



# XY Compensation Device (Compliant mechanism)



FabianVeile

[VIEW IN BROWSER](#)

updated 22. 11. 2023 | published 22. 11. 2023

## Summary

This is a compliant XY compensation device with 4 mm compensation stroke. Maintenance free.

[Learning](#) > [Engineering](#)

Tags: [robot](#) [engineering](#) [gadget](#) [compliant](#) [compensator](#)  
[compliantmechanism](#) [compliantmechanisms](#) [compensation](#)

Hello,

this is my compliant XY compensation device. It has a theoretical compensation stroke of 4 mm and is a further development of the [XY Linear Guide](#). It is useful if you're e.g. a student and want to experiment with robotics.

It does not need any lubrication or other maintenance, there should also be no significant wear on the parts. You can just print it and use it for your experiments.

Technical data:

Approx size: 70 x 70 x 6.1 mm

Compensation stroke in X: 4 mm

Compensation stroke in Y: 4 mm

Mounting hole diameter: 4.4 mm

Mounting hole distance: approx. 46 mm

### **How do you print it?**

It consists of two parts and can easily be printed in around 2 hours with no supports. I recommend a 0.12 mm layer height, a 20% gyroid infill and PLA.

### **How do you assemble it?**

Just flip one of the parts around and rotate it 90°. Then fit the bolts into the holes of the other part. Be careful to get the alignment right, otherwise you will end up with a 8 mm X compensation unit :-)

### **How much weight can you hang onto it?**

Not very much, since both parts are only connected with a slight oversize fit. I did not make any tests because I do not have a tension scale. It is not brittle and fragile but you should be careful when using it since it is - although fully functional - more a proof of concept. 100 g should work though as far as I know.

Shoot me a message if you need a different size or a more sturdy version :-)

If it does not work for you please leave a comment or shoot me a message instead of just posting a 1 star review, I'm sure there is no problem that can't be solved.

## **Model files**



### **xy\_top\_v2.stl**

☐ I used "BASF Ultrafuse PLA Grey" to print this.



### **xy\_bottom\_v1.stl**

☐ I used "BASF Ultrafuse PLA Grey" to print this.

# License ©

This work is licensed under a  
**Creative Commons (4.0 International License)**



**Attribution—Noncommercial—No Derivatives**

---

- ✗ | Sharing without ATTRIBUTION
- ✗ | Remix Culture allowed
- ✗ | Commercial Use
- ✗ | Free Cultural Works
- ✗ | Meets Open Definition