

Are high specific power electrical machines needed for aerospace applications?

Abstract: There has been a growing need for high specific power electrical machines for a wide range of applications. These include hybrid/electric traction applications, and aerospace applications. A lot of work has been done to accomplish significantly higher specific power electrical machines especially for aerospace applications.

Can high power density electrical machines be used in aircraft?

This paper provides an overview of the projects of electrical machines with high power density, the use of which is promising in aircraft of various dimensions. Projects of the University of Nottingham, the University of Illinois, Siemens, Yasa, and others were considered.

What is new in high voltage engineering?

Another interesting area in high voltage engineering is the emerging of new class of materials called "nano dielectrics" that shows great potential for use in both solid and liquid insulation systems.

Why is high voltage engineering important?

High voltage engineering has become a crucial part of our modern society, from the different components in the power system grid, to the copy machines around us. Recently, different challenges have emerged in high voltage engineering that need special attention from researchers.

What is the specific power of the machine?

The specific power of the machines is 3.1 and 3.2 kW/kg, respectively. The systems have intensive liquid cooling. The low speed is due to the direct propeller drive, which allowed doing without use of mechanical transmission.

What is the specific power of a prototype?

The specific power of prototypes manufactured and used in industry is 3-5 kW/kg. Electrical machines with a specific power of more than 7-8 kW/kg are considered either from a theoretical point of view or are supported by experimental data of the prototype, which do not confirm the claimed characteristics of the machine.

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High voltage engineering has become a crucial part of our modern society, from the different components in the power system grid, to the copy ...

This paper analyzes designs of electric machines with high power density; experimental developments of the Universities of Nottingham and Illinois, Siemens, etc. are reviewed.

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