

### 3D printer / scanner parts list

Birch joiner plates, custom made

(see lesson "3D printer templates")

timing belt GT2, 2mm pitch, min 140cm long

Spool of filament, 1.75 mm

Heated bed like the MK2 aluminum print bed

thermistor for MK2 print bed

M3 leveling springs, bolts and thumb screws x 4 pieces

Turn Table (custom make with materials of your choice)

4040 euro aluminum profile, 35cm

2020 euro aluminum profile, 20 cm

2020 euro aluminum profile, 35 cm

2 pcs 2020 euro aluminum profile, 30 cm

Euro standard 20, M5 T slot nuts x 14 pieces

PC4-M10 pneumatic fitting x 1 piece

M10 nut, x 1 piece

MK8 extruder kit J-head Hotend w/ 0.4mm nozzle, Right hand 12 volt

Bowden teflon feeder tube ~48cm, typically 1.9mm I.D. for 1.75mm filament

M5 x 8mm tall spacers X 6 pieces

M5 x 8mm tall eccentric spacers x 6 pieces

M5 V wheels x 12 pieces

M4 timing belt locking bar, GT2 9x 40mm x 2 pieces

REPRAP type Limit switches w/ wires, x 3 pieces

timing pulley, GT2 20 tooth 5mm bore x 2 pieces

Arduino Mega

REPRAP smart LCD display & controller board

REPRAP RAMPS shield (we're using V1.4)

4 stepper motors NEMA 17 (I used 17HS4023)

4 stepper wires with 2.54mm dupont end (compatible with the RAMPS shield)

4X stepper driver boards (usually comes with the RAMPS board, typically A4988 driver boards)

USB cable

Power supply, able to deliver 12 volts at 11 Amps and 5 Amps for a total of 16 amps. I'm using an ATX computer power supply, 350 watts or higher. Check the current ratings. Often they have two 12V channels. Refer to lesson 2 "Whatchagonna need" for details.

**Optional** for photogrammetry / 3D scanning:

Blue tooth remote shutter trigger

Very low sitting tripod or stand

idler pulley, GT2 10 mm, 5mm bore x 2 pieces

M5 tubing, 8mm OD, 65mm long

2 bearings for spool roller, 8mm ID, 22mm OD

PVC pipe 1-1/8" OD x 55mm long for spool roller, you will custom machine this part

8mm lead screw drive, Tr8X8, 150mm long w/ lead screw nut

5mm to 8mm lead screw drive coupler to stepper motor

6-32 x 3/8" machine screws, pan head x 2 pieces

M3 Nylon screws, 12mm x 8 pieces

M3 Nylon standoffs, 12 mm x 4 pieces

M3 Nylon standoffs, 5 mm x 4 pieces

#### **M2 bolts:**

8mm nylon screw, x 4 pieces

nylon nut x 4 pieces

#### **M3 Bolts:**

45mm pan head screws x 2 pieces

8mm taper head OR cap screw x 1 piece

18mm socket cap x 1 piece

5mm socket cap x 12 pieces

15mm socket cap x 12 pieces

M3 nuts x 4 pieces

#### **M4 Bolts:**

12mm socket cap x 1 piece

18mm socket cap x 1 piece

regular M4 nut x 1 piece

M4 locknut x 1 piece

**M5 Bolts:**

5mm socket cap x 9 pieces

8mm socket cap x 1 piece

10mm socket cap x 1 piece

12mm socket cap x 1 piece

18mm socket cap x 2 pieces

20mm socket cap x 5 pieces

30mm pan head x 12 pieces

40mm pan head x 2 pieces

80mm socket cap x 1 piece

thumb screws, 8mm long, x 2 pieces

lock nuts x 8 pieces

M5 washer, 8mm O.D. x 2 pieces

M5 washer, 12mm O.D. x 5 pieces

M5 washer, 12mm O.D. either cut out of 3mm birch or stack enough washers to add up to 3mm thickness.

M5 nylon washer, 1mm thickness

2020 rubber foot, 18mm tall, 26.8mm wide base, 22.2mm wide crown, M5 bolt hole, 1 piece