Afbeelding met tekst, binnen, rood

Automatisch gegenereerde beschrijving

# About

This manual is intended for the aluminum parts for VZ330 as sold by F3D-Racing and Mellow. The aluminum parts are interchangeable with the printed parts, some additional hardware is required when purchasing the motor mounts and idler mounts. Furthermore some printed parts are required in order to mount your new sexy parts!

Beware, VZ330 was never designed around AWD like VZ235. Because of this the design team was left with the frame as constraint. Due to which it was not possible to have a design that did not limit y travel for the VZ330 printhead. There is a 10mm loss in Y travel coming from 330mm.

Afbeelding met wapen, gereedschap

Automatisch gegenereerde beschrijving

Afbeelding met tekst, illustratie

Automatisch gegenereerde beschrijving

<https://f3d-racing-fdm.myshopify.com/collections/vzbot-vz330>

Afbeelding met tekst

Automatisch gegenereerde beschrijving

<https://mellow.nl.aliexpress.com/store/1531088?spm=a2g0o.detail.1000007.1.67f7726dJRpvIK\>

\*Disclaimer: VzBoT is an opensource passion project, this manual is not definitive, and we try to make it as polished as possible. Fortunately, we all make errors so use common sense when following this guide.

# Print settings:

We recommend printing all parts in ABS, ASA or similar material to be able to withstand the high heat environment in the printer enclosure.

Print settings should always be tuned for your own material and tested for decent strength and layer adhesion.

We recommend the following settings:

***For non-moving parts:***

Layer height: **0.2mm**

Layer with: **0.4 to 0.6 mm**

Number of walls: **4**

Infill percentage: **40 to 50 %**

Top/bottom layers: **5**

***For moving parts:***

Layer height: **0.2mm**

Layer with: **0.4 to 0.6 mm**

Number of walls: **4**

Infill percentage: **30 to 40 % depending on your material**

Top/bottom layers: **5**

# AWD Motormounts/Idlers

Afbeelding met automaat

Automatisch gegenereerde beschrijving

## Bom:

|  |  |  |
| --- | --- | --- |
| Material | Quantity | Notes |
| M3 30mm | 2 |  |
| M3 6mm | 6 |  |
| M4 10mm | 10 | +2 for mellow version |
| M4 T-nut | 10 |  |
| Shoulder bolt 5mmx20mm [M3] | 4 | M3 threading with 6mm of threaded length, if longer grind down the ends. Correct shoulder bolts available at mellow & F3D |
| GT2 Toothed idler | 2 |  |
| Gt2 Smooth idler | 2 |  |
| GT2 motor pulley | 2 |  |

Afbeelding met binnen, keukenmachine

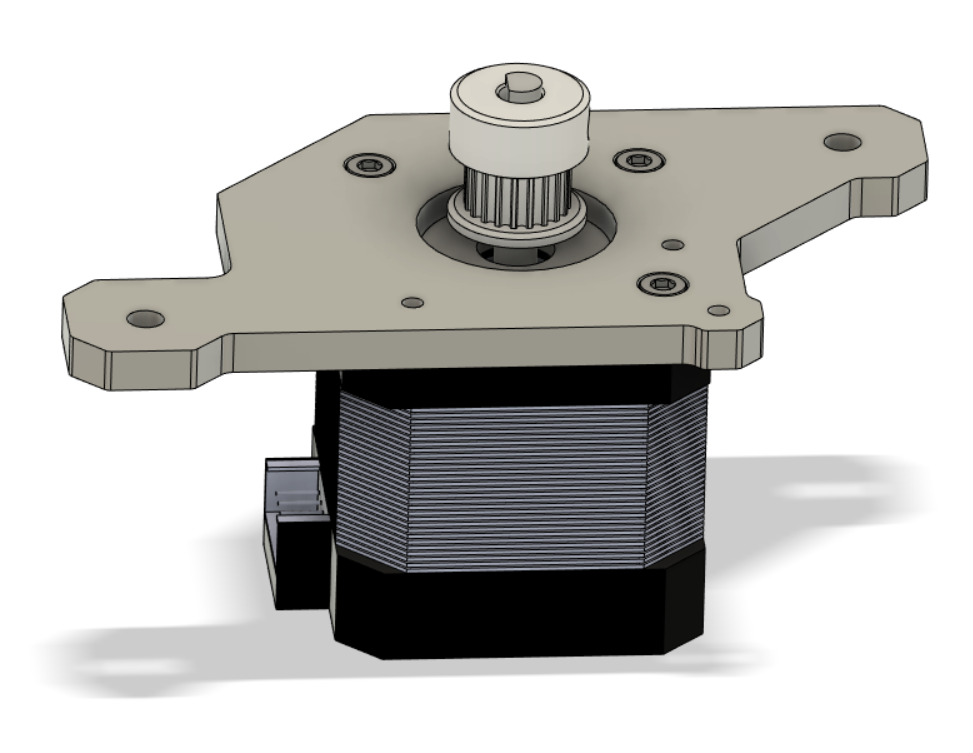
Automatisch gegenereerde beschrijving

## STL files:

|  |  |
| --- | --- |
| File name | Amount to print |
| Spacer long | 4 |
| Spacer short bottom | 2 |
| Spacer short top | 2 |
| Spacer M3 corner | 2 |

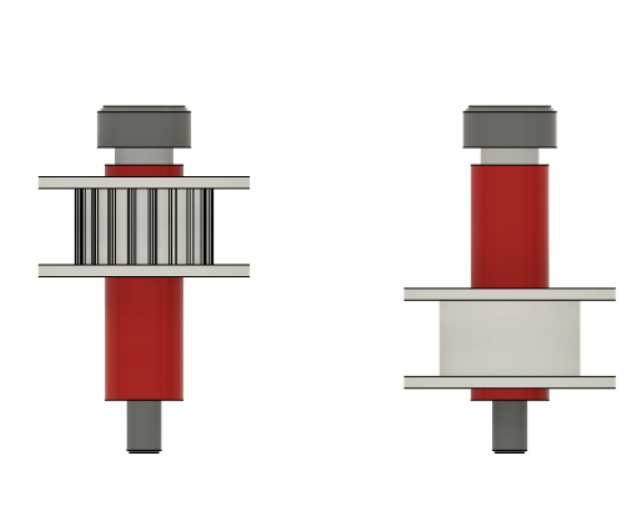
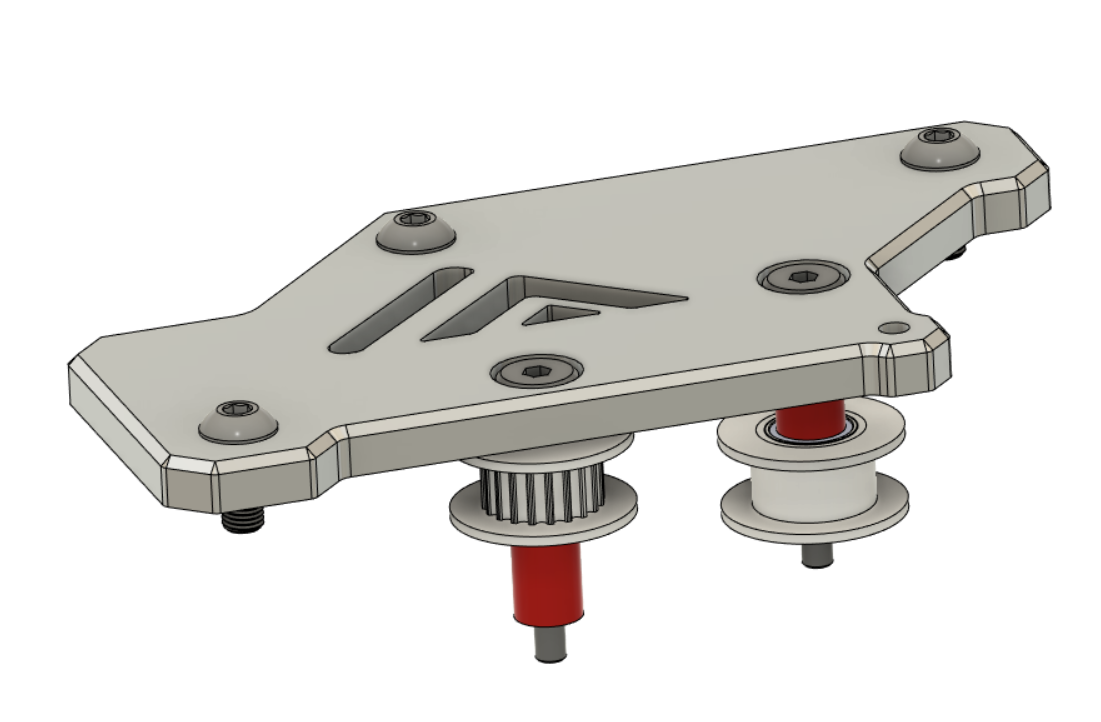
## Step 1:

Mount the GT2 drive pulley to the motor and attach the motor to the bottom plate using 6mm M3 screws.



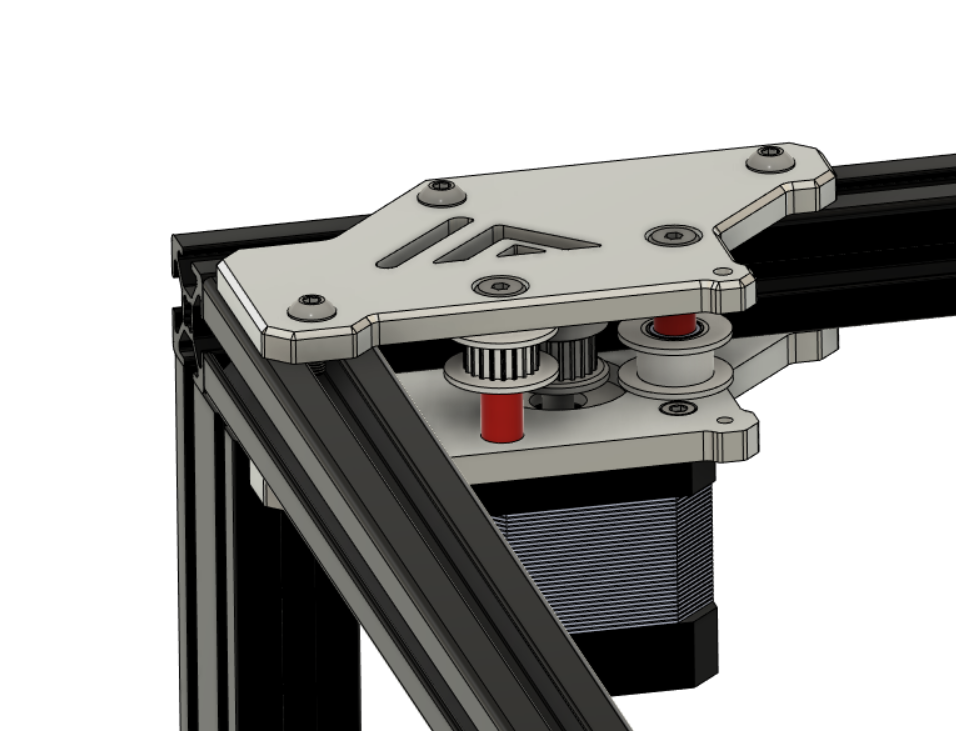
## Step 2:

Mount the 10mm M4 nuts and t-nuts to the top plate. Then put the shoulder bolts in place in the top plate and push on the printed spacers and idlers like shown below, making sure they are in their right position. The printed spacers are tight enough to where this assembly (with some care) will stay together.



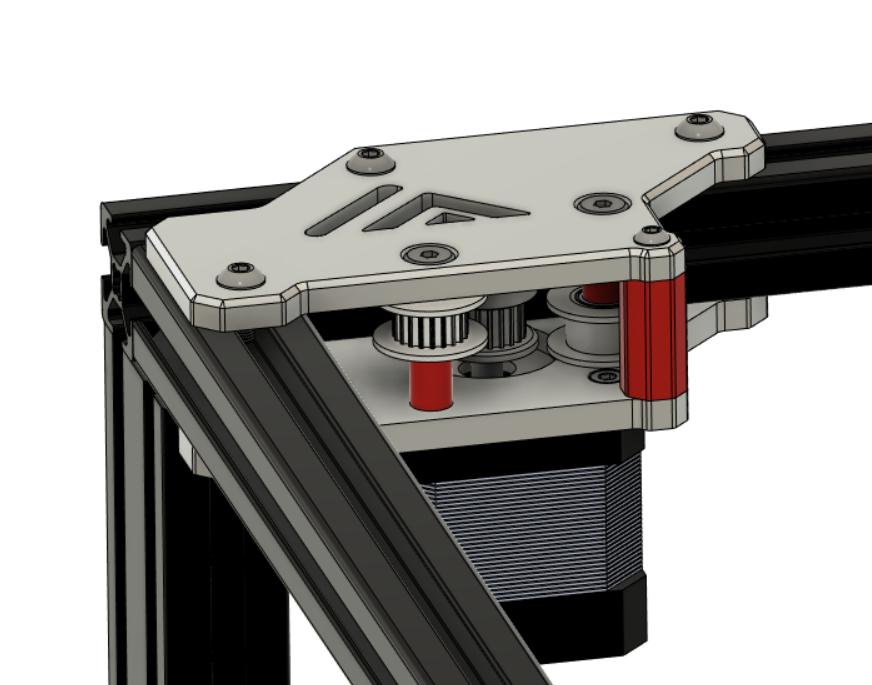
## Step 3:

Attach the bottom assembly to the printer frame using 10mm M4 screws and t-nuts. After this attach the top assembly from the previous step loosely. Make sure the shoulder bolts thread before tightening all screws.



## Step 4:

Insert the printed corner spacer and install the 30mm M3 like shown below.



## Step 5:

Repeat the same process for the other side making sure to put the idlers in their correct position.

# Firmware:

Klipper, RRF and Marlin natively support AWD for Corexy kinematics. For a Klipper example Cfg suited for AWD check the VZ235 Github page.

<https://github.com/VzBoT3D/VzBoT-Vz235/tree/main/Firmware>

## XY motion Example CFG Klipper:

[stepper\_y]

step\_pin: PE11

dir\_pin: !PE10

enable\_pin: !PE9

rotation\_distance: 40

microsteps: 16

full\_steps\_per\_rotation: 200

endstop\_pin: ^PB13

position\_endstop: 0

position\_max: 235

homing\_speed: 25

homing\_retract\_dist: 0

[tmc5160 stepper\_y]

spi\_bus: spi4

cs\_pin: PE7

interpolate: false

#diag1\_pin: PB14

run\_current: 1.6

[stepper\_y1]

dir\_pin: !PC13

enable\_pin: !PE5

step\_pin: PE6

rotation\_distance: 40

microsteps: 16

full\_steps\_per\_rotation: 200

[tmc5160 stepper\_y1]

spi\_bus: spi4

cs\_pin: PC14

interpolate: false

#diag1\_pin: PB14

run\_current: 1.6

[stepper\_x]

step\_pin: PD8

dir\_pin: !PB12

enable\_pin: !PD9

rotation\_distance: 40

microsteps: 16

full\_steps\_per\_rotation: 200

endstop\_pin: ^PB14

position\_endstop: 0

position\_max: 235

homing\_speed: 25

homing\_retract\_dist: 0

[tmc5160 stepper\_x]

spi\_bus: spi4

cs\_pin: PE15

#diag1\_pin: PB13

interpolate: false

run\_current: 1.6

[stepper\_x1]

dir\_pin: !PE4

enable\_pin: !PE3

step\_pin: PE2

rotation\_distance: 40

microsteps: 16

full\_steps\_per\_rotation: 200

[tmc5160 stepper\_x1]

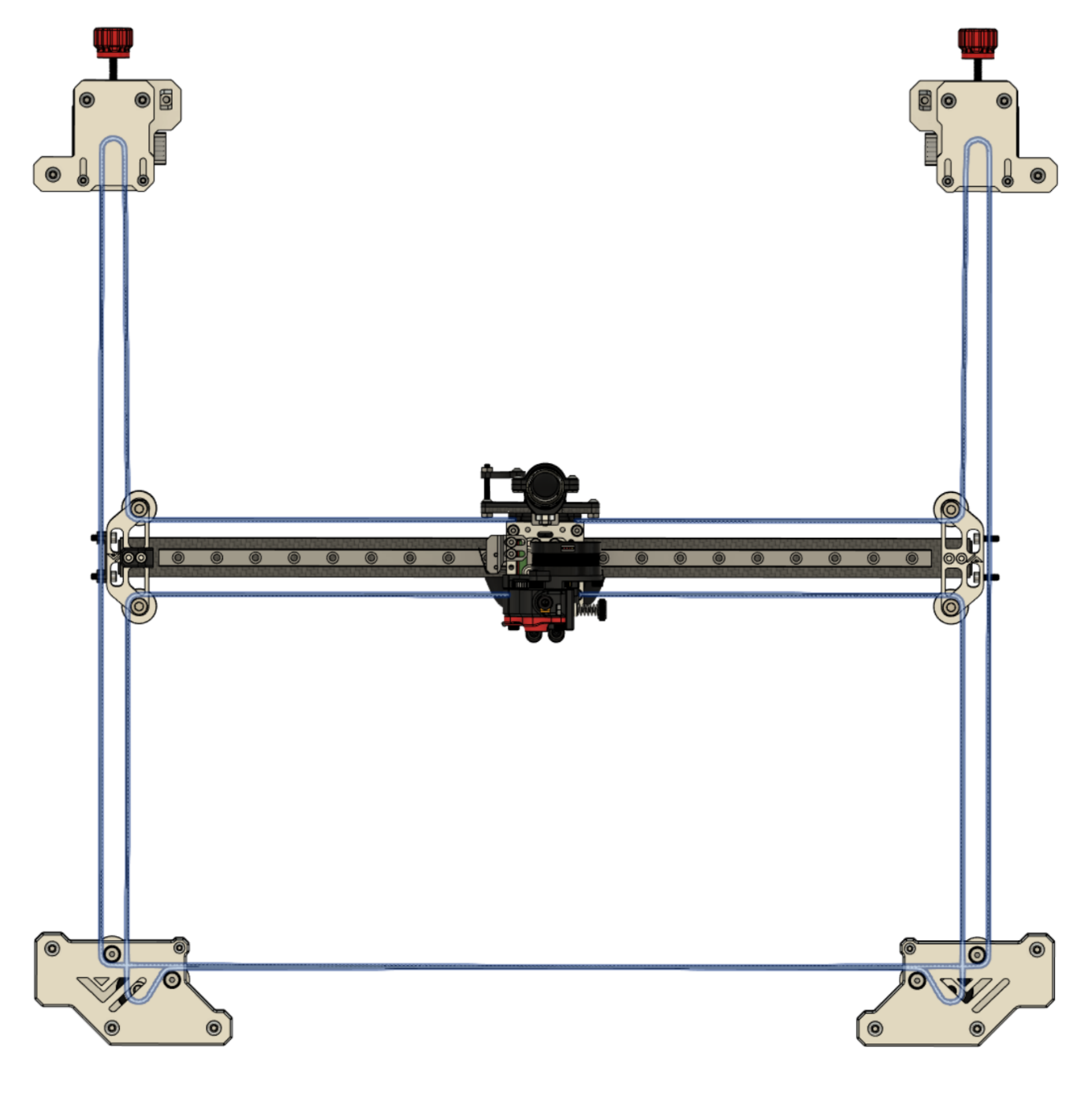
spi\_bus: spi4

cs\_pin: PC15

interpolate: false

#diag1\_pin: PB14

run\_current: 1.6



# Setup and tuning:

After finishing the build one must take care to properly set up the AWD system. It is important to “sync the motors”. In order to achieve this it is advised to use the following macro’s in klipper:

[gcode\_macro enable\_stepper]

gcode:

SET\_STEPPER\_ENABLE STEPPER=stepper\_x ENABLE=1

SET\_STEPPER\_ENABLE STEPPER=stepper\_x1 ENABLE=1

SET\_STEPPER\_ENABLE STEPPER=stepper\_y ENABLE=1

SET\_STEPPER\_ENABLE STEPPER=stepper\_y1 ENABLE=1

[gcode\_macro disable-steppers]

gcode:

m84

## Afbeelding met tekst, whiteboard Automatisch gegenereerde beschrijving

## Step 1:

Set belt tension like on a normal 2WD VZ330.

## Step 2:

Loosen the grubscrews on one of each set of motors, make sure the grub screws will not be on the flat side of the stepper shaft.

## Step 3:

Boot up the printer and order “enable stepper”.

## Step 4:

Tighten the stepper grub screws and disable steppers again.

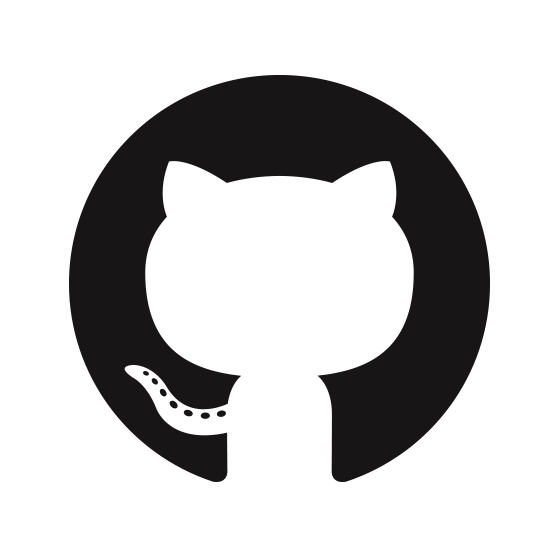
***Designed and developed by:***

*The VzBot Team*

 <https://discord.gg/qmMeD6Vt3W>



<https://www.facebook.com/groups/4098868770205560/>



<https://github.com/VzBoT3D>

