

This can be used as direct drive or Bowden drive, I have used it as both, to implement as Bowden is far simpler.

Required to complete:

1. You will need a 608 bearing probably with a groove cut into it but that depends on your drive gear,
2. A 8mm shaft 15mm long
3. A tension spring. I use an HPI RC car's suspension spring, the reason is they come in different strengths so you can adjust for more or less tension.
4. Assorted M3 screws 4x 20mm 2x 30mm 2x nuts and washers to adjust if needed. To mount the frame mount on a frame I use 2x 50mm screws with nuts getting them in M3 is not always easy so you can use larger diameter if you need to.
5. 4mm OD PTFE tube, it's what I use for the Bowden tube and in this case it lines the arm that feeds the filament to the drive gear.

Assembly:

Cut the groove into the bearing just a little off the center the groove should be 2mm – 2.5mm wide but can be rather shallow only 1mm deep is fine. This is to guide the filament and keep it inline. If this groove is wrong the filament will jump off the drive gear and jam.

Insert the 4mm ptfе tube into the arm cut it about 3mm from the arm and cut a groove for the bearing to rest on the filament.

Insert the 8mm shaft into the arm and mount the bearing. The groove should line up with the ptfе liner opening. If it does not flip it over and see if it's better. (That's why it's cut just a little off center) you can put a washer between the bearing and arm to shim it if you need to however try not to.

The longer M3 screws go through the mount clamp and the motor mount this clamps the Bowden tube the filament exits the extruder with to the hot end. If you want there is a cutout for a m3 nut you can thread over the Bowen tube to hold it tighter but it's not needed, you may actually find you want to back off the clamp as it can squash the filament.

The shorter screws are for the arm and top of the motor mount. On some of my extruders I used a longer 40mm screw and a spring to push the arm onto the stepper motor. Also not needed but an option.

The other 2 shorter screw are to screw the mount to the frame mount. For your printer it may be different so you may need to find what works for you. Even cable ties can work but may not be pretty.

What to watch out for:

If the groove in the bearing is a problem the filament will jump off the gear. This should not be a problem with a grooved gear. Don't cut a groove into the gear rather cut wider or deeper on the bearing. 2.5mm wide 1mm deep.