

Visvesvaraya Technological University

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A Project Report on

***“EXPERIMENTAL AND COMPUTATIONAL SIMULATIONAL
OF PRODUCING ULTRA FINE GRAINED ALUMINIUM
SILICON CARBIDE COMPOSITES PROCESSED BY
CONSTRAINED GROOVE PRESSING”***

(Sponsored by KSCST, Iisc campus)

**Project Report submitted in partial fulfillment of the requirement for the award
of the degree of Bachelor of Engineering in Mechanical Engineering**

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ABSTRACT

Constrained Groove Pressing is a two step method of Severe Plastic Deformation of metals. The work-piece is initially deformed to a corrugated shape and then straightened between two flat plates using a processing cycle that may be repeated many times. It subjects the work-piece to both bending and shear, which promotes grain refinement.

An advantage of CGP is that it can be adapted easily to current industrial facilities. This technique is currently in the early stages and further research is needed to develop the process to a mature SPD technique for producing nanostructured materials. One critical issue is the need to design equipment and processing schedules for improving micro structural homogeneity.

In this project, we have made a successful attempt of literature survey, die designing, testing and documentation of results of the Severe Plastic Deformation of aluminum alloy using CGP process.