Global Science Research Journals

Available online at
www.globalscienceresearchjournals.org/

Perspective | Open Access

Global Journal of Electrical and Electronics Engineering

Vol. 1 (3), pp. 1, December, 2022

Manufacturing techniques for liquid metallic circuits

J Smith*

Department of Electrical Power Engineering and Mechatronics, University of Padua, Veneto, Italy

*Corresponding author: E-mail: smith123@gmail.com

Received: 01-Nov-2022, Manuscript No. GJEEE-23-85697; **Editor assigned:** 04-Nov-2022, PreQC No. GJEEE-23-85697 (PQ); **Reviewed:** 18-Nov-2022, QC No. GJEEE-23-85697 (R); **Revised:** 25-Nov-2022, Manuscript No. GJEEE-23-85697; **Published:** 02-Dec-2022, DOI: 10.15651/ GJEEE.22.3.014.

DESCRIPTION

Additive manufacturing is a broad term where manufacturing is done in layers and rendered from a digital model. In recent years, it has emerged as an alternative to traditional manufacturing techniques, offering nearly limitless possibilities for a wide range of industrial and specialty applications, such as complex geometric realization and rapid prototyping. With the projected potential of its proposal, it will certainly change the dynamics of the manufacturing industry.

In the field of electro mechanics, applications are currently mainly tailored to a few common machine types. Customizing these machines to meet application needs is hampered primarily due to limitations and limitations offered by traditional manufacturing techniques. However, as electromechanical additive manufacturing matures and evolves, the momentum will reverse toward adapting the electromechanical to application requirements. This means a new era of application possibilities. Immaturity of additive manufacturing electro mechanics, the lack of methods and typical solutions to exploit new possibilities in all aspects including research on material properties, design, construction and the entire manufacturing process. This potential cannot be fully exploited.

Thermoelectric technology can convert waste heat directly into electricity. This is a promising area of green and sustainable energy. In this aspect, flexible thermoelectric conversion such as wearable fabrics, smart biosensors, and biomedical electronics offer a variety of applications. As nanofibers are one of the key structures focus on inorganic thermoelectric fibers due to their excellent thermoelectric performance and acceptable flexibility.

The design and manufacture of electrical machines is a well-established field both technically and procedurally. However, with the growth of even more energy-dense electrical machines, the traditional manufacturing process has significant limitations and fewer types of technical solutions for design and construction. The following section discusses the technical and proceduralchallenges of designing and manufacturing electromechanical machines by conventional manufacturing methods and presents possible solutions to these challenges when using additive manufacturing as a manufacturing process.

Traditional development-related issues are no longer an issue with electromechanical additive manufacturing. All parts can be manufactured simultaneously, making the entire process economically feasible, fast and reliable. The availability of a wide variety of materials in powder form gives the freedom to optimize, print and test the given design within a limited time frame. With minimal reliance on various companies, reducing logistics costs significantly reduces overall costs. Currently, the focus is on developing new heat exchange structures using honeycomb, ribbed foam, Schwartz structures, etc. Additionally, liquid cooling options in the form of hollow windings, liquid cooled stator slots, and rotor surfaces were also explored.

CONCLUSION

There are several additive manufacturing thermal management solutions that have shown promising results for use in electrical machines. We do not yet have a prototype that represents the overall system integration of the additively manufactured heat exchanger and the additively manufactured electric machine. To take the next steps, we need to conduct detailed research in this area, adapt and evolve computational and modelling methods, and mature the technology for use in manufacturing and the larger industry. Scale production. Several sub-areas should be considered when developing a new technology. One of the aspects that lead to a quality end product is the monitoring of operations, conditions and production. This can be summarized as a diagnostic procedure. One of the most important phases in electromechanical additive manufacturing is the optimal printing of mechanical parts. At this stage, some internal defects of the element (porosity, cracks, and non-uniform distribution of material) can appear, and their control usually requires time-consuming and expensive processes. New rapid diagnostic methods are being developed to speed up this process and reduce potential costs.