



**ANALYSING THE TENSILE STRENGTH OF
INCONEL 718 ALLOY MANUFACTURED BY
3D PRINTING**



A PROJECT REPORT

Submitted by

ABIMANI S (710419114001)

PRAVEEN A (710419114047)

THIRUMENINATHAN D (710419114068)

VIGNESH N (710419114070)

In partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

in

MECHANICAL ENGINEERING

CHRIST THE KING ENGINEERING COLLEGE

COIMBATORE



[Signature]
DR. M. JEYAKANTHAR, M.E., Ph.D.
PRINCIPAL
CHRIST THE KING ENGINEERING COLLEGE,
Chikkattupalayam Village,
Karamadai, Mettupalayam Taluk,
Coimbatore - 641 104.

ANNA UNIVERSITY::CHENNAI 600025

MAY 2023

BONAFIDE CERTIFICATE

Certified that this project report "ANALYSING THE TENSILE STRENGTH OF INCONEL 718 ALLOY MANUFACTURED BY 3D PRINTING is the bonafide work of "ABIMANI S (710419114001), PRAVEEN A (710419114047), THIRUMENINATHAN D (710419114068), VIGNESH N (710419114070) who carried out the project work under my supervision.


SIGNATURE

Prof. R. Hari Prasath
HEAD OF THE DEPARTMENT

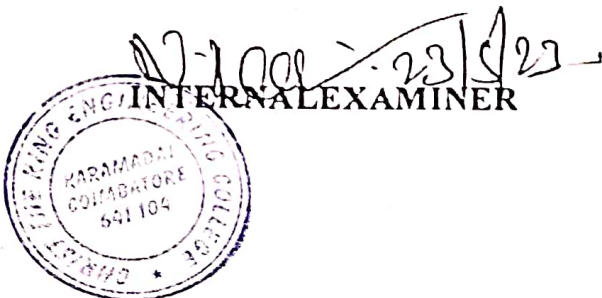
Department of Mechanical Engg.
Christ the King Engineering
College
Coimbatore-641104


SIGNATURE 22/5/23

Prof. N. MANIKANDAN
SUPERVISOR


Assistant Professor
Department of Mechanical Engg.
Christ the King Engineering
College
Coimbatore-641104

Submitted for the project viva voice held on 23/05/2023



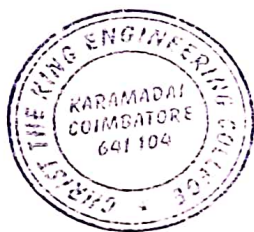

EXTERNAL EXAMINER

ii


DR. M. V. JAYAKUMAR, M.E., Ph.D.
PRINCIPAL
CHRIST THE KING ENGINEERING COLLEGE
Chukkarampattanam Village,
Karamadai, Coimbatore Taluk,
Coimbatore - 641 104.

ABSTRACT

One of the cutting-edge technologies that allows for the preparation of complex geometries is 3D printing. The aerospace industry and other high-stakes fields rely on Inconel superalloy because of its unique combination of qualities, including high strength at high temperatures, corrosion resistance, low thermal conductivity, high hardness, work hardening, and low thermal conductivity. Because of how they are used, aviation parts have to meet stringent reliability and weight requirements, as well as have their mechanical stresses precisely documented. The superalloy Inconel is notoriously challenging to manufacture. As a result, it's more challenging to make intricate geometries. Our experiment uses 3D printing with changing laser power to create the superalloy Inconel. The tensile test was done.





Dr.M.JEYANILAR, M.E.,Ph.D.
PRINCIPAL
CHRIST THE KING ENGINEERING COLLEGE,
Chukkarampattanam Village,
Karamadai, Mettupalayam Taluk,
Coimbatore - 641 104.

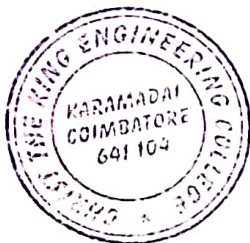
Table 5.1:


Tensile strength value according to Laser Power

Laser Power in W	Tensile strength in MPa
230	1100
260	1132
290	1149

CONCLUSION

DMLS is advanced technology. This can be used for making complex geometry. The super alloy like inconel718 was manufactured and its tensile strength is analysed by varying Laser power. We have got better result when the laser power intensity is higher. The balling formation is dependent on laser power. This can be avoided by increasing the laser power.




Dr. M. JEYAKANTHAR, M.E., Ph.D.
PRINCIPAL
CHRIST THE KING ENGINEERING COLLEGE,
Karamadai, Karamadai Taluk,
Coimbatore - 641 104