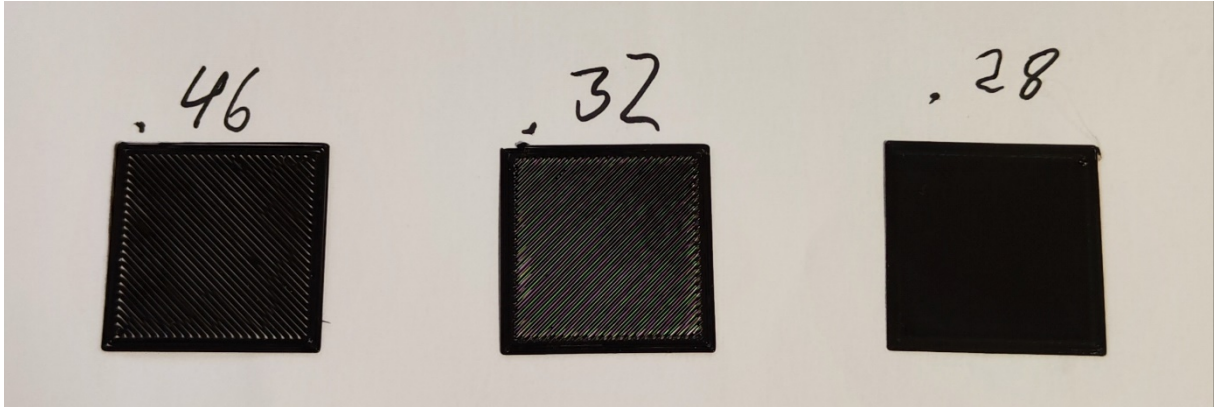


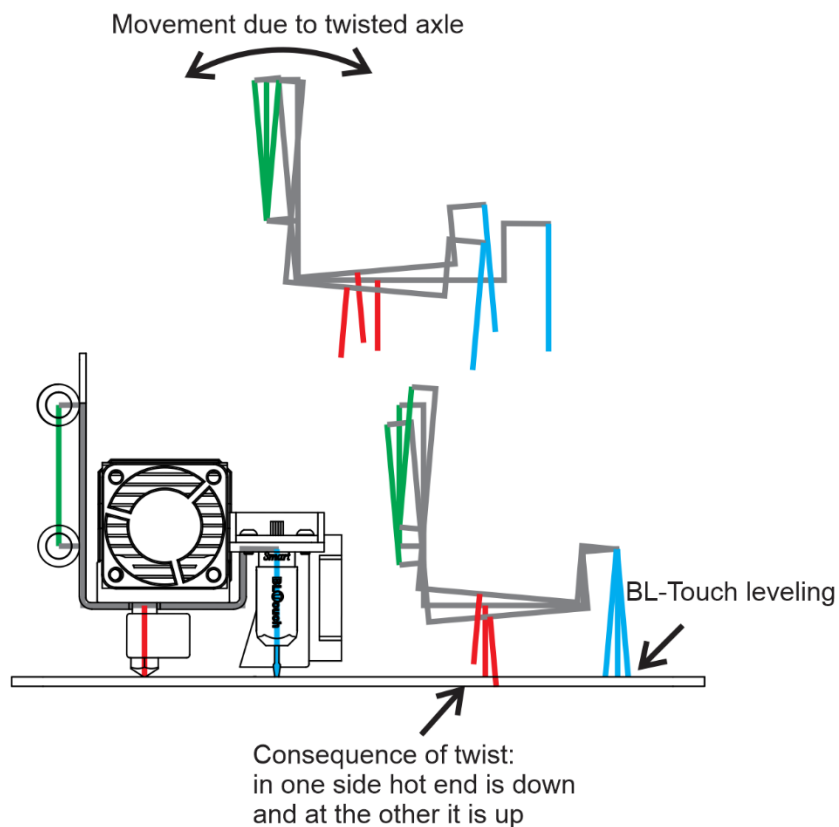
## Klipper Axis Twist Compensation with Klicky (or other detachable) Probe

Some of you guys know the problem.

You have a printer with automatic bed levelling and a probe, but somehow even after perfect Bed Mesh you can't get a good first layer. The thickness on the left and right side of the bed are different, as like in my picture.



The reason CAN be a axis twist, as like shown in the picture below



A detailed description of this problem you find here:

<https://github.com/MarlinFirmware/Marlin/issues/22791>

Until August 2023 there was no way in Klipper to compensate this. Thanks the team, there is now a axis fix compensation available. Only problem : **not yet for users of detachable probes.**

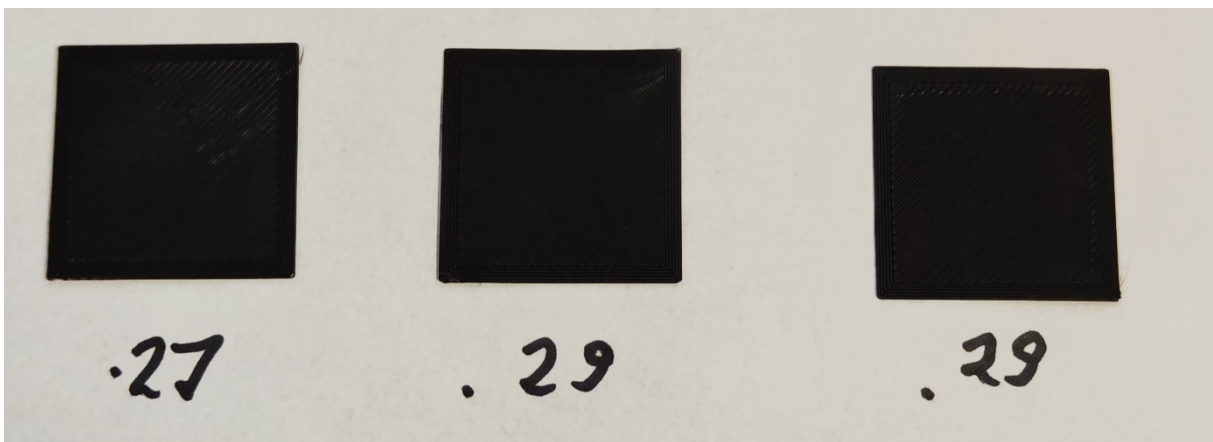
So I took a closer look to the manual and the process, you can find here:

[https://www.klipper3d.org/Axis\\_Twist\\_Compensation.html](https://www.klipper3d.org/Axis_Twist_Compensation.html)

### READ IT FIRST!

And I had a idea. There are **a manual measuring and z offsret adjust** with the paper method. What will happen, if I go down with the bed and measure at another height?

I did it, it worked and I'm satisfied with the result (see picture).

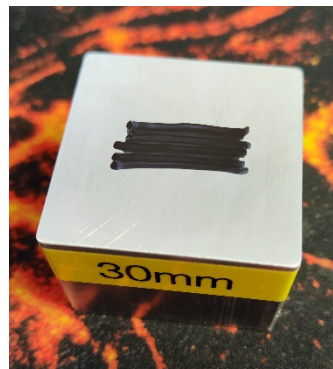


So, how to do it?

#### Step by step:

1. Get a parallel gauge block or a similar milled block in a height higher than your Z offset, and (if you want to «see» your result directly) a Edding.

Mark your block on the top.



2. Now you have **to edit your printer.cfg** as described in the manual (add the [axis\_twist\_compensation]). In my .cfg it looks like this:

```
#_____ Twist Compensation _____  
  
[axis_twist_compensation]  
speed: 100  
horizontal_move_z: 30  
calibrate_start_x: 10  
calibrate_end_x: 405  
calibrate_y: 100
```

**horizontal\_move\_z should be the height of your gauge block ! X and Y values should match your bed.**

3. Save and restart your Firmware.

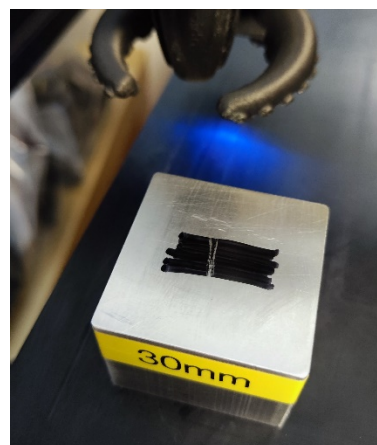
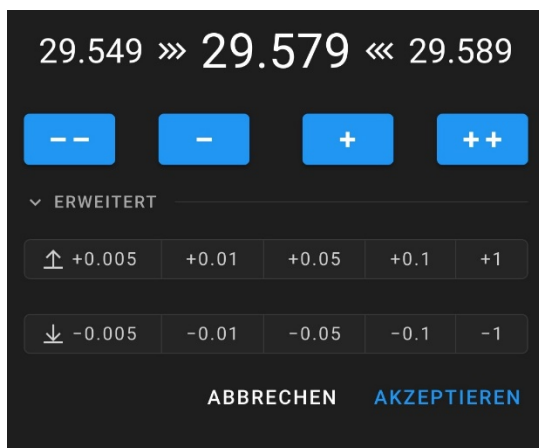
4. Now home your axis and adjust z-tilt as usual.

5. Next step: attach&lock your probe. The command for klicky is **Attach\_Probe\_Lock**

6. Start the process with the command **AXIS\_TWIST\_COMPENSATION\_CALIBRATE**

7. Follow the instructions of the script and use your gauge block like a piece of paper. Carefully slice him below the nozzle back and forward and adjust the z height until you see small scratches in the edding (I do it this way ; you also may do it without marking).

If you see the scratches, you reached the compensated height. Press ACCEPT. Repeat it until the last position.



8. If the process is done – save config and restart. Congratulation ! Your twist compensation should work now! In the config now you should see something like this:

```
###  
### [probe]  
### z_offset = 11.885  
###  
### [axis_twist_compensation]  
### z_compensations = -0.156458, 0.010792, 0.101667  
### compensation_start_x = 10.0  
### compensation_end_x = 405.0
```

9. Make a bedlevel testprint and be happy.

By the way: if the result isn't perfect, you can modify the values manually. As long I see, it is the nozzle offset in mm, so you can correct the height by hand later.

## Have a nice printing experience!

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Written in horrible english by Holger Morgenstern, Switzerland