

**ANALYSIS VARIATION OF STATIC LOADING IN ELECTRIC
MOTORCYCLE DESIGN USING SOLIDWORKS 2018**

Muhammad Ferdi Maulana

*Study Program of Automotive Engineering
Department of Engineering
Politeknik Negeri Jember*

ABSTRACT

This research is in the form of an analysis of the design of the electric motorcycle frame design using the 2018 solidworks software with variations in static loading, the maximum stress value, deflection value and safety factor. The purpose of this study was to test the frame strength of electric motorcycles made of aluminum alloy 6061 and stainless steel 201 which were subjected to variations in static loading. The results of the strength analysis of the frame assuming a static load of 441 N, 657,05 N and 1471 N on the Alluminium Alloy 6061 material obtained maximum stress values of 102,445 Mpa, 158,068 Mpa, 368,461 Mpa, deflection values of 4,023 mm, 6,357 mm and 15,158 mm, and factor values safety for each loading is less than 2. In Stainless steel 201 material, maximum stress values are obtained 101,632 Mpa, 156,752 Mpa, 364,586 Mpa, deflection values 1,353 mm, 2,140 mm, 5,108 mm and safety factor values of more than 2 at 441 N and 657,05 N.

Keywords: *static loading, Solidworks, Stress, deflection, factor of safety*