

DESIGN AND FABRICATION OF BULLET IMPACT TEST FACILITY FOR COMPOSITE MATERIALS

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ABSTRACT

The purpose of this facility is to determine the impact strength and natural frequency of composite materials. A bullet with a spherical shape is used so that a maximum impact that the material can withstand is found instead of the bullet easily piercing through the material causing low impact and high damage which eventually fails the purpose of the test. The bullet is fired at different velocities by adjusting the pressure feed from the pressure tank which is used to trigger the bullet. The maximum impact load that the material can withstand and the corresponding vibration of the material is determined using a double bending beam load cell and accelerometer. Using infrared sensor the velocity of the bullet for the corresponding trigger pressure is determined. With these sensor data the impact load and natural frequency of the composite material is calculated and determined.

KEYWORDS: Bullet Velocity, Impact Load, Natural Frequency