

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

Jnana Sangama, Belagavi- 590018



A Mini-Project Report on

“DESIGN AND FABRICATION OF PNEUMATIC LIFTING JACK”

A dissertation submitted in the partial fulfilment of the requirement for the Mini Project

BACHELOR OF ENGINEERING

In

MECHANICAL ENGINEERING

Submitted by:

AKHIL SHARMA K 4AL21ME002

KARTHIK DHANNUR 4AL22ME401

Under the Guidance of

Dr. G B VAGGAR

**Senior Assistant Professor
Mechanical Engineering Department**



ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

Shobhavana Campus, Mijar-574 225, Moodbidri, Dakshina Kannada.

Affiliated to VTU-Belagavi, Approved by AICTE, Accredited by NBA (ECE & CSE) and NAAC • A+

Academic Year: (2023-24)

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

Mijar, Moodbidri D.K. -574225 – Karnataka



DEPARTMENT OF MECHANICAL ENGINEERING

CERTIFICATE

Certified that the project work entitled “**DESIGN AND FABRICATION OF PNEUMATIC LIFTING JACK**” is a bona fide work carried out by

AKHIL SHARMA K

4AL21ME002

KARTHIK DHANNUR

4AL22ME401

are bonafide students of Mechanical engineering at Alva's Institute of Engineering and Technology in partial fulfilment for the award of BACHELOR OF ENGINEERING in Mechanical engineering of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the year 2024–2025. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the Bachelor of Engineering Degree.

Dr G B Vaggar
Project Guide

Dr. Satyanarayan
Head of the Department
Dept. of Mechanical Engineering
Alva's Institute of Engg. & Technology
Mijar, MOODSIDRI - 574 225

ABSTRACT

This Project presents the development and implementation of a pneumatic lifting jack specifically designed for the safe and efficient handling of gas cylinders. The pneumatic lifting jack utilizes compressed air to provide a reliable and controlled lifting mechanism, addressing the challenges associated with manually lifting and positioning heavy gas cylinders. The primary objective of the project was to create a device that enhances safety and operational efficiency in environments where gas cylinders are frequently used, such as industrial settings and laboratories. The design process involved integrating a robust pneumatic system with a sturdy lifting platform, ensuring stability and ease of use. Key features of the pneumatic lifting jack include adjustable lifting heights, precision control, and a safety mechanism to prevent overextension. The jack's performance was evaluated through rigorous testing, demonstrating its effectiveness in minimizing manual handling risks and improving the ergonomics of gas cylinder management. The report details the design considerations, material selections, and operational principles of the pneumatic lifting jack, providing a comprehensive overview of its capabilities and potential applications. This innovation not only enhances workplace safety but also contributes to increased operational efficiency by reducing the physical strain on users and ensuring precise handling of gas cylinders.

KEYWORDS - *Efficient handling, positioning, operational efficiency, sturdy lifting platform, manual handling.*
