

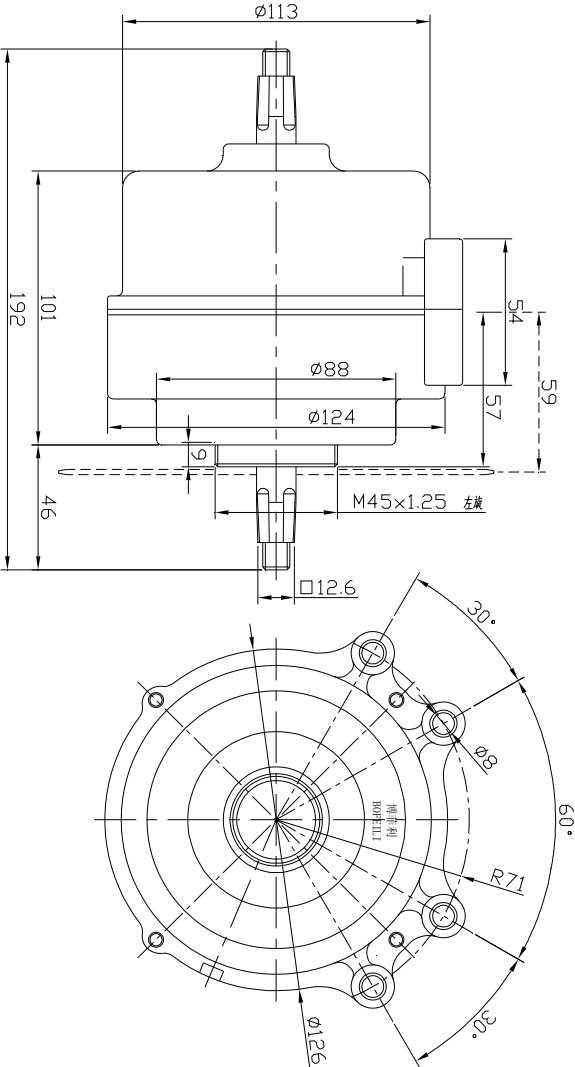
BFLEM36 - 002
Brushless DC Crank Motor

MANUAL INSTRUCTIONS

PATENT: 200820215607.1
PCT/CN2009/000934

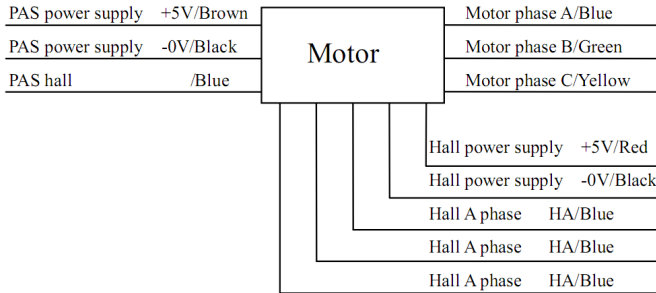
Suzhou Bofeili Electric Technology Co.,Ltd.

I. Dimensions



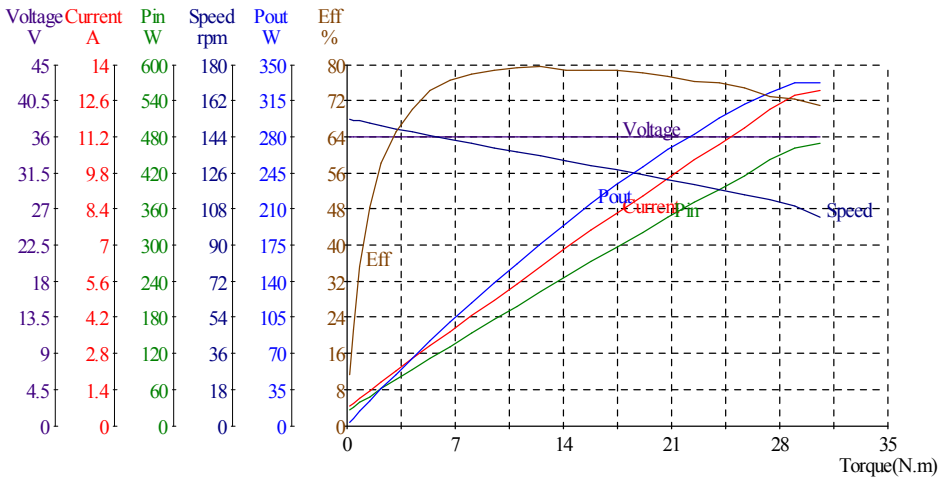
NOTE: The installation dimension of the chain-plate: M45x1.25, laevorotation, length: 9mm.

II. Electrical Schematic (MOTOR WIRING DIAGRAM)



NOTE: The color of the controller lines is showed in the diagram. The picture is for a reference only, the actual item is the standard.

III. Main features of the motor



Low speed, large torque, wide platform

IV. Main technical specifications

MODEL	150W36V	180W36V	200W36V		
No-load speed ($\pm 10\%$ rpm)	138	155	177		
No-load current (A)	≤ 0.8	≤ 1.1	≤ 1.2		
Rated output power (W)	150	180	200		
Rated speed ($\pm 10\%$ rpm)	120	135	155		
Rated torque ($\pm 10\%$ N.m)	11.9	12.7	12.3		
Rated current (A)	≤ 5.3	≤ 6.4	≤ 7.1		
Efficiency (%)	≥ 78	≥ 78	≥ 78		
Phase angle ($^{\circ}$)	120	120	120		

V. Optimum operating specifications

MODEL	150W36V	180W36V	200W36V		
Output power (W)	120	135	140		
Rotational speed ($\pm 10\%$ rpm)	124	140	163		

MODEL	150W36V	180W36V	200W36V		
Torque ($\pm 10\%N.m$)	9.2	9.2	8.2		
Currency (A)	≤ 4.3	≤ 4.8	≤ 5		
Efficiency (%)	≥ 78	≥ 78	≥ 78		
Rated load (Kg)	75	75	75		
Diameter of rear wheel	26"	18"	14"		
Gears Front-rear gear teeth	34-22	42-22	48-22		
Speed (km/h)	23~25	22~24	23~25		

VI. Max permissible power point specifications

MODEL	150W36V	180W36V	200W36V		
Output power (W)	290	350	325		
Rotational speed ($\pm 10\%rpm$)	90	108	110		
Torque ($\pm 10\%N.m$)	30.7	30.9	28.2		
Currency (A)	≤ 11.8	≤ 14	≤ 13.8		
Efficiency (%)	≥ 68	≥ 69	≥ 65		

VII. Transmission ratio reference (take the Optimum operating situation of the x-speed bicycle for example)

Wheel diameter	MODEL	Plate of the driving wheel (motor)	Plate of the driven wheel	Speed (Km/h)
14"	200W36V	48	22	23~25
18"	180W36V	42	22	22~24
20"	180W36V	38	22	22~24
26"	150W36V	34	22	23~25

VIII. Formula of the motor specifications

1. Torque formula:

$$\text{Torque (N.m)} = 9.55 \times \text{Power (W)} \div \text{Rotational Speed (rpm)}$$

2. Speed formula:

$$\text{Speed (Km / h)} = 4.79 \times 10^{-3} \times \text{Wheel Diameter (")}$$

$$\times \text{Rotational Speed (rpm)} \times \frac{\text{plate of the driving wheel}}{\text{plate of the driven wheel}}$$

IX. Important instructions

1. Before installing the motor, carefully examine the outlook and do the no-loaded running, in order to avoid the damage during the transportation.
2. The motor should be installed stable. Do the regular examination during the use to avoid destroying the plate and the chain when it is loosened.

3. The centre line of the driving plate and the driven plate (the middle one between the biggest and the smallest) should be on the same line as possible. Make sure there is no change during the running, otherwise there are transmission noise and danger to the plate, chain and motor.

4. Let the chain decline a little about 1-1.5cm. If the chain is too tight, there will be much noise, consumption and attrition. If too loose, it would be off chain or destroy the chain and plate. When installing the multi-plate, please use the tightener and choose the suitable length of the chain to make the shift flexible.

5. It is necessary to fill the lube to the chain usually, so that can reduce the attrition of the transmission parts, such as the chain and plate, extend the life and decrease the noise.

6. Please examine the no-loaded current after the whole bicycle is finished, in order to make sure the motor installation is stable.

MODEL	150W36V	180W36V	200W36V		
No-loaded current (A)	≤1.2	≤1.5	≤1.6		

If the no-loaded current is too high, please adjust the chain, brake, and the crank to satisfy the requirement above.

7. Do not overload the bicycle, drive under the low tire pressure, or long distance driving on the steep slope. To avoid the motor over burning, please change the shift on the low-speed, large-torque gears.

8. Founding the motor is over hot, smoke, smell, noise or the other unusual situations, stop running immediately, and have it examined by your Authorized Dealer. Do not attempt to modify or repair the motor without previous authorization since this will void the guarantee.