

Anti-Backlash Compound Planetary Gearhead



LoboCNC

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Summary

This compound planetary gearhead is an anti-backlash version of my earlier Robot Actuator (smallest version):...

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Tags: [planetary](#) [compoundplanetary](#)

This compound planetary gearhead is an anti-backlash version of my earlier Robot Actuator (smallest version): <https://www.thingiverse.com/thing:3293562> It has about 50% more torque, significantly less backlash, and also runs more smoothly. It is designed for a 35mm tin can stepper, and requires 35 4mm (or 5/32") balls for the integral slew bearing. It also has a 38.4:1 reduction ratio.

When printing small gears, even on a well tuned printer, the printing irregularities end up being significantly large compared to the tooth size, and produce a lot of friction. You can increase the clearances in the gear design to reduce friction, but then you end up with a lot of backlash. My solution here is to make the ring gears flexible in the radial direction but stiff torsionally. This springiness takes out the backlash and also allows the ring to expand to accommodate irregularities in the tooth profile.

When I get more time, I'll also do anti-backlash versions of the medium and large actuators.

Category: Engineering

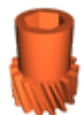
Model files



bodyh40.stl



planetclusterh40.stl



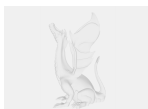
sun15h40.stl



sun18h40.stl



planetclusterh40.sldprt



sun15h40.sldprt



ring48h40.sldprt



bodyh40.sldprt



sun18h40.sldprt



ring48h40.stl

[Find source .stl files on Thingiverse.com](#)

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