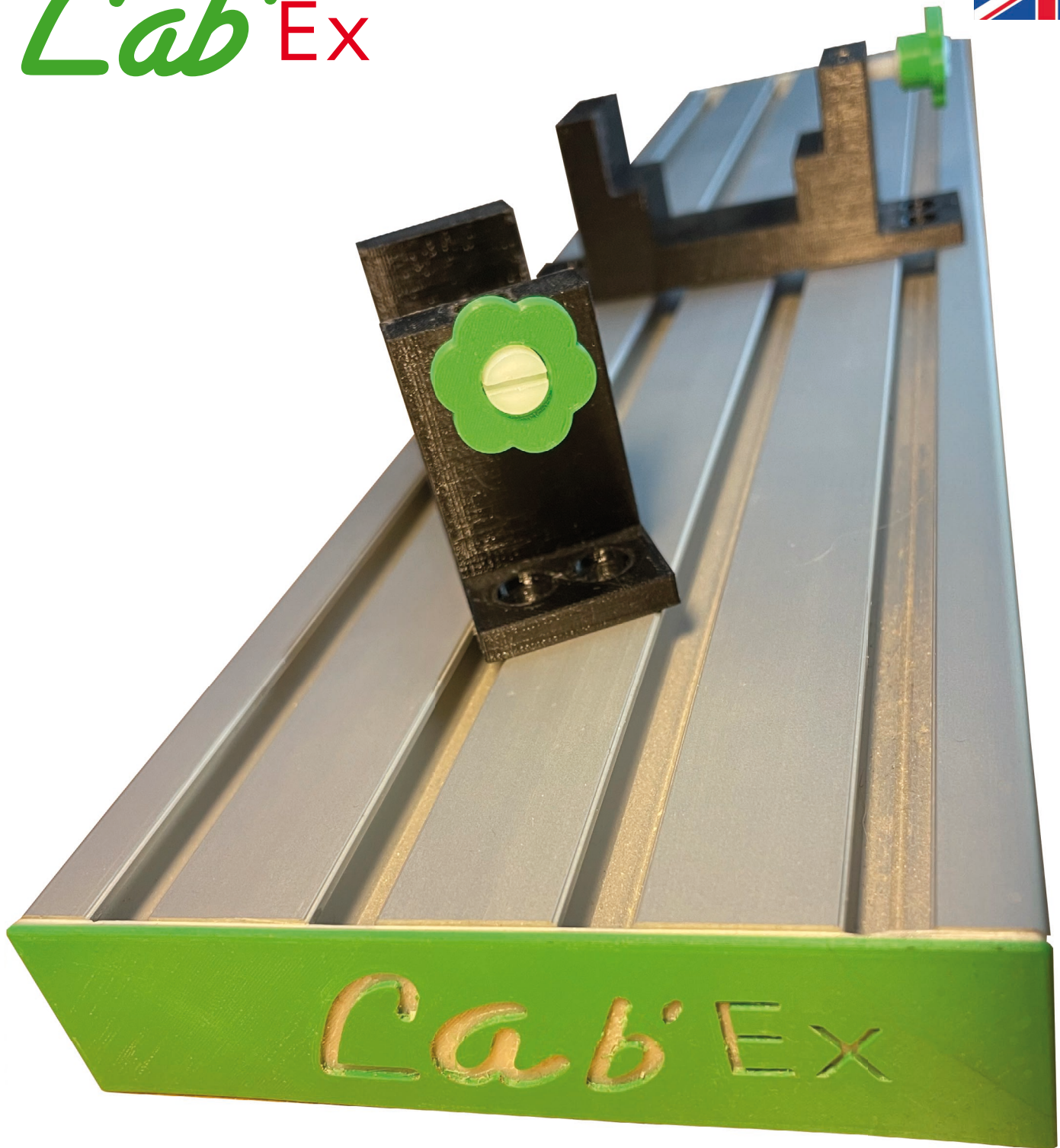


*Cab'Ex*

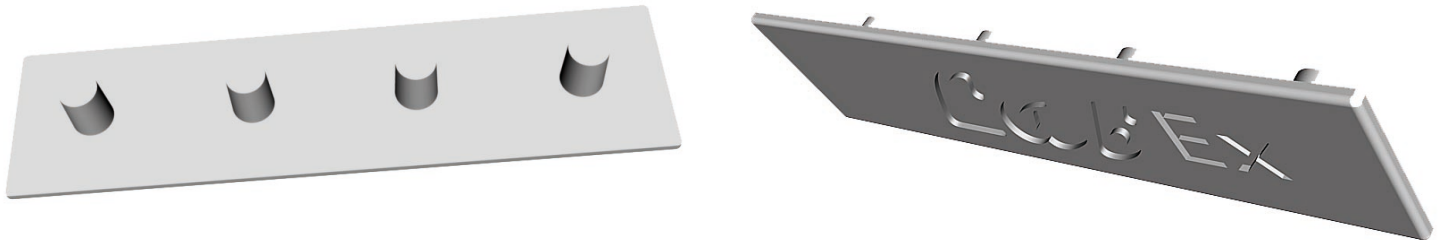


# Optical bench

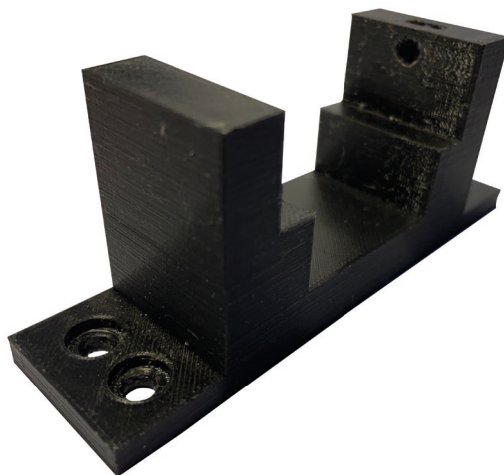
## 1a) 3D printing parts :

Several 3D printing parts will have to be made: (Download the zipped folder containing the 7 files on my Lab'Ex page,)

- **Covers :** They are fixed on each side of the aluminium optical bench. They are purely aesthetic covers and have no useful function in the use of Lab'Ex. The file to use is [PlaqueBancOptique.stl](#) which can be printed either in PLA or PETG in 2 copies (1 for each side of the optical bench). With the slicer software of your 3D printer you can separate the printing in 2 colors (one for the letters of the logo, the other for the background color of the plate).



- **Sol'Ex holding clamps :** To fix the Sol'Ex on the optical bench, you will need 2 copies. File [BrideSolEx.stl](#)



- **Clamping knobs for the Sol'Ex flange :** You will need to print 2 of them as well. These buttons will be equipped with a M5 nylon screw to maintain the Sol'Ex on the support flange. File [ButtonLabEx.stl](#)



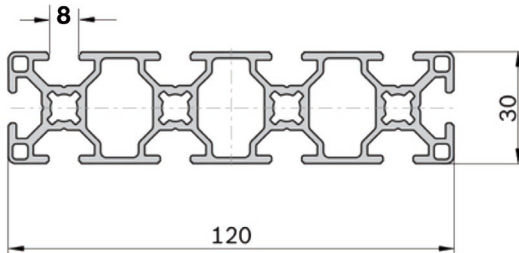
- **Holding clamp for the Alpy 600 :** If the spectrograph is an Alpy 600, here are the 2 flanges (one on the Alpy side, one on the ASI 183mm Pro camera side)



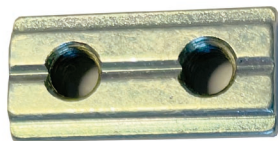
## **1b) Mechanical parts :**

Here is the list of mechanical parts you need to mount the optical bench.

- The aluminum frame is a Bosch Rexroth profile 30x120 mm, with 10 grooves of 8 mm width. The length is 35 cm (suppliers offer cuttings to the length of his choice). This length allows to use the liquid, light and filter holder modules, but if you want to build your own modules, you may need a longer length, the prototype I made is 50 cm long.



- 6 double M5 sliders for 8mm slot (4 sliders if the light module is not built)



You can find this kind of profile and the sliders here :

<https://shop.faure-technologies.com/fr/3842993763-profile-30x120>

<https://shop.faure-technologies.com/fr/3-842-536-675-coulisseau-m5-double-pour-rainure-de-8-mm-acier-galvanise>

<https://www.part-on.co.uk/product/30-x-120mm-aluminium-profile-bosch-rexroth/>

- 12 screws M5 length 10mm to fix the flanges on the optical bench (8 screws if you do not build the light module) preferably hollow hexagon screws.



- 2 nylon screws M5 length 25mm + 2 nylon nuts M5 (only if you build the Sol'Ex Star'Ex version)





- 4 M5 nuts for the Sol'Ex Star'Ex version, 2 M5 nuts if you build the Alpy 600 version.



- 4 M5 screws length 20 mm + 4 washers only if you build the Alpy 600 version preferably with hollow hexagon screws.



## **2) Assembly :**

We insert on the 2 edges of the optical bench, the 2 covers by forcing a little to fit them well in the aluminum profile. If necessary, you can plane adjust the studs by filing them in order to adapt the diameter of the covers to the profile.



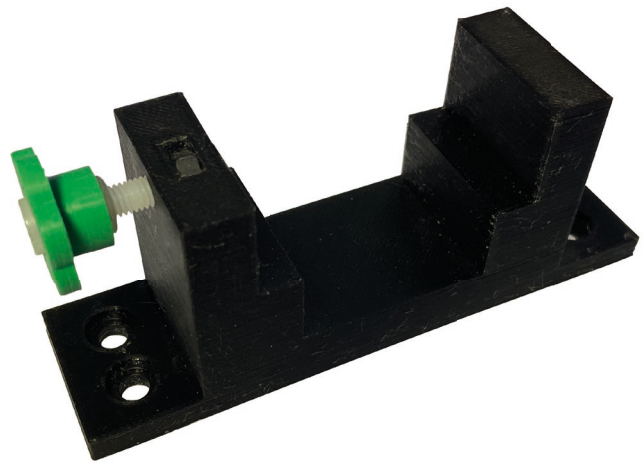
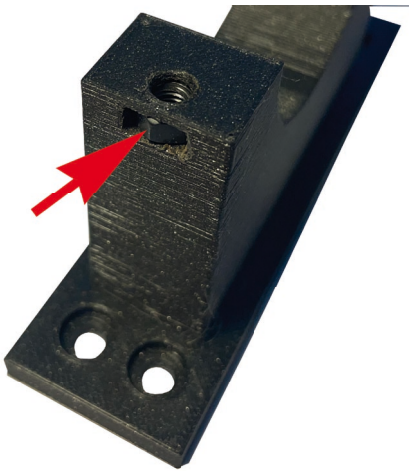
### **2-1 For a Star'Ex Sol'Ex spectrograph :**

The Sol'Ex or Star'Ex is held in place with 2 clamps that support the spectrograph on the optical bench.

On the 2 buttons, we put in place the Nylon screw and its nut



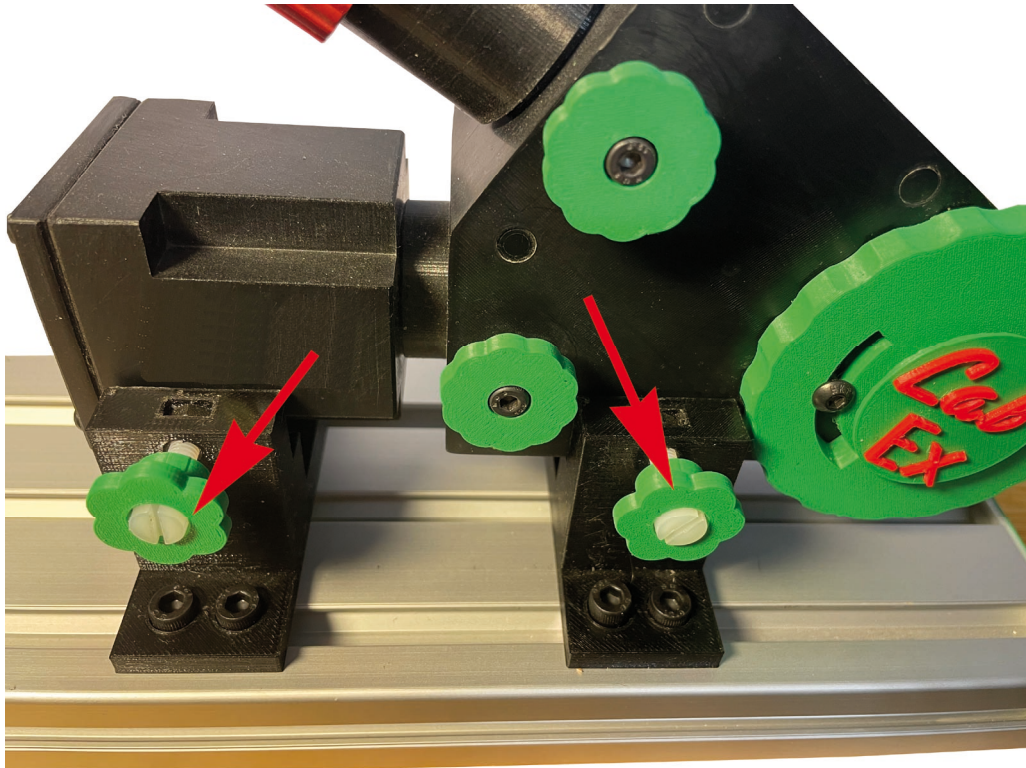
We can now fix the Sol'Ex Star'Ex on the optical bench.



On the 2 flanges, you must insert the nut in the space provided, then screw the 2 buttons.



It is necessary to insert the slides in the external rails of the optical bench by using a screwdriver or key allen to position it well in the rail.

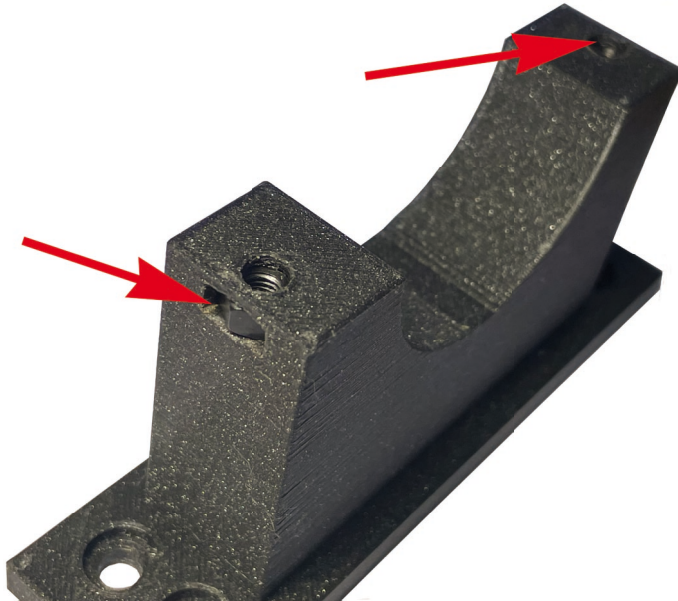


Do not tighten the 2 knobs too much, it is just necessary that the tightening maintains the spectrograph on the 2 flanges without that it can move.

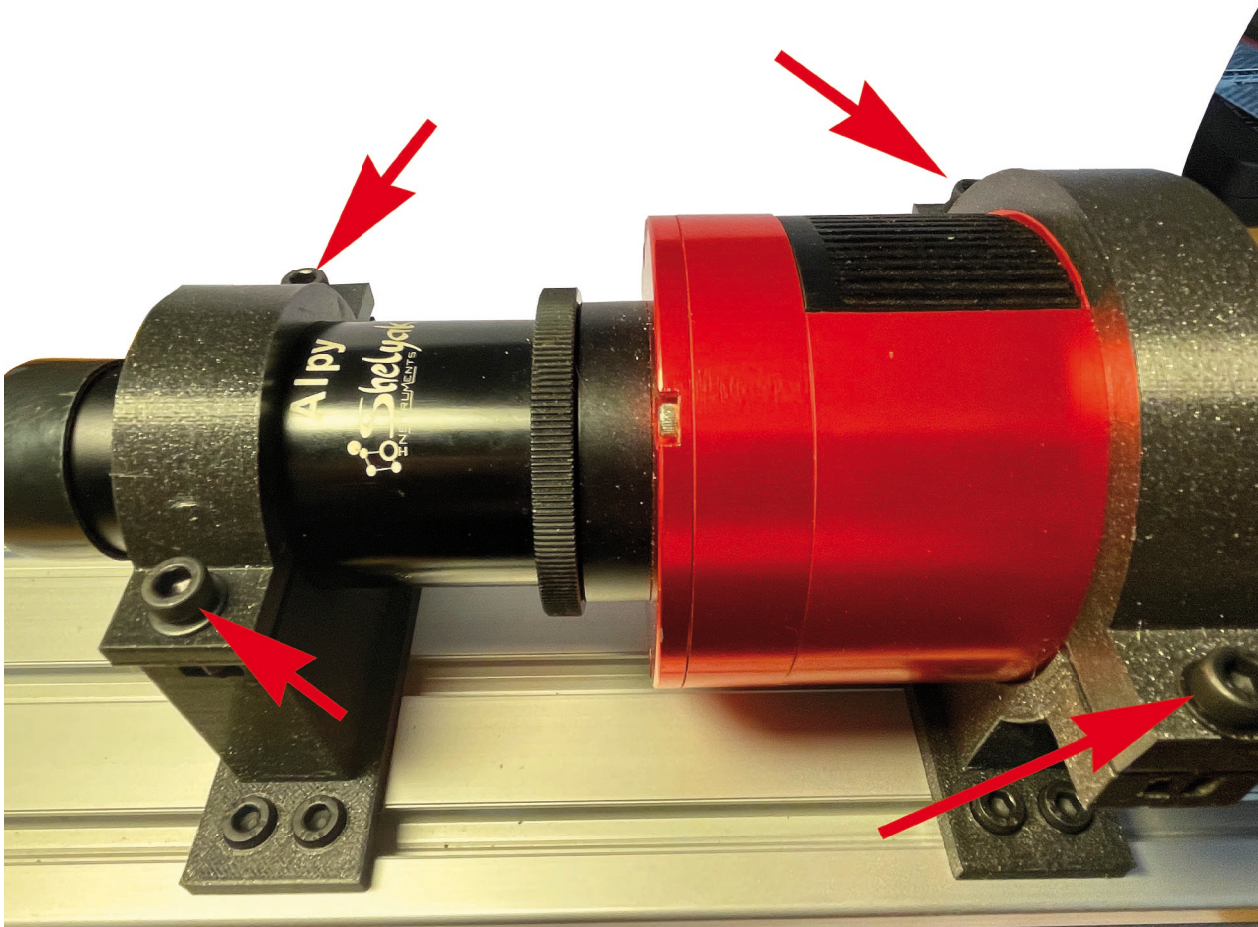


**2-2 For an Alpy 600 spectrograph :**

The Alpy 600 is held in place by two clamps that support the spectrograph on the optical bench. One is the diameter of the Alpy 600 body, the other the diameter of the ASI 183 MM pro camera.



On each flange, 2 M5 nuts must be inserted.



Then fix the Alpy 600 on the 2 flanges with 4 M5 screws length 20mm and 4 washers. Tighten the screws just to maintain the spectrograph in place, then fix the whole on the optical bench.