

ABSTRACT

One of the important transportation facility for traffic movement is bridge. The structure of the bridge can facilitate / assist transport route through roads, railways, rivers, lakes, and others. Commonly, the bridge in Indonesia has not been designed to withstand blast loads. Even the load is not a big explosion, it can make the bridge broken and even collapsed instantly. It should be added estimation calculation of explosion load occurred, so engineer can design (consider) the bridge that can withstand explosion in certain limit. One method that can be used to calculate the loads because of the explosion is the finite element method using the assistance of computer program. The research started with collecting data of bridge and blast load that will be analyzed. After the collecting data completed, then analyzed blast load with some simulations using computer program. Simulation use several parameters as size, weight, time, and blasting velocity. From the analysis, can obtained the value of stress, strain, displacement, and velocity. Blast load that used for simulation is dynamite explosions with difference blasting velocity as dynamite low velocity, dynamite medium velocity, and dynamite high velocity. Blasting velocity have effect for the value of stress, strain, displacement, and peak particle velocity that occurred.

Keywords : bridge, blast load, finite element, displacement, stress, strain, blasting velocity, peak particle velocity