

Z-Wobble

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Z-wobble is a common issue that many z-axis lead screw driven 3d printers experience. The z-wobble issue occurs from either bent lead screws, mis-alignment, rotational run-out or other factors on the drive mechanism such as components being overconstrained or loose. Also, check the frame of your 3d printer for squareness.

Print a tall test piece to analyze the z-banding or layer lines and artifacts. The pattern of the layer lines can easily identify the frequency or pitch as the print bed moves up or down to print the object.

Some users attempt to constrain the lead screws with a bearing or idler mount but that will transfer the wobble into the mounting point. If over done it could also cause damage to the rails or premature wear. Rely on the straight rods with linear bearings for Z stability. Anti backlash nuts will eliminate much of the wobble. Disassemble the Z-axis assembly to check if the lead screw is straight. Roll the lead screw on a flat surface such as a very flat table. If the lead screw is not straight, replace the lead screw from a reliable source. See [DIY CoreXY](#)

Oldham Coupler

A Oldham coupler is an attachment that can minimize or eliminate the run out at the bottom and no bearing at the top to overconstrain it. If lead screws may be somewhat bent. The run out can cause imperfections and may transfer to the prints. If lead screws are causing Z wobble due to not being straight, they are overconstrained - This is a common problem on cheaper 3d printers.

If you're struggling with a bent lead screw check to see if it's over constrained and sifting along the x and y-plane. Z-wobble is common on low quality machines but can easily be fixed by attaching an Oldham Coupler.

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