



4 Stroke Flathead Engine v1.0



Bootjevaarder

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Summary

3D printable fully working cut through model of a 4 stroke flathead engine

[Learning](#) > [Engineering](#)

Tags: [engine](#) [flathead](#) [fourstroke](#) [sidevalve](#)

A flathead engine, also known as a sidevalve engine is an internal combustion engine with its valves contained within the engine block, instead of in the cylinder head, as in an overhead valve engine.

Printing and Assembly

The parts should be printed on a smooth build plate, not textured.
If possible, avoid elephant foot.

I printed the model on a PRUSA MINI, with PLA+ filament, layer height 0.15 mm.

I use Hard Plastic Glue where necessary.

For assembled and exploded views, use .stl files 00... 01... 02... 03... (do not print).

Printing and assembly in alphabetical order (A1 → J1).

Printing tips are available for many parts.

Dimensions: 89 x 98 x 149 mm.

Weight: 0.14 kg.

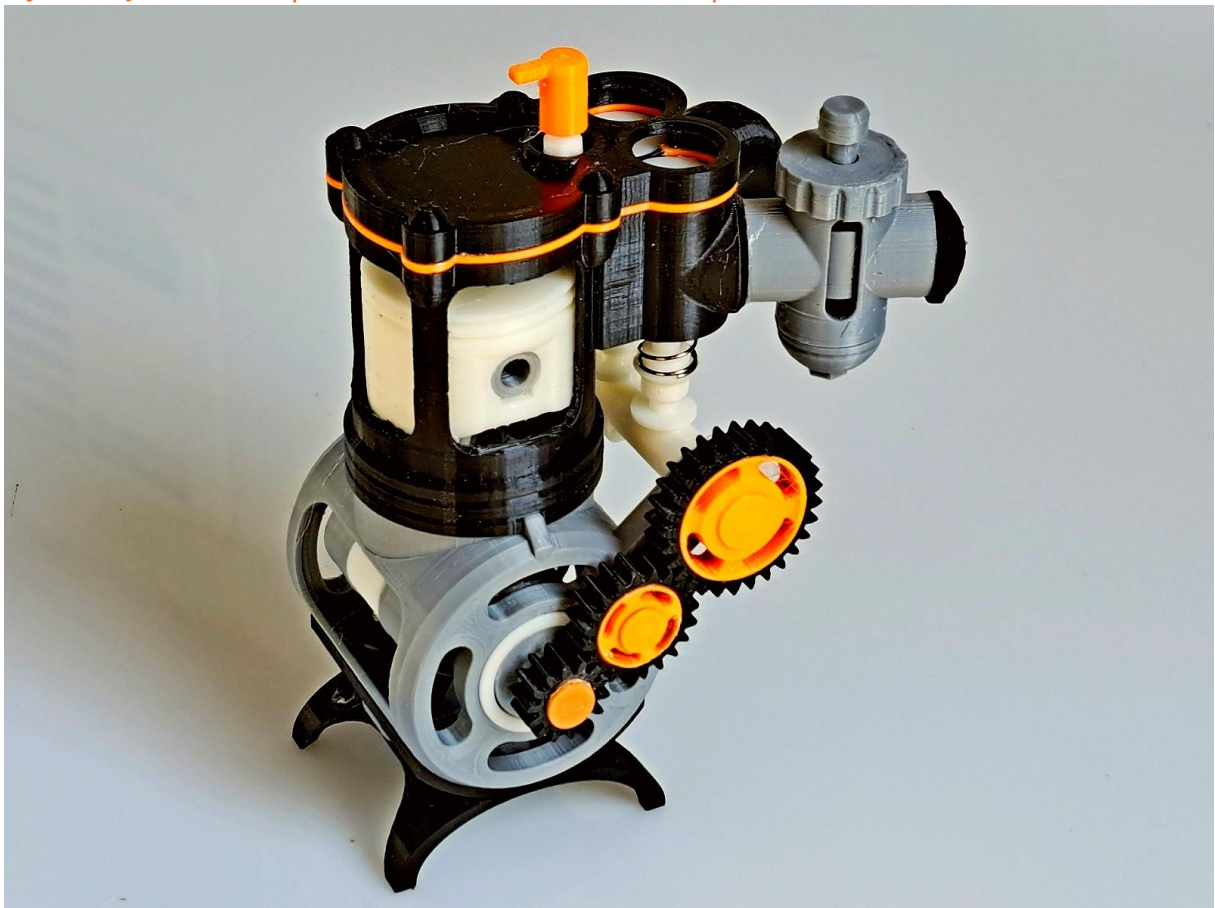
Metal parts

To join the cylinder to the crankcase, two metal 70 mm M5 threaded rods are needed, and two M5 nuts .

Two coil springs are needed for the valves, 10 mm width x 15 mm height. Wire thickness 0.6 or 0.7 mm (AliExpress).

Updates

Update 31-5-2023 Maybe you prefer v.2.0 : [4 Stroke Flat Head Engine v2.0 by Bootjevaarder | Download free vc model | Printables.com](#)



Update 7-3-2022: A matching 2 speed gearbox you can find here: [Constant Mesh Two Speed Gearbox by Bootjevaarder | Download free STL model | PrusaPrinters](#)

Update 24-2-2022 "G2-Carburetor.stl" is added, as an alternative for "G1-Manifold.stl".

Model files



00-engine-assembled.stl

☐ Do not print.



01-crankcase-exploded-view.stl

☐ Do not print.



02-cylinder-exploded-view.stl

☐ Do not print.



03-carburetor-exploded-view.stl

☐ Do not print.



a1-crank-cheek.stl



a2-crank-pin.stl



a3-piston-rod.stl

☐ Support on Build Plate.



a4-crank-cheek.stl



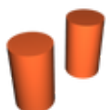
b1-crankcase-1.stl

☐ Support on Build Plate.



b2-crankcase-2.stl

☐ Support on Build Plate.



b3-dowels.stl



b4-camshaft.stl

☐ Support on Build Plate.



b5-camshaft-endcap.stl



b6-crankshaft-bearings.stl



b7-crankshaft-gear.stl



c1-piston.stl



c2-wrist-pin.stl



d1-cylinder.stl

☐ Support on Build Plate.



d2-cylinder-gaskets.stl



e1-valves-endcaps.stl



f1-cylinder-cover.stl

☐ Support on Build Plate.



f2-spark-plug.stl



g1-manifold-exhaust.stl

☐ Support on Build Plate.



g2-carburetor.stl

☐ Support on Build Plate.



h1-cranked-handle.stl

☐ Support on Build Plate.



i1-camshaft-gear.stl



j1-click-stand.stl



8-mm-spanner.stl

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