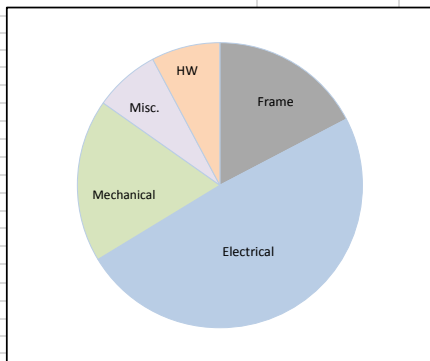


	Item	Source	Qty.	Unit Cost	Ext. Cost	Link	Comments	Additional Comments	
Frame	V Slot Extrusion	Open Builds Store					Frame sized for 200x300mm bed and 320mm print height	OpenBuilds occasionally has free shipping weekends	
	- 20x20x1500mm	Open Builds Store	2	\$15.00	\$30.00	<a href="#">V Slot Linear Rail</a>			
	- 20x40x1500mm	Open Builds Store	2	\$19.50	\$39.00	<a href="#">V Slot Linear Rail</a>			
	- 20x40x1000mm	Open Builds Store	2	\$13.00	\$26.00	<a href="#">V Slot Linear Rail</a>			
Electrical	E3D v6 Hot End 1.75 w/ Bowden extras	Filastruder	1	\$78.89	\$78.89	<a href="#">1.75 E3D v6 w/bowden extras</a>	E3Dv6 with bowden tube and coupling	For half the cost, E3D v6 lite would work well for PLA, PETG, ABS (any plastic below 245c)	
	Nema 17 Stepper Motor	AutomationDirect	5	\$11.26	\$56.30	<a href="#">Stepper Motor</a>			
	12V/30A Power Supply	Amazon	1	\$23.97	\$23.97	<a href="#">Power Supply</a>			
	Ramps 1.4 Kit	Ebay	1	\$32.00	\$32.00	<a href="#">Ramps 1.4 kit</a>			
	Heated Bed	Ebay	1	\$29.20	\$29.20	<a href="#">PCB Heated Bed</a>	200mmx300mm (~8"x12") 12v	This heated bed works for 60C but it has difficulty maintaining 100C. Consider alternative if printing ABS. Don't confuse with the SS AC relay, they look similar, read the label	
	Solid State DC Relay	Amazon	1	\$11.58	\$11.58	<a href="#">SSR DC DC Relay</a>	Solid State AC relay will not work with a DC load		
	100k 3950 Thermistor for bed	Ebay	1	\$1.00	\$1.00	<a href="#">3950 Thermistor</a>	For heated bed temperature feedback	<a href="#">Alternate Thermistor 10pk</a>	
	Endstop 3 pack, v1.2	Ebay	1	\$4.49	\$4.49	<a href="#">Endstop Pack</a>	3 pack		
	40mm cooling fans	Amazon	2	\$2.04	\$4.08	<a href="#">40mm fan</a>	Ducted print fan and Ramps board cooling		
	Alternate fan for E3Dv6 heatsink	Digi-key	1			<a href="#">30mm Fan</a>	Optional, Alternate quieter fan for the E3D V6 heatsink		
	2.54mm Connector kit	Ebay	1	\$3.00	\$3.00	<a href="#">2.54 Connector Pins</a>	For 1, 2, 3, 4 pin connections to Ramps board headers	Requires a HT-225D type crimping tool, or careful soldering of wire to each pin	
	XH2.54 Connector Kit	Ebay	1	\$2.00	\$2.00	<a href="#">XH2.54 4 Pin Connectors</a>	To plug into the three endstop jacks	Requires a HT-225D type crimping tool, or careful soldering of wire to each pin	
	Wire	Various	1	\$10.00	\$10.00		22awg wire for motors, endstops, fans, thermistors.	14awg wire for heated bed and Ramps supply	
	Receptacle/Switch for 120v power	Amazon	1	\$4.05	\$4.05	<a href="#">IEC320 Male Jack with Switch</a>	Optional, also needs a 5A fuse	<a href="#">5A Fuse</a>	
	12v 5050 LED Strip ~45"	Amazon	1	\$8.00	\$8.00	<a href="#">5m 5050 LED Strip</a>	Optional	<a href="#">Optional controller w/ remote, LED strip can also be connected directly to 12v supply</a>	
	Mechanical	V-Slot Mini V Wheel	Open Builds Store	20	\$0.50	\$17.95	<a href="#">Mini V Wheel</a>	Select the 20pk for a price break	
MR105ZZ 5mmx10mmx4mm bearings		Ebay	40	\$0.38	\$15.00	<a href="#">Wheel Bearings 10pk</a>	Need 40, order 4x 10pk		
F623ZZ Flange Bearing 3x10x4mm		Ebay	16	\$0.79	\$12.58	<a href="#">Flanged Bearing</a>	Need 16, order 2x 10pk		
625ZZ Bearing		Ebay	1	\$1.98	\$1.98	<a href="#">625ZZ Bearing</a>	For Extruder		
8mm lead Screw, 400 mm		Ebay	2	\$13.23	\$26.46	<a href="#">Lead Screw</a>	Comes with nut		
5mm x 8mm Flex Coupling		Ebay	2	\$2.50	\$5.00	<a href="#">Flex Coupling</a>	Order 2pk		
Kit, 2 GT2 Pulley and 2m GT2 belt		Ebay	1	\$11.99	\$11.99	<a href="#">Pulleys and Belt</a>	Comes with (2) GT2 16t Pulley and (1) 2m GT2 Belt		
GT2 Belt, 2m		Ebay	1	\$8.00	\$8.00	<a href="#">GT2 Belt</a>	GT2 belt cut to length, 2m (~7ft)	Total of 2x2m belts needed	
1.75mm MK8 drive pulley		Ebay	1	\$2.29	\$2.29	<a href="#">1.75mm MK8 Pulley</a>			
Spring Kit		Home Depot	1	\$2.00	\$2.00	<a href="#">Spring Kit</a>	Four bed leveling springs and one extruder tensioner spring		
Misc.	Glass to match heated bed	Hardware Store	1	\$6.00	\$6.00		Size to fit onto the heated bed PCB		
	Binder clips	Desk Drawer	8	\$0.10	\$0.80	<a href="#">Binder Clips</a>	Raid your local office supply cabinet or desk drawer		
	Thermal adhesive	Amazon	1	\$2.00	\$2.00	<a href="#">For heatsinks, thermistors</a>			
	Rubber Feet	Amazon	4	\$0.50	\$2.00	<a href="#">Rubber Feet</a>	Need 4, ordered 5pk		
	Insulation for bottom of bed	Amazon	1	\$2.00	\$2.00	<a href="#">Corkboard</a>	Optional, Attach corkboard to bottom of heated bed with JBWeld		
	Wire Spiral Wrap, 3m	Amazon	1	\$3.00	\$3.00	<a href="#">Wiring Tube</a>	Optional, For wire management		
	PLA Spool, 1kg	Amazon	1	\$22.98	\$22.98	<a href="#">Hatchbox 1.75mm Green</a>	At least one spool is needed to print all parts		
	Hardware	M3 Socket Bolt, 8mm	MrMetric	31	\$0.07	\$2.17	<a href="#">M3 x 8mm Bolt</a>		
		M3 Socket Bolt, 10mm	MrMetric	9	\$0.07	\$0.63	<a href="#">M3 x 10mm Bolt</a>		
		M3 Socket Bolt, 20mm	MrMetric	13	\$0.11	\$1.43	<a href="#">M3 x 20mm Bolt</a>		
M3 Socket Bolt, 25mm		MrMetric	15	\$0.18	\$2.70	<a href="#">M3 x 25mm Bolt</a>			
M3 Nut		MrMetric	30	\$0.02	\$0.60	<a href="#">M3 Nut</a>			
M3 Nyloc Nut		MrMetric	17	\$0.02	\$0.34	<a href="#">M3 Nylock Nut</a>			
M3 Washer		MrMetric	78	\$0.03	\$2.34	<a href="#">M3 Washer</a>			
M4 Bolt, 30mm		MrMetric	4	\$0.14	\$0.56	<a href="#">M4 x 30mm Bolt</a>			
M4 washer		MrMetric	4	\$0.01	\$0.04	<a href="#">M4 Washer</a>			
M5 Socket Bolt, 10mm		MrMetric	196	\$0.08	\$15.68	<a href="#">M5 x 10mm Bolt</a>			
M5 Socket Bolt, 12mm		MrMetric	1	\$0.17	\$0.17	<a href="#">M5 x 12mm Bolt</a>			
M5 Socket Bolt, 20mm		MrMetric	1	\$0.14	\$0.14	<a href="#">M5 x 20mm Bolt</a>			
M5 Socket Bolt, 40mm		MrMetric	22	\$0.20	\$4.40	<a href="#">M5 x 40mm Bolt</a>			
M5 Socket Bolt, 75mm		MrMetric	1	\$0.46	\$0.46	<a href="#">M5 x 75mm Bolt</a>			
M5 Nut		MrMetric	9	\$0.03	\$0.27	<a href="#">M5 Nut</a>			
M5 Nyloc Nut	MrMetric	14	\$0.07	\$0.98	<a href="#">M5 Nylock Nut</a>				
M5 Square Nut	MrMetric	185	\$0.04	\$7.40	<a href="#">M5 Square Nut</a>	The equivalent amount of OpenBuilds T-nuts is \$40.	Square nuts are used instead because they are much cheaper and function nearly the same.		
M5 Washer	MrMetric	205	\$0.01	\$2.05	<a href="#">M5 Washer</a>				
M5 Washer 15mm OD	MrMetric	2	\$0.03	\$0.06	<a href="#">M5 Washer 15mm OD</a>				
M5 Phillips Flathead Bolt, 8mm	MrMetric	2	\$0.16	\$0.32	<a href="#">M5 x 8mm Phillips Flathead</a>	Optional, for printed cable chain ends			

See sheet two for hardware detail

These are all *minimum* quantities, order extra if needed.



\$95.00	Frame Total
\$268.56	Electrical Parts Total
\$101.25	Mechanical Parts Total
\$40.78	Miscellaneous Parts Total
\$42.74	Hardware Total
<b>\$548.33</b>	<b>Grand Total</b>

	Qty	Type	Diameter	Length	Application Notes																																																																																																																												
<b>Frame</b>	196	Bolt	M5	10mm	See subtotal box ----->	<b>Frame (Plastic bolted to Vslot)</b>																																																																																																																											
	182	Square Nut	M5		Less 14 for M5 tapped mounts	50	3x3 Plates (5 Ea.)																																																																																																																										
	179	Washer	M5		Less 17 for countersunk mounts	28	Corner brackets (2 Ea.)																																																																																																																										
<b>Wheel Axles</b>	20	Bolt	M5	40mm		24	Rear XY Idlers (12 ea.)																																																																																																																										
	12	Nyloc Nut	M5		H Bar Ends and print carriage	20	X/Y Motor Mounts (10 Ea.)																																																																																																																										
	8	Nut	M5		Z wheels	12	Z guides (3 Ea.)																																																																																																																										
	24	Washer	M5		2 per axle, none on Z axles	12	Heated Bed Brackets (3 Ea.)																																																																																																																										
<b>Extruder</b>	1	Bolt	M5	40mm	Spring Loaded Flange	10	Miscellaneous/ Future																																																																																																																										
	1	Bolt	M5	12mm	625zz Bearing Mount	8	Lead Screw Brackets (4 Ea.)																																																																																																																										
	1	Nut	M5		Spring Loaded Flange	8	H Bar Ends (4 Ea.)																																																																																																																										
	1	Nylock Nut	M5		625zz Bearing Mount	8	Z motor mounts ( 4 ea.)																																																																																																																										
	2	Washer	M5		Spring Loaded Flange	6	End stop mounting (2 Ea.)																																																																																																																										
<b>Cable Chain</b>	2	Bolt, Phillips Flat	M5	8mm	Cable chain ends	6	2x1 Plates (3 ea.)																																																																																																																										
	2	Square Nut	M5			2	Power Switch Mount																																																																																																																										
<b>Spool Holder</b>	1	Bolt	M5	75mm	Sized for 1kg spool	2	Extruder																																																																																																																										
	1	Square Nut	M5			<b>196</b>	<b>Subtotal</b>																																																																																																																										
	1	Nylock Nut	M5																																																																																																																														
	2	Washer 15mm OD	M5																																																																																																																														
<b>Endstops</b>	1	Bolt	M5	40mm	Z actuator																																																																																																																												
	1	Bolt	M5	20mm	Y actuator																																																																																																																												
	1	Bolt	M3	25mm	X actuator																																																																																																																												
	6	Bolt	M3	8mm	Endstop Mounting																																																																																																																												
	6	Nut	M3																																																																																																																														
<b>Idler Bearings</b>	8	Washer	M3		4 for X, 2 for Y, 2 for Z																																																																																																																												
	8	Bolt	M3	25mm																																																																																																																													
	4	Nyloc Nut	M3		H Bar End idlers																																																																																																																												
	4	Nut	M3		Rear XY idlers																																																																																																																												
<b>Print Carriage</b>	16	Washer	M3		For H Bar idlers/ in between flanged bearings																																																																																																																												
	4	Bolt	M3	8mm	Hot end clamp top, Tube holder																																																																																																																												
	8	Bolt	M3	10mm	Belt Clamps																																																																																																																												
	2	Bolt	M3	25mm	Hot End Clamp bottom																																																																																																																												
	14	Nut	M3																																																																																																																														
<b>Print bed</b>	14	Washer	M3																																																																																																																														
	4	Bolt	M3	25mm	Bed leveling																																																																																																																												
	8	Bolt	M3	20mm	Lead Screw Nut Mounts																																																																																																																												
	4	Nut	M3		Bed leveling																																																																																																																												
	8	Nyloc Nut	M3		Lead Screw Nut Mount																																																																																																																												
<b>Motor Mounts</b>	16	Washer	M3		Bed leveling, lead screw mounts																																																																																																																												
	19	Bolt	M3	8mm																																																																																																																													
	1	Bolt	M3	10mm	Extruder tensioner flange hole																																																																																																																												
	16	Washer	M3		Extruder motor bolts do not need washers																																																																																																																												
<b>Print Fan</b>	5	Bolt	M3	20mm	Fan to duct mounting, Fan Swivel																																																																																																																												
	2	Bolt	M3	8mm	Mount to print carriage																																																																																																																												
	2	Nut	M3		Mount to print carriage																																																																																																																												
	5	Nylock Nut	M3		Fan Mounting, Fan Swivel																																																																																																																												
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<b>Power Supply</b>	4	Bolt	M4	30mm	Power Supply Clamps																																																																																																																												
	4	Washer	M4																																																																																																																														
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