

**Items like screws, belts and bearings can be bought locally or from many other vendors.**

	<b>Screws and nuts:</b>			
	<b>diameter , length</b>	<b>quantity</b>	<b>Description</b>	<b>Link</b>
	M4x10mm	20	DIN 912 / ISO 4762 (hexagon socket head cap)	
	M3x8mm	10	2 mm head height	
	M3x8mm	50	DIN 912 / ISO 4762 (hexagon socket head cap)	
	M3x14mm	30	DIN 912 / ISO 4762 (hexagon socket head cap)	
	M3 nut	10	DIN 912 / ISO 4762 (hexagon socket head cap)	
	M3x25mm	10	DIN 912 / ISO 4762 (hexagon socket head cap)	
	M2x10mm	10	DIN 912 / ISO 4762 (hexagon socket head cap)	
	M3x16mm	10	DIN 912 / ISO 4762 (hexagon socket head cap)	
	M3x6mm	10	Pan head phillips	
	M3x12mm	30	DIN 912 / ISO 4762 (hexagon socket head cap)	
	M3x35mm	10	DIN 912 / ISO 4762 (hexagon socket head cap)	
	M4x16mm	30	DIN 912 / ISO 4762 (hexagon socket head cap)	
	M4x14mm	10	DIN 912 / ISO 4762 (hexagon socket head cap)	
	M4x50mm	10	DIN 912 / ISO 4762 (hexagon socket head cap)	
	M3x15mm	2	Tapered screw head	
	<b>Gearboxes:</b>			
<b>Name in building instructions</b>	<b>Type</b>	<b>quantity</b>	<b>Description</b>	<b>Link</b>
<b>For cheaper gearbox options you can use MG series planetary gearboxes. They have bigger backlash but are cheaper.</b>			<a href="#">Link</a>	<a href="#">Aliexpress Link</a>
Gearbox 20:1	Nema 17 20:1 EG precision planetary	2	<a href="#">Link</a>	<a href="#">Aliexpress Link</a>
Gearbox 10:1	Nema 17 10:1 EG precision planetary	1	<a href="#">Link</a>	<a href="#">Aliexpress Link</a>
	<b>Motors:</b>			
<b>Name in building instructions</b>	<b>Type</b>	<b>quantity</b>	<b>Description</b>	<b>Link</b>
Stepper 1	Nema 17 16Ncm,42x42x20mm	1	<a href="#">Link</a>	<a href="#">Aliexpress Link</a>
Stepper 2	Nema 17 45Ncm,42x42x40mm	3	<a href="#">Link</a>	<a href="#">Aliexpress Link</a>
Stepper 3	Nema 17 65Ncm,42x42x60mm	2	<a href="#">Link</a>	<a href="#">Aliexpress Link</a>
	<b>Belts:</b>			
<b>Name in building instructions</b>	<b>Type</b>	<b>quantity</b>	<b>Description</b>	<b>Link</b>
Joint 1 belt	HTD3 396	1	6 mm width	<a href="#">Link</a>
Joint 3 belt	HTD3 342	1	6 mm width	<a href="#">Link</a>
Joint 4 belt	HTD3 201	1	6 mm width	<a href="#">Link</a>
Joint 5 belt	HTD3 246	1	6 mm width	<a href="#">Link</a>
	<b>Pulleys:</b>			
<b>Name in building instructions</b>	<b>Type</b>	<b>quantity</b>	<b>Description</b>	<b>Link</b>
J4 pulley, J5 pulley	HTD3M 12 tooth 5mm bore 10mm width	2		<a href="#">Link</a>
J1 pulley	HTD3M 15 tooth 5mm bore 10mm width	1		<a href="#">Link</a>
	<b>Mechanical stuff:</b>			
<b>Name in building instructions</b>	<b>Type</b>	<b>quantity</b>	<b>Description</b>	<b>Link</b>
Shaft coupler	Shaft coupler	3	8 mm hole shaft, M4 screw holes	<a href="#">Link</a>
	<b>Bearings:</b>			
<b>Name in building instructions</b>	<b>Type</b>	<b>quantity</b>	<b>Description</b>	<b>Link</b>
Bearing 1	AXK3552	1	35X52X4, needs to have top and bottom plate	<a href="#">Link</a>
Bearing 2	NSK HR32906J	5	Joint 5, 4 and 3	<a href="#">Link</a>
Bearing 3	NSK HR32907J	4	Joint 1 and 2	<a href="#">Link</a>
Tension bearing	Ball bearing 3x8x4	20	Used for belt tension	<a href="#">Link</a>
Tension bearing	Ball bearing 3x10x4	20	Used for belt tension	<a href="#">Link</a>
	<b>Electronics:</b>			
<b>Name in building instructions</b>	<b>Type</b>	<b>quantity</b>	<b>Description</b>	<b>Link</b>

	PAROL control board	1	<a href="http://source-robotics.com">source-robotics.com</a>	<a href="#">Link</a>
	TMC5160	6	<a href="#">Drivers from the links are tested. Use any other at own risk.</a> <a href="#">Link1</a>	<a href="#">Link2</a>
	Thermal paste	2	<b>Needed only if your control board has no drivers!</b>	<a href="#">Link</a>
	On/Off button	1	12mm 3-6V	<a href="#">Link</a>
	JST PH 2.0mm 200mm 4PIN	1	For power button	<a href="#">Link</a>
	Noctua NF-A4x20 5V 40mm	1		
	Power connector - male + female	1	GX16 2PIN	<a href="#">Link</a>
	Gripper connector (electric)	1	M8 sensor Female 4 pin	<a href="#">Link</a>
	Power supply	1	<a href="#">Any 24V 5A supply</a>	<a href="#">Link</a>
	Limit switches	3	Type ZW12-3	<a href="#">Link</a>
	Inductive sensor 1	1	<a href="#">4mm NPN NO - alternative link</a>	<a href="#">Link</a>
	Inductive sensor 2	1	GX-F8A	<a href="#">Link</a>
	Inductive sensor 3	1	<a href="#">M5, NPN NO - alternative link</a>	<a href="#">Link</a>
	Estop	1	Any NC estop	<a href="#">Link</a>
	Cable gland for estop	1	PG7 type	<a href="#">Link</a>
	M3 brass insert	4	M3, 6mm lenght	<a href="#">Link</a>
	Pneumatic connector - robot	4	4 mm type PM	<a href="#">Link</a>
	Pneumatic Gripper	1	MHZ2-16D	<a href="#">Link</a>
	Pneumatic gripper connector	2	PC4 - M5	<a href="#">Link</a>
	Pneumatic tube	5 meters	1 meter, 4x2.5mm	<a href="#">Link</a>
	xt30 connector female	1	used to deliver power to PAROL6 PCB	<a href="#">Link</a>
	Stlink	1	Use link! Pin order needs to be: SWCLK,SWDIO,GND,3V3,5V	<a href="#">Link</a>
	USB B cable	1	Comms to the PC	
	5/2 solenoid air valve	1	4mm tube connectors, 5/2, 24V	<a href="#">Link</a>
	<b>Vacuum gripper</b>			
<b>Name in building instructions</b>	<b>Type</b>	<b>quantity</b>	<b>Description</b>	<b>Link</b>
	Suction cup gripper	1		<a href="#">Link</a>
	Vacuum generator	1		<a href="#">Link</a>
	4mm to 6mm coupler	1		<a href="#">Link</a>