عنوان مقاله:

High-Velocity Compaction of Aluminum Powder by Gas Detonation Forming Technique

محل انتشار:

مجله بین المللی طراحی پیشرفته و تکنولوژی ساخت, دوره 13, شماره 1 (سال: 1399)

تعداد صفحات اصل مقاله: 13

نویسندگان:

Tohid Mirzababaie Mostofi - *Faculty of Mechanical Engineering, University of Eyvanekey, Semnan, Iran*

Mostafa Sayah Badkhor - *Faculty of Mechanical Engineering, University of Eyvanekey, Semnan, Iran*

Hashem Babaei - *Faculty of Mechanical Engineering, University of Guilan, Rasht, Iran*

خلاصه مقاله:

In this paper, a large-scale experimental study has been conducted in order to evaluate the high-velocity compaction of aluminum powder using Gas Detonation Forming (GDF) processing technique. In this series of experiments, the effect of the distribution of grain particle size, initial powder mass, and loading conditions on green density and strength of compacted products were thoroughly studied. The maximum relative green density and green strength of 97.6% and 17.9% were achieved. Group Method of Data Handling (GMDH)-type neural network in conjunction with Singular Value Decomposition (SVD) method was exerted to model the high-velocity compaction process of aluminum powder. The main objective of this idea is to demonstrate how two characteristics of the high-velocity compaction, namely, the relative green density and strength of products vary with the changing of significant parameters, involved .in GDF processing technique

کلمات کلیدی:

Aluminum Powder, GDF, High-Velocity Compaction, Neural network