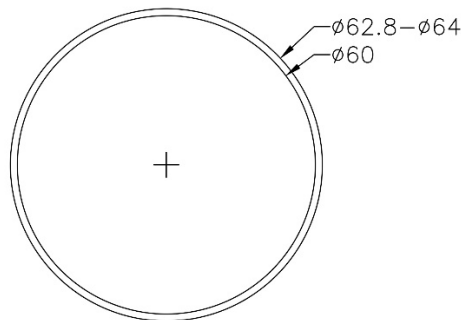




DDGT 240 – 20.69 Engine 3D Printer Instructions

1. Copy the entire Inventor folder for 20.69 Engine and save it with the new name, “20.69 Engine for 3D Printer”
2. Open the new folder and rename the IPJ to “20.69 Engine for 3D Printer”
3. Double click on the newly renamed IPJ and Inventor will reopen with a unique project name to the new location.
4. The only files you will need in this project are the IPT and IAM files. Move everything else into the “OldVersions” folder.
5. Modify the assembly with the following changes:
 - This will be printed as one piece so anything that should be able to move needs to be separated from any other piece by the minimum clearance.
 - This will be printed at half size so you need to double all clearances in your model. Your final tolerances should be between .7mm and 1mm between surfaces. Here is an example between the piston and the engine block:



Note:

Tight Tolerance:

$$62.8 - 60 = 2.8$$

$$2.8 / 2 = 1.4 \text{ (clearance on each side)}$$

$$1.4 / 2 = .7 \text{ (3d print scaled by half)}$$

Loose Tolerance:

$$64 - 60 = 4$$

$$4 / 2 = 2 \text{ (clearance on each side)}$$

$$2 / 2 = 1 \text{ (3d print scaled by half)}$$

You can decide where you want your tolerances to be tighter and where you want them to be looser. A tighter tolerance is not always ideal. Tighter tolerances will need to be placed in the “bath” longer and could also be more likely to fuse or “brick”.

- You must include your name and / or logo embossed in the model.
- On the Engine Block, I want you to “cut out” one side of the block so you can see the movement of the pistons.

- You will need to add Chamfers around the resulting cutout so that the piston heads move smoothly around the engine block.
- You need to add your own custom handle to the crankshaft.
- You need to add your own custom stand to the engine block. This should be part of the engine block and not a separate part. Make sure that the crankshaft and handle can spin freely without hitting the table the assembly will be placed on. Please keep the amount of material you are adding to a minimum.
- Adjust the connecting rod assembly so it will be printed as one part. Remove any holes you may have added for the bolts in the connecting rod assembly.
- Adjust the pins so they will not be able to slide out.
- This will be printed in honeycomb to save material cost.

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