AERODYNAMIC COEFFICIENT ANALYSIS OF CARS

KMHE (ENERGY-SAVING CAR CONTEST)

ARGOPURO VEHICLES

By

Indra Firmansyah

Automotive Engineering Study Program, Engineering Department

Jember State Polytechnic

ABSTRACT

The car is a means of transportation that is widely used in the modern era as it is today. In Indonesia itself, the majority of energy sources used for vehicles, especially cars, still use fossil energy. The problem that will be faced in the following years is the significant reduction in oil reserves if the management of the oil and gas sector is not controlled and regulated properly and wisely. in Indonesia currently use several choices of types of Pertamina fuel for gasoline motorbikes, including Premium and Pertamax. Gasoline Motors are Power Generation Machines That Convert Gasoline Fuel Into Thermal Power And Finally Into Mechanical Power. Broadly speaking, a gasoline engine is composed of several main components including the cylinder block, cylinder head, crankshaft, piston, connecting rod, flywheel, camshaft. cam shaft), and valve mechanics.

The increase in the number of vehicles affects the use of fuel which in turn results in the depletion of natural fuel supplies. This study aims to determine the drag coefficient value of the energy-efficient car vehicle, the Argpuro Pablos team and the feasibility of the body model of the energy-efficient car, the Argupuro Pablos team, in the KMHE competition. Aerodynamics is a branch of dynamics that deals with the study of air movement, especially when the air interacts with solid objects. The prototype vehicle is a future vehicle with a special design that maximizes the concept of aerodynamics. After the simulation, the results of the drag coefficient (Cd) were 0.36 and the drag force (Drag

Force) was 36.977325 N. In addition, on the front, the pressure is 36.595 Pa so that after the modified body is suitable for use in KMHE 2022 this is because the vehicle will be able to run smoothly due to the reduced value of Cd in the body used. Based on the results of Aerodynamics using Ansys on the energy efficient car Argopuro Pablos Team Generation in 2022 it shows that the drag coefficient (Cd) on Argopuro Pablos Team is 0.36 so that with the new design of the Argopuro Pablos Team saving car which has a smaller coefficient of drag it will can save more energy consumption.

Keywords*: Aerodynamics, Energy Saving, Drag Coefficient*