FINAL YEAR PROJECT REPORT

DESIGN OF DROP WEIGHT TEST SYSTEM

(SYSTEM, MECHANISM , CONTROL

AND OPERATION)

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ABSTRACT

In conducting experimental studies on material properties under impact loading, several types and techniques of impact test had been used. One of these types is through drop weight test. In *drop-weight* machine, the principle feature is the moving mass of known kinetic energy. The ideal impact test would be one in which all the energy of a blow is transmitted to the test specimen or the energy transmitted to the structure is minimum.

This project covers the determination of suitable system for lifting mass to the predetermined height and released it. A mass is held by an electromagnet which is raised by an electric hoist. The mass drops between two vertical guides when the electromagnet is deactivate. The mass known as plunger for striking the specimen is designed whilst the specified electromagnet and electric hoist are obtained from the local manufacturers. Weight of plunger varies with the predetermined height as required for testing. At maximum height of 10 m and mass of 500 kg ,the maximum velocity reach is 14 m/s as calculated. The layout for plunger configuration is provided.

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