



The PickleWhoop (20, 25 & 30) : cinematic whoop frame



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updated 5. 2. 2025 | published 5. 2. 2025

Summary

Supports DJI O3. The PickleWhoop is a Cinewhoop frame using carbon fiber guards. Available in 2, 2.5 & 3 inch.

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Check those [accessories for the PickleWhoop by Milo Perriand](#) (Full GoPro mount, Immortal-T, cam mounts, etc). And also those [accessories by Rodrigo Sclosa](#).

Updates

- 2025/02/05 : made slight corrections on the PW25 frame, upper guard, PW20 frame to give clearance for the DJI O4 Pro cam. Also added some TPU parts for this new camera (untested).
- 2024/06/04 :
 - added a Caddx Moonlight compatible bottom guard for the PW25 (center clearance)
 - Added a 20x20 fc mount on the frame for the PW25 (just in case)
- 2024/03/14 : added a bottom plate without pressnut holes for the PW25 & 30. This one have just 1.6mm outer and 2mm inner holes for vtx.
- 2023/06/25 : modified the PW20 frame to add a 3 hole 6.6mm mount for extended motor compatibility (ex : HOMFPV 1203 and some more i guess).
- 2023/01/16 : added an O3 mount that can take -10 deg negative angle + ImmortalT antenna mount
- 2023/01/05 : added a V2 version of the PW20. This one supports the DJI O3 system
- 2022/11/26 : added my Betaflight 4.3.2 cli dump for the pw25 + DJI O3
- 2022/11/25 : added a better fitting camera mount (v1-1) + antenna support
- 2022/11/23 : added a camera mount for the new DJI O3. It should work fine on the 25 and the 30.
- 2022/10/25 : added a V2 version of the PW25. I remade quite a few details but all components can individually mixed with V1 elements (all mounting hole patterns are the same). What's new on the V2 : redesigned ducts with an outer continuous line (allowing easy led fitting), the frame itself now have 4 holes to fit the HD camera adapter. The camera sits a lot back thus having a better center of gravity, you need 4 M2 pressnuts for those holes. I also made the arms slightly wider (+0.5mm) to stiffen them further. The overall carbon weight went up by 1.5g but the frame should work better and be more convenient.
- 2022/10/19 : added a specific bottom plate for the PW20 + a better mount for the nebula pro nano (the camera sits better in the frame)
- 2022/10/07 : added 20 (2inch) version + specific cam mounts
- 2022/09/29 : added DJI Avata / Axis C157 motor support on the 3" version !
- 2022/09/26 : added 30 (3 inch) version

Meet the PickleWhoop, it's a tiny FPV cinematic frame with prop guards for slow and proximity flights.

I wanted something that's easy to build and to produce so i gave up on printable ducts. Those are heavy and requires specific materials for the best results. So here only carbon, just to prevent propellers to hit something or someone.

The result is a frame that weights a bit less than a same size Foxwhoop or CL25 frame that is easier to build, have more room for gear and that is more silent in flight.

Frame Specs

- 3 sizes : 20 (2" props), 25 size (2.5" props) and 30 size (3" props)
- WideX Layout
- PW20 : Supports 9x9 and 6.6x6.6 (3 hole) motors
- PW25 & PW30 : Supports 9x9 and 12x12 motors (+10x10 3 hole on the 3" for DJI Avata & **Axis C157 motors**)
- Support AIO FC (25.5x25x5 mount)
- AIO and 20x20 mounts on the bottom plate (for the vista or other, easy access for work with detachable bottom plate)
- HD Cam shoe that support Foxwhoop and CineLog cam mounts (M3 screw though)
- Normal or toilet tank battery installation.
- Adjustable height prop guard (you can go from very thin to cover the whole side just by playing with standoffs size, more on that below)
- frame weight :
 - PW20 : 25g of carbon
 - PW25v2 : 41.5g of carbon (add 10-12g of hardware)
 - PW30 : 49.5g of carbon (add 10-12g of hardware)

Fitting the DJI O3 AIR UNIT

It can be done on all 20, 25 and the 30 versions. Beside the specific mounts provided here you have to fit the air unit in the center of the frame. I needed to use 2mm nuts to lower the bottom plate and get a total of 25mm build height.

The AIO FC (no stack would fit) must be installed as low as possible. I used 10mm screws to attach the FC to the frame. For the Air Unit itself the best option to install it is upside down (the serial and compliance infos facing up). To attach to the bottom plate the best option is ... 3M VHB tape, thin one.

The screws of the air unit are unusable to attach it to anything (thin M1.4 screws) and using a TPU case will be bulky, heavy and add height.

To sum up : tight but doable and it works extremely well.

Mounting hardware

the frame is intended to have a relatively low profile guards so my recommended hardware is for 6mm between guards, though many combinations are possible.

for a 6mm between guards and 18mm from plate to plate (it fits a naked vista) you need :

- 12 x **M2 6mm standoffs** (attaching the guards)
- 4 x **M2 10mm standoffs** (front and back to give the correct height)
- 4 x **M2 18mm standoffs** (central part of the frame)
- 4 x M2 14mm screws (attaching the front and back standoffs and guard)
- 16 x M2 5mm screws (attaching outer standoffs of the guards)
- 12 x M2 7mm screws (attaching the taller standoffs to the guards and frame)
- I also use M2 12mm for the fc and vista (add 4 + 4 then)
- PW20 : 2 x **M2 pressnuts** : used for the HD camera mount. It's optional
- PW25 : 9 x **M2 pressnuts** : 4 on the bottom plate to screw down the Vista or any 20x20 or 25.5x25.5 vtx (Analog, Walksnail, HDZero, whatever). 1 pressnut on the lower guard front hole to attach the bottom plate. 4 pressnuts for the camera mount.
- PW 30 : 7 x **M2 pressnuts** : 4 on the bottom plate to screw down the Vista or any 20x20 or 25.5x25.5 vtx (Analog, Walksnail, HDZero, whatever). 3 pressnuts on the lower guard front hole to attach the bottom plate.

→ Check in the images, there's a hardware table by element & quantity.

You can adjust the height between the guards by picking standoffs of different tallness, just take into consideration that the upper guards are 2mm thick so there must be a 2mm difference between core standoffs and outer standoffs (that attaches the guards).

Ex : my setup have 6mm between guards and 20mm core standoffs so i need additional 12mm standoffs front and back to have same height everywhere. Or say “crap i want a boxed frame” (guards to the top) so you can use 18mm standoffs for the guards all around + 20mm standoffs for the core. You get the idea ? If any doubt ask me.

Getting the frame cut

My recommended places are [www.cncmadness.com] (CA/US/Worldwide) and [www.carbon-posten.de] (EU/Germany), [**CNC DRONE 91**] (EU/France),

[[Haut Var FPV](#)] (EU/France), [[CNC Dupays](#)] (EU/France). Great quality cuts and fair pricing/delivery time.

you need to send the provided DXF files with the following instructions :

PW20 V2 (2" props) :

- 1 x PW20 frame : 2.5mm thick Carbon Fiber (2mm for ultralight builds)
- 1 x PW20 lower guard : 2.5mm thick Carbon Fiber (2mm for ultralight builds)
- 2 x PW20 upper guards : 2mm thick carbon Fiber (1mm for ultralight builds)
- 1 x PW20 bottom plate : 1.5mm thick carbon fiber (1mm for ultralight builds)

PW25 V2 (2.5" props) :

- 1 x PW25 frame : 3mm thick Carbon Fiber (try 2.5mm for ultralight builds)
- 1 x PW25 lower guard : 3mm thick Carbon Fiber (try 2.5mm for ultralight builds)
- 2 x PW25 upper guards : 2mm thick carbon Fiber
- 1 x PW bottom plate : 1.5mm thick carbon fiber (or 1mm if you prefer to save ~1g)

PW30 (3" props) :

- 1 x PW30 frame : 3mm thick Carbon Fiber
- 1 x PW30 lower guard : 3mm thick Carbon Fiber
- 2 x PW30 upper guards : 2mm thick carbon Fiber
- 1 x PW bottom plate : 1.5mm thick carbon Fiber

You can optionally ask for countersunk holes on the top plate and have your screws sitting flush (center and rear holes eventually).

Feel free to ask me for directions and help.

My Setup (PW25 V1)

- T-Motor P1604 3800 Kv Motors
- Diatone Mamba F722 MK1 aio (running BF 4.3.1 + BlueJay esc firmware)
- Naked CaddxFPV Vista + Nebula Pro cam
- TBS Crossfire RX + Minimortal-T antenna
- 650 mAh lipo

- Naked gopro or Thumb or whatever light HD cam (a full gopro may work too i guess)

Configuration Dumps

- PW25 + DJI O3 on Betaflight 4.3 + BlueJay + RPM Filters : <https://pastebin.com/HkhzHnRq>
- You may want to use cinewhoop preset on BF 4.4 (by UAV Tech), it works really great on this frame.

Model files

 **OLD Files of PW20 (V1) - DO NOT USE** 4 files

**pw20_frame_25mm_v1-0.dxf**

**pw20_guard_upper_2mm_v1-0.dxf**
☐ you need 2 of those

**pw20_guard_lower_25mm_v1-0.dxf**

**pw20_bottom_plate_1mm_v1-0.dxf**
☐ this is the bottom specific for the 20 version

 **OLD Files of PW25 (V1) - DO NOT USE** 4 files

**pw25_frame_3mm_v1-1.dxf**

**pw25_guard_upper_2mm_v1-0.dxf**
☐ you need 2 of those



pw25_guard_lower_3mm_v1-1.dxf



pw_bottom_plate_15mm_v1-0.dxf

☐ this part is for 25 and 30 versions



DXF frame Files (for Carbon cutting)

12 files



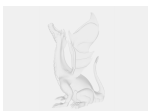
pw20_frame_25mm_v2-2.dxf

☐ the main frame body, supports 9mm and 6.6 (3hole) motors



pw25_frame_3mm_v3-1.dxf

☐ have 20x20 mount



pw30_frame_3mm_v1-1.dxf



pw20_guard_lower_25mm_v2-0.dxf

☐ Can be cut in 2mm for weight saving

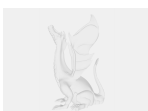


pw25_guard_lower_3mm_v3-0.dxf

☐ Can be cut in 2/2.5mm for weight saving.supports Moonlight



pw30_guard_lower_3mm_v1-0.dxf



pw20_guard_upper_2mm_v2-0.dxf

☐ you need 2 of those



pw25_guard_upper_2mm_v2-1.dxf

☐ you need 2 of those



pw30_guard_upper_2mm_v1-0.dxf

☐ you need 2 of those



pw20_bottom_plate_1mm_v2-0.dxf

☐ this bottom is for the PW20 V2 version ONLY



pw_bottom_plate_1mm_v2-0.dxf

☐ the bottom is the same for 25 and 30 versions



pw_bottom_plate_1mm_nopressnuts_v2-0.dxf

☐ ALTERNATIVE bottom for PW25 &30 WITHOUT pressnut holes for vtx (just 1.6&2 mm holes)



STL frame files (for visualisation & printed mockups)

11 files



pw20_frame_25mm_v2-2.stl



pw25_frame_3mm_v3-1.stl



pw30_frame_3mm_v1-1.stl



pw20_guard_lower_25mm_v2-0.stl



pw25_guard_lower_3mm_v3-0stl.stl



pw30_guard_lower_3mm_v1-0.stl



pw20_guard_upper_2mm_v2-0.stl



pw25_guard_upper_2mm_v2-1.stl



pw30_guard_upper_2mm_v1-0.stl



pw_bottom_plate_1mm_v2-0.stl

☐ the bottom is the same for 25 and 30 versions



pw20_bottom_plate_1mm_v2-0.stl



Printable Accessories (in TPU)

14 files



pw_accessory_hdcam_shoe_m3_forv2_v1-0.stl

☐ This one is for the V2 PW25 frame



pw_accessory_hdcam_shoe_m3_v1-0.stl

☐ CAUTION : use this for the PW30 only (or for V1 PW25)



pw20_accessory_hdcam_shoe_m3_v1-0.stl

☐ CAUTION : this is for the V1 PW20



pw20_accessory_hdcam_shoe_m3_v2-0.stl

☐ This one is for the V2 version of the PW20 frame



pw_accessory_nebulapro_mount_v1-1.stl

☐ Print 2 of those using mirroring function in your slicer



pw20_accessory_nano_cam_mount_v1-0.stl

☐ Print 2 of those using mirroring function in your slicer. For PW20 V1 version only



pw_accessory_ant_mount_29mm_tube_v1-0.stl

☐ this one fits the walksnail vista antenna, the tube needs to be cut to insert the ufl



pw_accessory_ant_mount_4mm_tube_v1-1.stl

☐ For 4mm antenna tubes (fits the DJI O3 antenna)



pw_accessory_minimortal_mount_v1-1.stl

☐ Print 2 of those using mirroring function in your slicer



pw_accessory_dji-o3_mount_v1-2.stl

☐ For DJI O3 camera. Print 2 of those using mirroring function in your slicer



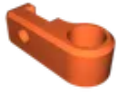
pw_accessory_immortal_t_mount_v1-0.stl

☐ Print 2 of those using mirroring function in your slicer



pw_tpu_accessory_cam_mount_lower_2x_v1-0.stl

☐ for O4Pro, you need 2 of them on the standoff



pw_tpu_accessory_cam_mount_upper_2xm_v1-0.stl

☐ for O4Pro, you need 2 of them (mirrored) goes on the top screw and camera



pw_tpu_accessory_ant_mount_o4dual_v1-0.stl

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