

RIDING AND MAINTENANCE INSTRUCTIONS

Eko-Cosmic-I

Technical parameters.

Eko-Cosmic is a uniquely engineered electric two-wheeled short distance transport vehicle. The fuel cell is a maintenance free gel battery and the engine is a BLDC Hub motor.

The drive mechanism is direct with neither gears nor belts/chains.

Performance parameters.

The operational range per charge of a Eko-Cosmic varies from 30 to 50 kms.

This depends on road conditions, payload (driver+passenger) and driving characteristics of the rider.

Payload carrying capacity is 120 kgs.

Speed is regulated to a max of 45 km/h.

How to enjoy and drive an electric two-wheeler.

1. **Ensure that for the first 12-15 charge cycles you don't drive more than 25 km.**
2. **Charge the vehicle whenever possible**
3. **Do not drive faster than 30 kmph during the first 300 km**
4. **Avoid spurts of high speed followed by sudden deceleration**
5. **Avoid full throttle on gradients, gradually speed up.**

Please ensure in case daily driving is not more than 20 km that once in 15 days a full discharge and recharge of the battery is done at home or service center

How to get the best performance from your Eko-Cosmic electric two wheeler?

Achieving the optimum operational range of the vehicle depends on:

1. Tyre pressure

Please maintain the tyre pressure of the front and rear wheels as per the user manual

i.e. 22 psi and 30 psi respectively.

Uneven tyre pressure drastically reduces the efficiency and in turn the mileage of the vehicle

It can also on the long run affect the battery life and the motor.

2. Brakes

Ensure that the front wheel rotates freely when placed on stand.

The rear wheel should also rotate 4-6 revolutions on stand.

Maintain the brake shoes.

3. Optimal driving

The most economic driving speed of this electric two-wheeler is 25-35 kmph.

Remember use the brakes sparingly only when needed, do not drive with spurts of high throttle followed by sudden deceleration.

Coast down gradients, gradually accelerate on gradients.

4. Batteries

i). Memory effect

When rechargeable batteries are not fully discharged between charge cycles that they remember the shortened cycle and are thus reduced in capacity. (length of use per charge).

'Memory Effect' is the common term used to replace the more accurate term 'Voltage Depression

Voltage Depression does not necessarily permanently damage a battery. It can be corrected by fully charging and discharging the battery

ii) The Electric Two wheeler COSMIC-1 has a battery rated for 48 Volts and 22 AH, which means that the energy available is around: 1056 Watts.

Based on driving terrain and spike currents due to frequency of stopping and re-starting along with acceleration the efficiency losses will be about 25% of the energy available around: 25% of the 1056 Watts, which is equal to 250 Watts.

Now If the Battery is discharged (used) to 80% of its capacity along with efficiency losses considered then energy available is: 80% of 750 Watts, This means you have around 600 Watts of energy available for operation of the vehicle.

iii. Regular charging. The life of the battery and the range per charge depends on regularity of charging.

Do not wait for the battery to completely discharge before placing for charge fully

Opportunity charging; charge the battery at every given Opportunity.

Equalizing Charging should be done once every 15 days i.e. discharge the battery completely and recharge

5. Motor

Note that the motor is rated for 500 Watts, which means that 500 watts of energy from the battery is consumed per hour at 35-40 kms per hour speed.

This provides for an operational time of 70 minutes.

Hence the range at maximum speed of 40 kms will be 45-50 kms per charge with a single rider weighing 70 kgs

Above is the best operating range per charge with 70 Kgs payload. The range per charge will reduce with increase in payload.

Example:

70 Kgs: 45-50 kms

100 Kgs: 30-35 Kms

120 Kgs: 25-30 Kms

The vehicle is designed to carry a maximum payload of 120 kgs

Trouble shooting

1. In case of vehicle delivering low mileage-Please

i) Check tyre pressure

ii) Check brake pressure

iii) Ensure a full discharge and recharge cycle.

2. If vehicle stops or refuses to start- Please i) Check connectors below seat under the luggage rack esp. the motor connector.

ii) Check brakes

iii) Check battery monitor showing level of charge

iv) Check MCB position (on/off)