Bits & Bobs: Useful Parts & Add-Ons

[Paul Krajewski](https://www.facebook.com/paul.krajewski.796)·[Thursday, April 28, 2016](https://www.facebook.com/notes/tevo-tarantula-prusa-i3-owners/bits-bobs-useful-parts-add-ons/1038037999623507)

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1omm Range Capacitive Proximity Sensor:

[http://www.ebay.com/itm/121864216190](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.ebay.com%2Fitm%2F121864216190&h=OAQH4RHg0&s=1)

25A DC-DC Solid-State Relay: [http://www.ebay.com/itm/28134437522...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.ebay.com%2Fitm%2F281344375222&h=nAQFaoZpN&s=1) Heat Sink for Solid-State Relay: [http://www.ebay.com/itm/29154889352...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.ebay.com%2Fitm%2F291548893524&h=mAQGQ5dO6&s=1) Clone E3D V6 Volcano Hotend full kit with PTFE tube/fitting, PLUS spare block & extra nozzles for $11.23: [http://www.aliexpress.com/item/3D-P...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.aliexpress.com%2Fitem%2F3D-Printer-J-head-Hotend-with-Fan-for-1-75-3-0mm-12-v-E3D-v6%2F32371544116.html&h=QAQGn5yBp&s=1) HP DPS-1200 12V/900W-1200W Server Power Supply: [http://www.ebay.com/sch/i.html?\_fro...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.ebay.com%2Fsch%2Fi.html%3F_from%3DR40%26_trksid%3Dp2047675.m570.l1313.TR1.TRC0.A0.H1.TRS0%26_nkw%3D438202-001%26_sacat%3D0&h=uAQGakk6D&s=1)

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Vendor RobotDigg.com has a lot of the stuff we use most at prices which are VERY competitive with AliExpress, including all manner of brackets, fasteners, linear rails, hotends & parts and boards & belts, just to name a few. They only offer “Express Shipping” to keep delivery times fast, so shipping can be expensive for small orders. However, their catalog, like McMaster-Carr, is an invaluable resource when window-shopping to build a parts list or find a part to solve a problem. Here’s their electronics page: [http://www.robotdigg.com/category/1...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.robotdigg.com%2Fcategory%2F17%2FElectronics&h=bAQHWmLJK&s=1)

2020 Nuts on AliExpress: 2020 Nuts come in m3-m6 holes, with a variety of shapes for different mounting options. Most popular in 3D printing is m4. The “roll-in” type (with spring -loaded ball) can be installed in an assembled part; they cost more but definitely worth it for the grief they save you. This is a search on AliExpress so you can browse for what you need.

[http://www.aliexpress.com/af/2020-n...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.aliexpress.com%2Faf%2F2020-nut.html&h=UAQHzukBD&s=1) 2020 Aluminum Angle & T-Brackets (USA Vendor) [http://www.robotdigg.com/product/70...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.robotdigg.com%2Fproduct%2F703&h=eAQGOIfi-&s=1)

2020 Aluminum Angle brackets on AliExpress:

2020 angle brackets come in a variety of types, with a variety of length and mounting options. The extruded ones are more costly, but will have greatest angle precision with no fiddling. This is a search on AliExpress so you can browse for what you need. [http://www.aliexpress.com/af/2020-a...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.aliexpress.com%2Faf%2F2020-angle.html&h=0AQGMk_5P&s=1) These are a decent price and promise decent delivery time from China; I’d get two orders since you can save a bit on shipping: [http://www.aliexpress.com/item/10pc...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.aliexpress.com%2Fitem%2F10pcs-lot-2020-corner-fitting-angle-aluminum-28-x-28-x-20-connector-bracket-fastener-match%2F32597233473.html&h=3AQE-GhgO&s=1) On eBay:

[http://www.ebay.com/sch/i.html?\_fro...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.ebay.com%2Fsch%2Fi.html%3F_from%3DR40%26_trksid%3Dm570.l1313%26_nkw%3D2020%2Bangle%2Bbracket%26_sacat%3D0&h=WAQGKjcRm&s=1) General search for 2020 brackets on eBay: This returns a lot of junk that isn’t 2020 aluminum specific, but is the most inclusive search:

[http://www.ebay.com/sch/i.html?\_fro...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.ebay.com%2Fsch%2Fi.html%3F_from%3DR40%26_trksid%3Dm570.l1313%26_nkw%3D2020%2Bangle%2Bbracket%26_sacat%3D0&h=0AQGMk_5P&s=1) You can also find similar parts at your local Homeowner Hell: These parts are meant for carpentry work, so not best precision. But you may find something you can work with if you don’t feel like waiting.

[http://www.homedepot.com/b/N-5yc1v/...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.homedepot.com%2Fb%2FN-5yc1v%2FNtk-All%2FNtt-corner%252Bbracket%3FNCNI-5%26isSearch%3Dtrue%26Nao%3D24&h=gAQFB9ORf&s=1) [http://www.lowes.com/Search=metal+b...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.lowes.com%2FSearch%3Dmetal%2Bbracket%3FstoreId%3D10151%26langId%3D-1%26catalogId%3D10051%26N%3D0%26newSearch%3Dtrue%26Ntt%3Dmetal%2Bbracket%23%21%26N%255B%255D%3D1z0vjj8&h=-AQFIhrFr&s=1) Flat Plates on AliExpress:

While you can buy flat plates made for 2020, in most applications you can also use furniture repair/stiffening plates. Most come with one side countersunk; in most cases we’ll want to flip them around backwards for regular hardware. Be sure to choose a plate that specifies screw hole size so you can get the appropriate 2020 nuts and make sure they don’t have staggered holes. This is a search on AliExpress so you can browse for what you need.

[http://www.aliexpress.com/price/fla...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.aliexpress.com%2Fprice%2Fflat-corner-bracket_price_1.html&h=gAQFB9ORf&s=1) [http://www.aliexpress.com/af/flat%2...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.aliexpress.com%2Faf%2Fflat%25252Bcorner%25252Bbracket%2F1.html&h=BAQGwDwGO&s=1) Here are similar plates, but specifically in stainless: [http://www.aliexpress.com/af/stainl...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.aliexpress.com%2Faf%2Fstainless-flat-bracket.html&h=lAQFMFI-h&s=1) And of course, you can also find them at your local Homeowner Hell: This is nice as you can put hands on the part, measure it, feel it, and if you like it, you can take it home. ;) [http://www.homedepot.com/s/flat%252...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.homedepot.com%2Fs%2Fflat%252520brace%3FNCNI-5&h=XAQHbVt8A&s=1) [http://www.lowes.com/Search=flat+br...#](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.lowes.com%2FSearch%3Dflat%2Bbrace%3FstoreId%3D10151%26langId%3D-1%26catalogId%3D10051%26N%3D0%26newSearch%3Dtrue%26Ntt%3Dflat%2Bbrace%23&h=LAQF1C657&s=1)!

Cheap Adjustable Voltage Regulators, quick from US Vendor: [http://www.ebay.com/itm/27218960620...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.ebay.com%2Fitm%2F272189606202&h=fAQG_gvJR&s=1) Search on eBay for same regulators from worldwide vendors: [http://www.ebay.com/sch/i.html?\_odk...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.ebay.com%2Fsch%2Fi.html%3F_odkw%3Dmini%2Bbuck%2Bconverter%26_sop%3D15%26_osacat%3D0%26_from%3DR40%26_trksid%3Dm570.l1313%26_nkw%3Dmini-360%2Bbuck%2Bconverter%26_sacat%3D0&h=NAQH0XeQL&s=1) Inductive Auto-Level Sensor on eBay:

[http://www.ebay.com/sch/i.html?\_odk...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.ebay.com%2Fsch%2Fi.html%3F_odkw%3D3D%2BPrinter%2Bcapacitive%2BProximity%2BSensor%26_osacat%3D0%26_from%3DR40%26_trksid%3Dm570.l1313%26_nkw%3D3D%2BPrinter%2BProximity%2BSensor%26_sacat%3D0&h=zAQFa7zgB&s=1)

Optical Proximity Sensor: [http://www.pibot.com/pibot-optical-...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.pibot.com%2Fpibot-optical-reflection-endstop-rev143.html&h=lAQFMFI-h&s=1)

Metal Bracket for Capacitive Sensor (Auto-Level) This bracket is cheap and fits the sensor so you don’t have to monkey around printing a $1 dollar part. 12mm version: [http://www.aliexpress.com/item/M12-...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.aliexpress.com%2Fitem%2FM12-Photoelectric-switch-Proximity-switch-Sensor-Fixed-Bracket%2F32453009521.html&h=GAQGq7IU_&s=1) 18mm version: [http://www.aliexpress.com/item/M18-...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.aliexpress.com%2Fitem%2FM18-Photoelectric-switch-Proximity-switch-Sensor-Fixed-Bracket%2F32455232171.html&h=KAQGha0Cc&s=1) 8mm Dia x 2mm Leadscrew w/ 2mm Lead (Original type with single start, rather than 4-start/8mm lead version shipped with some) [http://www.aliexpress.com/item/1pcs...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.aliexpress.com%2Fitem%2F1pcs-T8-8mm-screw-length-400mm-picth-2mm-lead-2mm-trapezoidal-screw-with-1pcs-brass-copper%2F32650839193.html&h=hAQGq26AW&s=1) Transmission CNC Store - CNC & 3D Printer Generic Parts: [http://www.aliexpress.com/store/834...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.aliexpress.com%2Fstore%2F834897%3Fspm%3D2114.10010108.0.34.A75vRb&h=uAQGakk6D&s=1)

If you're doing Louie Castillo’s Dual-Z drive:

[https://www.facebook.com/photo.php?...](https://www.facebook.com/photo.php?fbid=1108901139140131&set=pcb.1016570545103586&type=3&theater)

You need this:

[http://www.aliexpress.com/store/pro...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.aliexpress.com%2Fstore%2Fproduct%2F1pcs-T8-8mm-screw-length-400mm-picth-2mm-lead-2mm-trapezoidal-screw-with-1pcs-brass-copper%2F834897_32650839193.html&h=6AQE0mjyu&s=1)

To match the stock 2mm lead, or better yet get 2x this:

[http://www.aliexpress.com/store/pro...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.aliexpress.com%2Fstore%2Fproduct%2F1pcs-T8-8mm-screw-length-400mm-picth-1mm-lead-1mm-trapezoidal-screw-with-1pcs-brass-copper%2F834897_32650839749.html&h=SAQH0OStm&s=1) or this: [http://m.aliexpress.com/item/325620...](http://l.facebook.com/l.php?u=http%3A%2F%2Fm.aliexpress.com%2Fitem%2F32562095629.html&h=NAQH0XeQL&s=1)

to make your dual-Z super-fine resolution. PM Rex Illustrata for flat parts to do this mod; he is currently gearing up production for Tarantula parts in water-jet cut aluminum. His FB is here: [https://www.facebook.com/ch4otic?fr...](https://www.facebook.com/ch4otic?fref=nf)

The Tarantula, like most entry-level 3D printers, uses 5mm x 8mm flex couplings on the Z-shaft. These are the most basic economy-priced part as comes with the kit: [http://www.aliexpress.com/store/pro...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.aliexpress.com%2Fstore%2Fproduct%2F4pcs-5-8mm-D20-L25-CNC-Motor-Jaw-Shaft-Coupler-Flexible-Coupling-Stepper-Motor-Encode-Connector%2F834897_1394531314.html&h=QAQGn5yBp&s=1) Yes, they are available in 1pc quantity, for like 50¢ less. Spend the extra 4 bits and have spares in case you get a slightly off-machined one. I know... for $1.50 we should expect perfection, right? ;) These are a better-quality version that runs much truer for only a little more $$: [http://www.aliexpress.com/store/pro...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.aliexpress.com%2Fstore%2Fproduct%2F4pcs-RB-type-5-mm-8-mm-D-18-L-25-shaft-coupler-flexible-coupling-stepper%2F834897_32349480481.html&h=uAQGakk6D&s=1) Again, better to spend the extra $4 for the 4-pc lot. You’re going to use 2 of them for the Dual-Z mod, and spares against imperfect machining, etc. ;) To build a linear actuator correctly, you need to take thrust load off the coupler. For this you usually use pillow-block bearings or flange bearings. 8mm pillow-block: [http://www.aliexpress.com/store/pro...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.aliexpress.com%2Fstore%2Fproduct%2F4pcs-8mm-KP08-kirksite-bearing-insert-bearing-shaft-support-Spherical-roller-zinc-alloy-mounted-bearings-pillow%2F834897_1739080976.html&h=dAQEI2yhQ&s=1) 8mm flange bearings: [http://www.aliexpress.com/store/pro...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.aliexpress.com%2Fstore%2Fproduct%2F4pcs-8-mm-bearing-Zinc-Alloy-Miniature-Bearings-pedestal-KFL08-UCFL08-FL08-flange-bearings-diy-cnc%2F834897_32427118682.html&h=JAQFXny5R&s=1) E3D V6 Clone Hotend Complete with Shroud, Fan, PTFE tube & Spare Nozzles/Heatblock, US$11 : [http://www.aliexpress.com/item/3D-P...](http://l.facebook.com/l.php?u=http%3A%2F%2Fwww.aliexpress.com%2Fitem%2F3D-Printer-J-head-Hotend-with-Fan-for-1-75-3-0mm-12-v-E3D-v6%2F32371544116.html&h=kAQG4ilMb&s=1) Same E3D V6 Clone Hotend but no tubing from Banggood: [http://www.banggood.com/0\_4mm-E3D-V...](http://www.banggood.com/0_4mm-E3D-V6-All-metal-3D-Printer-Extrusion-Head-Nozzle-With-Fan-p-1036420.html) Upgrade 128 x 64 Graphical Interface LCD Controller: [http://www.aliexpress.com/item/Free...](http://www.aliexpress.com/item/Free-shipping-3D-printer-smart-controller-RAMPS-1-4-LCD-12864-control-panel-blue-screen/1966418671.html) Upgrade Touch-Screen Graphical Interface LCD Controller: [http://www.aliexpress.com/item/3D-P...](http://www.aliexpress.com/item/3D-Printer-lcd-led-RepRap-MKS-TFT32-touch-screen-smart-controller-display-3-2inch-support-APP/32654677930.html)