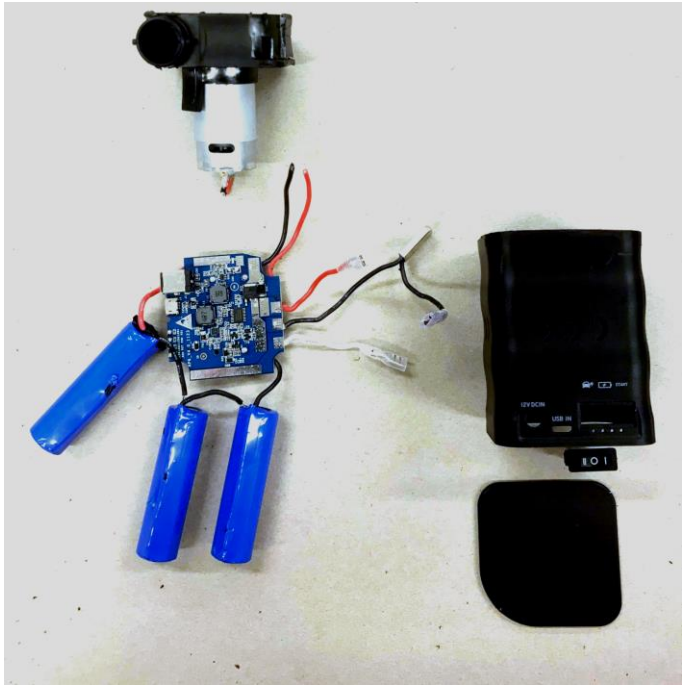
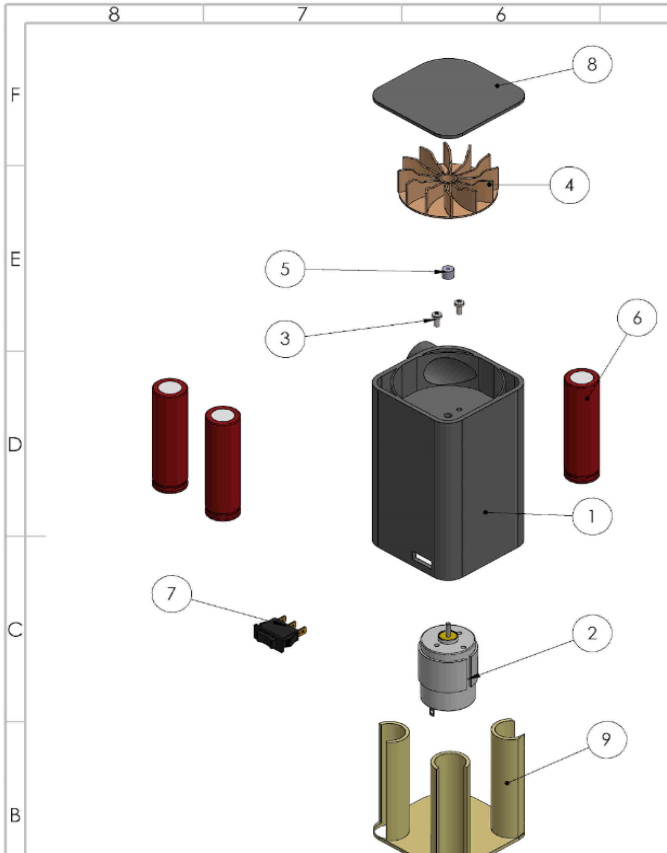
START OF TECHNICAL SLIDES



Bill of materials and blown up view

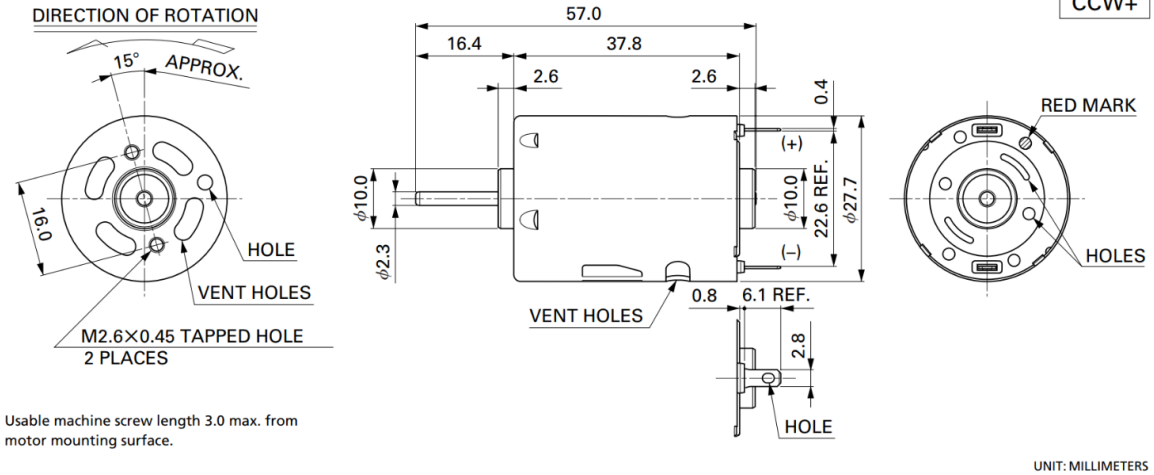
This is a breakdown of all the components in the MorPilot air pump. A bill of Materials is included here as well.

NOTE that this blown up image is in the drive separately.



ITEM NO.	PART NUMBER	DESCRIPTION	mate
1	Main body	Outer shell of the whole air blower	
2	Mabuchi RS-385Sh-2270	12 V dc motor, that has a nominal rpm at max efficiency of 8170 RPM	
3	BS EN ISO 7045 - M2.5 x 6 - Z - 6N	screws to hold the motor to the body	
4	80 mm Impeller	Impeller with 12 vanes	
5	Brass couple	Acts as a couple between the motor shaft and the Impeller	
6	18650 Li-Ion battery	2000 mAh battery	
7	KCD3-103	Rocker switch with on-off-on state	PA
8	End cap	end covers over the top and bottom of the air blower	
9	Inner frame	Inner frame holding all the batteries and pcb together.	
10	Printed Circuit Board	PCB with all the electronics	glass
11	KSD9700 Bimetal Temperature Control Switch Thermostat	Thermal cutoff to prevent overheating of batteries	

Mabuchi RS-385 DC motor Specification



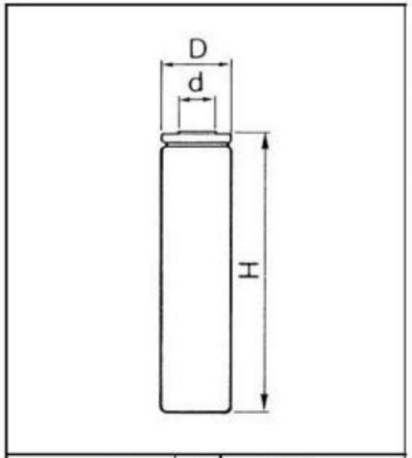
Usable machine screw length 3.0 max. from motor mounting surface.

UNIT: MILLIMETERS

Interesting things about the motor:
- High rpm for a fan
-Typical applications:
- Hair Dryer
- Printer/Copy machine
- Ideal to make an air blower or compressor

MODEL	VOLTAGE		NO LOAD		AT MAXIMUM EFFICIENCY				STALL		
	OPERATING RANGE	NOMINAL	SPEED	CURRENT	SPEED	CURRENT	TORQUE	OUTPUT	TORQUE		CURRENT
			r/min	A	r/min	A	mN·m / g·cm	W	mN·m	g·cm	A
RS-385SH-2270 (*1)	6~24	12V CONSTANT	10000	0.20	8170	0.89	7.89 / 80.5	6.74	43.2	440	4.00

18650 Battery Specification



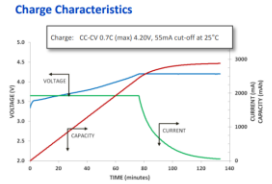
Dimensions(Typ.) of Bare Cell	H	64.7 mm
	D	18.05 mm
	d	9.0 mm

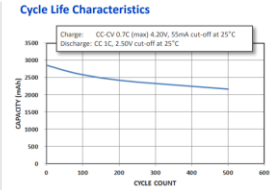
The interesting thing is:

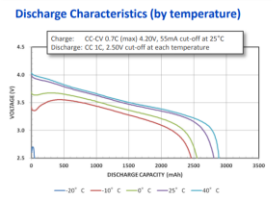
- -LITHIUM ION battery
- High power output
- -Rechargeable
- -High energy density
- -long stable power and long run time
- -ideal for notebook PCs, boosters, portable devices etc
- IN our donor product, we have 3 batteries with a total capacity of 6600mAh

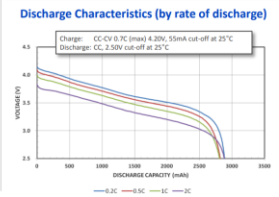
5. BASIC CHARACTERISTICS

5.1 Capacity（25±5℃）	Nominal Capacity：2600mAh (0.52A Discharge, 2.75V) Typical Capacity：2550mAh（0.52A Discharge, 2.75V） Minimum Capacity：2500mAh (0.52A Discharge，2.75V)
5.2 Nominal Voltage	3.7V
5.3 Internal Impedance	≤ 70mΩ
5.4 Discharge Cut-off Voltage	3.0V
5.5 Max Charge Voltage	4.20±0.05V
5.6 Standard Charge Current	0.52A
5.7 Rapid Charge Current	1.3A
5.8 Standard Discharge Current	0.52A
5.9 Rapid Discharge Current	1.3A
5.10 Max Pulse Discharge Current	2.6A
5.11 Weight	46.5±1g
5.12 Max. Dimension	Diameter(Ø): 18.4mm Height (H): 65.2mm
5.13 Operating Temperature	Charge: 0 ~ 45℃ Discharge: -20 ~ 60℃
5.14 Storage Temperature	During 1 month: -5 ~ 35℃ During 6 months: 0 ~ 35℃

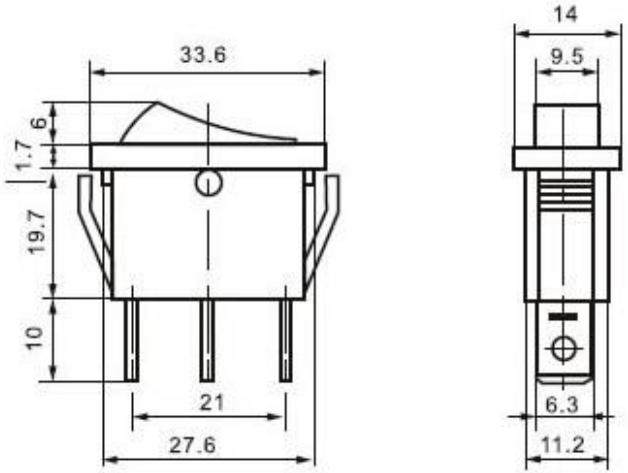








KCD3-103 rocker switch Specification



KCD3-103
10A 250V/AC 15A 125V/AC

-KCD3-103 rocker switch
- comes with three settings
-Max voltage: 250V
-Max current: 5A
- can be used in our future product

KSD 9700 Thermal cut-off Specification

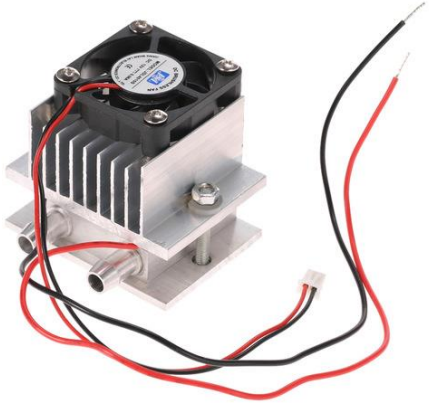
KLS5-KSD9700 Thermal Fuse Series

Rated Voltage: AC250V/AC125V;
Rated Current: 5A ~ 7A
Electric intensity: 800V Min.
Contact resistance: 30mΩ Max.
Lnsulation resistance: 100MΩ Min.
Response speed: ⩽1°C/ min
Number of automatic cycles: 6000 Max. (Resistive Load)

Interesting things:
-Thermal fuse that will cut off if the temperature of the batteries gets too hot.
- Uses a bimetallic structure to cut off the current
- Cut off temperature and reset temperature is different for different models

Hardware we can get

We can get a peltier cooler to aid in preservation of samples.



We will requires a mechanical force multiplier that would compress samples taken from nature. That will require steel gears to transfer the power from the motor.