

Bill of materials

Item	Dimensions	Amount	Item-No.	Unit price [€]	Source [link]	Comment
Distribution unit						
Compression spring	111 [N]	1	5932A	3.07	http://shop.biegex.de/product_info.php?info=p1365_5932a---druckfeder.html	
Shaft seal	12 x 18 x 3 [mm]	1	435012018032	1.83	https://www.hug-technik.com/shop/product_info.php?info=p8006_wellendichtring-12-18-3-typ-a-of-ri-nbr.html	
O-ring	5 x 1 [mm]	4	4300500100	0.30	https://www.hug-technik.com/shop/product_info.php?info=p2343_praezisions-o-ring-5-00-x-1-00-mm-nbr70.html	
O-ring	22 x 3 [mm]	1	4302200300	0.63	https://www.hug-technik.com/shop/product_info.php?info=p2640_praezisions-o-ring-22-00-x-3-00-mm-nbr70.html	
O-ring	56 x 1.5 [mm]	1	4305600150	1.20	https://www.hug-technik.com/shop/product_info.php?info=p20467_praezisions-o-ring-56-00-x-1-50-mm-nbr70.html	
O-ring	85 x 3 [mm]	1	4308500300	1.70	https://www.hug-technik.com/shop/product_info.php?info=p3209_praezisions-o-ring-85-00-x-3-00-mm-nbr70.html	
O-ring	34 x 2 [mm]	1	4303400200	0.77	https://www.hug-technik.com/shop/product_info.php?info=p2779_praezisions-o-ring-34-00-x-2-00-mm-nbr70.html	
Stepper motor	77:1 Gearbox	1	PHI-3334_0	88.90	https://www.phidgets.com/?tier=3&catid=24&pcid=21&prodid=353	
Electronic cable, PUR, shielded ¹	1 [m]	1	PUR 4X0,5 5	15.70	https://www.reichelt.de/PUR-cables/PUR-4X0-5-5/3/index.html?ACTION=3&LA=446&ARTICLE=150341&GROUPID=7697&artnr=PUR+4X0%2C5+5&SEARCH=PUR%2B4X0%252C5%2B5&trstct=pos_0	
Butt connector	0.5–1.0 [mm²]	5	STV-R	0.04	https://www.reichelt.de/Flat-Plugs/STV-R/3/index.html?ACTION=3&LA=446&ARTICLE=19836&GROUPID=7475&artnr=STV-R&SEARCH=STV-R&trstct=pos_0	
Round connector	4-pin, IP68	1	LUM 0332-04	6.10	https://www.reichelt.de/Circular-Connectors/LUM-0332-04/3/index.html?ACTION=3&LA=446&ARTICLE=116121&GROUPID=7506&artnr=LUM+0332-04&SEARCH=LUM%2B0332-04&trstct=pos_0	
Self-adhesive seal (neoprene rubber, CR)	121 x 121 x 2 [mm]	1	n.a.	1.20	https://www.fugendichtband24.de/Neopren-Zellkautschuk-Matten-2mm-Staerke-einseitig-selbstklebend-diverse-Abmessungen.htm	see technical drawings
PTFE sheet for rotor	121 x 121 x 15 [mm]	1	PTFEPLATTE15	15.81	https://www.duelplast.de/PTFE-Platten-15mm.html	
PVC-U sheet for stator	121 x 121 x 15 [mm]	1	PVCPLATTE15	2.55	https://www.duelplast.de/PVC-Platten-15mm.html	see technical drawings
PVC-U sheet for motor housing lid	100 x 100 x 25 [mm]	1	PVCPLATTE25	2.90	https://www.duelplast.de/PVC-Platten-25mm.html	
Straight push-in fitting	M7, 6 [mm]	38	IQSM M76 I	1.56	https://www.landefeld.de/cgi/main.cgi?DISPLAY=suche&filter_suche_suchstring=IQSM+M76+I&search-submit=Suchen	
SNAP cable grommet	PG9, IP66/67	1	KAB SNAP 9	0.59	https://www.reichelt.de/Cable-Feedthrough/KAB-SNAP-9/3/index.html?ACTION=3&LA=446&ARTICLE=53633&GROUPID=5744&artnr=KAB+SNAP+9&SEARCH=KAB%2BSNAP%2B9&trstct=pos_0	
Bottles and related components						
HDPE wide mouth bottles	500 [mL]	18	7696145	4.77	https://www.thgeyer-lab.com/fileadmin/user_upload/LLG-VMGE-Katalog-PDFs/2018-2020/DE/ThGeyer_Catalogue_2018_DE_74.pdf	
SNAP cable grommet	PG9, IP66/67	36	KAB SNAP 9	0.59	https://www.reichelt.de/Cable-Feedthrough/KAB-SNAP-9/3/index.html?ACTION=3&LA=446&ARTICLE=53633&GROUPID=5744&artnr=KAB+SNAP+9&SEARCH=KAB%2BSNAP%2B9&trstct=pos_0	
LDPE tubing	6 x 4 [mm], 1 [m]	36	9.205 465	1.30	https://shop.haeberle-lab.de/info1074_lang_EN.htm?UID=55005acd0b8d000000000000	exact length depends on box design
Control unit						
Booster pack driver		1	296-38354-ND	24.18	https://www.digikey.de/products/en?keywords=296-38354-ND	
Development board		1	296-42080-ND	16.00	https://www.digikey.de/products/en?keywords=296-42080-ND	
Battery holder	2 Mignon (AA)	1	SBH321AS	1.79	https://www.digikey.de/products/en?keywords=SBH321AS	
Battery holder	8 Mignon (AA)	1	BH28AAW	1.79	https://www.digikey.de/products/en?keywords=BH28AAW	
Prototyping circuit board	160 x 100 [mm]	1	529593 - 62	3.60	https://www.conrad.com/ce/en/product/529593/?insert=62&insertNoDeeplink&productname=WR-Rademacher-VK-C-811-5-Solder-Point-Grid-Plate-L-x-W-160-mm-x-100-mm-HP	
Incremental encoder		1	447177 - 62	4.39	https://www.conrad.com/ce/en/product/447177/?insert=62&insertNoDeeplink&productname=Encoder-----Switch-positions-24----360----Bourns	
Rocker switch		1	WS R13-244 A	1.15	https://www.reichelt.de/Switches-Rocker/WS-R13-244-A/3/index.html?ACTION=3&LA=446&ARTICLE=105450&GROUPID=7596&artnr=WS+R13-244+A&SEARCH=WS%2BR13-244%2BA&trstct=pos_0	
Enclosure	202 x 122 x 75 [mm]	1	534551 - 62	29.47	https://www.conrad.com/ce/en/product/534551/?insert=62&insertNoDeeplink&productname=Build-in-casing----202-x-122-x-75----Polycarbonate-PC----Light-grey-RAL-7035	
Panel-mounted coupler	4-pin, IP68	1	LUM 0305-04	3.99	https://www.reichelt.de/Circular-Connectors/LUM-0305-04/3/index.html?ACTION=3&LA=446&ARTICLE=116139&GROUPID=7506&artnr=LUM+0305-04&SEARCH=LUM%2B0305-04&trstct=pos_0	
Stranded wire ¹	1 x 0.50 [mm²], 1 [m]	1	605628 - 62	5.00	https://www.conrad.com/de/litze-liy-1-x-050-mm-schwarz-conrad-components-605628-10-m-605628.html?insert=62	
Pin header	2 x 10 [pin]	2	1401857 - 62	1.00	https://www.conrad.com/ce/en/product/1401857/?insert=62&insertNoDeeplink&productname=Pin-strip-standard-No-of-rows-2-Pins-per-row-10-FCI-77313-118-20LF-1-pcs	
Fillister head screws	M4 30mm	1	145925 - 62	11.99	https://www.conrad.com/ce/en/product/145925/Fillister-head-screws----M4----30-mm----Phillips----NA	
Spacer	M4 20mm	4	526460 - 62	0.80	https://www.conrad.com/ce/en/product/526460/Spacer-wo-thread-M4-Polystyrene-Distance-20-mm?queryFromSuggest=true	
Miscellaneous						
Euro Container with hinge lid	80 x 60 x 43.5 [cm]	1	ED 86/42 HG	51.00	https://www.auer-packaging.com/de/de/Eurobeh%C3%A4lter-mit-Scharnierdeckel/ED-8642-HG.html?color=7001	
Straight push-in fitting	R 1/2 [inch], 6 [mm]	1	IQSG 126	2.85	https://www.landefeld.de/artikel/en/straight-push-in-fitting-r-12mm-6mm-iqs-standard/IQSG-126	for funnel connection
Installation key tool		1	733307 - 62	6.99	https://www.conrad.com/ce/en/product/733307/Installation-key-tool-Lumberg-0380-Black-1-pcs?queryFromSuggest=true	

¹ only 1 [m] required

Note: Selected parts that we suggest to purchase from a local hardware store (screws, steel pipes) are not listed here.