

M4 extrusion nut	8		
M3 extrusion nut	2		
Misc:			
Nema17 stepper motor 40mm body 150mm threaded shaft	1	Robodigg	
Robodigg Tr8x8 nut	1		Included with shafted motor
habo5002 circular hook M4x30	2		
LHFC8 (Misumi)	2		
Misumi SCCN8-6 shaft collar	6		
Misumi SMK85-30 spacer 30x5mm	8		
spring2	1		Custom part but not special, any springy thing pushing the tube sideways will do
solenoid valve	1	Scoocom	144 units minimum. Any 3-way valve (one that connects outside air pressure to needle tip in off position) should do
Inventables 25312-13 #12 al spacer 0.25 in 6.35mm	2		
Misumi SCCN10-10 shaft collar	3		
Misumi HBLTSW5 bracket thick, 90deg, double screws	5		
NEMA14 stepper motor 14HM08-0504S	1		or equivalent. 1.8deg./step o
endoscope	2	eBay	
GT2 pulley, 20teeth, 5mm bore	1	Inventables, Robodigg	
GT2 belt loop, 4mm, 60 teeth	1	Misumi	gbn1202gt-40
GT2 pulley, 36teeth, 8mm bore	1	Robodigg	
A120 vacuum pump	1	Qingdao Ahead	200 units minimum. Any vacuum pump should do. I used Aoyue 932 at some point.
Misumi HBLSS5 thin bracket	7		
Inventables 25312-17 #12 al spacer 0.625 in 15.875mm	2		
GT2 pulley, 20 teeth, 8mm bore	2	Robodigg	
steel tube, 8mm outer dia, 815mm	1		
coupler 20x25mm 5mm to 8mm	1		
STD30NF06L FET	2	Farnell	
Inventables 25312-16 #12 al spacer 0.5 in 12.7mm	8		
608ZZ flanged bearing	5		
M8 nylon washer	3	Farnell	
Misumi HTJ5 self-tapping screw	30		
Misumi HBLSD5 thin bracket	2		
Rubber mount BGOMA12160 (Misumi)	3		
Misumi FFS102 r14 pipe fixing	1		
GT2 pulley, 16teeth, 5mm bore	1	Robodigg	
Misumi WSSB10-3-3 washer 3mm x 3mm x 10mm	2		
SK10 support for 10mm rail	2	Aliexpress	
NEMA17 stepper motor 17HM19-2004S	2		or equivalent, 0.9 deg. / step

