



Cheetos's Dual Direct Drive Chimera / Cyclops Extruder for Prusa I3 Style 3D Printers - Using Ultimaker 2 Style Knurled Bolts



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Summary

A Dual Direct Drive Chimera / Cyclops Extruder, made by me, C_Cheetos. Any feedback is appreciated! This is a...

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A Dual Direct Drive Chimera / Cyclops Extruder, made by me, C_Cheetos.

Any feedback is appreciated!

This is a relatively easily printable direct drive dual extruder solution for prusa i3 style 3D printers, using 1.75 mm filament. Printing & assembly instructions incoming.

It uses 2x ultimaker 2 style knurled bolts as extruder gears, and 2x 625ZZ Bearing groove "V" sliding Pulleys, with a V groove angle of 120 deg. Additionally 2x 5 mm smooth rods with a length of ~13.5 mm are used to hold the V-groove pulleys. A piece of bowden tube is needed as a filament guide. (see BOM).

The design integrates part cooling and a sturdy BL-Touch mount. Note that to achieve the correct height for the BL-touch, at least 2x m3 nuts and 2x m3 washers are needed. This was done on purpose, as too little space is worse than too much space.

Loosely inspired by "Amadon's Cyclops and Chimera Direct Drive Version 3".

see: <https://www.thingiverse.com/thing:1143466>

The extruder was designed to fit the "Smooth X-axis for Prusa i3 with Leadscrews" Carriage. But will most likely and probably fit a whole range of carriages.

see: <https://www.thingiverse.com/thing:1103976>

BOM:

Printed Parts:

- ExtruderBody
- Partcooling_Fan_HolderV3
- ExtruderIdlerLEFTv2
- ExtruderIdlerRIGHTv2
- PartcoolingRemadeV1_1_Left
- PartcoolingRemadeV1_1_Right

note: ExtruderIdlerLEFT & RIGHT (v1 are old versions, they don't really clamp the filament properly)

Others:

- 1 e3d chimera / cyclops (clone)
- 2x ultimaker 2 style knurled bolts (see image)
- 2x 625ZZ Bearing groove "V" sliding Pulleys, with a V groove angle of 120 deg.
- 2x 5 mm smooth rods with a length of ~13.5 mm
- Variety of M3 nuts, bolts and washers
- 4x M4x25 bolts
- 4x M4 nuts
- 2x 50mm Radial Fans
- 2x bowden tube as filament path.
- 2x idler springs.
- 2x 3mm x ~15 length - small wood screws, or self treading screws. to mount fan holder to extruder body.

Optional:

- BL-Touch

Printing instructions:

Print the Extruder body with the BL touch mount facing towards the 'sky', enable support. There are no overly complex shapes, so support should be relatively easy to remove.

- Partcooling_Fan_HolderV3, should be printed with both the 45 degree fan holder parts in the air, support should be enabled for this part as well. *Note that in the rendered image, the wrong part cooling is used, this is the old version (not included), which did not cool very well. I might make a new render, in due time.

**Note 2: The idlers were meant to be pushed against the filament using 2 springs per idler, but in hindsight 1 spring per idler was more than enough, as seen in the photo.

***Note 3: a V-groove pulley is absolutely needed, as the ultimaker 2 style knurled bolts do not 'guide' the filament. The v-groove bearing/ pulley in this case guides the filament.

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----Update: The TriangleLabs Chimera Extruder seems to have the mounting holes inverted, so i added another extruder body to accommodate this.

----Update 2: The Partcooling Fan Holder was updated to version 4, providing a bit more vertical adjustment room, which was needed in combination with the TriangleLabs Chimera Extruder. Additionally the Right fanduct was updated to version 1_2 to accommodate this extra clearance as it interfered with the BL Touch.

Model files



extruderbody.stl



extruderidlerleft.stl



extruderidlerright.stl



partcoolingremadev1_1_right.stl



partcoolingremadev1_1_left.stl



partcooling-fan-holderv3.stl



extruderbody_v2_trianglelabschimera.stl



partcoolingremadev1_2_right.stl



partcooling-fan-holderv4.stl



extruderidlerleftv2.stl



extruderidlerrightv2.stl

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