



## Ball Screw and Nut



LoboCNC

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updated 12. 4. 2022 | published 11. 2. 2022

### Summary

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It's not particularly useful, but it is kind of a cool demonstration of a recirculating ball screw and nut. Most ball nuts have several threads filled with balls and then a single long recirculating ball path. This version, however, is made up of three separate nuts, each with a single thread of engagement and with a short "jump-over" section to recirculate the balls. Each nut is formed by two clam-shell halves. When the three nuts are all assembled onto the screw, the jump-over sections for each nut (where there is no thread engagement) are counter-aligned. Three nut sections are the minimum to give stable support to the screw. Finally, there is a clamp piece that holds all of the nut sections together.

This thing uses 27 airsoft pellets (6mm) for the ball bearings, and three 4-40 or M3 socket head screws to hold the nuts together. And as a bonus, the balls don't all fall out when you remove the nut from the screw!

### Print Settings

**Printer:**

UDIO

**Rafts:**

Yes

**Supports:**

No

**Resolution:**

0.1mm

**Infill:**

20%

**Notes:**

The nut halves are the only things that really need to be printed with 0.1mm layer thickness. The clamp and screw can both be printed with 0.2mm layers. Also, the screw is printed on end and it is the only piece that should be printed with a raft or brim to keep it stable during printing.

Print a total of 6 nut halves, one screw, and one clamp.

**Post-Printing****Assembly**

After printing, first use a small piece of scotch-brite abrasive pad to sand out any nits from the ball path in the nut halves.

For each nut section, place on half on a table and carefully place 9 balls (I use tweezers) in the ball track. Then place the other half over it so that the little tabs interlock. Use 2 or 3 tiny drops of superglue on the outside seam to temporarily hold the two halves together. Make sure none of the glue wicks into the ball path.

Next screw all three nut sections onto the screw until they are lightly touching. Then slide the three nuts into the clamp and secure with three M# or 4-40 screws.

Category: Engineering

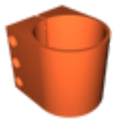
# Model files



**nut.stl**



**screw.stl**



**clamp.stl**

[Find source .stl files on Thingiverse.com](https://www.thingiverse.com)

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