KEY: mechanical | 3D printed | heat | electronics — Make sure bearings arrive in time.

ITEM NUM BER	QUANTITY NEEDED per machine	# machines	total needed	ITEM DESCRIPTION	ORDERING LINK 1	2	3	4	5	PRICE EA 1	# units in price	# needed	Inve ntori ed?	# extra	Price TOT	2	3	4	5	SUPPLIER SHIPPING [1]	2	3	4	5	MOQ SUPPLIER [2]	SUPPLIER PRICE [3]	USAGE PRICE [4]	LEAD TIMES	PREFERRED VENDORS	PREFERRED PART #	WEIGHT EACH (lb)	WEIGHT TOTAL	NOTES
1	53 [5]	24	1272	m6x18 zinc plated socket screw [6]	https://www.n					7.46	50	26	y	28	193.96																		
2	56 [7]	24	1344	m6 zinc plated nut [8]	https://www.n					2.3	100	14	y	56	32.2																		
3	7 [9]	24	168	m6x30 ss socket screw [10]	https://www.n					9.14	50	4	y	32	36.56																		
4	16	24	384	m3x25 philips pan head screw	https://www.n					3.28	100	4	n	16	13.12																		
5	11.3 [11]	24	271.2	5/16" chrome rods or 8 mm rods [12]	https://www.n	htt				11.74	6	48	y	16.8 [14]	563.52																		
6	1	24	24	PEI surface, 8"x8"	https://www.n					36.76	3	8	y	0	294.08																		
7	4	24	96	nema 17, 72 oz in stepper motors [16	http://www.eb	htt				40	5	20	y	4	800																		
8	16	24	384	8 mm linear bearing	http://www.eb					50.99	100	4	y	16	203.96																		
9	124 [17]	24	2976	GT2 belt, 6mm wide [18]	https://www.a	htt				11.58	396	8	n	192	92.64																		
10	4	24	96	GT2 pulley, 5mm bore, 6mm wide, 20	https://www.a	htt				9.99	10	10	y	4	99.9																		
11	8	24	192	m6x12x4 flanged bearing	http://www.eb	htt				16.01	25	8	y	8	122																		
12	70	24	1680	3x12mm N52 magnets [21]	http://www.eb	htt				180	1000	1	y	-680	180																		
12b					http://www.eb					119	1000	1			119																		
13	1	24	24	frame [23]	Seaman and					50 [24]	1	24	n	0	1200																		
14	1	24	24	complete set of 3D Printed Parts [25]	OSE RepLab					50 [26]			n		1200																		
15	1	24	24	heated bed	https://www.a	htt	htt			384	24	1	y	0	384																		
16	1	24	24	bed thermistor - if not with bed	https://www.a					8.33	5	5	n	1	41.65																		
17	6	24	144	14 ga bed wires - if not with bed [27]	https://smile.a					16	100	2	y	56	32																		
18	1	24	24	extruder assembly [28]	http://www.eb					21	1	24	y	0	504																		
19	1	24	24	inductive sensor [30]	https://www.a	htt				105.73	24	1	n	0	105.73																		
20	2	24	48	end stops + wires	https://www.a	htt	htt			51.69	50	1	n	2	51.69																		
21	5	24	120	stepper motor wires	http://www.eb					115.66	120	1	y	0	115.66																		
22	1	24	24	30A 12V power supply	https://www.a					18.39	1	24	y	0	441.36																		
23	1	24	24	power cord	http://www.eb	htt				31.22	24	1	y	0	31.22																		
24	1	24	24	RAMPS + MEGA + drivers + USB [32	http://www.eb	htt				20	10		n		200																		
					http://www.eb					19	14				266																		
25	0.5 [34]	24	12	heat shrink [35]	http://www.eb	htt				10	100	0.2	y		2																		
26	1	24	24	solder	http://www.eb					5	12	2	y	0	10																		
27	1	24	24	5 minute JB Weld, 10 oz	https://smile.a					13.2	5	5	n	1	66																		
28	2	24	48	superglue, pack of 6 tubes	https://smile.a	htt				4.89	6	8	n	0	39.12																		
29	1	24	24	capton tape	http://www.eb					18	10	3	y	6	54																		
30	1	24	24	ceramic screwdriver	http://www.eb					22	24	1	y	0	22																		
														Total	7517.37																		
															313.223																		

[1] To 64469 zip code, central USA (Missouri location), assuming enough parts for 12 machine builds as the nominal working quantity

[2] To 64469 zip code, central USA (Missouri location), assuming enough parts for 12 machine builds as the nominal working quantity

[3] Includes shipping. Take the preferred supplier. Take price at MOQ. Assuming that MOQ is typically > Quantity Used for the on-demand production scenario, this implies keeping stock, and usage price should always be lower. Thus, this system works out at the quantity of a minimum of 12 items produced.

[4] Defined as (QUANTITY USED/MOQ)*PRICE

[5] 16" - 53
13" - 46

[6] 1 is replaced for chain on x
4 subtracted for long bolts on y
2 subtracted for platform on z
4 added for extruder holder
x=>5+5+4-1=> 13
y=>14x2-4=> 24
z=>5 + 5 + 4 - 2 => 12
extruder=> 4

[7] 16" - 56 - Nuts are 4 less than screws, as the extruder bolts are nutless

13" - 50 - 46 + 2 extruder holder + 2 nut catcher

[8] Add 4 nut catch for x
Subt. 4 for m6x30 on 2 y
Z has nut catch on platform, so add 2:
X => 14+4=>18
Y=>24
Z=>14

[9] 13" - only 3 because axis rides on top

[10] 1 on x for cable chain
2 per side attachment on y
2 for heated bed

[11] length in feet

13" - [8] 14.5 + [2] 4 = 10' 4"

[12] x axis - [2] 13-1/4" => 26.5"
y axis - [4] 15.5" rods, each => 62"
z axis - [2] 15.5" rods => 31"
Bed - [2] 8" rods => 16"
135.5 TOTAL = 11.3'
5/16" = 7.94 mm

[13] 8 mm is 2x as expensive as 5/16"

Got a sample of 12L14 steel as well

[14] in feet

[15] Total from Mcmaster is 1200.81 including $60 shipping.

[16] .5 Nm = 71 oz in

[17] inches

[18] x=> 25"
y=> 29x2 => 58"
z=> 29"
3" extra on each => +12"
TOTAL: 124"

[19] Got a backup of plain bearing for a printed snap-on flange - http://www.ebay.com/itm/182519711043

[20] Got 4 of these for 71.72 total

[21] x - 6 for quick tool mount
x - 6 for extruder mounting
y - 11 to frame ea => 22
z - 11 to frame
2 end stops - 4 ea => 8
cable chain => 4
ps + controller - 3 + 2 => 5
Parallel correction on y => 8

[22] Got these for the next workshop

11.29 for100= 191.93 tot

[23] See
http://opensourceecology.org/wiki/D3D_Frame

[24] Average price over 4 frame sizes

[25] 10 unique parts

[26] Cost of all 3DP parts. Printing is approximately half materials and half labor at $20/hr labor, assuming 1.5 hrs of dedicated operator time per machine

[27] Use wires also to connect RAMPS to power supply; Use 1.5m for each wire, braided works better so bed wiring is more flexible

[28] bought extra 0.4 mm nozzles - http://www.ebay.com/itm/10PCS-Brass-0-4mm-Extruder-Nozzle-Print-Head-for-MK8-Makerbot-Reprap-3D-Printer-/132113515791?hash=item1ec294450f:g:7B0AAOSwfVpYrq8q

[29] Paid $21 after discount from seller.

[30] see https://docs.google.com/presentation/d/1bMt2X194uzMdIY7OHXeFB-hfiEKt5HbUslcSjrCucSM/edit#slide=id.g2048a09854_0_6

[31] Ordered 24
on 4/5/17. Says 6-13 days for delivery.

Says 7 days order processing time.

[32] Mega only -https://www.amazon.com/gp/product/B01H4ZLZLQ/ref=oh_aui_detailpage_o04_s00?ie=UTF8&psc=1

[33] Counteroffer of 19 from flygoodly

[34] 6" per printer

[35] for connecting probe to plug, fan to plug

[36] 3 rolls only

[37] For 24 machines

Not including shipping for McMaster-Carr