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NEMA17 Planetary Gearbox

Davide Mognaschi

VIEW IN BROWSER

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Summary

A very compact reduction gearbox for NEMA17 stepper motors. Reduction ratio = (1 + 38/14) : 1 = ~3.7 : 1

0.66 hrs	1 pcs	0.05 mm	37 ml	Prusa SL1S SPEED

Hobby & Makers > Mechanical Parts

Tags: nema17 planetarygears gearbox gears nema planetarygearbox

This model is a very compact motor-reducer, with precise movement and without backlash. The overall height is 29mm, only 6mm more than the motor shaft.

The reduction ratio is **(1 + 38/14) : 1** , roughly 3.7 : 1

Print instructions

The model is designed for SLA printers, but a good FDM printer can do the job either.

For SLA printers

- Print the **Full Assembly.3mf** file, arranging the parts on the build plate (no print in place)
- Use the **slow** print profile to get maximum dimensional precision
- Print the parts with an **engineering resin**, such as SUNLU nylon-like resin or JAMG-HE Conjure Rigid resin

For FDM printers

- Print the **Full assembly (for FDM printers).stl** file, arranging the parts on the build plate (no print in place)
- Use an high precision, low layer height print profile

Build instructions

Screws

- 4x M3x6 hex socket head
- 4x M3x8 hex socket head
- 4x M3x20 hex socket head
- 4x M3 nut

Mount the rotor first, taking care to insert the box lid between the planets section and the end section. Secure the 3 rotor sections using the 4 20mm screws.

Place the rotor into the box and insert the central gear on the motor shaft.

Fix the box to the motor using the 4 6mm screws: put them in position in the 4 corner housings with the help of tweezers and tighten them by inserting an allen key in each of the 4 holes of the cover.

Finally, insert 4 M3 nuts into the 4 corner slots of the box and secure the lid with the 4 8mm screws.

Lubricate abundantly all the moving parts with lithium grease or similar.

Model files

full-assembly.3mf

full-assembly-for-fdm-printers.stl

Print files

nema17-planetary-gearbox.sl1s

0.66 hrs 37 ml 0.05 mm 23s/3s Prusa SL1S SPEED

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