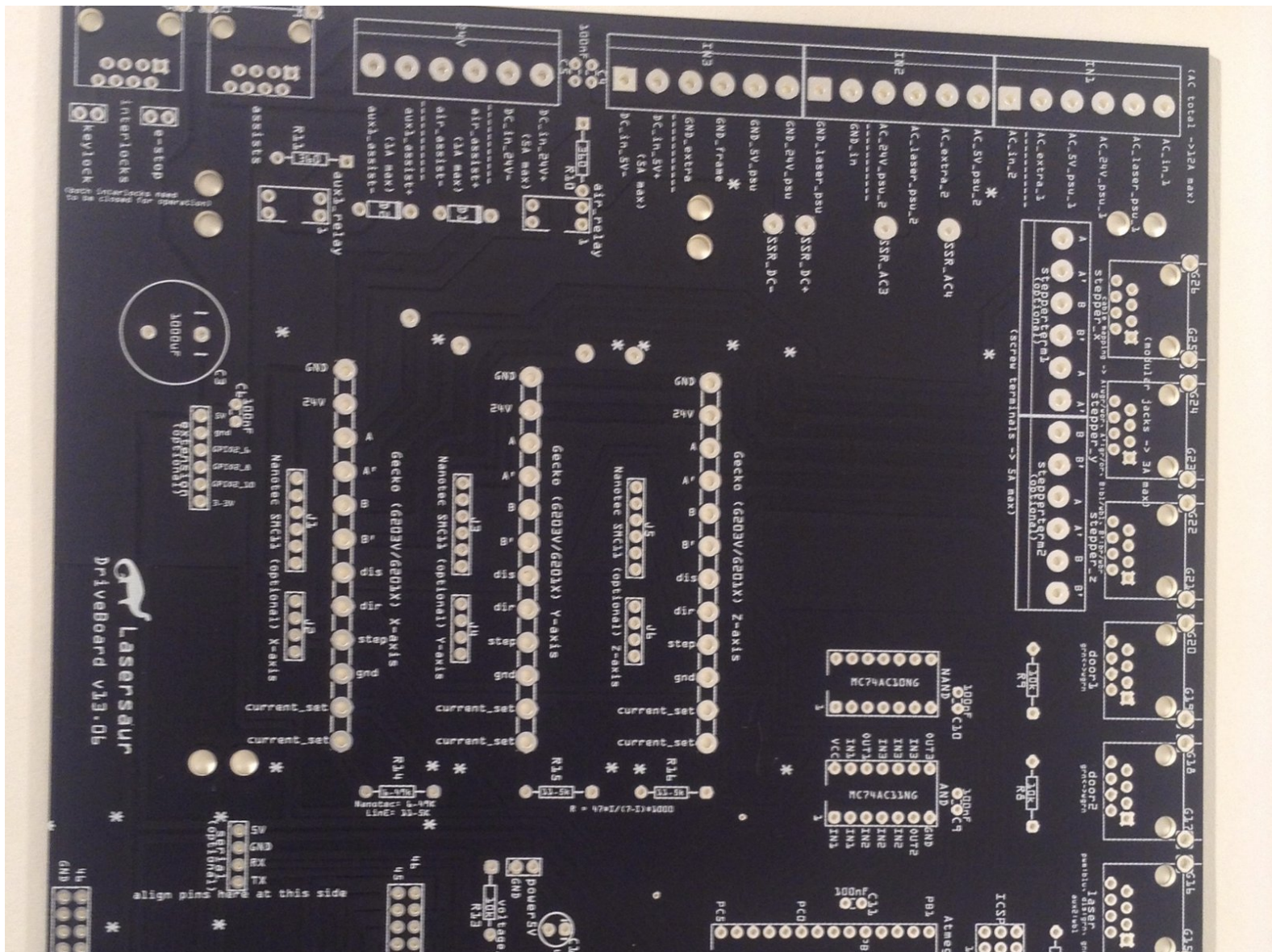




Overall Machine - PARTS

Inventories all the parts for the Lasersaur Laser Cutter.

Written By: Robert Kirk



INTRODUCTION

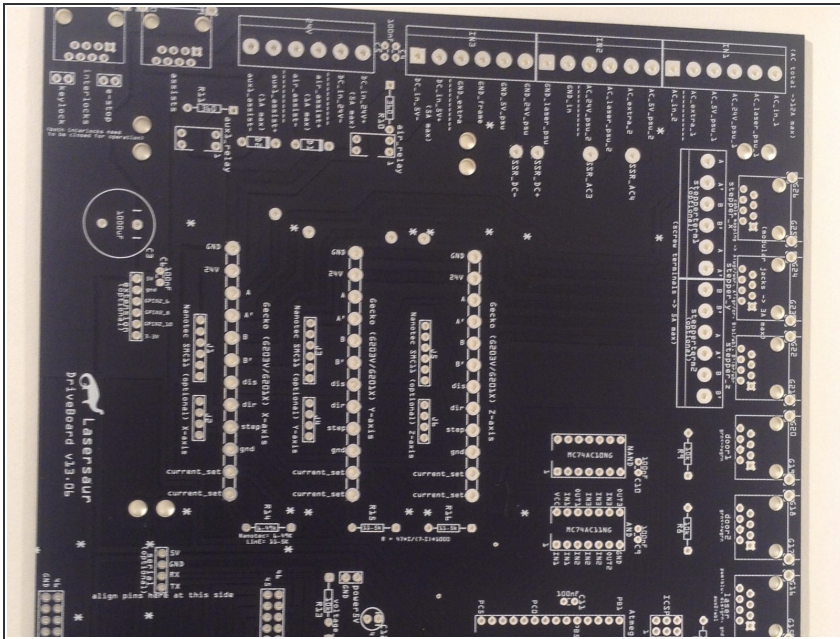
This guide first inventories all the parts and shows photos and other information in the Steps area.



PARTS:

- [Lasersaur Drive board PCB](#) (1)
- [Beagle bone black preloaded with Ubuntu and Lasersaur app.](#) (1)
- [Wireless dongle for Beagle Bone](#) (1)
- [Mounts for various parts.](#) (1)
- [Gas Nozzle](#) (1)
- [Lenses - set of 4](#) (1)
- [Mouns - acrylic, for controller and other electronics.](#) (1)
- [Gas Solenoid](#) (1)
- [Aluminum bracket extrusion](#) (1)
- [Angle brackets - 39 parts - see Step10](#) (1)
- [Angle brackets, black - 28 parts - see Step11](#) (1)
- [Angle brackets, non-gusseted - 6 parts - see Step12](#) (1)
- [Angle brackets double, gusseted, 38 of these - see Step13](#) (1)
- [Angle brackets double, non-gusseted, 7 of these - see Step14](#) (1)
- [Angle brackets double, gusseted, 7 of these. - see Step15](#) (1)
- [Six ball bearings, 5x19x6](#) (1)
- [SEE BELOW FOR DETAILS AND ADDITIONAL PARTS](#) (1)

Step 1 — Overall Machine - PARTS



- Lasersaur drive board PCB
- **NORTD LABS PARTS - STEPS 1-8**

Step 2



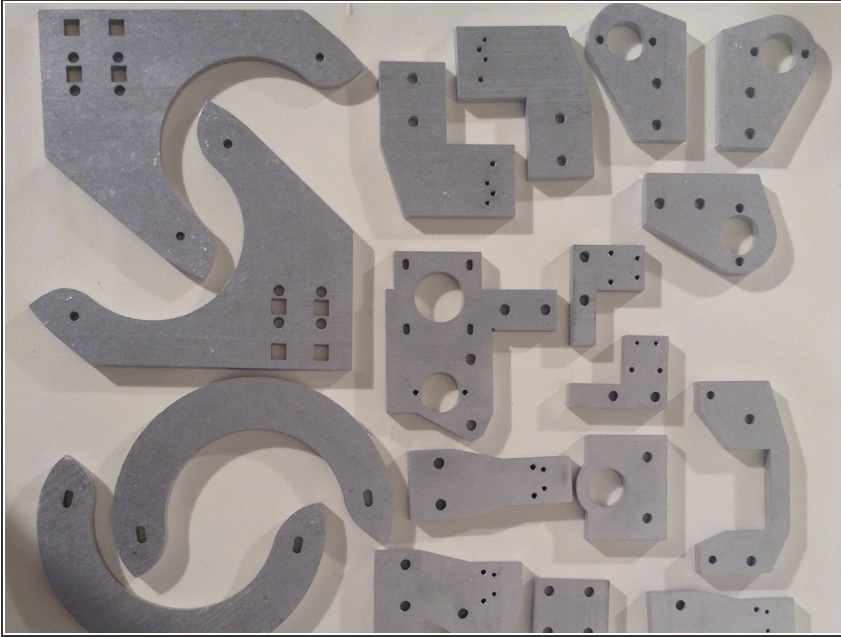
- Beagle Bone black preloaded with Ubuntu and laser sore app. The board later gets a dongle for Wi-Fi USB. Board is either bought from Nordt Labs - or instructions for uploading code are at http://www.lasersaur.com/manual/bb_b_setu...

Step 3



- Wireless dongle for Beagle Bone

Step 4



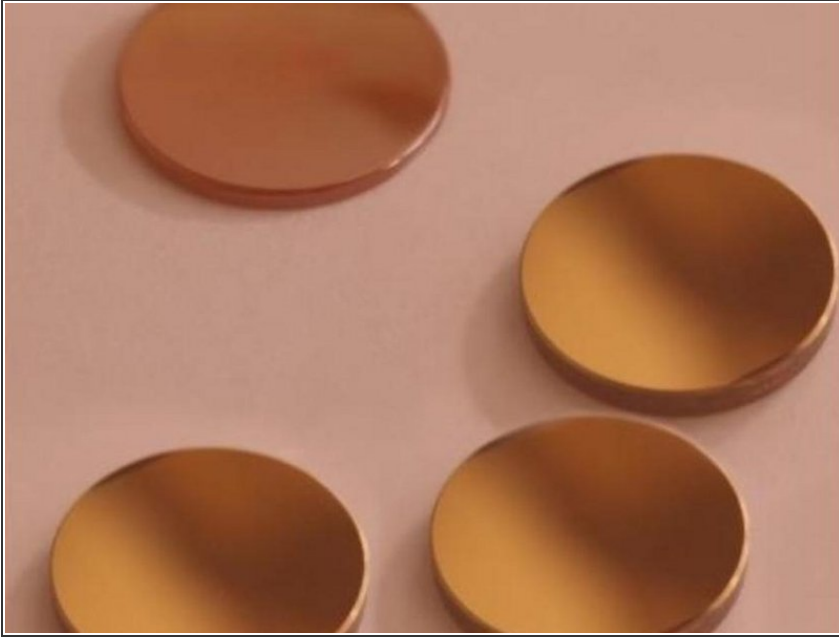
- Mounts for various parts. You can see job file (DXF) - MechParts v14.01 (dxf) at <http://www.lasersaur.com/manual/rev14.01>

Step 5



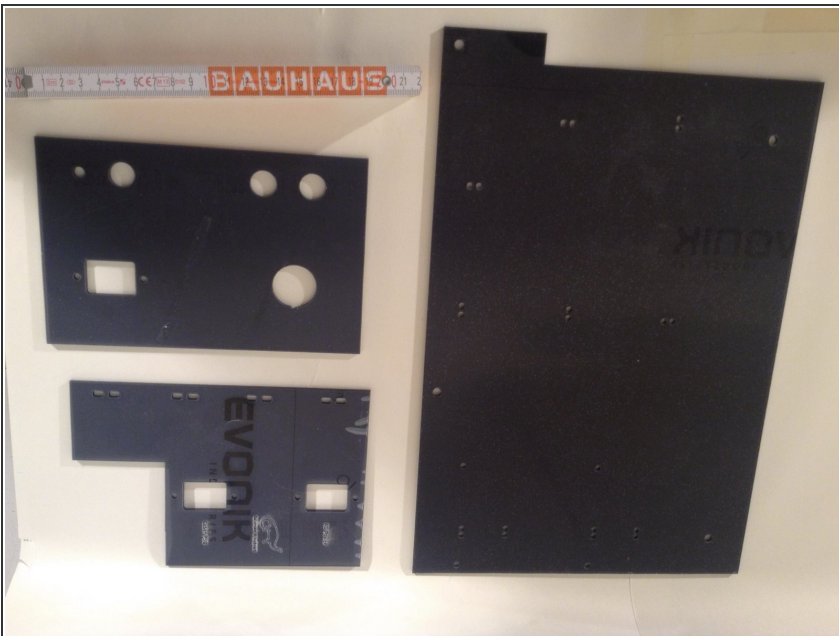
- Gas nozzle - threaded so optics components can be put on it. Thread is defined 1.035"-40, 23 mm deep on the nozzle. Nozzle is found in CAD - FreeCAD has it. See Thor Labs for Lens Tube for corresponding threads.

Step 6



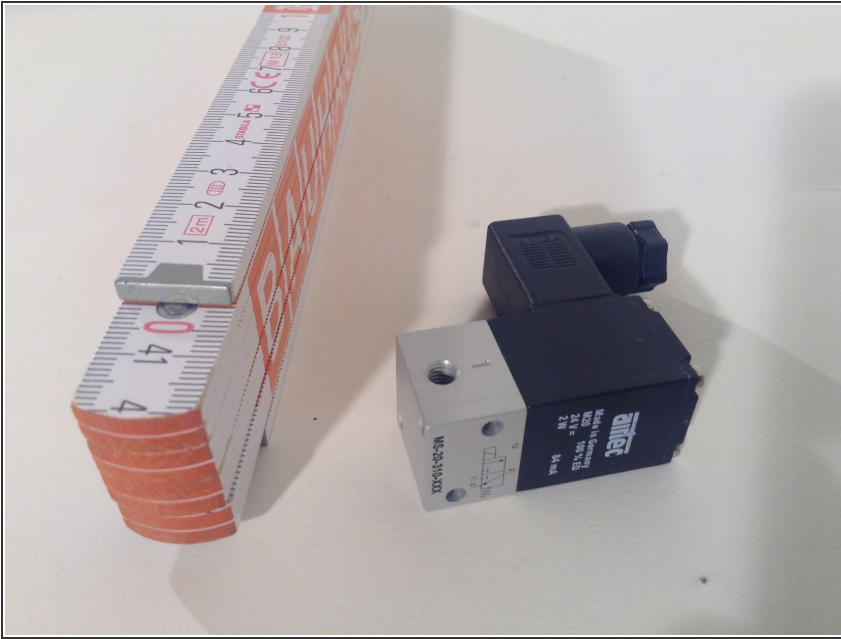
- Lens - set of 4 - not opened so they are not contaminated. See picture from website - <http://store.lasersaur.com/index.php?rou...> .
- See Lens and Mirrors at bottom of <http://www.lasersaur.com/manual/operation...> for source of mirrors

Step 7



- Mouns - acrylic, for controller and other electronics. About \$5/sf for material. Cut with Lasersaur itself.

Step 8



- ❗ Gas solenoid - about \$20 in the USA
- The E-valve can also be sourced from Automation Direct and Landefeld - linked by the 14.01 BOM

Step 9



- Aluminum bracket extrusion. 1410 at end of part number refers to 1410 mm.
- **MISUMI PARTS STEPS 9 - 128**

Step 10



- Angle bracket, single. 39 of these.

Step 11



- Angle bracket, single, black. 28 of these.

Step 12



- Angle bracket, single, non-gusseted, 6 of these

Step 13



- Angle bracket, double, gusseted, 38 of these.

Step 14



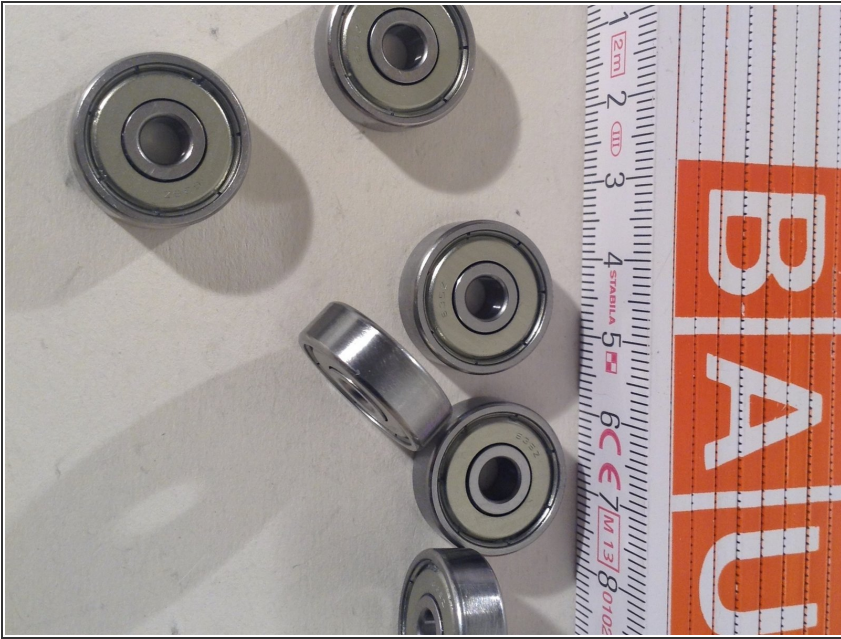
- Angle bracket, double, non-gusseted, 7 of these

Step 15



- Angle bracket, double, gusseted, 7 of these.

Step 16



- [6] ball bearings, 5x19x6

Step 17



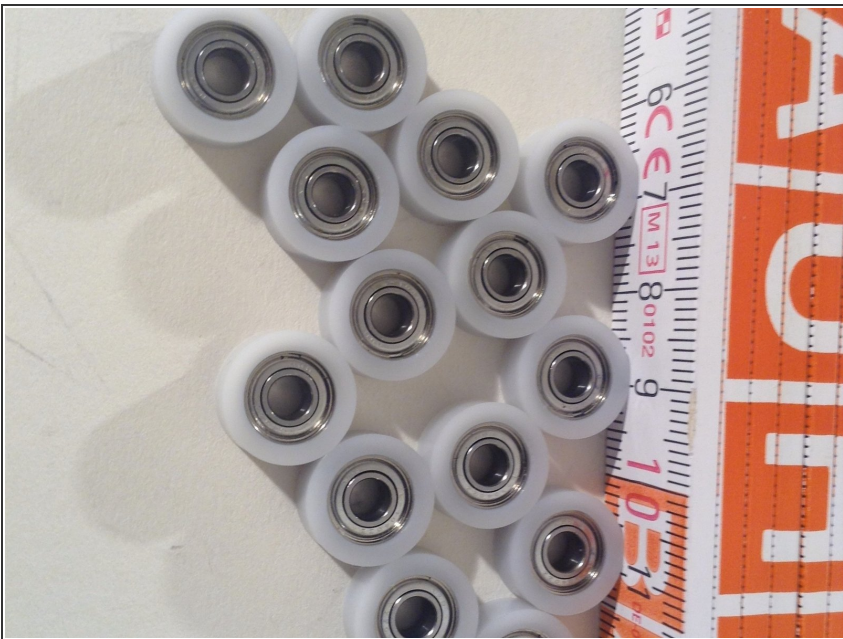
- [8] ball bearing, 6x19x6

Step 18



- [12] ball bearing, 5x14x5

Step 19



- [15] roller bearing, 4x13x5

Step 20



- [2] cable carrier, 20 links

Step 21



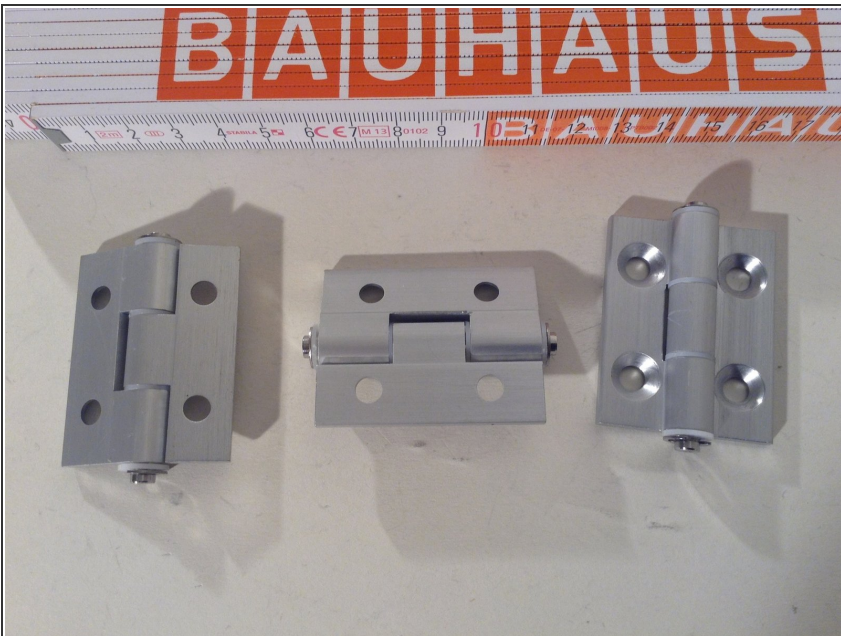
- [1] cable carrier, 23 links

Step 22



- [2] gas spring 1:01

Step 23



- [3] hinges

Step 24



- [1] powder-coated metal sheet 1166x356x0.8mm. Note that Misumi is sophisticated enough in its web interface that it gives you the hole pattern for the sheets included in the part number!
- For CNC torch cutting in the future, use the FreeCAD model to generate full hole pattern to cut. The existing sheets, since they are a part order for replicability, do not include all the holes. 1.24

Step 25



- [2] powder-coated metal sheet 1166x847x0.8mm (put in Gallery 1.29)

Step 26



- [1] powder-coated metal sheet
247x216x0.8mm 1.34

Step 27



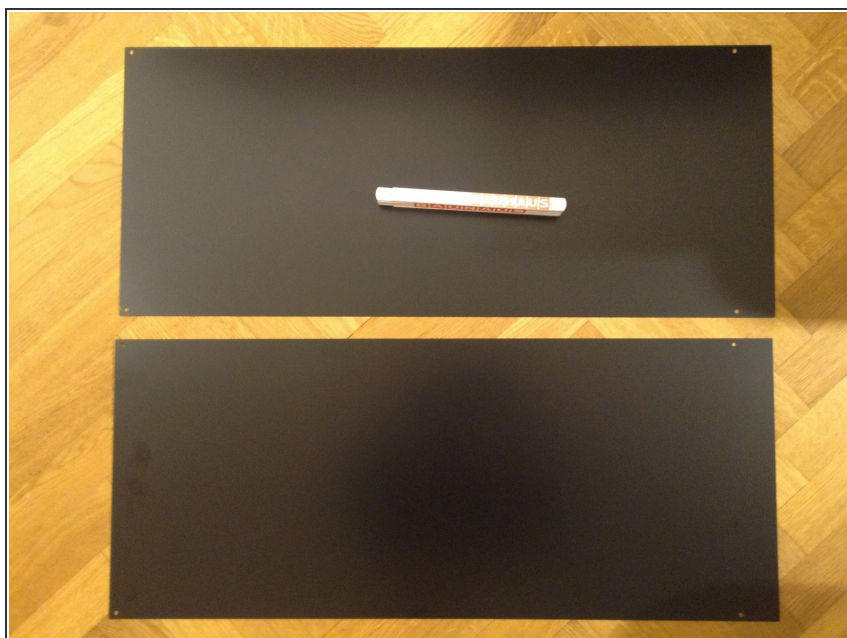
- [2] more - metal sheet
847x200x0.8mm

Step 28



- 2] metal sheet 847x268x0.8mm 2.02

Step 29



- [2] metal sheet 847x356x0.8mm 2.05

Step 30



- [1] metal sheet 917x356x0.8mm
2.07

Step 31



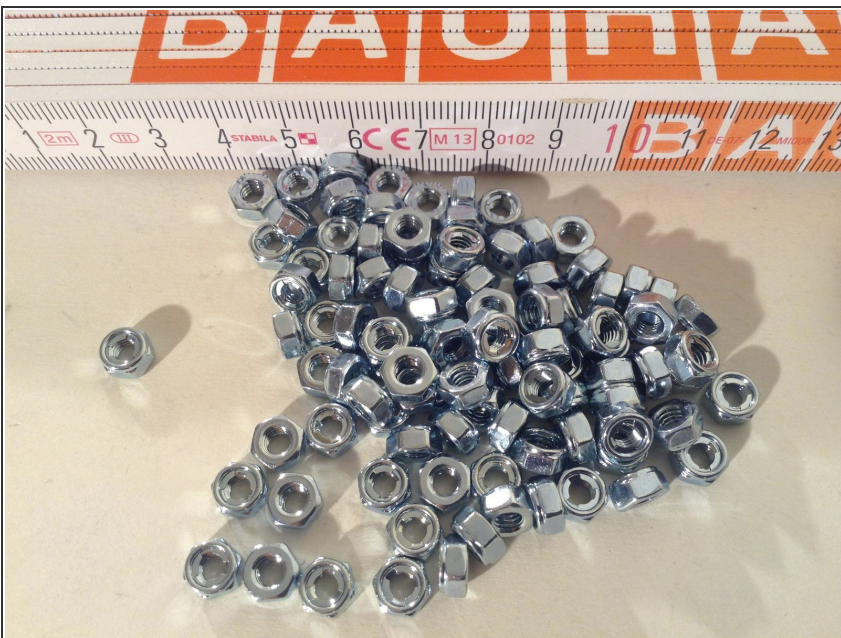
- [23] nut DIN934-like, M3, (put in
Gallery) 2.11

Step 32



- [100] m5 locknuts (put in Gallery - now the album tagging is no longer working in the Trovebox App) 2.16

Step 33



- [100] m4 locknuts 2.26

Step 34



- panel rubber seal 6m 2.39

Step 35



- planar bracket

Step 36



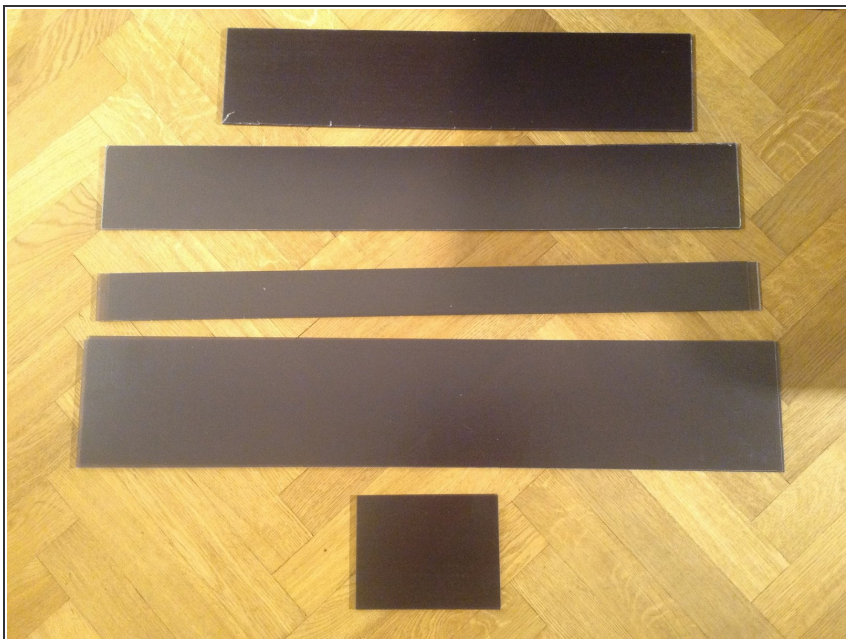
- plastic handles 2.53

Step 37



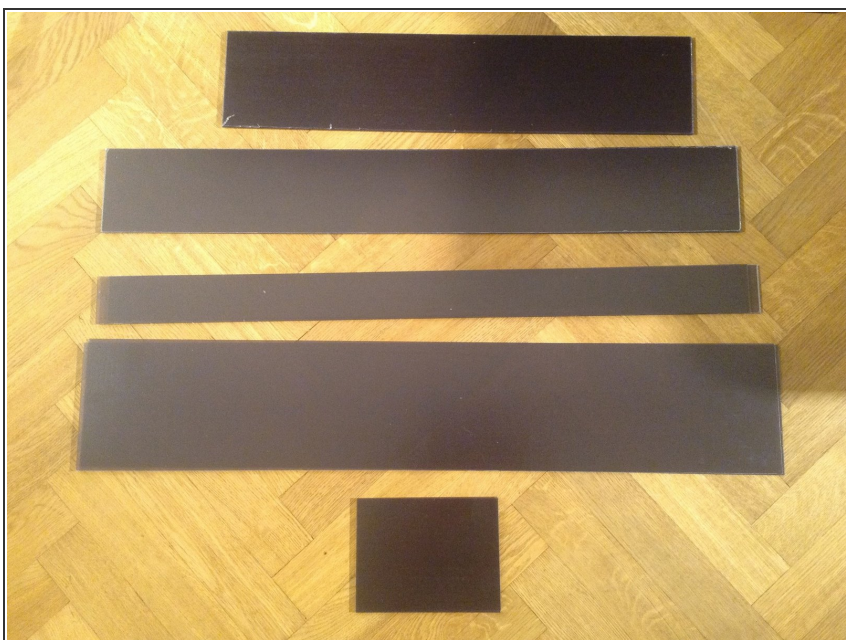
- [2] polycarbonate sheet
170x130x3mm 3.04

Step 38



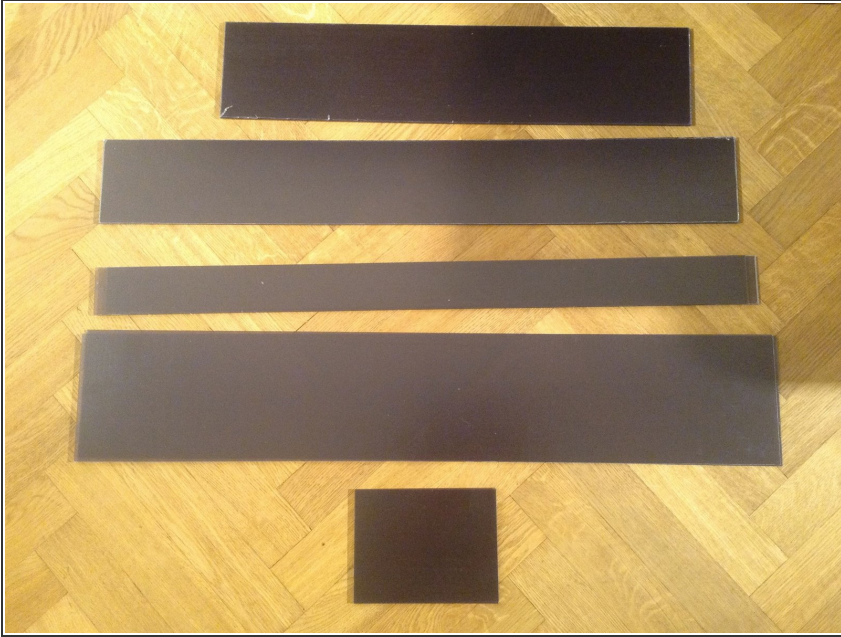
- [2] polycarbonate sheet
600x130x3mm 3.04

Step 39



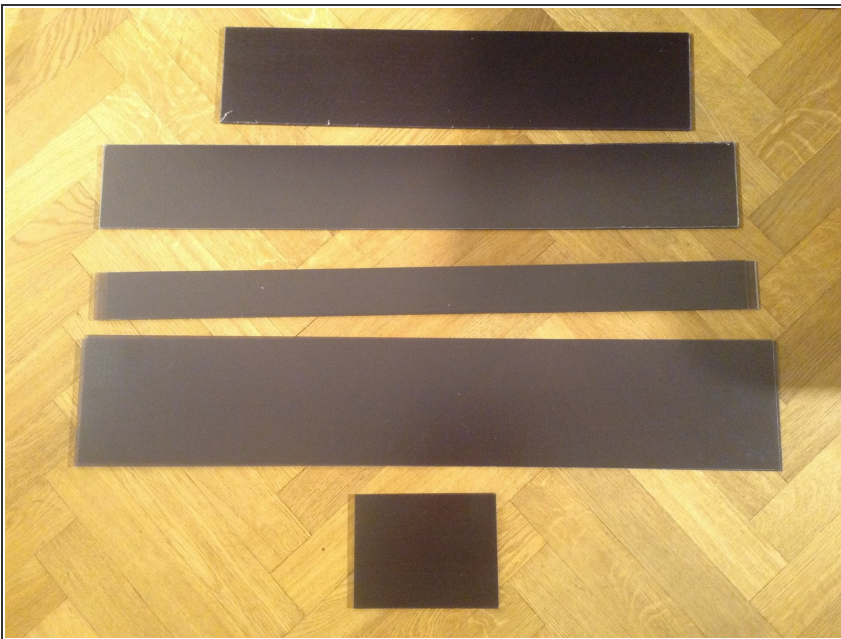
- [2] polycarbonate sheet
800x110x3mm 3.04

Step 40



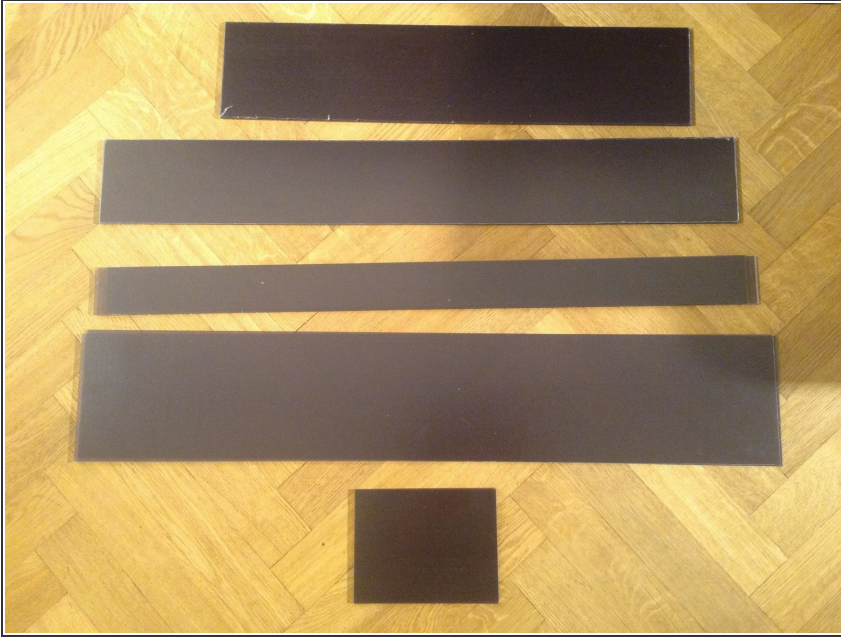
- [2] polycarbonate sheet
807x60x3mm 3.04

Step 41



- [2] polycarbonate sheet
847x156x3mm 3.04

Step 42



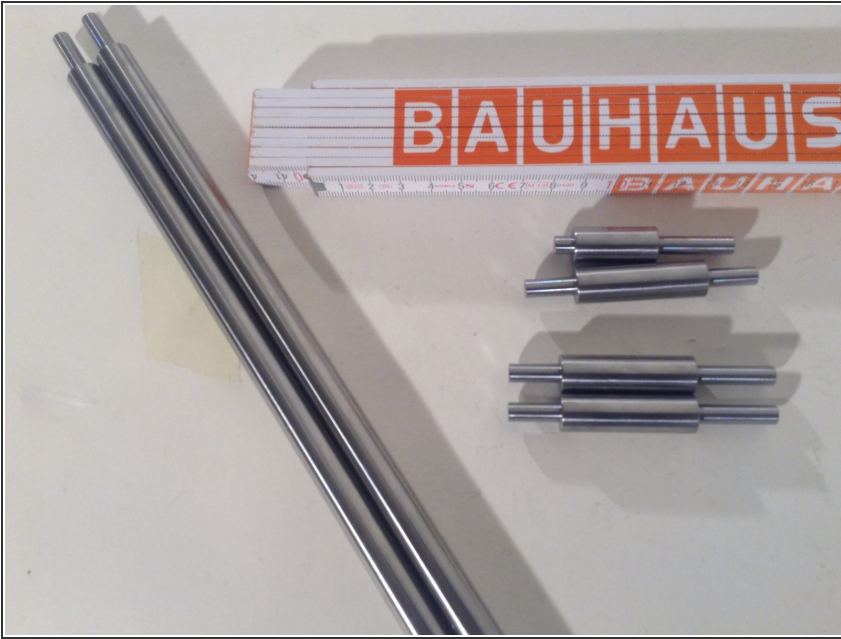
- [2] polycarbonate sheet
892x847x3mm 3.02?

Step 43



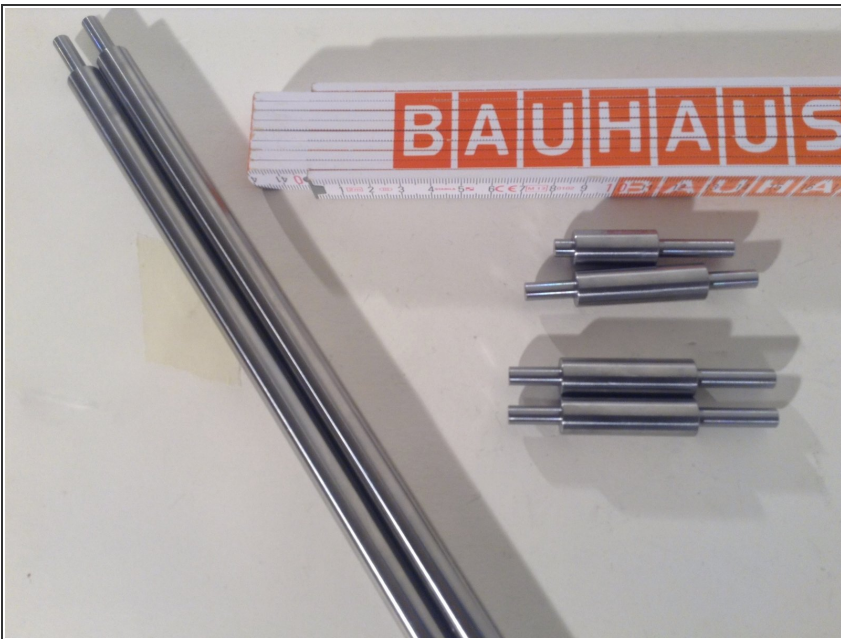
- [1] drive shaft, stepped

Step 44



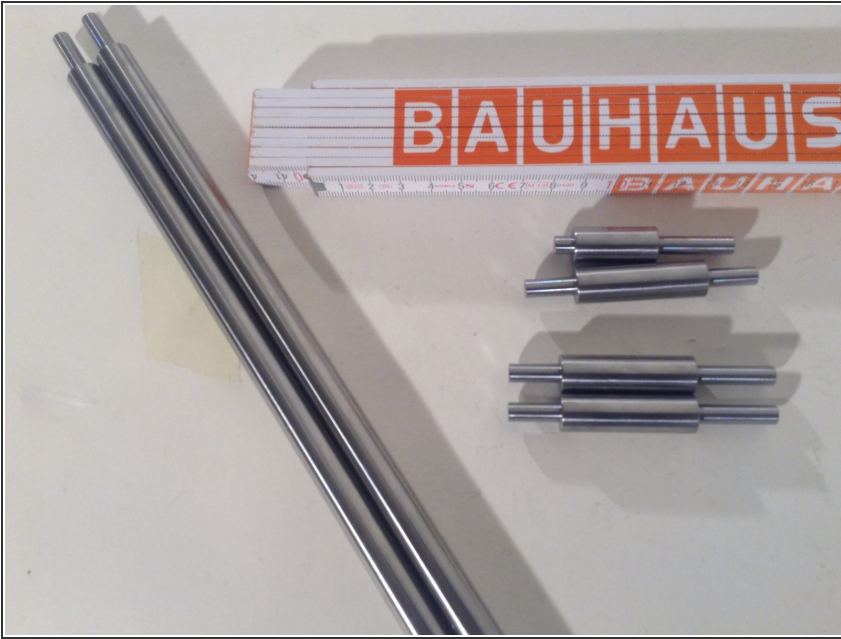
- [1] drive shaft, stepped

Step 45



- [2] drive shaft, stepped

Step 46



- [2] drive shaft, stepped

Step 47



- [17] screw DIN912-like, M3x06

Step 48



- [29] screw DIN912-like, M3x10

Step 49



- [12] screw DIN912-like, M3x16 3.29

Step 50



- [5] screw DIN912-like, M3x25

Step 51



- [8] screw DIN912-like, M3x30 3.29

Step 52



- [2] screw ISO7380-like, button, M3x06 3.40

Step 53



- [9] screw DIN912-like, adhesive, M4x15 3.40

Step 54



- [18] screw DIN912-like, adhesive, M4x25

Step 55



- [134] screw DIN912-like, M5x08 3.48

Step 56



- [376] screw DIN912-like, M5x10 3.48

Step 57



- [28] screw DIN912-like, M5x12 3.48

Step 58



- [29] screw DIN912-like, M5x16

Step 59



- [36] screw DIN912-like, M5x20

Step 60



- [11] screw DIN912-like, adhesive, M5x25 4.14

Step 61



- [166] screw ISO7380-like, button, M5x06

Step 62



- [12]screw DIN7991-like, sunk, M5x08

Step 63



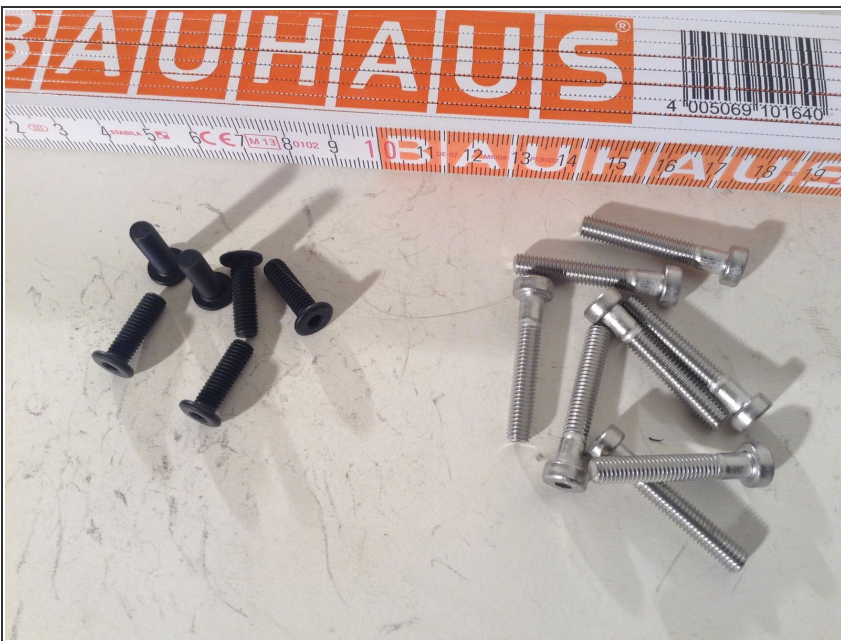
- [5] screw DIN7991-like, sunk, M5x12 4.14

Step 64



- [6] screw DIN7984-like, low, M5x16 4.25

Step 65



- [8] screw DIN7984-like, low, M5x30

Step 66



- [4] 6 mm flexible couplers

Step 67



- [3] slide washers

Step 68



- timing belt GT 3M, 9mm, 109 teeth

Step 69



- timing belt GT 3M, 9mm, 65 teeth

Step 70



- timing pulley GT/HTD 3M, 18 teeth, bore 5mm 4.55

Step 71



- timing pulley GT/HTD 3M, 48 teeth, bore 12mm 4.55

Step 72



- [3] timing pulley GT/HTD 3M, 20 teeth, bore 6mm

Step 73



- timing pulley GT/HTD 3M, 22 teeth, bore 6.35mm

Step 74



- timing pulley GT/HTD 3M, 60 teeth, bore 12mm

Step 75



- SKIPPED STEP

Step 76



- extrusion 2020, 1564mm 5.20

Step 77



- extrusion 2020, 60mm, 45deg

Step 78



- [2] extrusion 2020, 80mm

Step 79



- extrusion 2040, 100mm

Step 80



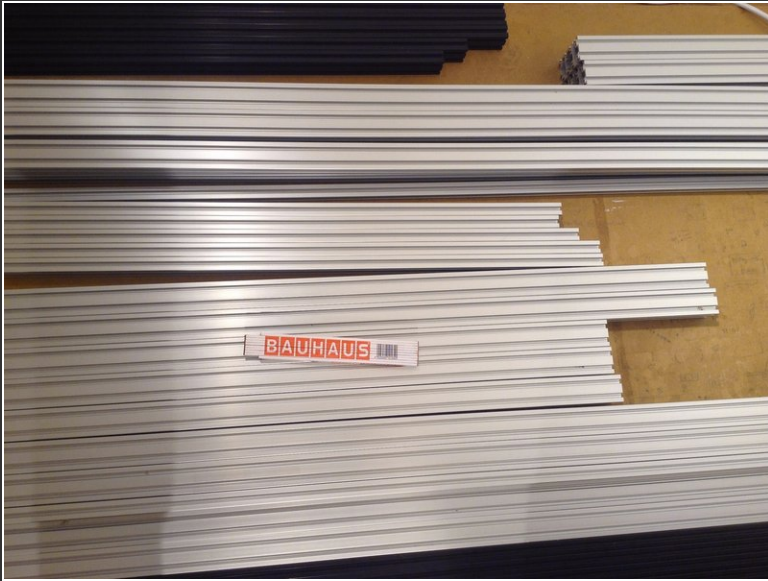
- [2] extrusion 2040, 1130mm

Step 81



- [2] extrusion 2040, 120mm, black

Step 82



- extrusion 2040, 124mm, + mount holes

Step 83



- [5] extrusion 2040, 1260mm, black

Step 84



- extrusion 2040, 148mm, + mount holes

Step 85



- extrusion 2040, 1564mm

Step 86



- [4] extrusion 2040, 1620mm

Step 87



- [4] extrusion 2040, 190mm

Step 88



- extrusion 2040, 320mm

Step 89



- extrusion 2040, 62mm, + mount holes

Step 90



- extrusion 2040, 750mm, black

Step 91



- extrusion 2040, 75mm

Step 92



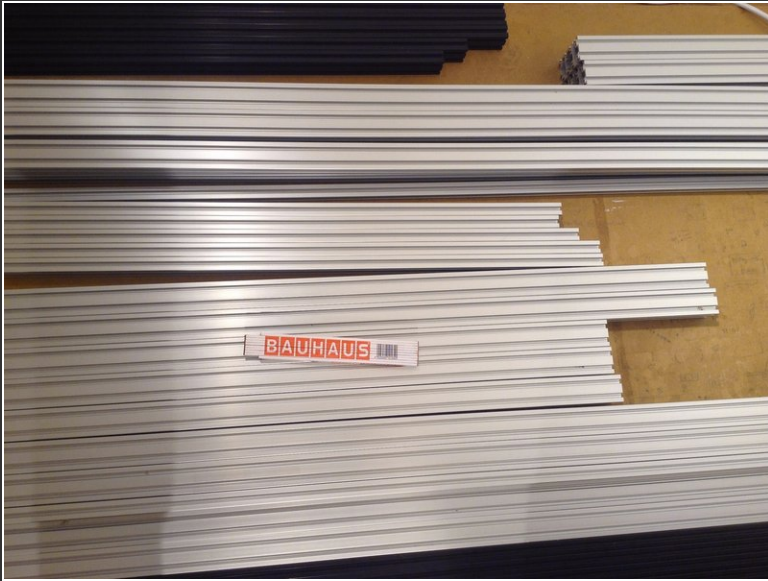
- extrusion 2040, 790mm, black

Step 93



- extrusion 2040, 80mm

Step 94



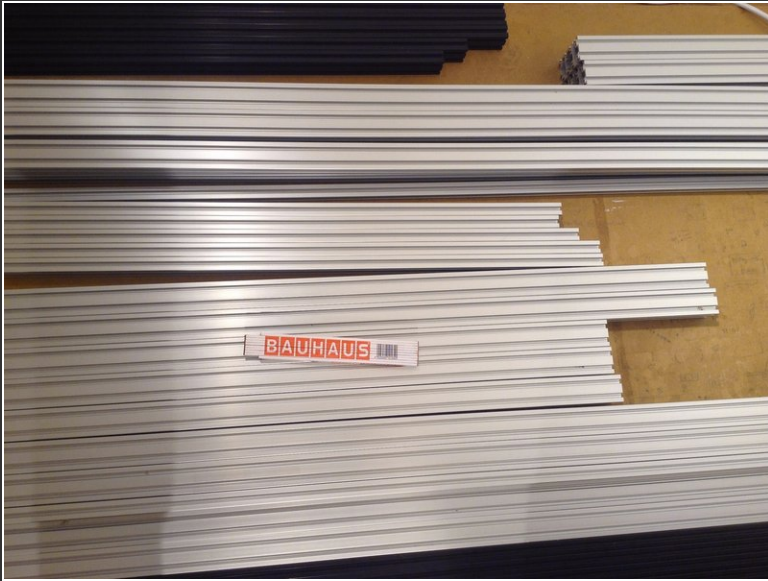
- extrusion 2040, 80mm, 45deg

Step 95



- [3] extrusion 2040, 830mm

Step 96



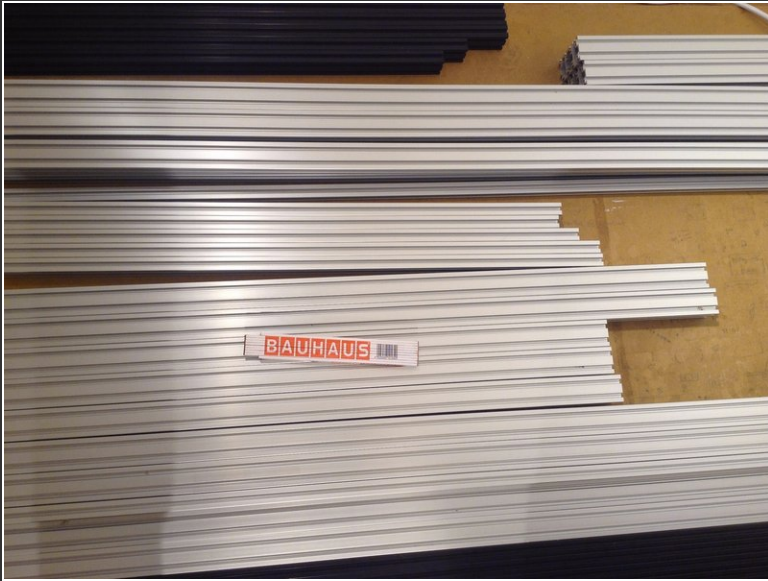
- [2] extrusion 2040, 858mm, black

Step 97



- [2] extrusion 2040, 860mm

Step 98



- extrusion 2040, 860mm, black

Step 99



- extrusion 2040, 96mm, + mount holes

Step 100



- [2] extrusion 2080, 70mm

Step 101



- [2] extrusion 4040, 100mm

Step 102



- [2] extrusion 4040, 1130mm

Step 103



- [6] extrusion 4040, 120mm

Step 104



- [2] xtrusion 4040, 120mm, black

Step 105



- extrusion 4040, 1418mm

Step 106



- extrusion 4040, 1564mm

Step 107



- extrusion 4040, 1620mm

Step 108



- extrusion 4040, 190mm

Step 109



- [2] extrusion 4040, 360mm

Step 110



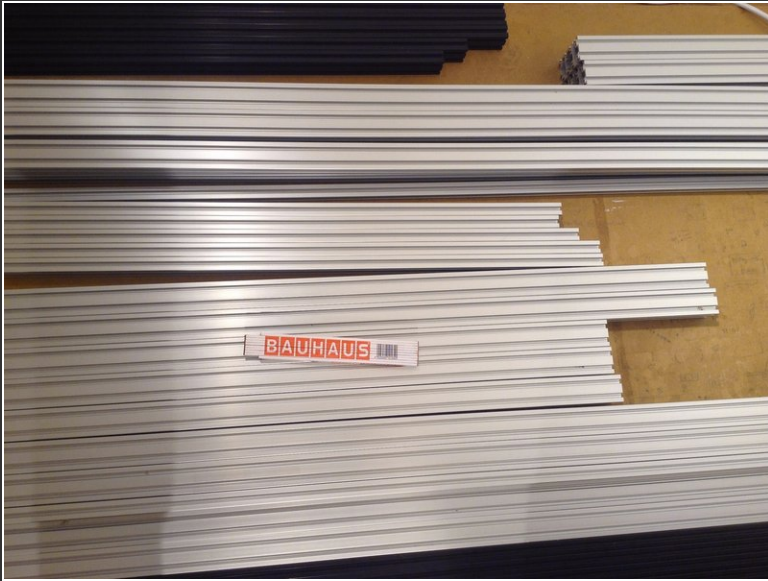
- [3] extrusion 4040, 860mm

Step 111



- [2] extrusion 4080, 100mm

Step 112



- [2] extrusion 4080, 1620mm

Step 113



- [2] extrusion 4080, 940mm

Step 114



- air tube, ODxID 6x4mm, 10m

Step 115



- [3] one-touch air coupling

Step 116



- one touch panel mount

Step 117



- [15] nut, t-slot, post

Step 118



- [23] nut, t-slot, pre

Step 119



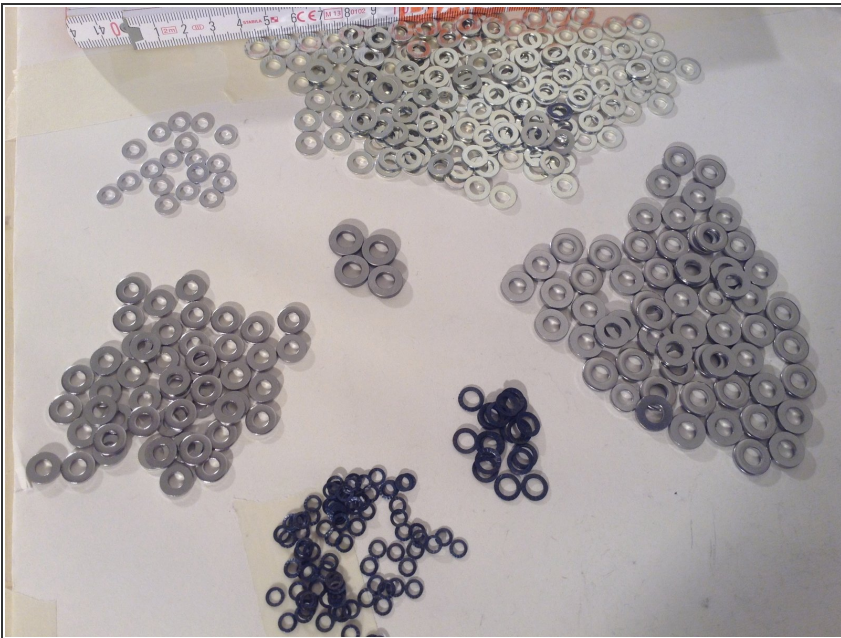
- [618] nut T-slot, post, M5, lock

Step 120



- water hose ID 9mm, 10m

Step 121



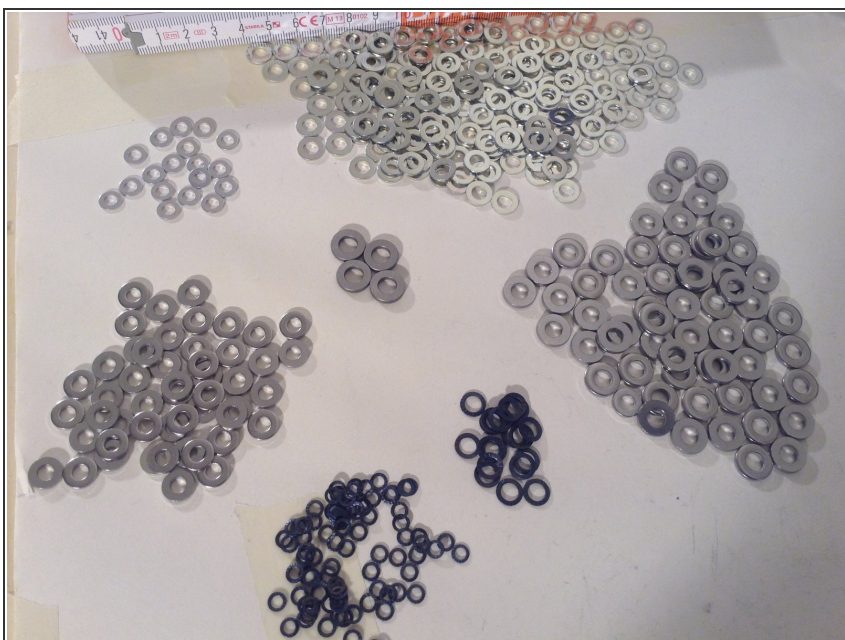
- [18] washer DIN125-like, form A, M4

Step 122



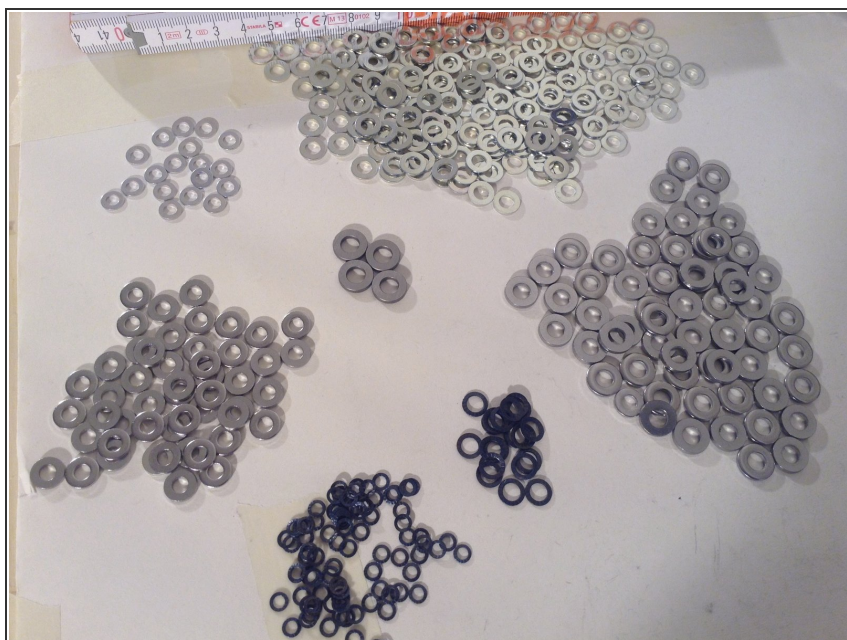
- [213] washer DIN125-like, form A, M5

Step 123



- [1] washer DIN9021-like, form G, M4, 50 pack

Step 124



- [3] washer DIN9021-like, form G, M5, 20 pack

Step 125



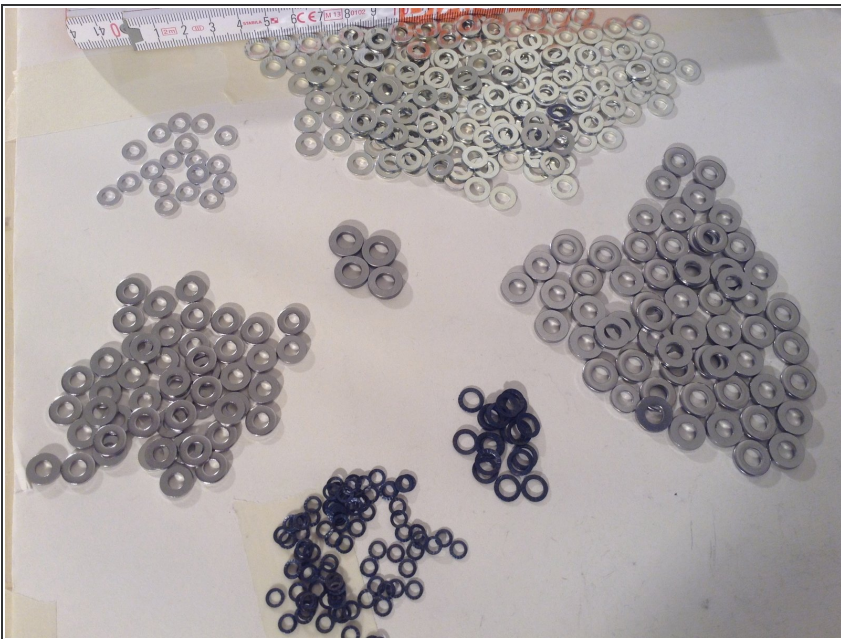
- [4] washer precision, ID 6mm

Step 126



- [20] washer Schnorr-like, lock, M5

Step 127



- [87] washer Schnorr-like, lock, M3

Step 128



- washer precision, OD 19mm

Step 129



- **STEPS 129-133 THOR LABS**
- [3] mirror mount

Step 130



- lens tube

Step 131



- outer lock ring

Step 132



- cleaning swabs

Step 133



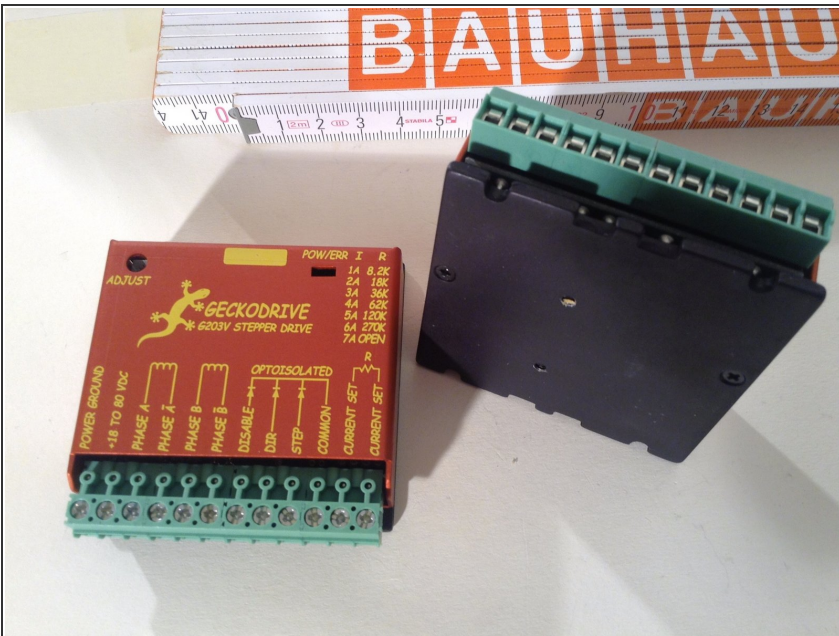
- cleaning tissues
- safety glasses - missing

Step 134



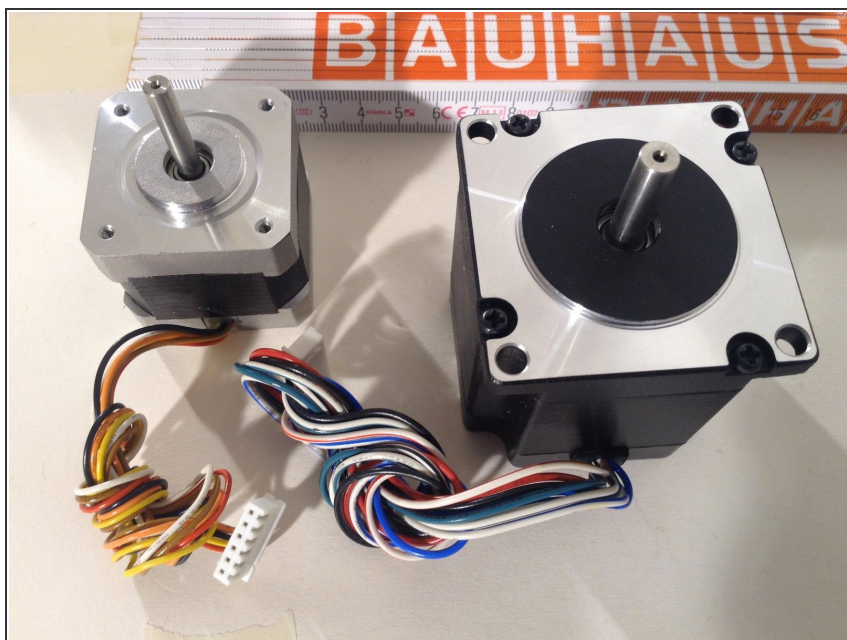
- **STEP 134 - COLE TECH**
- 40W laser tube (since shipping of 100W laser tube is difficult, we are building the existing laser cutter with a 40W for testing and shipping 100W tube + supply + chiller separately)

Step 135



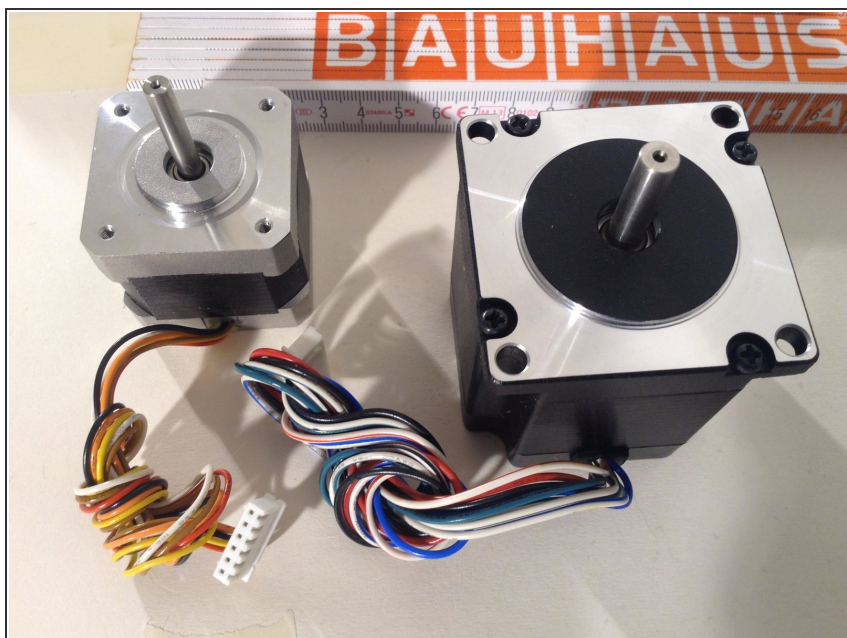
- **STEP 135 - GECKODRIVE**
- [2] g203v stepper drivers

Step 136



- **STEPS 136-137 - NANOTEC**
- NEMA 17 stepper motor

Step 137



- NEMA 23 stepper motor

Step 138



- **STEPS 138-139 - EBAY**
- [11] CAT5 cable

Step 139



- cog belt, 6.6m