DESIGN AND MANUFACTURING OF METAL ALLOY BY DMLS WHOSE LAYER THICKNESS VARIED

A MINI PROJECT REPORT

Submitted by

MICHAEL JOHNSON J(710420114015)

VIGNESH R (710420114029)

ARAVINTH S (710420114304)

SANTHOSH A (710420114325)

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COIMBATORE

CHRIST THE KING ENGINEERING COLLEGE KARAMADAI COIMBATORE 641 104

D.M.JE[illegible]AR, M.E.,Ph.D.
PRINCIPAL
CHRIST THE KING ENGINEERING COLLEGE,
Chikkarampalayam Village,
Karamadai, Mettupalayam Taluk,
Coimbatore - 641 104.

ANNA UNIVERSITY::CHENNAI 600025

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BONAFIDE CERTIFICATE

Certified that this project report "DESIGN AND MANUFACTURING OF METAL ALLOY BY DMLS WHOSE LAYER THICKNESS VARIED" is the bonafide work of "MICHAEL JOHNSON J (710420114015), VIGNESH R (710420114029) ,ARAVINTH S (710420114304), SANTHOSH A (710420114325),**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 31.5.23.
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 02.06.2023

INTERNAL EXAMINER

CHRIST THE KING ENGINEERING COLLEGE KARAMADAI COIMBATORE 641 104

EXTERNAL EXAMINER

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

ABSTRACT

Additive manufacturing (AM) permits the fabrication of various materials, including wax, plastic, and even metal. This paper focuses on direct metal laser sintering (DMLS), a technique that permits the printing of sophisticated metal components. Inconel 718 was selected for this study. Due to its unique properties, which include high strength at high temperatures, corrosion resistance, low thermal conductivity, high hardness, work hardening, and low thermal conductivity, this material is extensively used in the aerospace industry and other demanding applications. Aeroplane components must be incredibly dependable and lightweight, and their mechanical stresses must be precisely described because they are designed according to these criteria. Therefore, each material's mechanical properties must be precisely described, and their minimum limits must be identified. Tensile testing is the finest method for determining a material's fundamental mechanical properties. On a building platform, samples were printed in three distinct orientations, and the differences in mechanical properties can be analysed. In this project, the layer thickness has been changed to find its influence on strength.

CHRIST THE KING ENGINEERING COLLEGE
KARAMADAI
COIMBATORE
641 104

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

CONCLUSION

DMLS is advanced technology. This can be used for making complex geometry. The super alloy like inconel718 was designed and manufactured by varying layer thickeness. The balling formation is dependent on layer thickness. In future, the tensile strength of the specimen can be checked

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KARAMADAI
COIMBATORE
641 104

Dr.M.JEYAKUMAR, M.E.,Ph.D.
PRINCIPAL
CHRIST THE KING ENGINEERING COLLEGE,
Chikkarampalayam Village,
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Coimbatore - 641 104.