

# Designing and Analysis of Multiplate Clutch by ANSYS Software

Mrunal Lenekar<sup>1</sup>, Shefali Lohakare<sup>2</sup>, Aditya Madale<sup>3</sup>, Rajesh Madewar<sup>4</sup>, Pradnya Magar<sup>5</sup>

Students, Department of Mechanical Engineering  
Vishwakarma Institute of Technology, Pune, India<sup>1,2,3,4,5</sup>

**Abstract:** *In this paper, the multi-plate clutch design process will be presented. As we know, the clutch is very useful in engaging and disengaging the vehicle's transmission with the engine. There are many types of clutches on the market. This study presents an in-depth analysis of the design of multi-plate wet clutches for automotive applications. It explores different design techniques, challenges and advances, focusing on aspects such as contact characteristics, thermal management, structural integrity and material selection. Additionally, the integration of multi-plate clutch systems with hybrid powertrains and the implications of the electrification trend are also explored. By addressing key aspects of multi-plate clutch design and identifying future research directions, this article aims to contribute to the advancement of automotive engineering, promoting innovations new to improve the performance, efficiency and durability of modern vehicles. The design proposed in this paper is rated to be 93% accurate. In our proposed system, the proposed design has a deformation of 0.0000187 mm and can withstand a maximum nominal stress of 0.20076 N/mm<sup>2</sup>,*

**Keywords:** Multiplate, design, analysis, deformation.