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Design and Manufacturing of Curve Surface Milling Mechanism

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Abstract: Convex surface milling plays an important role in industries requiring complex shapes. CNC machines typically handle this task but are expensive and complex. This paper introduces a manual convex surface milling mechanism that is affordable, efficient, and suitable for materials like aluminum, MDF, and acrylic. The mechanism uses a lead screw-driven curved platform beneath a stationary milling tool. Experimental tests demonstrated acceptable surface finishes comparable to CNC machining within educational and prototyping tolerances

Keywords: Convex Surface Milling, Manual Milling, Lead Screw Mechanism, CNC Alternative, Surface Roughness.





