

INFLUENCE OF SPECIMEN GEOMETRY AND LUBRICATION CONDITIONS ON THE COMPRESSION BEHAVIOR OF AA6066 ALUMINUM ALLOY

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ABSTRACT

In this work, the results from a series of experiments are presented to determine the effect of specimen geometry/dimensions on the compression behavior of AA6066Al alloy. Three geometries of compression specimens have been used; solid, tapered and collar. For each geometry, the compression tests have been carried out under dry and lubricated conditions. The experiments have been conducted at various aspect ratios: H_0/D_0 ; 1.5, 1.25, 1, 0.75, and 0.5. The results showed that the circumferential strain ϵ_θ of the cylindrical specimens increases as the axial strain ϵ_z increases. For collar specimens, the values of local strain ϵ_z are inversely proportional to the total axial strain, while for tapered specimens, the local circumferential strains ϵ_θ are very close to the total circumferential strain.

KEYWORDS: Specimen Geometry, Compression Test, True Stress-Strain, AA6066Al Alloy