Effect of Selected Factors on the Accuracy of Load Capacity of the Schoen Gyroid Cellular Structure

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One of the roles of mechanical engineering is to improve the efficiency and performance of mechanical parts. Cellular lattice structures can be a good tool for achieving this target. This paper focuses on a specific kind of lattice structure which is composed of cells called a Schoen Gyroid. Samples containing this porous structure were subjected to a series of pressure tests. The main aim is to find the possible influence of certain factors on the accuracy of the load capacity. The selected factors are the friction between the porous sample and the testing device, then the matrix size of the samples. The discovered relationships of these factors on the accuracy were used for the final pressure test where the effect of changing strut thickness on load capacity is measured.

Keywords: Schoen Gyroid, lattice structures, Rigid Constructions, Additive Manufacturing, Selective Laser Melting

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