



Prusa i3 mk2S mk2.5S Y Belt Tensioner no disassembly required



SB Tech

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Summary

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Made this Y Belt tensioner for 5mm dual bearing idler pullies , after looking at a few different designs and thought they were lacking stability the way some of them tensioned with one screw gave it potential for alignment issues or belt wobble or required you to disassemble the frame to install, so had a play around with a few ideas and printed a few versions before this final model after printing a few test versions.

I have been using this for about 5 months now it really improves print quality and i think its far better then some of the other designs and i may create some other versions, leave me a comment if you give it a try as i spent quite a lot of time designing this, I may improve the design in future for those that love their mk2's so feel free to give me feedback .

You will need :

2x M4 bolts 30mm and nuts

(V3 optional, better with 40mm M4 bolt)

1x dual bearing idler with a 5mm centre hole

This design clips in so you don't need to disassemble the frame, and yea its tight so you need to put it in pretty close to the right alignment because it does not move very easily, basically lift up your frame at the front and hook it on the bottom rod , swing it up and it locks in place , then attach the arm , you can preinstall the idler and you will need to insert pin B then push in the nut as you cant put in the nut before the pin is in the nut wont fit through the hole and serves to lock in that pin which you want to sand so that it moves in the hole but is still tight .

Make sure your print is clean and that the idler can spin with out any resistance , there is a 5mm pin for the idler which is super tight you might need to give it a light sand but you want a tight fit , alternatively you could use a M5 20mm bolt with a lock nut , if its tight its pretty unlikely to come out it has no forces on it in that direction but if worried use a m5 bolt, i have not needed to use a bolt and have now printed over 100hrs with using it .

Printing is relatively easy i printed in PETG with 30% infill and supports for the base and arm, the pins i printed standing up and didn't need any supports .

So if you don't understand what is going on here the adjustment bolt goes through two pins the pins actually twist a little as the angle changes rather than being sloppy holes it keeps everything tight and the bottom of the arm has a very solid pivot point , also when the arm moves in closer to the full tension it is supported either side to stop any twisting .

**It has been working great for me i hope someone else finds it useful as well, leave me a comment if you have any questions or suggestions for improvements.
cheers.**

Updates :

02.03.24 I needed to shorten the top M4 bolt on the tensioner to M4 25mm to avoid hitting the carriage belt block still gives plenty of tension adjustment

27.07.24 V3 (beta) :

Reversed the tensioner screw and added a thumbwheel solves the long M4 screw protruding and hitting the carriage belt holder , also cleaned up the

arm to make it easier to move the idler pulley by hand to make sure its not rubbing, modified the base for the thumb wheel and adjusted the pins for the new screw arrangement , pin C for the idler pulley remains the same use version 2. May need to use a longer M4 screw for the tensioner (Still have to print and test this out to visualize any potential issues .)

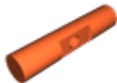
Model files



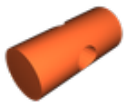
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prusa-mk2s-ybelt-tensioner-arm-v2.stl



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prusa-mk2s-ybelt-tensioner-pin-b-v2.stl



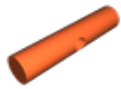
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