



Segmented Vacuum Hose

S SharpieB

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Summary

This is my first 3d printing design and the excuse reason for buying a Prusa mk3s.



10.59 hrs



1 pcs



0.15 mm



0.40 mm



PET



92 g



Prusa
MK3/S/S+

[Hobby & Makers](#) > [Tools](#)

Tags: [vacuum](#) [dust](#) [dustcollection](#) [dustcollector](#)

This is my first 3d printing design and the excuse reason for buying a Prusa mk3s.

Before watching [Marius Hornbergers video](#) on practical printing I thought that the only thing you can print are figurines and parts for a 3d printer.

Annoyed by the dust in my small shop and inspired by the [vacuum hose from Marius Hornberger](#) I designed my own take on it. Thanks also to Tibs for his comment on switching the ends, so that the dust travels from the small end of one section to the large end of the next section. This way it is less likely to get stuck.

I also made sure that in all positions the internal surfaces are as smooth as possible.

The diameter of the balls is 75mm, the articulation is 20deg and the overlap 12deg (see the pictures). The nozzles can be attached with clips on the 80mm and 4.1mm deep ring. I added a ridge to hold a zip tie to secure my nozzle.

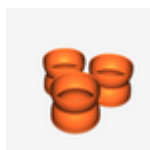
During the creation of this I learned a lot on designing for 3d printers. Especially the calculations of good wall thicknesses from [this nice blog on mattshub](#) and having to redesign everything after finally realizing that the wall thickness should be a certain value horizontally. Therefore the inner and outer wall have the same radius with only the circle center being moved by the wall thickness in the horizontal printer plane.

Print instructions

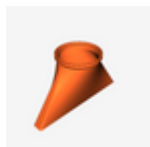
Optimised for 2 perimeters and 0.45mm extrusion width and 0,15mm layer height. I.e. the walls are 1.7mm thick. See [this nice blog on mattshub](#)

perimeters	2
layer height	0.15mm
extrusion width	0.45mm
infill	10%
material	Prusament PETG

Model files



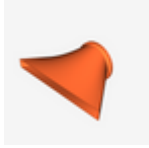
75mm_segment.3mf



75mm_nozzlewide.3mf



75mm_segment.stl



75mm_nosselwide.stl

Print files



3x75mm_segment_015mm_petg_mk3s_10h35m.gcode

PET 0.40 mm 0.15 mm 10.59 hrs 92 g Prusa MK3/S/S+

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