## **Performance Analysis of SS304 Steel Hat Stringer on the Chassis Frame**



## C. Ramesh Kannan, B. Stalin, M. Ravichandran and K. Sathiya Moorthi

**Abstract** This investigation concentrates on the analysis of 'C' and hat stringer on chassis frame. The C-stringer is a component which is supporting the chassis frame to resist the load applying on it. This component should have high strength and high stiffness. The different materials of C-stringer, and hat stringer are designed with their mechanical properties are analyzed. The selected materials for analysis are SS304 steel, duplex 2101, aluminium 7075 and glass/epoxy composite, respectively. The parameters analysed in the software are von Mises stress, elastic strain, total deformation and strain energy, respectively. As the result, the SS304 steel hat stringer is selected to conduct the experiment due to high strength and stiffness.

**Keywords** Stringer · SS304 steel · Duplex 2101 · Aluminium 7075 · Glass/epoxy composite

## 1 Introduction

The total load of the vehicle is fully supported by the chassis of the vehicle, and the strength of the vehicle is to be very high in bending. The chassis frame is attached in between by the stringers in the shape of 'C', 'hat', 'I', 'L', and 'T', respectively. The strength of the stringer can be improved by different design structures or changing

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S. S. Hiremath et al. (eds.), *Advances in Manufacturing Technology*, Lecture Notes in Mechanical Engineering, https://doi.org/10.1007/978-981-13-6374-0\_34