

Why is flat wire motor used in electric vehicle drive system?

Nowdays,flat wire motor is widely used in electric vehicle drive system because of its high power density high efficiency and high reliability. Some research focused on the electromagnetic (EM) features (Bianchi &Berardi,2018). However,electric motors are complex systems where multiple physical fields act simultaneously (Ragazzo et al.,2020).

Does flat wire winding improve the efficiency of automobile drive motors?

Automobile drive motor with flat wire winding has improved the slot fill factor and efficiency. However,under the current environment of drive motors development to high frequency and voltage,the increase in winding AC loss has weakened those advantages.

Why is flat wire motor better than round wire motor?

Flat wire motor gradually replaces the traditional round wire motor because of its small size,high efficiency,strong heat dissipation and low noise. However,the ac loss of winding of flat wire motor was high under the influence of skin effect at high speed.

What are the advantages of flat wire motor?

The flat-wire motor has the characteristics of small size,low noise,high slot fill factor and good thermal conductivity in the slot. It can significantly improve the power density of the motor and is widely used in electric vehicles. The skin effect and proximity effect of the flat wire under high-speed conditions lead to high loss.

What is a flat wire winding permanent magnet synchronous motor (PMSM)?

A Flat wire winding permanent magnet synchronous motor (PMSM) is a complex system that produces a multitude of physical phenomena(Jiang et al.,2018). This paper mainly analyzes the coupling relation among the common electromagnetic field,temperature field,flow field,and stress field.

What are flat wire windings for automotive PMSM?

Flat wire windings for automotive PMSM have attracted much attention due to their high slot fill factor,power density,and efficiency. The advantages of flat wire windings have aroused more interest in flat wire motors,focussing on their power density,efficiency,and winding design schemes for unprecedented rapid research .

As the core component of new energy vehicles, the stator of a flat wire motor is popular in the new energy vehicle industry because of its advantages, including an about 30% higher slot filling rate than the traditional ...

One motor is specially designed as a high-velocity flywheel for reliable, fast-response energy storage--a



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