

RESEARCH ARTICLE

Investigation of Elastic with carbon fiber-reinforced plastic (CFRP) materialHüseyin Kay¹¹  Daniel Zaragoza² ¹Mersin Provincial Coordinator, Department of Agriculture and Rural Development Support (ARDSI), Mersin, Turkey²Department of Agriculture and Rural Development, Jum University, Castello, Spain**ABSTRACT**

In this study, the stresses occurring in the disk consisting of carbon fiber reinforced plastic material (CFRP) were investigated. Concepts such as temperature and modulus of elasticity are very important for the correct application of thermal stress analyses. In this study, the temperature distributions of 30°C, 60°C, 90 °C, 120 °C, 150°C, which are the most ideal for machine parts, were considered. CFRP materials are currently preferred in unmanned aerial vehicles, UAVs, SIHAS, aircraft industry. They are fiber-reinforced polymer materials obtained by combining carbon fibers with a polymer matrix, showing high strength, high hardness, and strength. The stress values obtained at the end of the study were compared among themselves and shared with the literature in graphs. It is thought that the mathematical change in the temperature values affecting the disk with CFRP material also directly affects the thermal stresses. At the same time, the results obtained were analyzed with the ANSYS 2023 finite element program. It has been seen that the results obtained are compatible with each other.

Keywords: CFRP disk, Elastic tensile, Elastic modulus

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