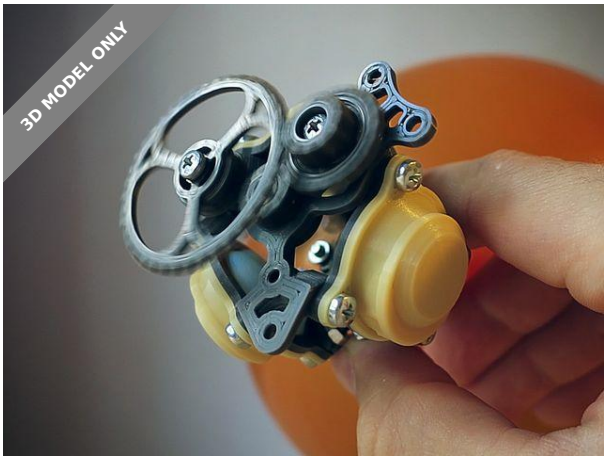


Balloon Powered Radial Engine

Slava Z.

VIEW IN BROWSER

updated 12. 4. 2022 | published 13. 3. 2020

Summary

Run by just blowing air into it.

Learning > Engineering

Tags: motor steam gears mechanical mechanicaltoy air steampunk working engine cylinder pneumatic radial simple compressedair airpowered balloon powered 3cylinder compressed pneumatics

Run by just blowing air into it. Demonstration:
https://www.youtube.com/watch?v=_FDZzKAFSz4

Exploded view in 3d viewer:
https://skfb.ly/6LQBR

If you like how it works, you can support me by purchasing the Pneumobile chassis:
https://gum.co/pneumobile (3d Viewer: https://skfb.ly/6LV6D)

Works with this remote:
https://www.thingiverse.com/thing:3675568
Or with simpler remote from the Vapemobile set:
https://www.thingiverse.com/thing:3606204

Extra parts needed:

- M3x8 Bolts (x15)
- M3 Nuts (x15)
- Nitrile Gloves (thumbs from M sized gloves worked the best) or Silicon (worse) or PET (not tested) ones
  Optional parts:
- M3x12 or longer bolts (2x)(for the gears)
- M3 Nuts (x2)(for the gears)
- 6x4mm Silicon Pipe (can be found in aquarium shops)
- M5x10mm Washers (x2) (instead of printed ones)
- 105ZZ Bearings (x2) (noticed no difference in performance)
  Printed well with 0.6 nozzle at 0.2 layer height. Some parts (Cylider_Back_Lid and Valve_Lid_6mm) need supports. After printing cut away the brims from Cylinder_Ring parts. Parts with "X_" in their names are optional. Assembly:
- Use 3d diagram as a guide: https://skfb.ly/6LQBR
- Cut off a glove finger tip (thumbs from M sized glove worked well)
- Pull it onto a Cylinder_Ring (Use Helper_Finger to leave enough height)
- Connect a Piston to it with two Washers
- Clamp the Cylinder_Ring between Cylinder_Plate and and Cylinder_Lid
- Clip them with Helper_Clamp so they won't fall apart at once
- Bolt them together to Plate_Top
- Repeat for the other 2 cylinders
- Insert th Crank with 2 Washers
- Fix it in place with Frame_Bottom
- Bolt all the parts together
- Put the Valve_Inner in place
- Bolt the Valve_Lid into place
- The engine should be running!
  Troubleshooting:
  1. Rotated freely by hand, but struggling when working - the inner valve may have too much friction against the frame (sanding the valve and the frame may help for a while).
  2. Jams on a certain cylinder - this glove finger may need a bit more slack.
  3. Isn't rotated freely by hand - gears bolted too tightly to frame (should have a bit of play), some gear teeth didn't print very well, or the whole gear printed with "elephant foot" and runs too tight with another gear.

Print instructions Category: Mechanical Toys Print Settings

Printer: Anet AM8

Rafts: No

Supports: Yes

Resolution: 0.2

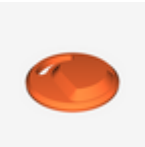
Infill: Solid

Filament: Bestfilament PLA Dark Grey

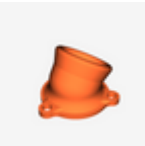
Model files

piston_x3_25431.stl

cylinder_ring_x3_25431.stl

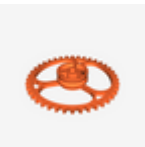


valve_inner_25431.stl



valve_lid_balloon_25431.stl

x_pulley_25431.stl



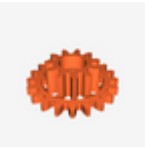
x_gears_1to8_2_bevels_25431.stl

x_6mm_to_tap_water_25431.stl

x_6mm_to_whistle_25431.stl

crank_for_m5_washer_25431.stl

gear_center_25431.stl



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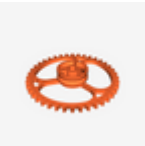


gears_1to8_2_25431.stl

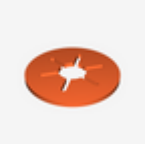
frame_bottom_25431.stl

x_cylinder_ring_02mm_gap_25431.stl

gears_1to2_25431.stl

cylider_back_lid_x3_25431.stl

x_valve_lid_6mm_vert_25431.stl



piston_washer_x6_25431.stl

washer_m5_x2.stl

x_valve_lid_6mm_flat.stl

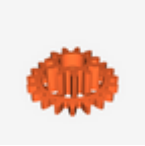
x_gears_1to8_2_bevels.stl

cylider_back_lid_x3.stl

helper_finger_height.stl

frame_bottom.stl

gears_1to2.stl



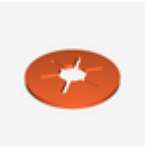
gears_1to8_1.stl

x_pulley.stl

cylinder_plate_x3.stl

x_valve_lid_6mm_flat_90.stl

gears_1to8_2.stl



piston_washer_x6.stl

helper_cylinder_clip_x2.stl

x_valve_lid_cartridge.stl

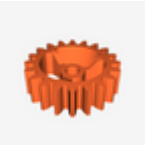
valve_lid_balloon.stl

3cyl_engine.dxf

x_crank_for_105zz_bearing.stl

x_2_balloon_cartridge.stl

piston_x3.stl

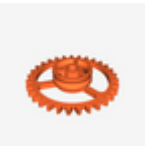


gears_1to3_1.stl

gear_center.stl

x_6mm_to_tap_water.stl

x_6mm_to_whistle.stl



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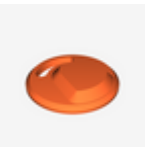
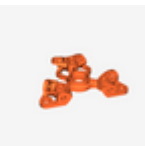


valve_inner.stl

x_cylinder_ring_02mm_gap.stl

cylinder_ring_x3.stl



frame_top.stl

3cyl_engine.dwg

crank_for_m5_washer.stl

x_valve_lid_6mm_vert.stl

Find source .stl files on Thingiverse.com

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