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Diamond Turning and Linear Sine Wave Profiling

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Abstract:

This poster covers the process of machining and programming the thin tin and copper Richtmyer–Meshkov instability targets that have different amplitude perturbations that range from $4\mu\text{m}$ to $200\mu\text{m}$ across the face of the target. The puck of material is a zero press fit of rings of material that are diamond turned to create a flat platform for the shock experiment with a tolerance of $2\mu\text{m}$. A custom software programming function was written to move the diamond turning profiler through the X-Y-Z movements to cut the pure planar straight sine wave geometry. The software is optimized to push the profile of the whole part into the face while eliminating any unneeded passes that do not cut any material.