Sherpa Elephant V6 Tool Head - Ender 3 V2 Neo

LH

VIEW IN BROWSER

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Summary

Tool Head design for the Ender 3 V2 Neo based on the E3D V6 and Sherpa Mini direct drive extruder by Annex Engineering

3D Printers > 3D Printers - Upgrades

Tags: extruder dragon bmg bondtech e3d hotend v6 stepper creality ender v2 drive noctua ender3 4020 direct 5015 dragonfly neo bmo revo toolhead sherpa phaetus ender3v2neo

Tool Head design for the **Ender 3 V2 Neo** based on the E3D V6 (or Revo 6, Dragon SF, HF, Dragonfly BMO) and Sherpa Mini direct drive extruder by Annex Engineering

https://github.com/Annex-Engineering/Sherpa_Mini-Extruder

Features:
- Weight balanced compact and modular design using components as structural parts
- Print weight: 57g
- Direct/no gear reduction direct drive assembly using a Creality 42-40 stepper motor

- Tested at 22mm3/s flow rate on a stock E3D V6 0.4mm nozzle (G1 E100 F550 - PETG @ 240C)
- Clears the Z uprights and doesn't require modifications for the endstops

Update:
v1.02
-Added optional hotend duct insert module
(Requires 3mm longer screws for the axial fan mount, and re-routing the fans cables)
v1.01
-New improved part cooling nozzle design

Print settings:
-0.2 mm layer height
-3 perimeters, 100% infill
-Supports, 30 degrees Snug (includes sacrificial bridges, but some supports needed for safety; check examples)
-Detect thin walls OFF
-Classic perimeter preferred
-Printed in PETG

Designed at 0.2 fit tolerance (0.1 per side)
Please consult the F3D for assembly

Parts Required:

-E3D V6 Hot End / Revo 6 /Dragon SF, HF / Dragonfly BMO
-BMG Extruder Kit / Parts (Stepper gear, idler gear, idler bearings, two 3x20mm shafts)
(I used parts from the cheap RED all metal dual gear extruder and custom cut two 20mm x 3mm shafts)

-Creality stock extruder spring (if not using BMG kit. Others might work)

-Creality 42-40 (Stock Ender 3 extruder stepper motor, or other with similar dimensions)

-Stepper Extension Cable (If still using the stock bowden setup)

-5015 Blower Fan - (Designed for a Creality 5015. Others should work, check nozzle fit)

-4020/4010 Axial Fan - (Designed for a Noctua NF-A4x20. Others should work)

Hardware:

Screws:

Button Head

-M3 5mm 2x

-M3 8mm 7x

-M3 10mm 4x

-M3 12mm 5x

-M3 15mm 4x

-M3 20mm 1x

-M3 25mm 2x

-M3 25mm Flat head (if using the Creality stock extruder spring)

Optional Hotend Cooling Duct:

Button Head
-M3 15mm 3x

Nuts

-M3 Hex Nuts 15x

Optional: Side box for cable management/board/connectors + Cable guide

Bowden Length: ~55.5mm

Post Print:

Remove supports and break through sacrificial bridges
- File flat joining areas for good fitting
- Test blower fan nozzle fit
- Insert Hex nuts
- Assemble it in three parts:
a. Main carriage mount with hotend, right small axial fan carriage mount, cable duct and hotend cooling fan
b. Extruder
c. Front frame with blower fan and CR Touch.
-Fit everything together, but don't overtighten the screws risking the hex nuts to break away from their fit and spin freely.
- Consult image or f3d for screw lengths.

Extruder motor direction needs to be reversed in firmware (eg. Klipper: dir_pin: !PB3), or with cabling.

Probe Offset: x -25, y -7
- Filament Load Length: 65.0, Prime: 35.0
- Filament Unload Length: 160.0

Enjoy!

This remix is based on

GitHub - Annex-Engineering/Sherpa_Mini-Extruder: A smaller version of the sherpa extruder, direct and bowden supported

Model files

F3D 1 file

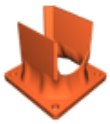
sherpa-elephant-v6-ender-3-v2-neo-v102.f3d

3MF 4 files

se-black-mount-and-extruder.3mf

se-red-frame-v101.3mf

se-optional-cable-box.3mf



se-optional-hotend-duct.3mf

STL 16 files

se-red-fan-nozzle-v101.stl

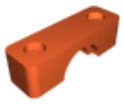
se-sherpa-mount.stl

se-sherpa-arm.stl

se-sherpa-face.stl

se-sherpa-knob.stl

se-sherpa-spring-guide.stl



se-v6-front-clamp.stl

se-v6-main-carriage-mount.stl

se-cable-holder-hotend-lead.stl

se-cable-holder-arm.stl

se-red-fan-holder-right.stl

se-red-blower-support-mount.stl

se-red-blower-and-bl-frame.stl

se-optional-box-inner.stl

se-optional-box-outer.stl

se-optional-hotend-fan-duct.stl

Other files

annex-engineering-license-agreement.txt

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