KEY:	mechanical	3D printed	heat	electronics		Make sure bearings arrive in time.																													
ITEM NUMBER	QUANTITY NEEDED per machine	# machines	total needed	ITEM DESCRIPTION	REMEMBER TO SMILE	ORDERING LINK 1	2	3	4	5	PRICE EA 1	# units in price	# needed	Inventoried?	# 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	45 [5]	24	1080	m6x18 zinc plated socket screw [6]		https://www.m					7.46																								
2	62 [7]	24	1488	m6 zinc plated nut [8]		https://www.m					2.3																								
3	17 [9]	24	408	m6x30 socket screw [10]		https://www.m					9.14																								
	2.	24	48	m6x60 socket screw		https://www.m																													
4	20	24	480	m3x25 philips pan head screw		https://www.m					3.28																								
5	11.3 [11]	24	271.2	5/16" chrome rods or 8 mm rods [12]	42 rods from 3; 60 from 2	https://www.m	htt	htt			11.74				[14]																			
	4	24	96	3/8"-16 hex nuts for heat bed spacer	100	https://www.m																													
6	1	24	24	PEI surface, 8"x8"		https://www.m					36.76																								
				Double-sided tape																															
7	5+1	24		nema 17, 72 oz in stepper motors [16]	got 180 total	https://www.m	htt	htt	htt		8																								
8	20 [17]	24	480	8 mm linear bearing	got 400; 51 from Folgertech;.	http://www.eb	htt	htt	htt		50.99																								
9	150 for 14" m	24		GT2 belt, 6mm wide [19]	got 90 meters; 4 arrived by Tue, got 5 mo	https://smile.a	htt				9.5																								
10	5	24	120	GT2 pulley, 5mm bore, 6mm wide, 20 teeth	got 24 of 1 + 120 of 3 have 25	https://www.a	htt	htt			9.99																								
11	10	24	240	m6x12x4 flanged bearing	got 50 more for total of 24 printers	https://www.eb	[2	htt			16.01																								
12	28	24	672	3x12mm N52 magnets [22]	got 1000 more of 12x2 N52	http://www.eb	htt	htt			180																								
13	1	24	24	frame [24]	Seaman and						50 [25]																								
14	1	24	24	complete set of 3D Printed Parts [26]		OSE RepLab					50 [27]																								
15	1	24	24	heated bed	have 25	https://www.a	htt	htt			384																								
16	1	24	24	bed thermistor - if not with bed	got 25 - not arriving ; have 13; got 10 more	https://smile.a	htt				$1																								
17	6	24	144	14 ga bed wires - if not with bed [28]	got 200'	https://smile.a					16																								
				thin wires for extension if needed - ga 22	got 60m of double	https://smile.a																													
				Plexiglass, 18x24"	got 12 sheets of 12x12	https://smile.a	htt	htt			12	2				6																			
20	2	24	48	end stops + wires	**got 3 of 1, 2 of 2, 1 of 1**	https://www.a	htt	htt			51.69																								
21	**5**	**24**	**120**	**stepper motor wires**	**got 9 for >aug ; 30 of 2**	https://www.a	htt	htt			**115.66**																								
22	1	24	24	30A 12V power supply	got 36	https://smile.a	htt				18.39																								
23	1	24	24	power cord	got 24	http://www.eb	htt				31.22																								
24	1	24	24	RAMPS + MEGA + drivers + USB + LCD [29	24 of 1, and 5 of 4	https://www.e	htt	htt	htt	htt	28	https://w																							
				heat bed mosfet	got 28	https://smile.a					8					6																		
				zip ties for wire management	got 2	https://smile.a					8																								
25	0.5 [31]	24	12	heat shrink [32]	got 1 of 1 & 2	http://www.eb	htt	htt			10																								
26	1	24	24	solder	got 4	http://www.eb					5																								
28	2	24	48	superglue, pack of 6 tubes	got 48	https://smile.a	htt				4.89																								
29	1	24	24	capton tape	got 10 rolls	http://www.eb					18																								
30	1	24	24	ceramic screwdriver	got 18	http://www.eb					22																								
															Total	12 [34]																		

ITEM NUMBER	QUANTITY NEEDED per machine	ITEM DESCRIPTION	ORDERING LINK 1	2	3	PRICE EA 1	
1	53 [35]	m6x18 zinc plated socket screw [36]	https://www.n			7.46 for 50	8
2	56 [37]	m6 zinc plated nut [38]	https://www.n			2.3 for 100	1.5
3	12 [39]	m6x30 ss socket screw [40]	https://www.n			7.84 for 50	1.5
4	20	m3x25 philips pan head screw	https://www.n			3.44 for 100	0.7
5	10 [41]	5/16" chrome rods or 8 mm rods [42]	https://www.a	[4		$7 for 16"	$84
6	1	PEI surface, 8"x8"	https://www.n			36.76 for 12"x24	20 [45]
7	6	nema 17, 72 oz in stepper motors [46]	https://www.e			$7 with cable	42
8	20	8 mm linear bearing	http://www.eb	htt		$58 for 100	$12
9	150 for 14" m	GT2 belt, 6mm wide [48]	https://smile.a			$12 for 10m +2p	$5
10	5	GT2 pulley, 5mm bore, 6mm wide, 20 teeth	https://www.a		htt	$1.50	$7.50
11	10	m6x12x4 flanged bearing	http://www.eb	[5	htt	16.01 for 25	$7
12	70	3x12mm N52 magnets [51]	http://www.eb	htt	htt	20 cents	$6
13	1	frame [53]	Seaman and			50 [54]	50
14	1	complete set of 3D Printed Parts [55]	OSE RepLab			50 [56]	50
15	1	heated bed	https://smile.a			16	16
16	1	bed thermistor - if not with bed	https://smile.a			$2	$2
17	6	14 ga bed wires - if not with bed [57]	https://smile.a			0.5	0.5
		Plexiglass, 12"x12"	https://smile.a			13.5 for 12x24	$7
20	2	end stops + wires	https://www.e	htt	htt	$7 for 6	2.5
22	1	30A 12V power supply	https://smile.a	htt		18	18
23	1	power cord	http://www.eb	htt		12 for 19	1.5
24	1	RAMPS + MEGA + drivers + USB + LCD [58	https://www.e			28.5	28.5
		heat bed mosfet	https://smile.a			4.5	4.5
		zip ties for wire management	https://smile.a			$8 for 500	$0.80
25	0.5 [59]	heat shrink [60]	http://www.eb	htt	htt	$10 for 100'	$0.20
26	1	solder	http://www.eb			$5.25 for 100g	$0.50
28	2	superglue, pack of 6 tubes	https://smile.a	htt		$4 for 6	0.75
29	1	capton tape	http://www.eb			$24 for 10 rolls	0.5
30	1	ceramic screwdriver	http://www.eb			$0.75	$0.75
						TOTAL	379.2

[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

12 rods per machine. 5 rods per stick.

For 24 machines, need 288 rods.

14" - need 6 rods for z of 1214 - 84" per machine - 1 stick+ or 24 sticks for 24 machines. 30 for extra.

and need 6 rods for xy of hard - or 120 rods for 20 or 60 sets from Amazon

chrome and crap for bed

[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] 12 per machine; need 240 total

[18] inches

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

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

[21] Got 4 of these for 71.72 total

[22] 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

[23] Got these for the next workshop

11.29 for100= 191.93 tot

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

[25] Average price over 4 frame sizes

[26] 10 unique parts + new extruder holder that includes cooling fan

[27] 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

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

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

[30] Counteroffer of 19 from flygoodly

[31] 6" per printer

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

[33] 3 rolls only

[34] For 24 machines

Not including shipping for McMaster-Carr

[35] 16" - 53
13" - 46

[36] 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

[37] 16" - 56 - Nuts are 4 less than screws, as the extruder bolts are nutless

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

[38] 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

[39] 13" - only 3 because axis rides on top

[40] 1 on x for cable chain
2 per side attachment on y
2 for heated bed

[41] length in feet

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

[42] 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

[43] Precision ground, $15 for 6 feet

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

[45] including $8 for ship overall McMaster

[46] .5 Nm = 71 oz in

[47] inches

[48] x=> 25"
y=> 29x2 => 58"

z=> 29"
3" extra on each => +12"
TOTAL: 124"

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

[50] Got 4 of these for 71.72 total

[51] 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

[52] Got these for the next workshop

11.29 for100= 191.93 tot

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

[54] over 16, 14, 12. 10 and 8 are not counted here. If count 10 and 8, then it's under $15.

[55] 10 unique parts + new extruder holder that includes cooling fan

[56] 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

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

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

[59] 6" per printer

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

[61] 3 rolls only