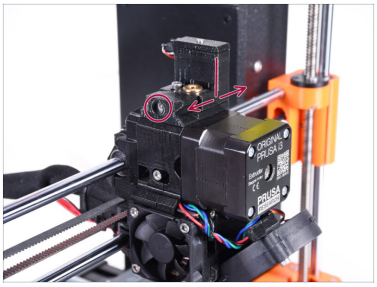
- Con una llave Allen de 2.5mm, asegúrate de que el **tornillo prisionero** de la Chimenea no esté apretado. No lo quites del todo. Mantiene unida la chimenea.
- Apriete con cuidado el **tornillo de calibración** lateral para que la chimenea se desplace completamente hacia la izquierda.
  - When **tightening** the calibration screw, the chimney moves to the left, making it **less** sensitive to triggering.
  - When **loosening** the calibration screw, the chimney moves to the right, making it **more** sensitive to triggering.
- Tighten the calibration screw until the chimney moves all the way to the left.
- Inserta una llave Allen de 1.5mm en el extrusor. No la empujes hasta el fondo todavía.

⚠ Make sure you are using the thinnest of the bundled Allen keys; 1.5mm. Do not use the 2mm one!!

PASO 20 IR filament sensor calibration (Part 2)







- Ve a **Info > Info sensor >** en tu MK3.5

  El sensor Fil. debe indicar **NINS** (no insertada) cuando la llave Allen no está presionada hasta el fondo para que la puerta tensora no esté inclinada hacia fuera.

- Ahora empuja la llave Allen de 1.5mm hacia abajo hasta que toque los engranajes Bondtech.

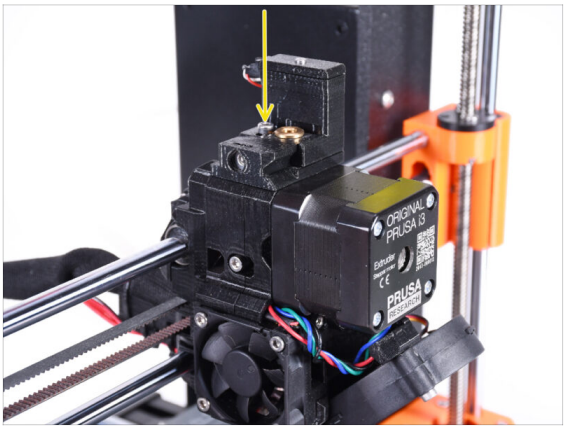
  ⓘ (no temas hacer fuerza hacia abajo para colocar la llave entre los engranajes)

- La puerta del rodillo tensor a la derecha del extrusor debe inclinarse ligeramente hacia fuera simulando un filamento insertado.

⚠ La línea **Fil. sensor** en la pantalla LCD debería indicar el valor **INS** con la llave Allen (o un filamento) **INSertada**. Sigue soltando el tornillo de calibración hasta que **INS aparezca en la pantalla LCD.**
Luego, aflójalo otra media vuelta.

- **By rotating the calibration screw, we need to fine-tune the chimney position so that the number on the LCD reliably changes when inserting and removing the Allen key or filament from the Bontech gears.**

PASO 21 IR filament sensor calibration (Part 3)

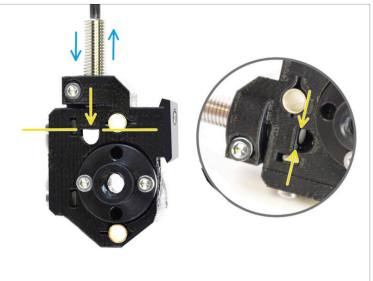


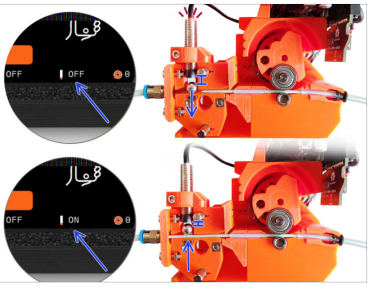
⚠ **¡Calibrar el sensor de filamento IR es supercrucial para que la unidad MMU3 funcione correctamente!**

ⓘ Por favor, repite esta comprobación varias veces.

- Confirm the sensor works correctly: See the LCD again if the **Filament sensor** number
  - muestra **INS** cuando la llave Allen (/filamento) se introduce hasta el final
  - o **NINS** cuando no se introduce hasta el final.
- Cuando el sensor funcione de forma fiable y correcta, bloquea la chimenea apretando el tornillo de bloqueo desde arriba.
- Después de apretar el tornillo, verifica que las lecturas en la pantalla LCD siguen siendo correctas al insertar y retirar la llave Allen.

PASO 22 SuperFINDA sensor calibration info



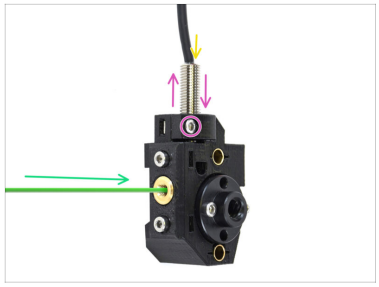


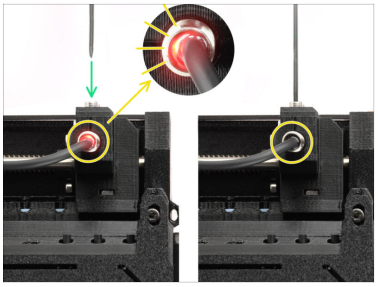
- Muy bien. Has calibrado tu sensor de filamento IR. Ahora, podemos pasar a calibrar el sensor **SuperFINDA** dentro del selector en la unidad MMU.
- For **factory-assembled MMU3** units, the SuperFINDA is pre-calibrated, so you can skip the calibration steps.
- In the next step, we'll calibrate the sensor's position.

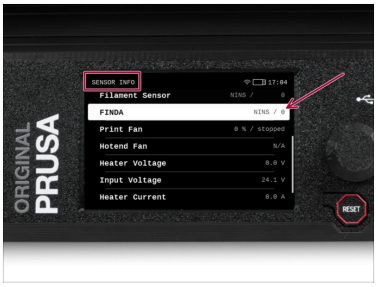
⚠ **Es CRíTICO** que tanto el **sensor de filamento en el extrusor como el sensor SuperFINDA funcionen con precisión.**. De lo contrario, tendrás problemas con el dispositivo.

- Utiliza la ventana de inspección del selector para alinear la parte inferior del sensor con la parte superior de la ventana, como punto de partida.
- When filament is in the selector, the steel ball rises and should be detected by the SuperFINDA sensor. Ensure the distance between the ball and the sensor is perfectly calibrated.

PASO 23 SuperFINDA calibration







- Coge un trozo de filamento con la punta afilada e introdúcelo en el selector a través de la abertura roscada de latón de la parte delantera.
- Echa un vistazo a SuperFINDA desde arriba y fíjate en la lucecita roja del interior del sensor que se apaga cuando el filamento levanta la bola de acero de su interior.
  - **Red light** = no filament detected = **FINDA NINS / 0 / OFF**

    No light = filament detected = **FINDA INS / 1 / ON**
- If the light is still on, lower the SuperFINDA slightly.

  If the light doesn't ever go on, raise the SuperFINDA probe by releasing the screw by its side, moving the probe, and tightening the screw back up.
- Watch the **sensor readings on the LCD** (Info > Sensor Info -> FINDA) Note, there is a slight lag in the sensor's readings on the LCD; proceed slowly.

⚠ Repite la prueba introduciendo y extrayendo el filamento. Observa los valores en la pantalla LCD. Ajuste la altura de la SuperFINDA en consecuencia **hasta que obtengas lecturas fiables del sensor cada vez que insertes y retires el filamento.**

PASO 24 Error code details (Part 1)

- Later on, an **MMU error screen** will show up if something goes wrong during the operation. See the example image; the first line describes briefly, what's the error about.
- prusa.io/04101 is a web address, where you can view a detailed article about the exact issue, and how to fix it.
- The status of the filament sensor is always displayed in the Footer section of the error screen to assist in diagnosis.
- Adjacent to it, you will find the status of the Finda sensor.

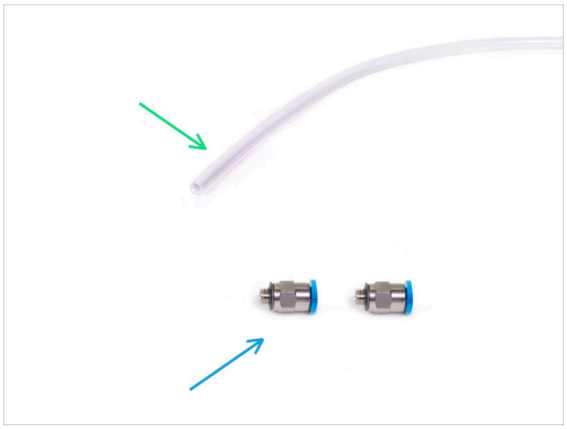
(Note the FINDA status reading on the LCD has a slight delay.)

PASO 25 Detalles del código de error (Parte 2)

- The bottom line are the **solution buttons**. Some errors have multiple solutions.
- You can also visit a detailed error description page via the QR code.
- MMU unit being in an **error state** is also indicated by its LED lights flashing.
- While in an ERROR state, the buttons on the MMU unit can be used to resolve the error too.
  - The **middle button** usually replicates the LCD solution buttons function.

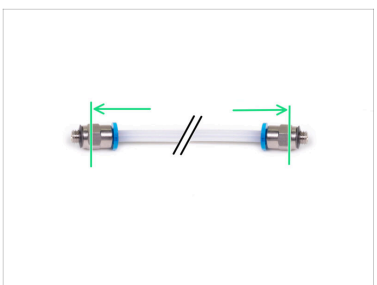
Note, if the MMU unit is in **IDLE state**, the buttons **have a different functions**; For example; If there is no filament loaded, the side buttons can be used to move the selector right and left. But more on that later.

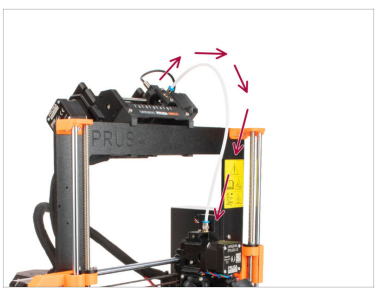
PASO 26 MMU-to-Extruder PTFE tube parts preparation



- **Para los siguientes pasos, por favor prepara:**
- Tubo PTFE 360x2.5mm (1x)
  - The **new PTFE** tube has an **internal diameter of 2.5mm**. In case you are upgrading from the 2mm ID MMU2S tube, and you have trouble distinguishing between the old and the new one, try comparing the internal diameter of the two. See the second picture. The tube on the left is the new one.
  - A 2.5mm ID PTFE tube is required for the MMU3.
- M5-4 fittings (2x)
  - The fittings may have either a blue or a black collet. Functionally, they are the same.

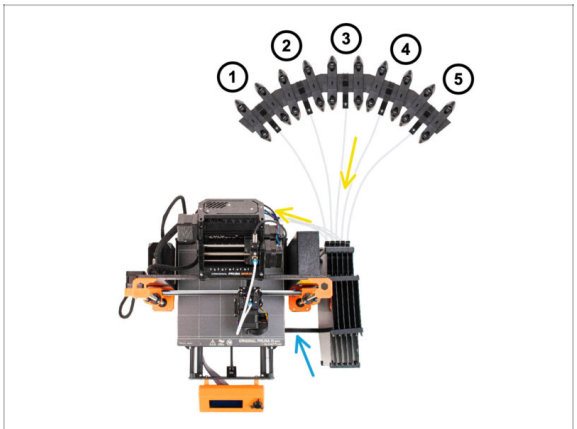
PASO 27 MMU-to-Extruder PTFE tube





- Attach the M5-4 fittings onto both sides of the new PTFE tube (4x2.5x360mm)
  - Push the PTFE tube in fully.
  - *Consejo rápido:* **Si necesita retirar el tubo de PTFE** del racor, presiona la pinza azul hacia dentro. Mientras la pinza está presionada, presiona primero el tubo de PTFE hacia dentro y, a continuación, extráelo por completo.
- Coloca el tubo de PTFE en la impresora. Un extremo va al selector. El otro en el extrusor. Aprieta los racores con la Unikey.

PASO 28 Spoolholders setup



Congratulations! The hardest part is over.

- The Buffer and spools setup in the picture is the one we will be trying to achieve. Arrange the **spool holders** and the **buffer** as seen in the picture.
- Hook up the "printer holder" part on the buffer to the extrusion on the printer.
- The PTFE tubes go from the spoolholders to the buffer. Then, from the buffer to the back of the MMU.

⚠ Note the spool holder positioning. It is important that filament has **as straight path as possible** and that nothing interferes. PTFE tubes should **not be bent too much**. Otherwise, the filaments will jam.

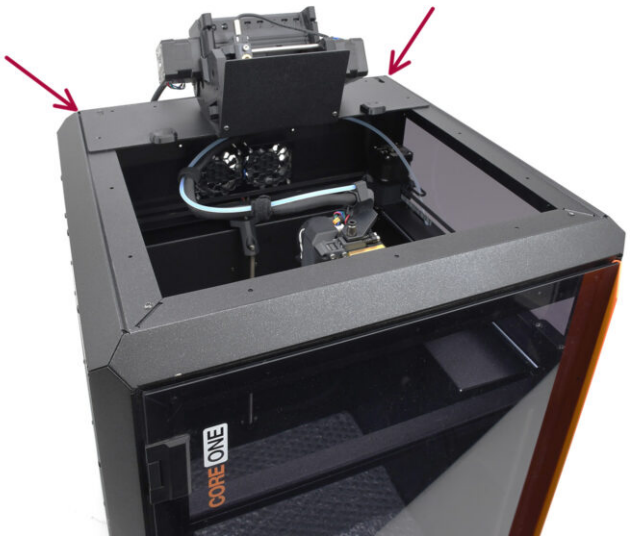
Note that due to the decreased filament friction in the MMU3 compared to the MMU2S, some of the 3rd-party MMU2S re-winding spool holders might no longer work with the MMU3.

PASO 29 Connecting Buffer PTFE tubes

- Connect the PTFE tubes **from the MMU** unit to the **BOTTOM row of collets** on the buffer, ensuring you match the numbering on both the buffer and the MMU unit.
- Attach each end of the PTFE tube from the Buffer to the PTFE holder on each Spool holder.

Make sure each spool holder is hooked up to the corresponding filament position number. (marked 1 to 5 on the MMU unit and the buffer.)

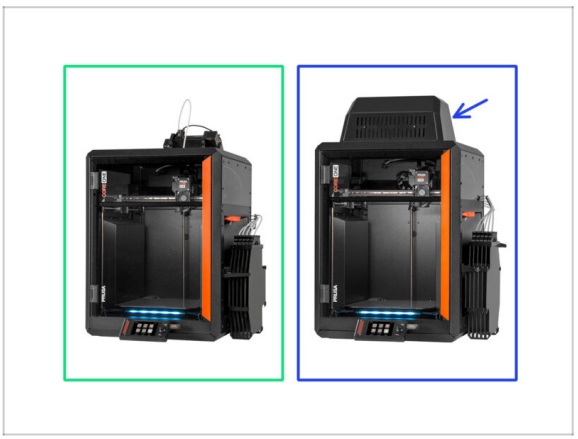
10D. CORE One Setup and Calibration



PASO 1 Top Cover

- Before installing the MMU unit, remove the printer's top cover if it hasn't been removed already.

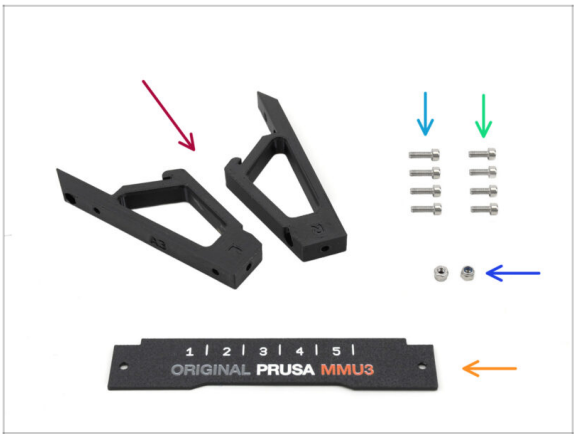
PASO 2 Core One MMU3 Types



⚠ There are **two official versions** of the MMU3 for CORE One:

- the **Lite**
  - ⚠ Si tienes esta versión, continúa en el siguiente paso.
- the **Enclosed** *with the Blob on top.*
  - ⚠ If you have this version, continue to the Blob Preparation.

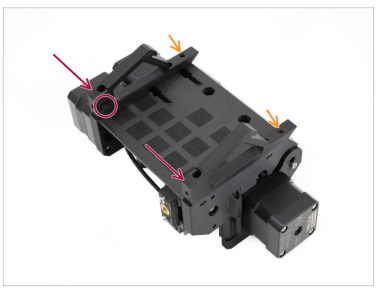
PASO 3 (LITE) MMU Holder Preparation



⚠ These steps are valid for the Lite version.

- **Para los siguientes pasos, prepara:**
- CO_MMU_Holder (2x)
- M3x10 screw (4x)
- M3x8 screw (2x)
- M3nN nut (2x)
- Label Plate (1x)

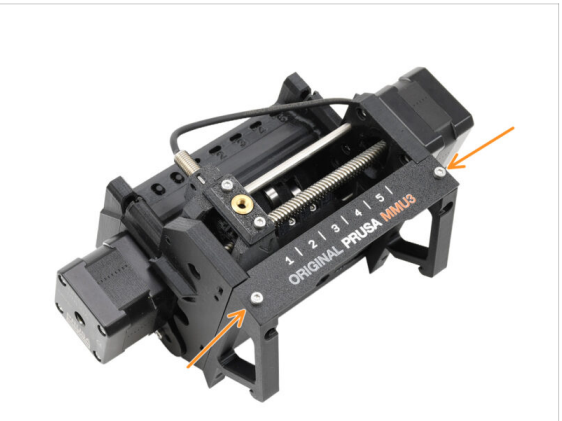
PASO 4 (LITE) MMU Holder Installation 1



- Insert the M3nN nuts into the hexagonal openings in the Holders. Make sure the flat part goes in first!
- Take the MMU unit and orient it upside down.
- Add the Holders onto the unit and align them with the assembly.
  - Ensure the holder marked R is on the unit's right side (sides are reversed when the unit is upside down).
  - Ensure the part with the M3nN nuts faces the back.

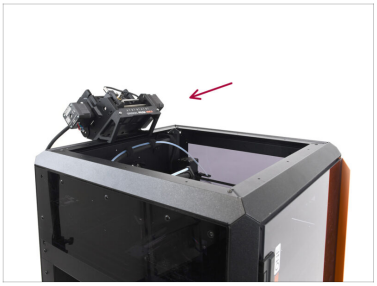
⚠ Watch out! the nuts might keep falling out.

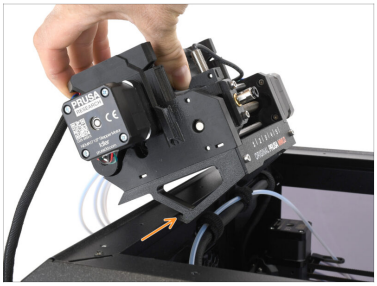
PASO 5 (LITE) MMU Holder Installation 2

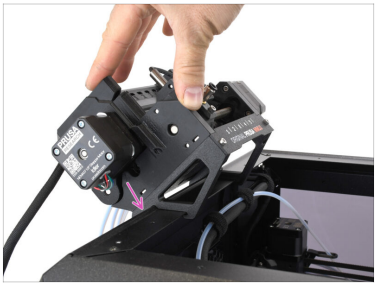


- Fix the holders to the unit using four M3x10 screws.
- Align the Label plate with the front part of the MMU unit. Fix it to the holders using two M3x8 screws.

PASO 6 (LITE) MMU Placement 1

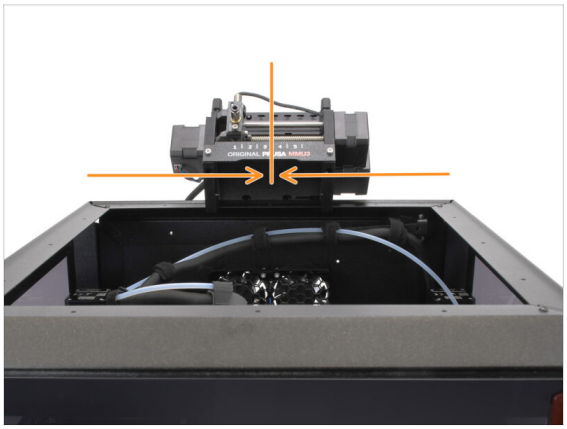






- Now, we will place the MMU assembly onto the top back part of the printer.
- Hook the notch on the MMU holders to the front part of the metal profile.
- Lean the MMU against the profile.

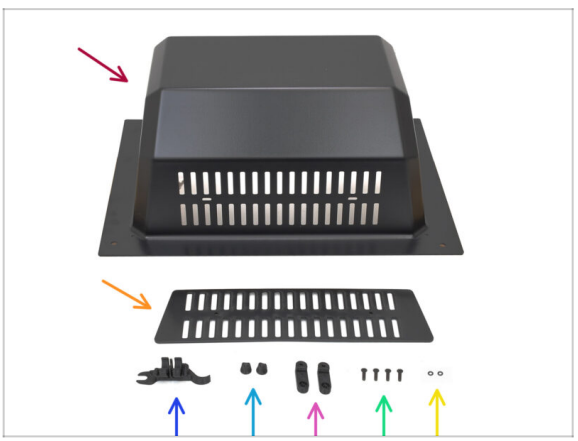
PASO 7 (LITE) MMU Placement 2



- Center the unit on the printer to align the screw holes.
- Reach inside the printer to secure the unit with the two M3x8 screws.

⚠ Your MMU3 Lite is now securely attached.
Continue to the Back Cover Removal step.

PASO 8 (ENC) Blob Preparation

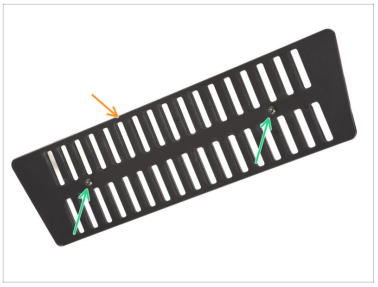


⚠ These steps are valid for the Enclosed version.

Skip if you use the Lite.

- For the following steps, prepare:
  - Top Cover (1x) *or 'Blob' as users commonly call it.*
  - Vent (1x)
  - CORE ONE ASSEMBLY MULTI TOOL (1x) *version E2 or newer*
  - Vent Nut (2x)
  - BlobLock (2x)
  - M3x10rT (4x)
  - O-ring (2x)

PASO 9 (ENC) Blob Assembly 1



- Take the Vent part.
  - Push the two M3x10rT screws through the openings.
- Install the Vent to the inside of the Top Cover, making sure the screws go all the way through.
  - From the other side, attach the o-rings onto the screws.

PASO 10 (ENC) Blob Assembly 2

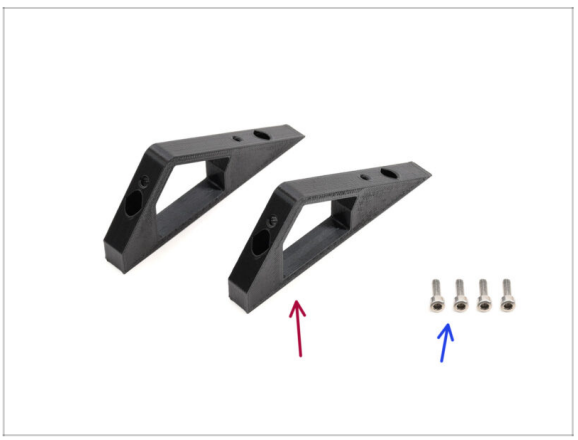


- Tighten the screws against the Vent Nuts
  - Use the Assembly Multi Tool to hold the nuts while tightening.
  - Tighten the screws just so that the vent holds in place when moved to a side. Make sure vent is still easy to slide.

PASO 11 (ENC) Blob Assembly 3

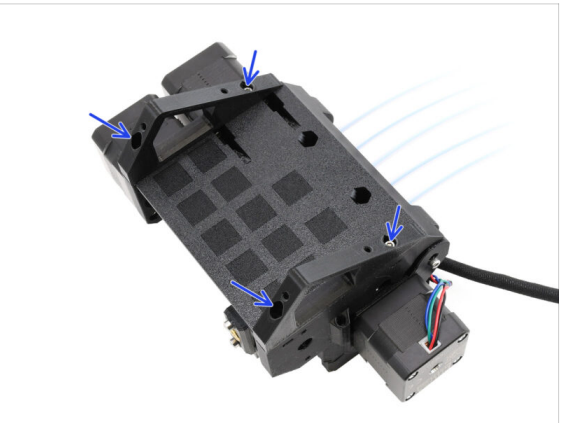
- Attach the Blob Locks onto the bottom part of the Top Cover.
  - Make sure the Locks are oriented as seen in the picture. Then, fix them in place using two M3x10rT screws.
  - Tighten the locks just until snug. It should be able to move the locks using a reasonable force.

PASO 12 (ENC) MMU Holder Preparation



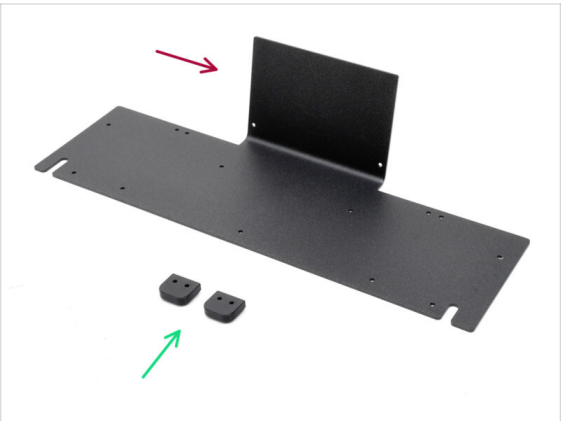
- **For the following steps, prepare:**
- CO_MMU_Holder (2x)
- M3x10 screw (4x)

PASO 13 (ENC) MMU Holders Installation



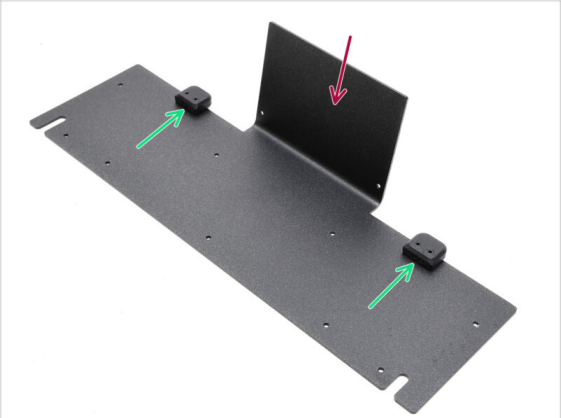
- Take the MMU unit and flip it upside down.
- Add the holders onto the bottom part.
- Align the flat front of the holders with the unit.
- Attach the holders using four M3x10 screws.

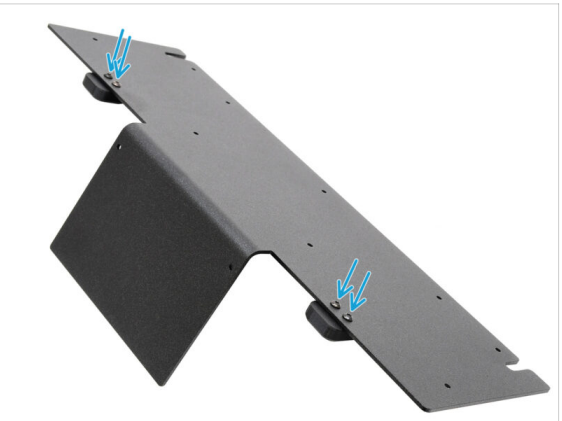
PASO 14 (ENC) Blob Holder Preparation



- **Para los siguientes pasos, prepara:**
- Top Sheet Metal (1x)
- Blob_Holder (2x)
- M3x10rT screws (8x)

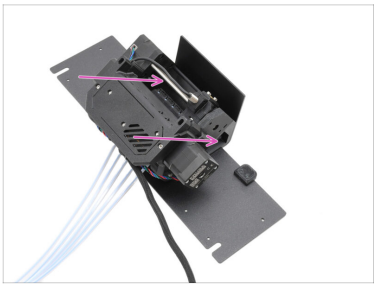
PASO 15 (ENC) Blob Holder Assembly

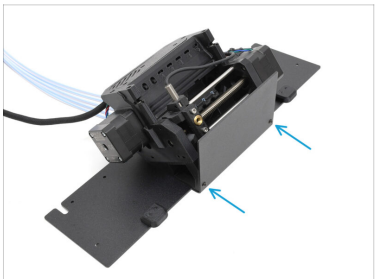


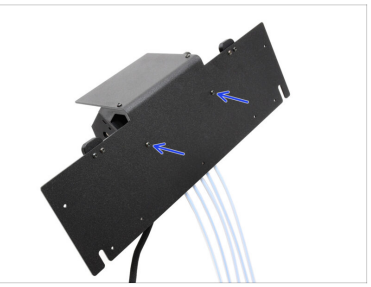


- Orient the sheet metal with the bent part facing up as shown.
- Instal the Blob Holders onto the Blob Sheet Metal using the four M3x10 screws.
  - Ensure the holes align with the sheet metal and the rounded part overhangs.
- Fix the holders in place using four M3x10rT screws.

PASO 16 (ENC) Sheet Metal Assembly

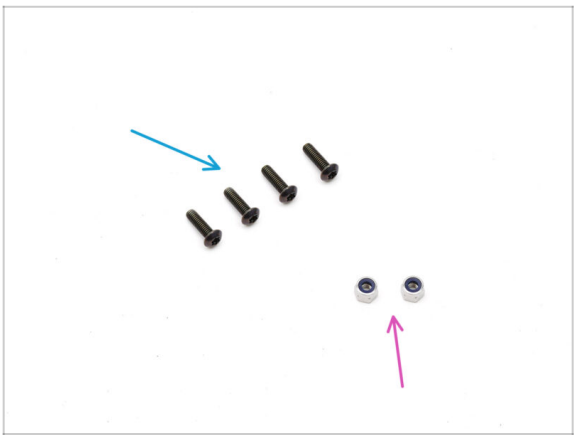






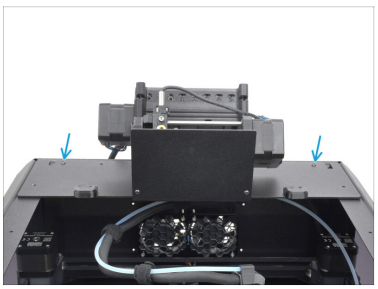
- Move the MMU unit onto the Sheet metal, aligning its holders with the bent part.
- Attach the MMU unit to the sheet metal with two M3x10rT screws at the front.
  - Tighten the screws with reasonable force to avoid stripping the self-tapped plastic thread.
- Fix the unit using the other two M3x10rT screws at the bottom.

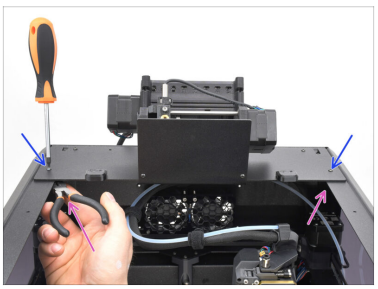
PASO 17 (ENC) MMU Placement Preparation



- **Para los siguientes pasos, prepara:**
- M3x10rT screws (4x)
- M3nN nuts (2x)

PASO 18 (ENC) MMU Assembly Placement





- Place the MMU assembly with the sheet metal onto the printer. Make sure it sits in the back of the top recess, while the MMU faces the front of the printer.
  - Fix it to the metal profiles in the back using two M3x10rT screws.
  - Tighten two M3x10rT screws on sides against the M3nN nuts held with needle-nose pliers.

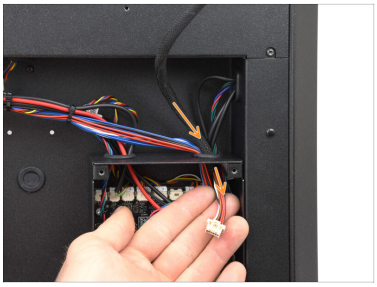
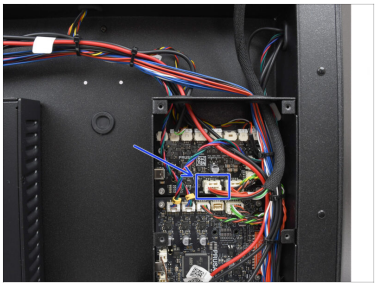
PASO 19 Back Cover Removal 1

- En el interior de la impresora, retira los dos tornillos que sujetan la cubierta posterior.
- En la parte posterior de la impresora, desliza la cubierta central hacia abajo.
- Pull the bottom part of the cover outward while tilting the top toward the printer. This will unhook it from the cable bundle behind. Remove the cover.

PASO 20 Back Cover Removal 2

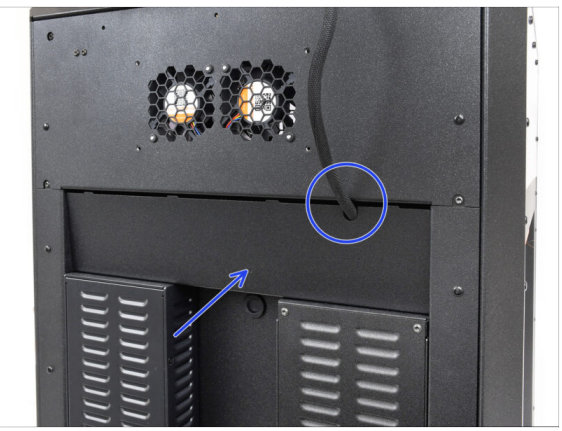
- Retira los seis tornillos que sujetan la cubierta de la xBuddy.
- Retira la tapa deslizándola hacia fuera.

PASO 21 MMU Cable Connection

- Guide the MMU cable towards the electronics box.
- Pull the cable through the top cable opening into the xBuddy box.
- Connect the cable to the dedicated MMU port on the xBuddy Extension board.

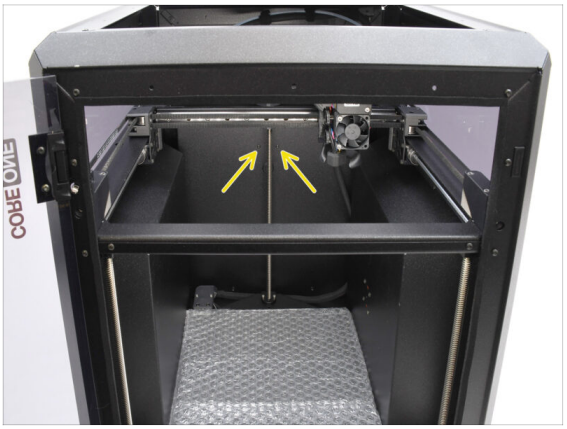
PASO 22 Back Cover Installation 1

- Attach the xBuddy box cover using the 6 M3x4rT screws.

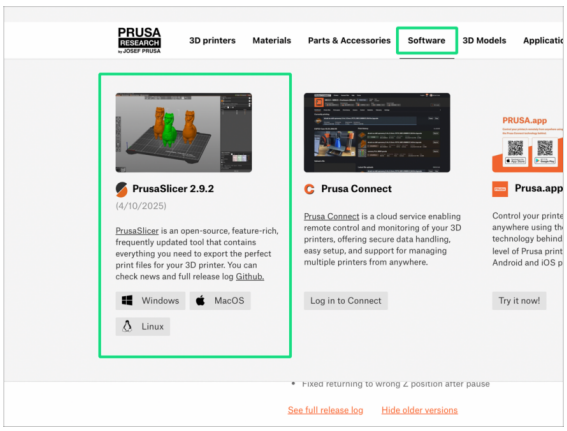
  ⓘ Make sure no cable is getting pinched.
- Re-install the back cover, making sure the MMU cable fits through the mousehole opening on top.

PASO 23 Back Cover Installation 2



- Push the cover up, so that the four tabs on top engage into the recesses.
- Mientras empujas la cubierta hacia arriba, fíjala en su sitio utilizando dos tornillos M3x4bT desde el interior de la impresora.

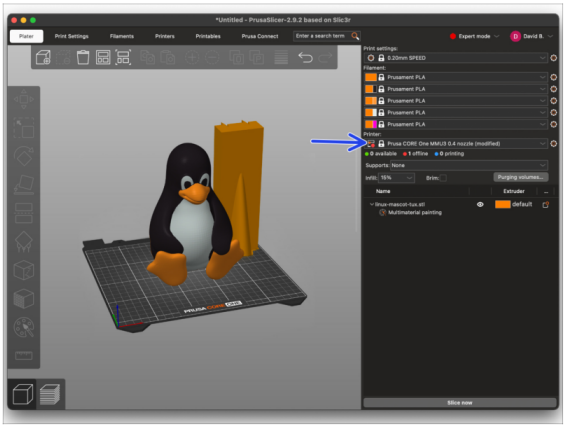
PASO 24 Software Download



- Visit Prusa3D.com
- Download the latest **Drivers & Apps** package from the Software tab.

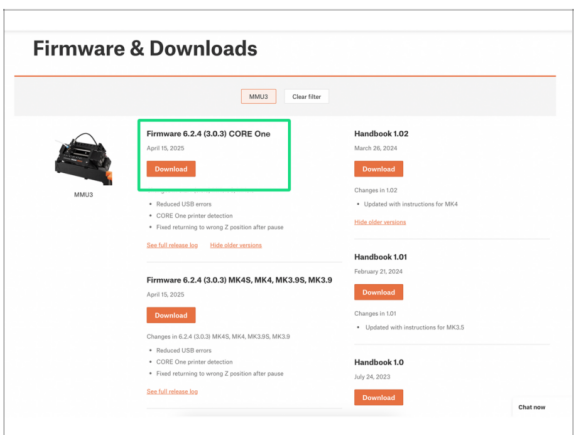
  ⚠ **MMU3 on CORE One** requires PrusaSlicer version 2.9.2 or newer.
- Install the latest **PrusaSlicer** and open it.

PASO 25 PrusaSlicer setup for MMU3



- Open the PrusaSlicer Wizard/Assistant. (from the menu **Configuration > Configuration Wizard/Assistant > Prusa Research)**
- Open the **Prusa Research** printer list and select **MMU version** of your printer.
  - **Select the nozzle** type and size in the list below.
- Click Finish to save the settings.
- In **Printer:** menu, select the **MMU3** printer profile for future slicing.

PASO 26 Firmware files download

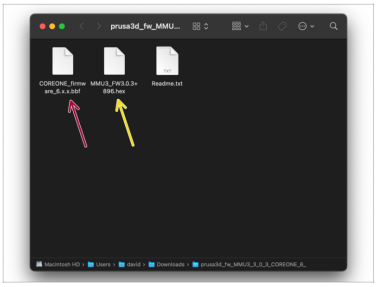


⚠ You will need to update the **firmware** for both the **printer** and the **MMU** unit. Each device has a **separate firmware file** that needs to be flashed. Always use only the newest compatible firmware versions together.

⚠ For more info, see the MMU3 Firmware Compatibility article.

- Visita la página de Descargas del MMU3 en Help.Prusa3D.com
- Descarga el **último pack de Firmware** para **tu modelo de impresora**.

PASO 27 Firmware Upgrade: Printer



- **Printer's firmware - .bbf file**
  for the CORE One control board:
  (e.g. COREONE_firmware_6.x.x.bbf)
- **Firmware de la placa controladora de la MMU3**:
  (por ej. MMU3_FW3.0.3+896.hex)
  - This firmware update must be applied directly to the MMU unit using a computer. **We will flash the MMU unit firmware in the upcoming steps.**
- Update the printer's firmware. First, transfer the firmware file onto a USB drive.
- Turn on the printer and connect the USB drive into it. Press the RESET button to restart it. Then, select the FLASH option on the screen to begin the update.

PASO 28 Encendido de la MMU

⚠ After finishing the firmware update, **make sure there are no filaments loaded** neither in the extruder, or in the MMU unit.

- Navigate to the **LCD menu > Settings > MMU**

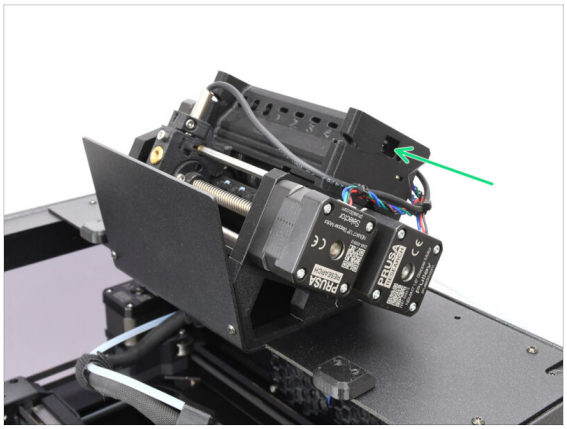
  and make sure the **MMU** is turned **on**.

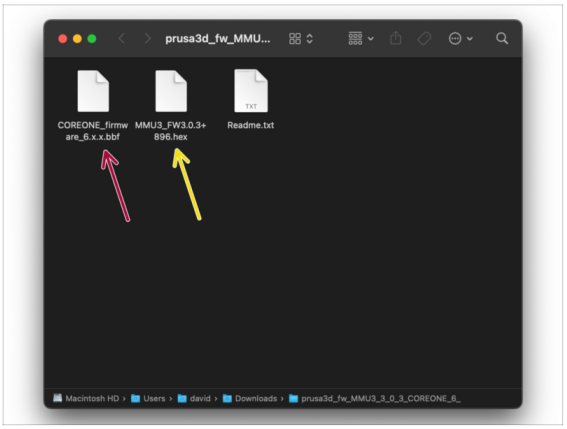
  This option enables the MMU functionality in the firmware and turns on the power for the MMU unit, which is needed for a firmware update.

  The MMU unit will now perform a self-test (flashing LEDs). **Wait until it boots up completely** before issuing any commands. By the way, from now on, the printer's reset button will also reset the MMU unit.

- Since you've converted the extruder to the MMU version, when prompted to reconfigure the filament sensor's behavior, which should appear immediately, choose '**Continue**'.

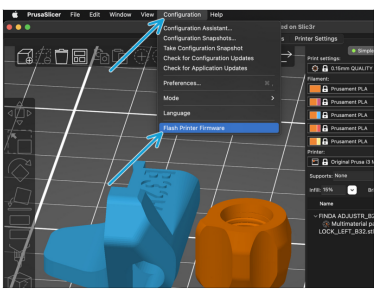
PASO 29 MMU3 Firmware flashing (part 1)

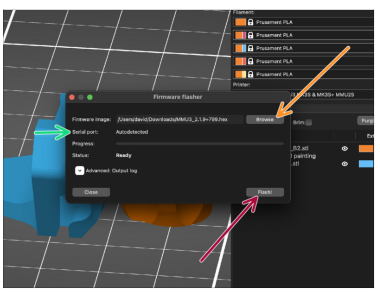


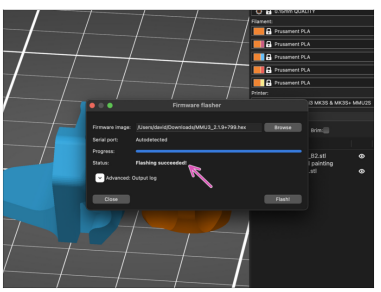


- The MMU3 firmware file needs to be flashed into the MMU unit itself. Find the **microUSB** connector on the right side of the MMU3 unit.
- Connect the unit to your computer using the bundled microUSB cable.
- On your computer, select the appropriate **MMU firmware file** compatible with your printer model.

PASO 30 MMU3 Firmware flashing (part 2)







- Open PrusaSlicer and select **Configuration ->Flash Printer Firmware** from the top menu.
- Hit **Browse** and select the MMU3 firmware image file on your computer. (e.g. MMU3_FW3.0.3+895.hex)
- El puerto serie debería detectarse automáticamente.

  Hit **Rescan** if your printer is not listed in the Serial port: column
- Presiona el botón de **Flashear**.
- Espera hasta que aparezca el mensaje **¡Exito al flashear!**.
- Una vez finalizado el flasheo, desconecta el cable USB.
- En caso de que tengas problemas al instalar el firmware, por favor visita el artículo para solucionar problemas.

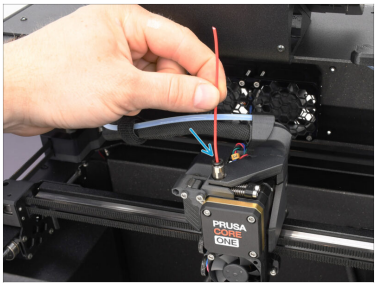
PASO 31 Gears calibration

- Now, we need to calibrate the planetary gearbox in the Nextruder.
- Go to the Home screen and navigate to *Control -> Calibrations & Tests,* scroll down and select **Gears Calibration**.
  - Una vez que llegues a la parte de Alineación de la caja de engranajes, selecciona **Continuar** y sigue las instrucciones que aparecen en pantalla.

PASO 32 Gearbox Alignment

- During the **Gear calibration** process, you will be prompted to:
  - Make sure the **Idler lock** (swivel) is in the open position - lifted up.
  - Afloja 1,5 vueltas los tres tornillos de la parte delantera de la caja de engranajes.
  - ⓘ La impresora realizará el alineamiento automático de los engranajes. Este proceso no es visible desde el exterior.
  - Cuando se te indique, aprieta los tornillos siguiendo el patrón indicado en la pantalla.

PASO 33 MMU Filament sensor calibration

- After completing the Gearbox Alignment, you should be prompted to continue to the **filament sensor calibration**.

  ⓘ Start with no filament in the extruder.

- Close the **Idler lock** (swivel).
- For the calibration, prepare a filament and hit **Continue**.

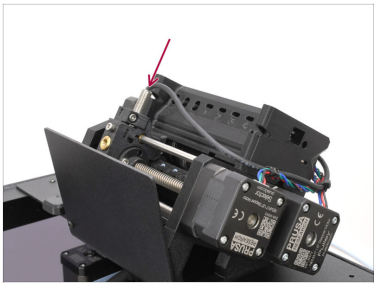
  ⚠ Don't insert the filament before being prompted to do so!

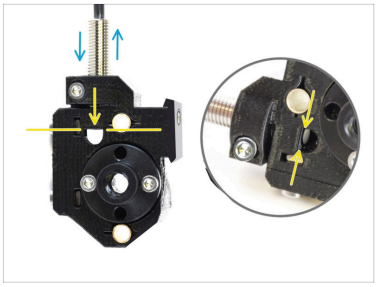
- Once prompted to, insert the filament.
- After successful calibration, remove the filament.

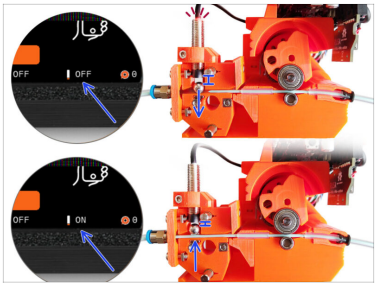
PASO 34 Footer Status Bar

- Turning on the MMU unit automatically displays the filament sensor and Finda sensor information on the footer status bar.
  - To change the settings, visit **Settings > User Interface > Footer** menu.
- Los valores de los sensores también se muestran en el menú **Info > Info Sensor**.

PASO 35 SuperFINDA sensor calibration info







- If you built the MMU3, the **SuperFINDA sensor** inside the selector must be calibrated.

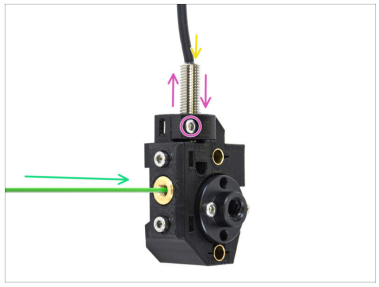
  For **factory-assembled MMU3** units, you can skip the calibration steps.

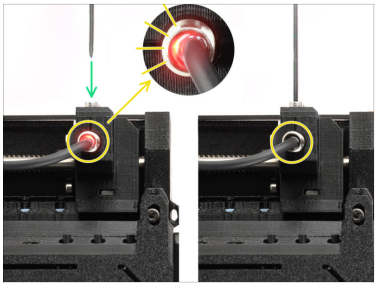
- In the next step, we'll calibrate the sensor's position.

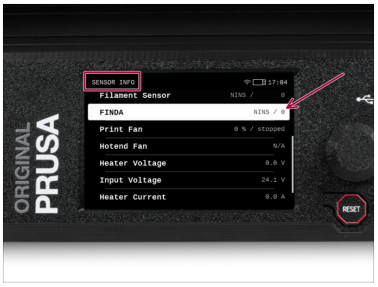
It is CRITICAL that both the **filament sensor in the extruder and the SuperFINDA sensor function accurately**. Otherwise, you will have trouble with the device.

- Use the inspection window on the selector to align the bottom of the sensor with the top of the window, as a starting point.
- When filament is in the selector, the steel ball rises and should be detected by the SuperFINDA sensor. Ensure the distance between the ball and the sensor is perfectly calibrated.

PASO 36 SuperFINDA calibration







- Insert filament with a sharp tip into the brass opening at the front.
- Echa un vistazo a SuperFINDA desde arriba y fíjate en la lucecita roja del interior del sensor que se apaga cuando el filamento levanta la bola de acero de su interior.
  - **Red light** = no filament detected = **FINDA 0 / OFF**

    No light = filament detected = **FINDA 1 / ON**
- If the light is still on, lower the SuperFINDA slightly.

  If the light doesn't ever go on, raise the SuperFINDA probe by releasing the screw by its side, moving the probe, and tightening the screw back up.
- Observa las **lecturas del sensor en la pantalla LCD** (Info -> Info Sensor -> FINDA) Ten en cuenta que hay un ligero retraso en las lecturas del sensor en la pantalla LCD; proceda lentamente.

⚠ Repeat the test, adjusting SuperFINDA height **until consistent readings occur when inserting and removing filament.**

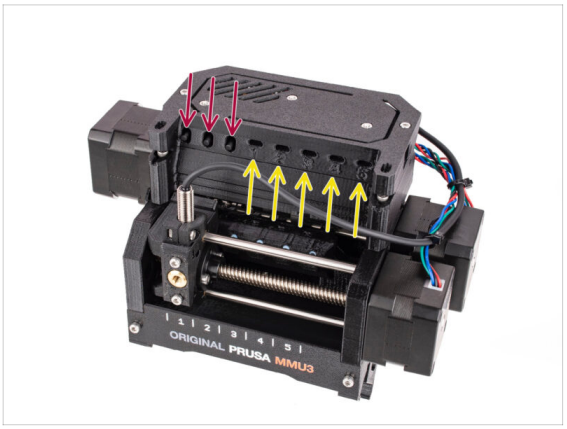
PASO 37 Error code details (Part 1)

- Later on, an **MMU error screen** will show up if something goes wrong during the operation. See the example image; the first line describes briefly, what's the error about.
  - prusa.io/04101 is a web address, where you can view a detailed article about the exact issue, and how to fix it.

  The QR Code gets you the detailed description.
- The status of the filament sensor is always displayed in the Footer section of the error screen to assist in diagnosis.
- Adjacent to it, you will find the status of the Finda sensor.

  (Note the FINDA status reading on the LCD has a slight delay.)

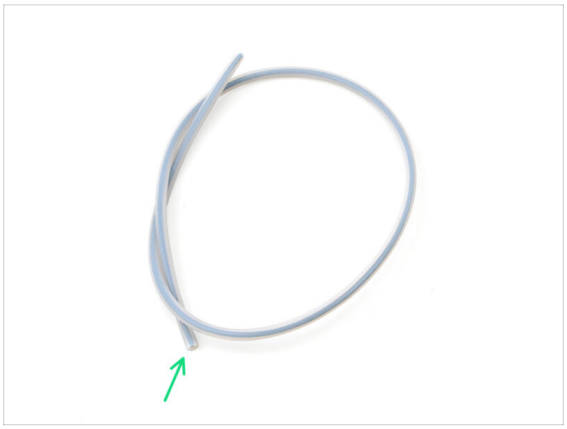
PASO 38 Detalles del código de error (Parte 2)



- The bottom line are the **solution buttons**. Some errors have multiple solutions.
- You can also visit a detailed error description page via the QR code.
- MMU unit being in an **error state** is also indicated by its LED lights flashing.
- While in an ERROR state, the buttons on the MMU unit can be used to resolve the error too.
  - The **middle button** usually replicates the LCD solution buttons function.

⚠ Note, if the MMU unit is in **IDLE state**, the buttons **have a different functions**; For example; If there is no filament loaded, the side buttons can be used to move the selector right and left. But more on that later.

PASO 39 MMU-to-Extruder PTFE tube parts preparation

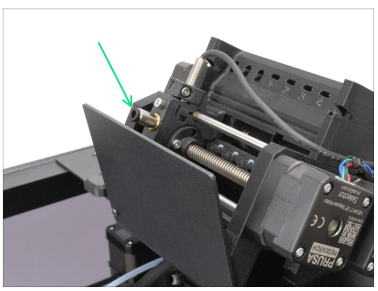


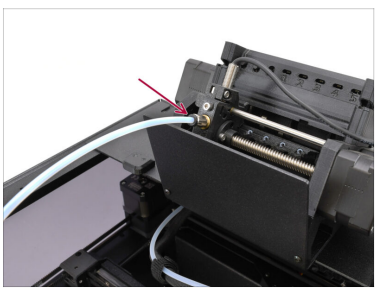
- **Para los siguientes pasos, por favor prepara:**
  - MMU-Extruder PTFE tube (1x)

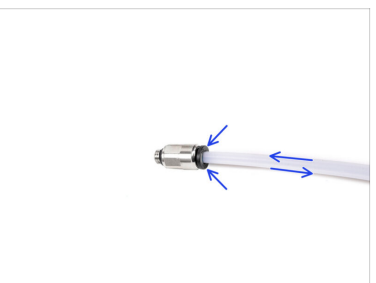
    ⚠ Use only the supplied PTFE tube.
    Enclosed version: **390mm.**
    Lite version: **450mm.**
    Do not reuse the shorter 360mm tube from MK4/S or other printers!
  - M5-4 fitting (1x)

    ⓘ The fitting might look slightly different if you are reusing the one from the MK4S.
  - Fitting Cover (1x) *required for the Enclosed version only.*
  - Collet (1x) *required for the Enclosed version only.*

PASO 40 MMU-to-Extruder PTFE tube 1

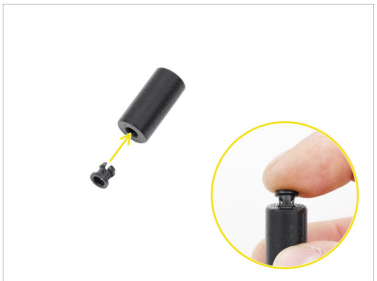


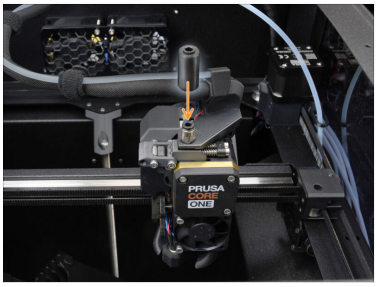


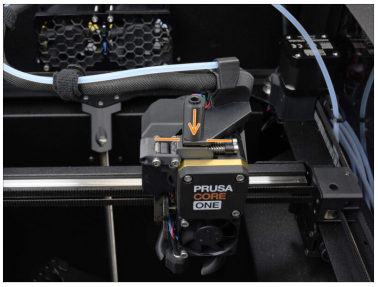


- Attach the M5-4 fitting onto the Selector and tighten it up using the Uniwrench.
- Connect the MMU and the extruder together with the PTFE tube. Make sure to push the tube all the way into both the fittings.
  - Quick tip: **If you need to remove the PTFE tube** from the fitting, press the collet in. While the collet is pressed, first press the PTFE tube in, then pull it out entirely.

PASO 41 Fitting Cover. (ENC)



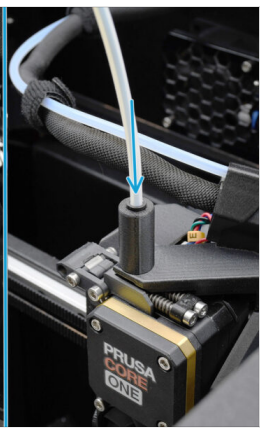


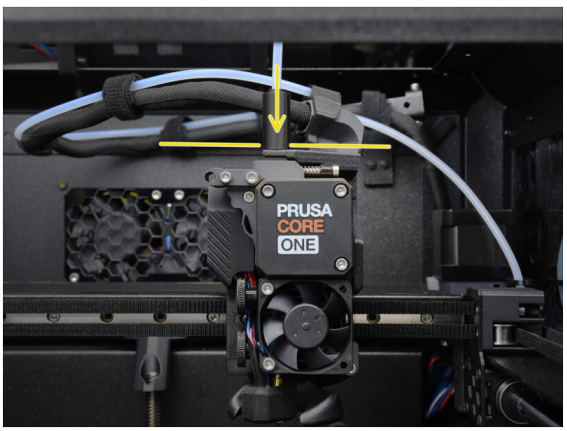


⚠ This step is required for the Enclosed version only.

- Insert the collet into the smaller opening on the Fitting cover.
  - ⓘ The individual fins on the collet must be pressed together in order to fit into the fitting cover.
- Attach the fitting cover onto the fitting on the extruder.

PASO 42 MMU-to-Extruder PTFE tube 2





- Attach the end of the tube into the extruder.
  - Make sure it is pushed all the way in.

PASO 43 PTFE Length Calibration

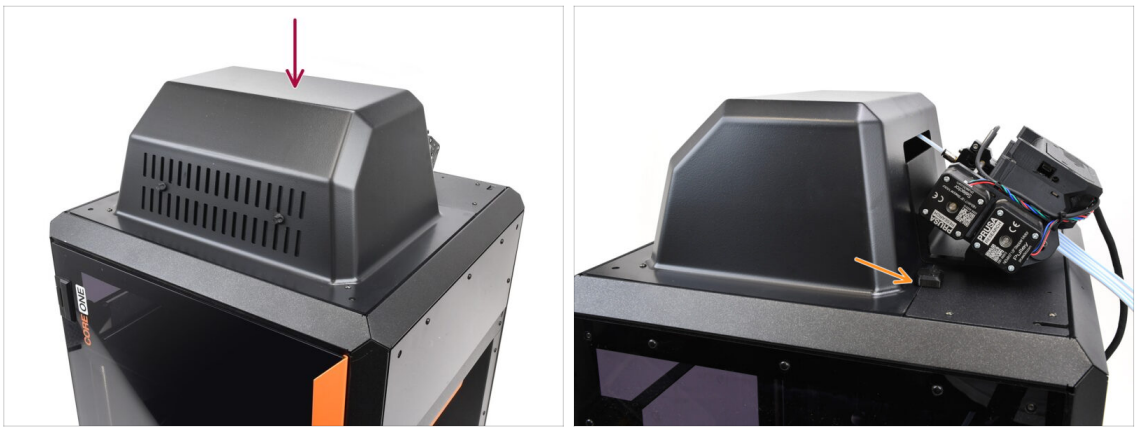
⚠ The MMU-to-Extruder PTFE tube length needs to be set in the firmware.

- Visit the menu **Settings>Hardware>MMU**
- Set the length:

  Enclosed version: **390mm**.

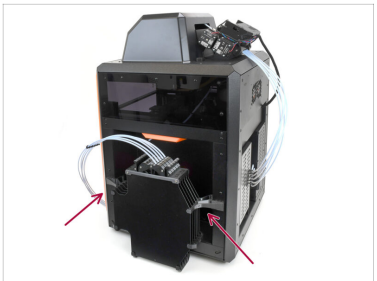
  Lite version: **450mm**.

PASO 44 (ENC) Blob Installation



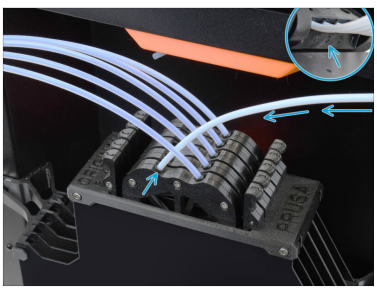
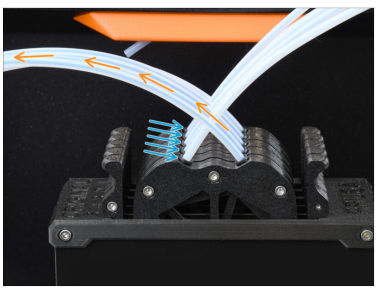
- If you use the Enclosed version, cover the printer with the Blob.
  - First, hook it at the back, then lean it onto the printer.

PASO 45 Buffer Attachment



- Attach the buffer assembly onto the right side of the printer.
  - Make sure the magnets are attached properly into the recessed side panel on the printer.

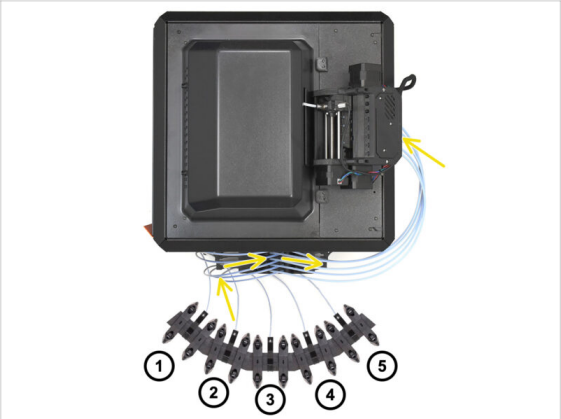
PASO 46 PTFE tubes connection


- Connect the five PTFE tubes **from the MMU** unit to the **free row of collets** on the buffer, ensuring you match the numbering on both the buffer and the MMU unit.
- The other PTFE tubes from the Buffer go to the Spool holders.

ⓘ We will attach the spool holders in the upcoming step.

PASO 47 Spoolholders setup



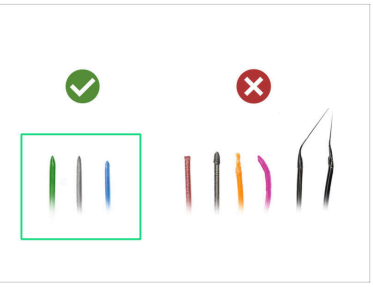
Congratulations! The hardest part is over.

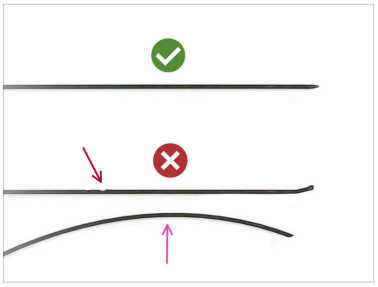
- The Buffer and spools setup in the picture is the one we will be trying to achieve. Arrange the **spool holders** and the **buffer** as seen in the picture.
  - The PTFE tubes should go from the spoolholders to the buffer. Then, from the buffer to the back of the MMU.
  - Connect the PTFE tubes from the buffer onto each of the spool holder.

Note the spool holder positioning. It is important that filament has **as straight path as possible** and that nothing interferes. PTFE tubes should **not be bent too much**. Otherwise, the filaments will jam.

11. Primer comienzo

PASO 1 Filament preparation



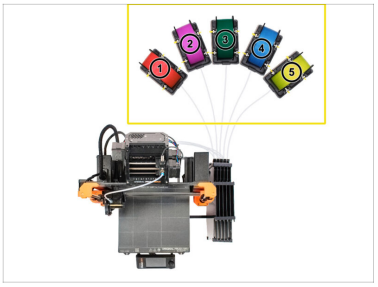


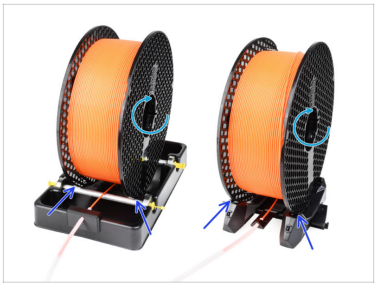
¡Ahora podemos cargar los filamentos e imprimir el objeto de prueba! Pero antes;

- Prepara al menos **cinco filamentos de PLA diferentes** y **corta los extremos** para formar una **punta afilada** en cada uno - como se ve en la imagen.
- Los filamentos deben tener una **punta afilada** para poder cargarse correctamente tanto en la MMU como en la impresora. Si la punta está deformada, doblada o tiene un diámetro mayor, no se cargará correctamente.
- Inspecciona los últimos **40cm** (15") de cada filamento. Asegúrate de que no está **sin deformaciones** en ella. A veces, si el filamento se atascó antes, la rueda de la polea hace una hendidura en él. Esta parte del filamento ya no puede ser agarrada y movida por la unidad MMU y debe ser cortada.
- Si el extremo del filamento está doblado, enderézalo. **Debe estar perfectamente recto.**

Utiliza únicamente filamento de alta calidad con una desviación de diámetro baja garantizada. En caso de que tenga problemas de carga/descarga de filamento en el futuro, vuelve a revisar este paso también. Asegúrate de que el filamento está seco. Los filamentos sensibles a la humedad pueden ser problemáticos durante el funcionamiento de la MMU.

PASO 2 Suggested filament layout

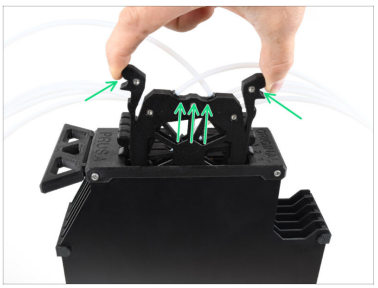
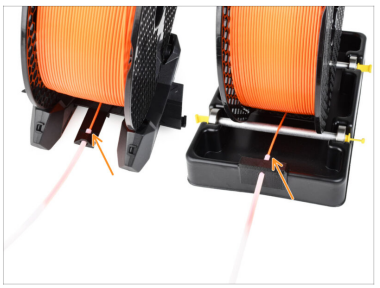
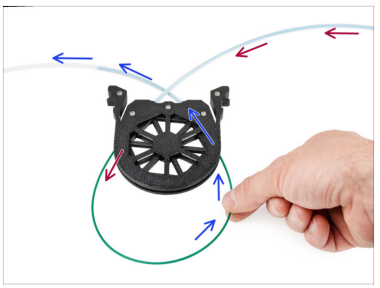




- Coloca los cinco filamentos en los portabobinas. Asegúrate de que las bobinas no interfieran entre sí.
- Ajusta cada portabobina de forma que la bobina encaja correctamente en los rodillos.
- Verifica que el bobina **puede girar libremente** y que nada interfiere.

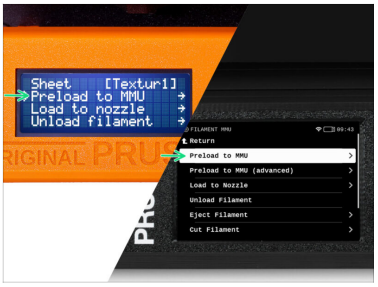
ⓘ Ten en cuenta que la MMU3 funciona con varios modelos de impresoras, por lo que las piezas de las imágenes pueden parecer ligeramente diferentes de las suyas. Sin embargo, los pasos generales son los mismos.

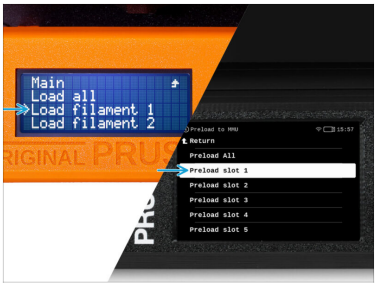
PASO 3 Loading a filament through the buffer

- Take the cassette for **filament 1** out of the buffer.
- Insert the **tip of the filament** into the bottom PTFE tube attached to the spoolholder.
- Keep pushing the filament into the PTFE tube until it appears in the corresponding buffer cassette.
- Take the tip and insert it through the cassette into the other PTFE tube, which goes into the MMU unit. Don’t push it all the way into the MMU yet.

PASO 4 Preloading a filament to MMU

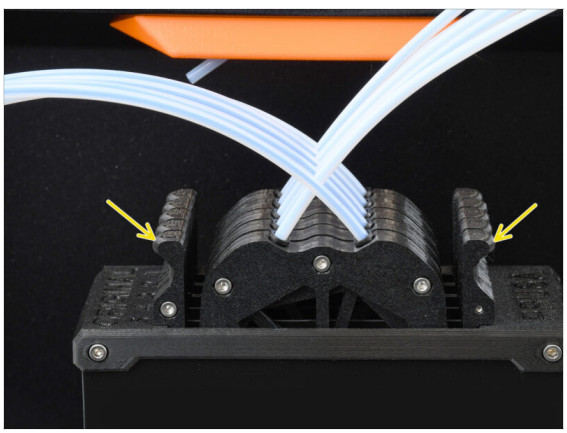




- On the printer, go to the **Filament -> Preload to MMU** (Menu -> Preload to MMU on MK3S/+)
- Select **Filament slot 1**. The MMU unit will engage the idler into the first position and start rotating the pulley until the filament is loaded in.
- Keep pushing the corresponding filament end into the PTFE tube from the buffer into the MMU, until you feel the filament being pulled in.

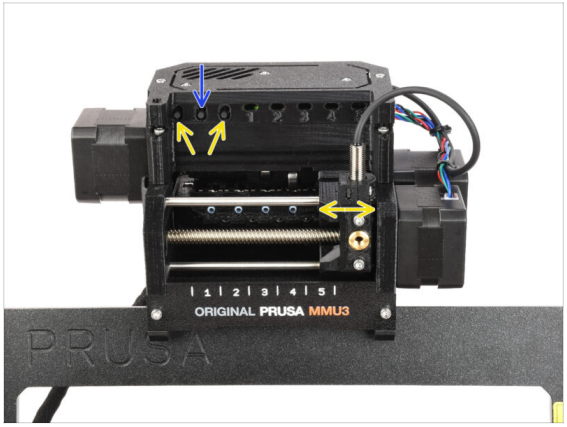
⚠ Remember, the filament tip must be straight and sharp in order to load it properly.

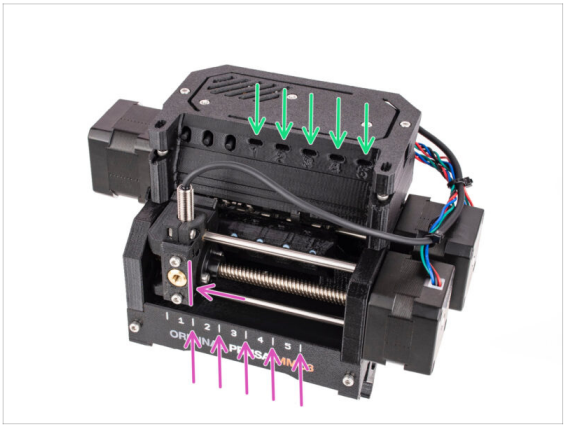
PASO 5 Closing the buffer



- After a given filament is successfully loaded into the MMU, return its cassette back into the buffer.
- Repeat the same process for the other filament positions, until you successfully load **all five filaments** into the MMU.

PASO 6 Pro tip: Loading using the buttons.



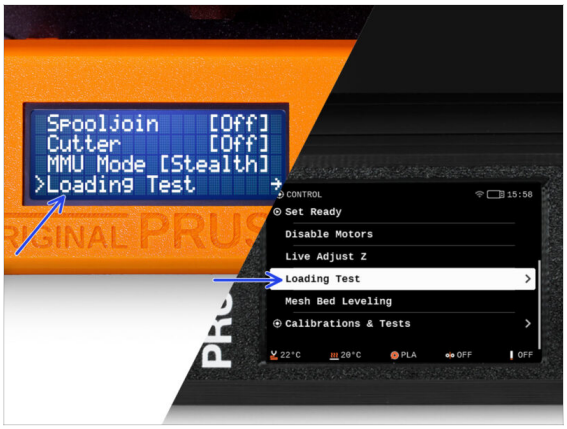


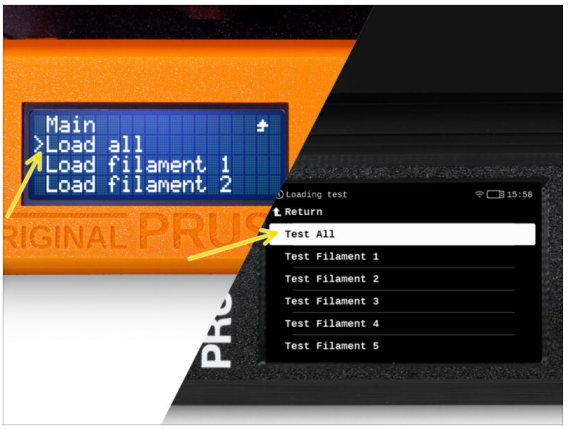
- También puedes cargar un filamento en la MMU utilizando los botones de la unidad. La próxima vez que cargues un filamento, utiliza el método que prefieras. Ya sea desde el menú LCD, o utilizando los botones físicos.
  - **Mientras la MMU está inactiva**; (indicado por TODAS las luces LED APAGADAS)
  - **El botón central** inicia o aborta la carga de filamento en la MMU.
  - Los **botones laterales** mueven el selector a izquierda y derecha para cambiar las posiciones del filamento.
- Utiliza los botones laterales para desplazar el selector a la posición de filamento deseada, indicada por la alineación del selector con una de las líneas de la placa de identificación.
- The ongoing **loading** process is indicated by a **blinking green LED** light for the respective filament position.

ⓘ **Stable green LED** light means the given filament is loaded to extruder.

Note, after you issue a command to the MMU unit, wait and let it finish the operation. Don't rush. Don't play around with the printer in the meanwhile. **Let it finish first if the MMU unit does something (homing, loading, unloading).**

PASO 7 Test de Carga (parte 1)





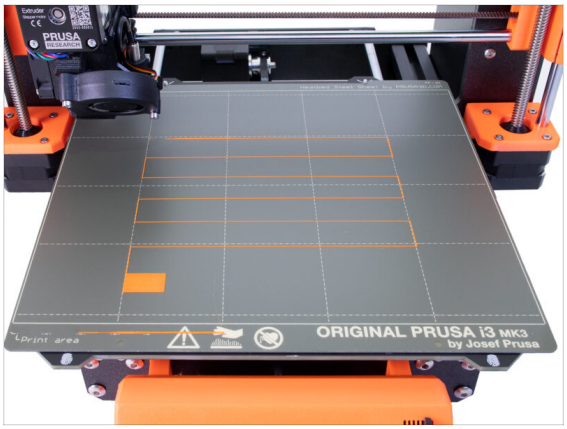
- Go to the **Control > Loading test**
  (Menu > Settings > Loading Test on MK3S/+)
- Select the filament type to preheat (PLA)
- Select **Test All** / Load all
  Or test all the filaments from 1 to 5 manually

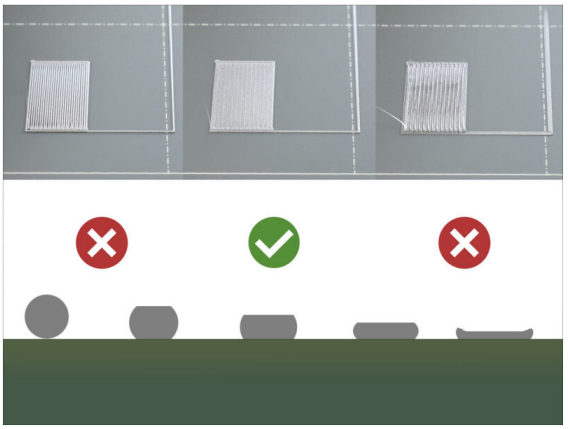
The MMU unit will now load and then unload all five filaments to see if all work correctly.

PASO 8 Test de Carga (parte 2)

- You can check the **filament sensor** status in the "**footer**" area of the LCD screen to see if it's detecting the filament correctly.
- On **MK3S+,** while loading a filament into the extruder, the loading check displays **solid blocks** at the bottom of the LCD if the IR filament sensor detects filament.
  - If **lines** appear instead of solid blocks, the filament sensor in the extruder is providing an intermittent reading and **may require additional tuning.**
  - En caso de que fallen varios reintentos de carga, aparecerá una pantalla del error correspondiente.

PASO 9 Calibración del eje Z y de la primera capa (opcional)

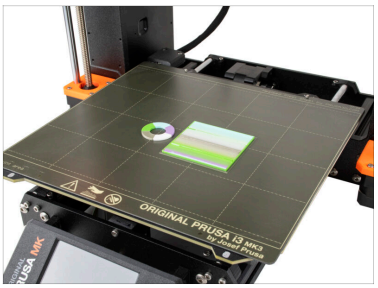


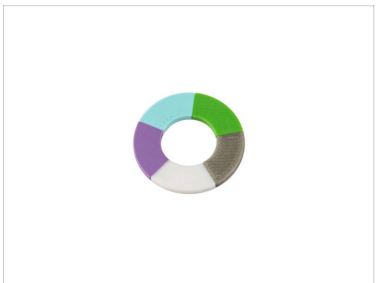


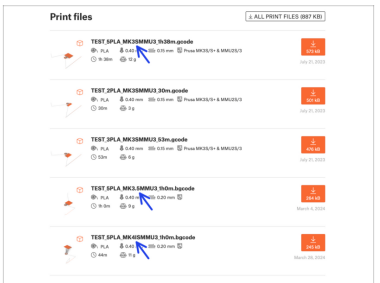
⚠ **IMPORTANT:** This step is necessary for the **MK3S+ / MK3.5** if you worked on the extruder head previously. If you only upgraded the old chimney to the new one, you can skip to the next step and use the **Live Adjust Z** function as usual to fine-tune the first layer.

- Go to **LCD Menu - Calibration - Calibrate Z.**
- A continuación, ejecuta la Calibración de la primera capa.

PASO 10 Printing a test object



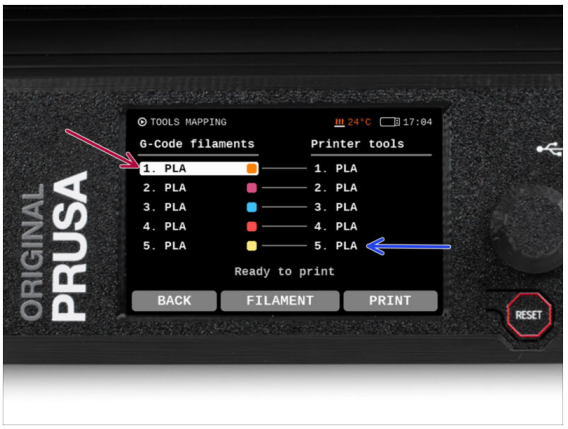




ⓘ We need to print a test object to verify that everything works correctly. Don't worry, it will be a quick print.

- Visit MMU3 Test objects on Printables.com
  - In the Print files section, download a G-code file pre-sliced for your **printer model.**
  - Save the **.gcode** or **.bgcode** file onto a storage media and print the test object.

PASO 11 Mapeado de cabezales (CORE/ MK3.5 / MK4S)



- When you start a print, the **Tools Mapping** screen appears. This allows you to reassign the extruders with the specified color to another one as needed.
  - On the left side, you'll see a list of the required materials and their colors, as specified in the G-code file.
  - On the right side, you'll find a list of materials currently available on the printer, that will be used to print the object.

  For example, if the G-code requires orange filament in the first position, but you have orange loaded in the fifth position, select the first position on the left menu and then assign it to the fifth position on the right.

  Toca dos veces las posiciones de filamento o utiliza el codificador para seleccionar el número del filamento.

PASO 12 Printable 3D models

- To further test your new MMU3, have a look at MMU3 Test Objects Collection on Printables.

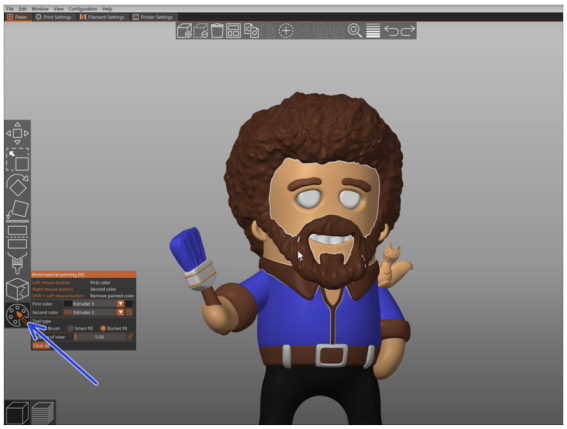
  We recommend printing the cute sheep, which has been the MMU mascot since the beginning.

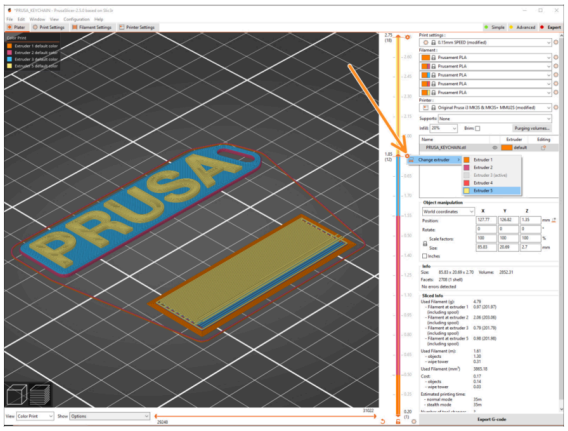
PASO 13 Print & Follow the Handbook.

- Start the print and wait until it finishes. In the meantime you can take a look at the **printed Handbook**.
- All the information regarding calibration, how to organise the printer, buffer, spools, or troubleshooting tips are all in the printed or online Handbook.

  To download the **Handbook** or if you encounter any issues, please visit our knowledge base at: http://help.prusa3d.com/en/tag/mmu3/
- If you are having any issues while printing, follow the on-screen instructions or visit the link from the LCD screen.

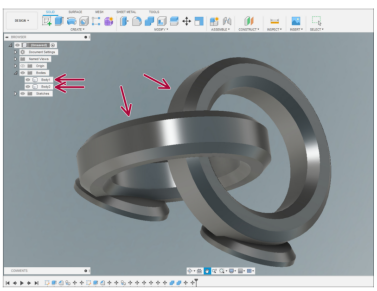
PASO 14 Preparación del código G / preparación de modelos personalizados.

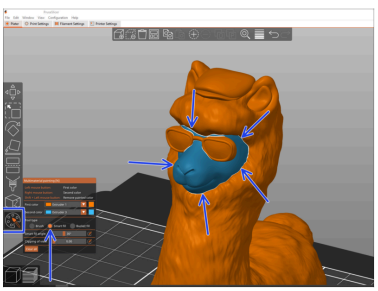


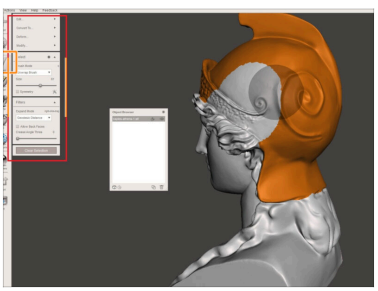


- Already printed all the bundled multi-material models from us as well as those seen at http://Printables.com? **Time to print your own designs!**
- The simpliest way of making a single-body object colorful is the MMU Painting function in PrusaSlicer.
- Basic steps for the manual method are described in our G-code preparation for multi material print section.
- For printing logos or text labels, you might also find the automatic color change at a given layer height useful. Simply, slice an object, select a certain layer height, click the small orange "+" icon next to the height marker and select the desired MMU filament position (Extruder number).

PASO 15 Creando tus propios modelos 3D Multi material

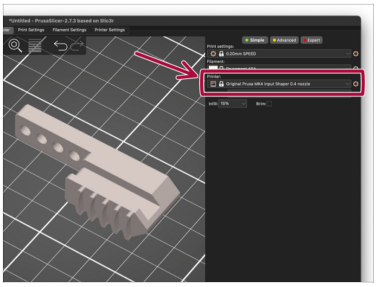
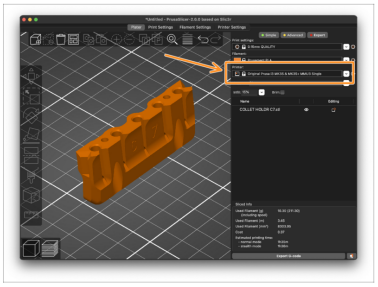
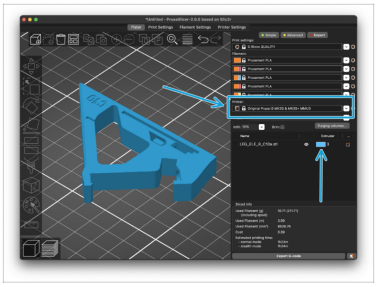






- If you have designed a model with multiple bodies, you may find the Exporting model from Fusion 360 guide useful.
- If you are designing a single-body model, part of which should be MMU-Painted, make sure there is a sharp line surrounding each distinct part so that you can use the **MMU Painting**'s **Smart-fill** function later on in **PrusaSlicer**.
- If you have an intricate STL file that can't be MMU-Painted easily, you can try the more sophisticated way of Splitting STL with single compact part or Splitting STL into multiple parts using MeshMixer.

PASO 16 MMU Single material operation

Did you know that MMU3 unit can also be used to make **single-material printing** more convenient too?

- Puedes dejar hasta cinco de tus materiales favoritos cargados en la unidad MMU.
  - En la **CORE**/MK3.5/MK4S, utiliza el perfil normal **CORE**/MK3.5/MK4S, al laminar. La impresora te permitirá elegir qué filamento utilizar.
  - En la **MK3S+**, lamina un objeto con el perfil MMU3 Single y comienza la impresión. Luego, elige qué filamento usar desde el LCD.
- If you know which of the five materials to use already while slicing, you can use the **MMU3 profile** and assign a single color (Extruder number) to the object.
- If a filament runs out, your print can continue automatically using the **SpoolJoin** function. For more information, refer to the SpoolJoin article.

PASO 17 Date un capricho

We know you've been waiting for this! Sounds like a well-deserved break! Enjoy those Haribos and watching your printer in action. By the way, what are you printing?

Notes:

Notes:

Notes:

Notes: