

Design and Development of an Acoustic Panel Machine from Recycled Fabrics

Objective

To design and develop an eco-friendly acoustic panel using waste cloth materials, supported by a semi-automatic fabrication system that ensures consistent quality and efficient production for sound absorption applications.

Project Overview

This project involved the development of a novel composite acoustic panel using recycled fabrics as the primary raw material, combined with an **environmentally friendly blending material** to enhance bonding and structural integrity. A custom semi-automatic machine was designed and built to manufacture the panels. The process included uniform material compression using a pneumatic system, drying using heating coils, and quality validation using a DIY reflective box to measure sound absorption coefficients. This project demonstrated the practical application of mechanical engineering, sustainability principles, and low-cost production innovation.

IMAGES

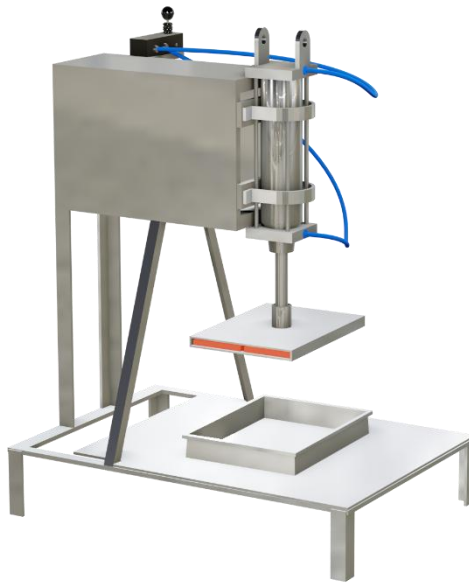


Figure 1 Machine Rendered Image (just for pressing and heating)



Figure 2 test 1: Composite panel with acoustic properties



Figure 3 initial testing setup

For more details about the bonding materials, please contact: itskrishnajith@email.com