

# Electric Motor model DIY Kit

## 1.Introduction:

This is a simple permanent magnet DC motor model to demonstrate the DC electric motor working principle. It can be taken apart and reassembled, when powered with DC 3-6V voltage. It will rotate like a real electric motor ideal for school scientific projects or physics teaching.

## 2.Features:

- 1>.easy installation;
- 2>.Rare accessories;
- 3>.Experimental display;
- 4>.Obvious effect;
- 5>.Wide applicability.

## 3.Parameter:

- 1>.Product name:Electric Motor model DIY Kit;
- 2>.Model:J24018;
- 3>.Working voltage:DC 3.0V-6.0V;
- 4>.Material:plastic + metal;
- 5>.Use:Used to study magnetic lines of force;
- 6>.Magnet size:22\*20\*20mm(0.86\*0.79\*0.79 inch);
- 7>.Magnetic flux density: $\geq 72\text{mT}$ ;
- 8>.Operating Temperature: $-20^{\circ}\text{C}\sim 70^{\circ}\text{C}$ ;
- 9>.Operating Humidity:5%-90%RH;
- 10>.Installed size:14\*9\*10cm(5.51\*3.54\*3.94 inch).

## 4.Function:

1>.Manual installation allows the user to understand the main structure of the electric motor.

2>.Verify the relationship between rotor rotation and current direction and magnetic lines.

3>.Master the principle of motor operation.

## 5. Component listing

| NO. | Component Name   | Parameter     | QTY |
|-----|------------------|---------------|-----|
| 1   | Plastic Seat     | 14*9*1.8cm    | 1   |
| 2   | Rotor            | Installed     | 1   |
| 3   | Commutator       | Installed     | 1   |
| 4   | Armature Coil    | Installed     | 1   |
| 5   | Rotor bracket    | White         | 2   |
| 6   | Pulley           | White         | 1   |
| 7   | Magnet Bracket   | Installed     | 1   |
| 8   | Permanent Magnet | 22*20*20mm    | 1   |
| 9   | Electric Brush   | Copper sheet  | 2   |
| 10  | Terminal         | Red+Black     | 2   |
| 11  | M3 Screw         | M3+12mm       | 10  |
| 12  | M3 Nut           | D3mm          | 10  |
| 13  | M4 Screw         | M4+12mm       | 2   |
| 14  | M4 Nut           | D3mm          | 2   |
| 15  | Mini Spanner     | White         | 1   |
| 16  | Wire             | 15mm Red+Blue | 2   |

## 6.Use steps:

- 1>. Finish install as following install manual;
- 2>. Connect to DC 3.0V-6.0V at two cable;
- 3>. Observe the work situation;

## 7.Application:

- 1>.Education;
- 2>.School;
- 3>.Manual DIY;
- 4>.Gift.

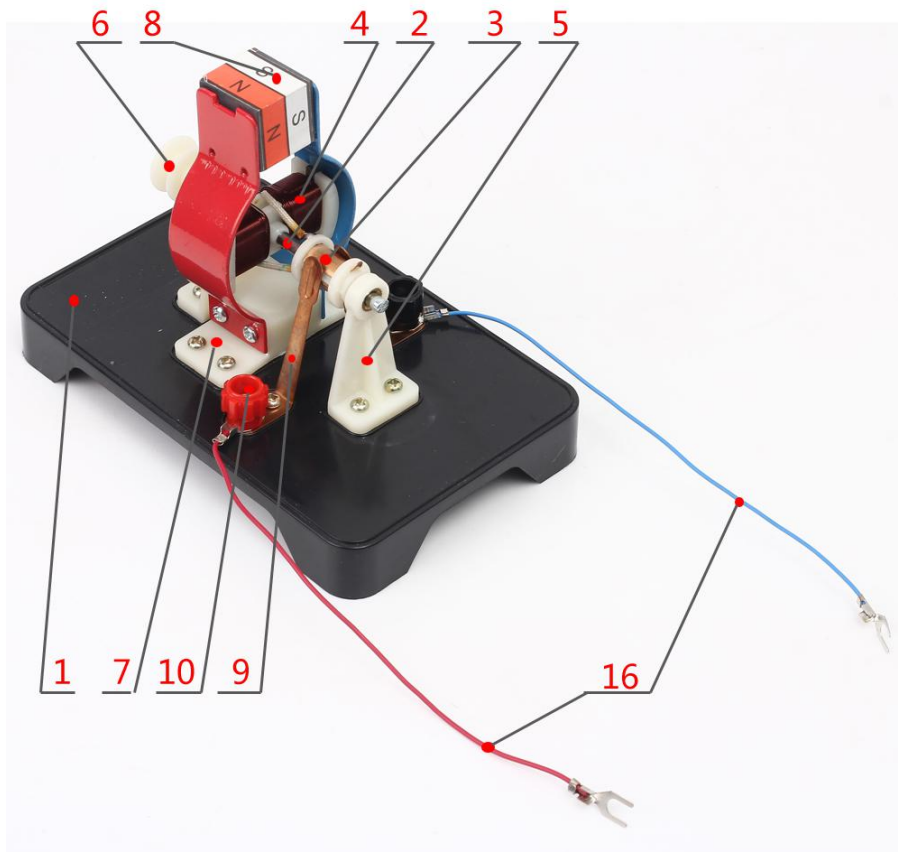
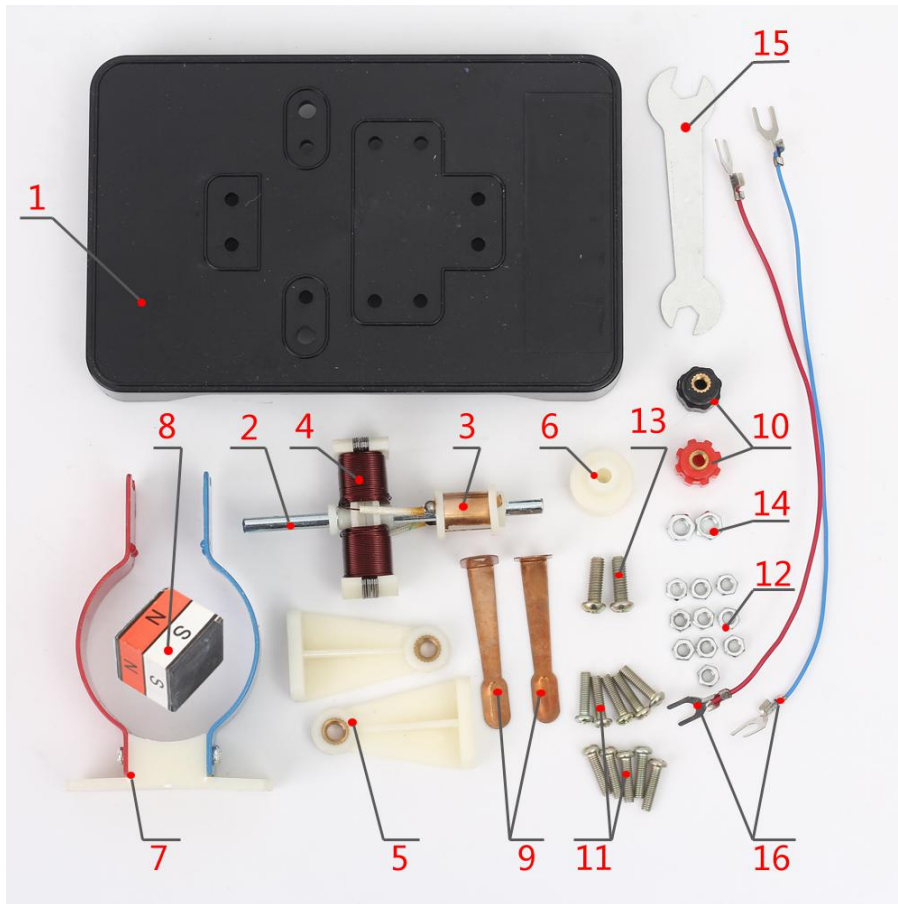
## 8.Note:

1>.DC electric motor experiment: input 3V - 6V DC through wires and terminals, the coil will rotating, and speed up when voltage step up.

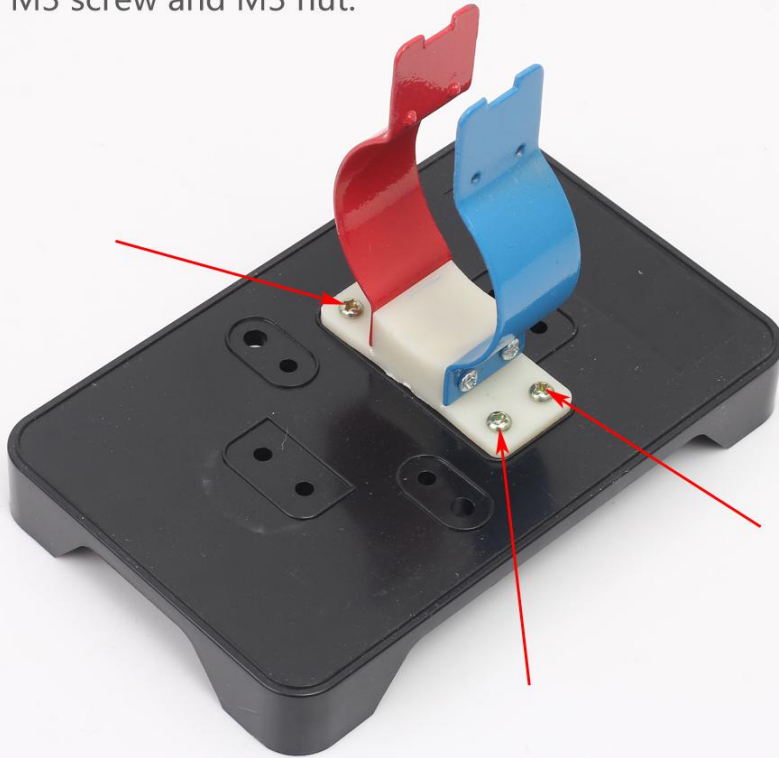
2>.To avoid short circuit, two electric brushes never touch the commutator segment.

3>.Its working voltage is DC 3.0V-6.0V. And DC12V is not recommended.

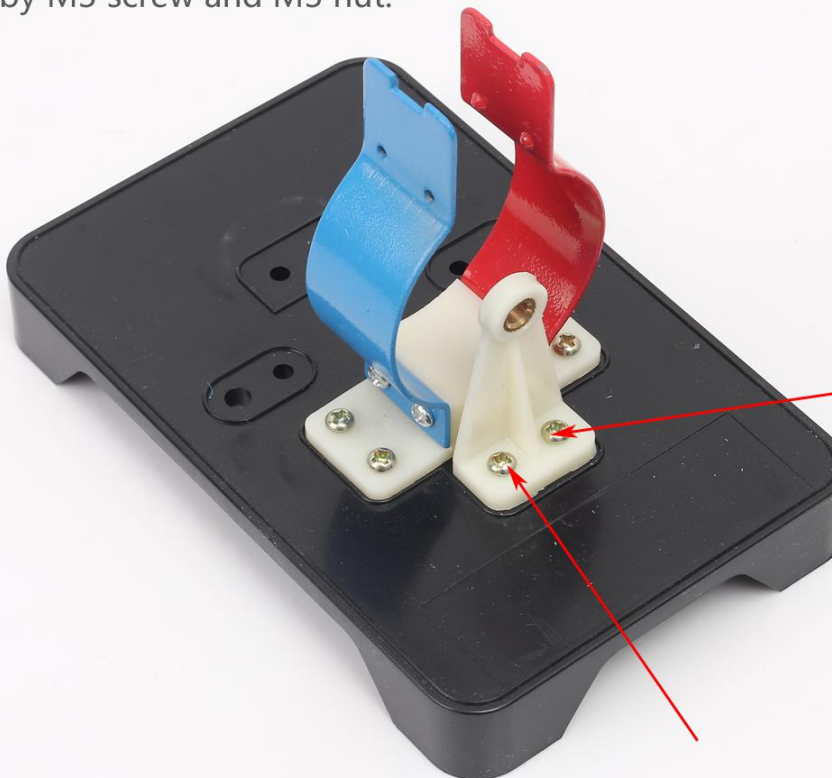
## 9.Installation Steps:



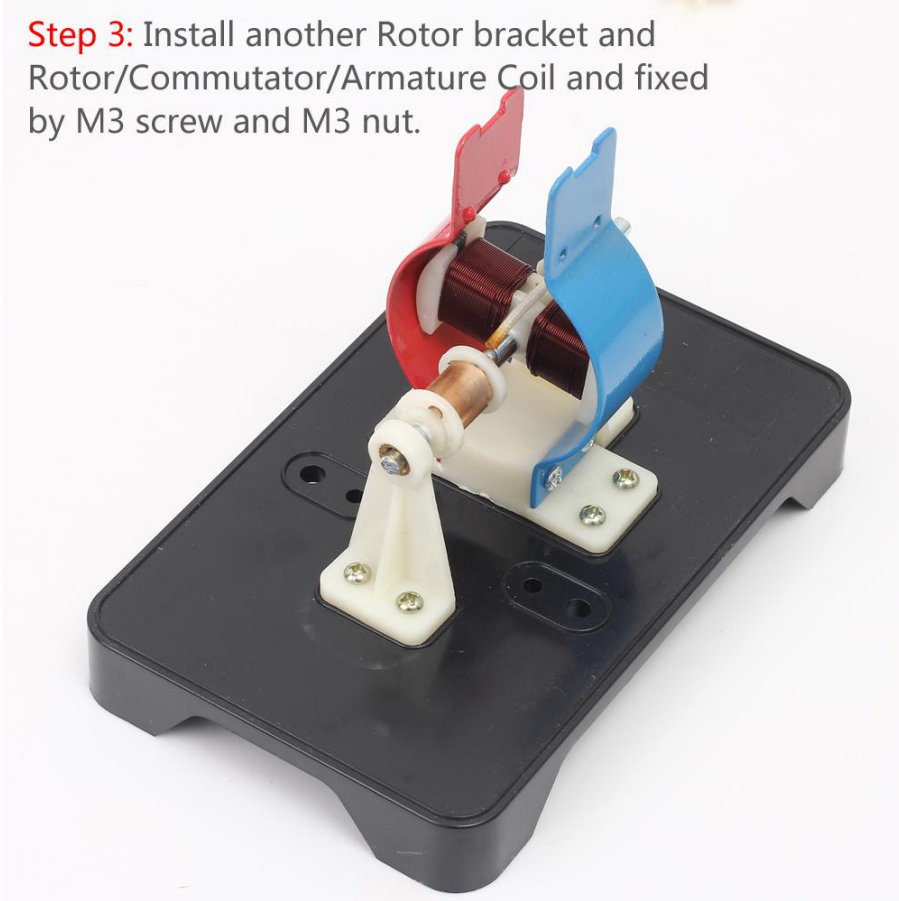
**Step 1:** Install Magnet Bracket on Plastic Seat and fixed by M3 screw and M3 nut.



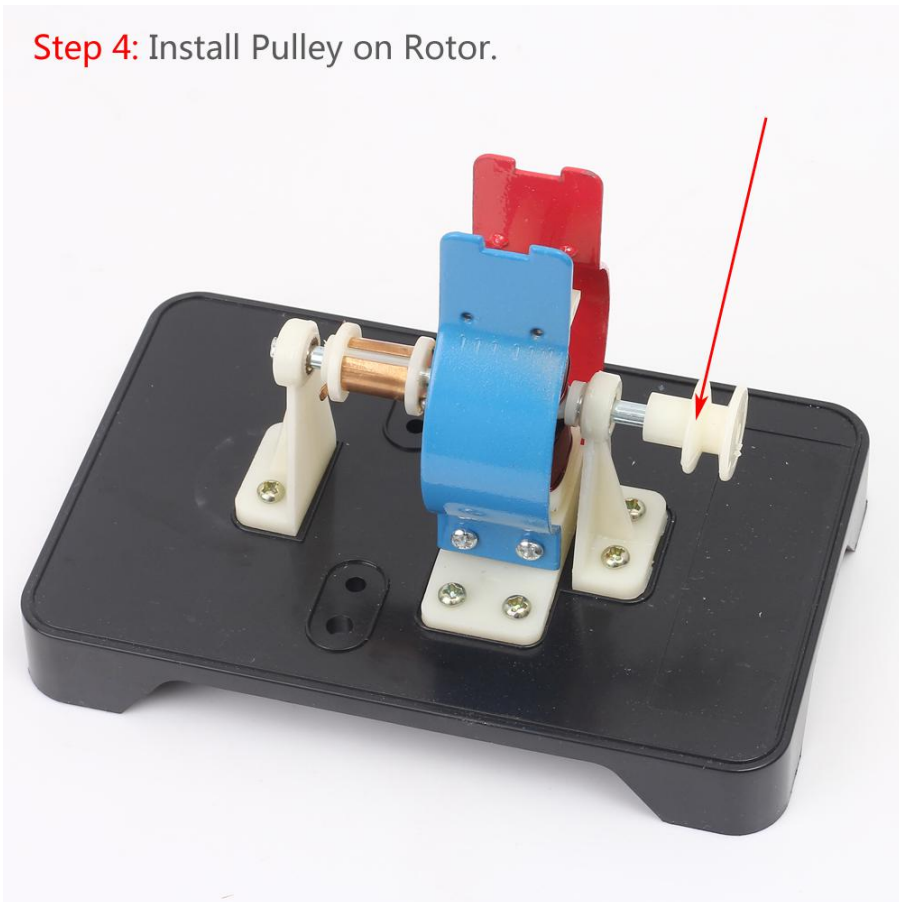
**Step 2:** Install 1pcs Rotor bracket at first and fixed by M3 screw and M3 nut.



**Step 3:** Install another Rotor bracket and Rotor/Commutator/Armature Coil and fixed by M3 screw and M3 nut.



**Step 4:** Install Pulley on Rotor.



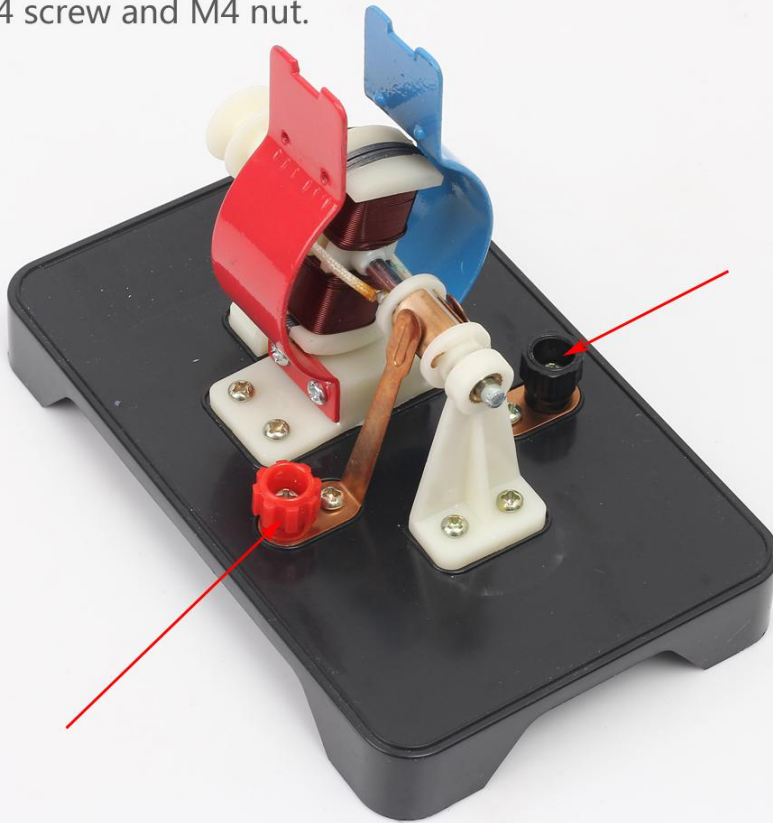
**Step 5:** Bend the angle of the Electric Brush.



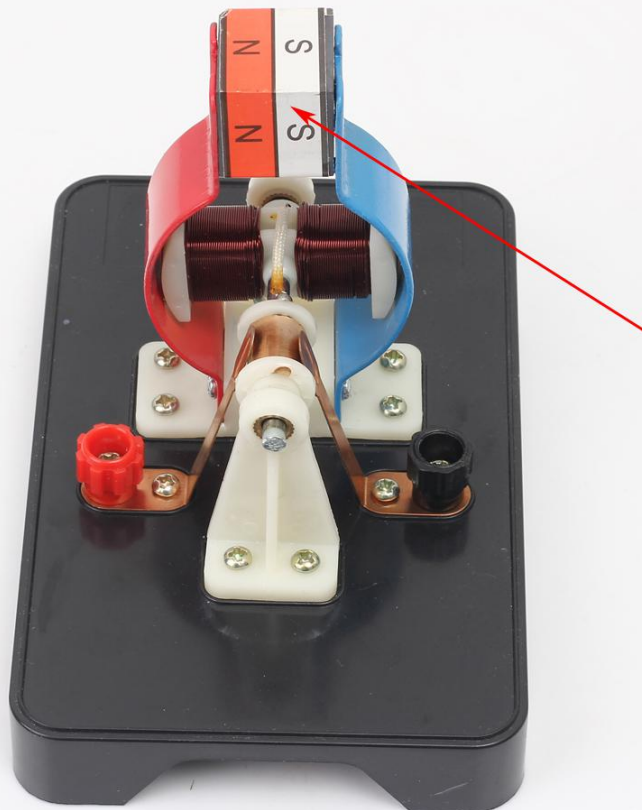
**Step 6:** Install Electric Brush and fixed by M3 screw and M3 nut.



**Step 7:** Install Red+Black Terminal and fixed by M4 screw and M4 nut.



**Step 8:** Install Permanent Magnet.



**Step 9:** Connect to cable on terminal and then connect to DC 3.0V-6.0V to do a test.

