

ABSTRAK

Pengurangan *coefficient drag* adalah cara untuk meningkatkan aerodinamis kereta. Masalah penelitian ini adalah belum dilakukan penelitian terkait analisis aerodinamika alternatif desain *mask of car* terhadap pengembangan kereta cepat di Indonesia. Tujuan penelitian ini adalah untuk menyimulasikan aerodinamika pada kereta yang memiliki kecepatan 220 km/jam dan lebar rel 1.435 mm. Objek penelitian ini adalah analisis terhadap desain *mask of car* 1 berbentuk *mask of car* kereta cepat *Intercity Express* (ICE) 3, desain *mask of car* 2 berbentuk *mask of car* kereta cepat (*Automotrice Grande Vitesse*) AGV Italo, dan desain-*mask of car* 3 berbentuk *mask of car* kereta cepat *Harramain High Speed Railway*. Metode penelitian ini adalah metode kuantitatif eksperimental analisis aerodinamika *Computational Fluid Dynamics* (CFD) menggunakan *software Ansys Workbench* 2020. Hasil penelitian ini adalah menunjukkan alternatif desain *mask of car* 3 memiliki nilai *coefficient drag* terkecil.

Kata Kunci : *Coefficient drag, Aerodinamika, Mask of car, Kereta cepat, CFD*

ABSTRACT

Drag coefficient reduction is a way to improve train aerodynamics. The problem of this research is that no research has been conducted related to the aerodynamic analysis of alternative mask of car designs for the development of high speed railways in Indonesia. The purpose of this research is to simulate the aerodynamics of a train that has a speed of 220 km/h and a rail width of 1,435 mm. The object of this research is the analysis of the mask of car 1 design in the form of Intercity Express (ICE) 3 high speed railway mask of car, mask of car 2 design in the form of AGV Italo high speed railway mask of car (Automotrice Grande Vitesse), and mask of car 3 design in the form of Harramain High Speed Railway mask of car. This research method is a quantitative experimental method of aerodynamic analysis Computational Fluid Dynamics (CFD) using Ansys Workbench 2020 software. The results of this study show that the mask of car design alternative 3 has the smallest drag coefficient value.

Keywords : *Drag coefficient, Aerodinamics, Mask of car, High speed railway, CFD.*