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M1Po2D-03: Development of an apparatus and process for precision cryogenic thermal contraction measurements

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NASA frequently needs thermal contraction data for materials to be used in cryogenic space flight missions. To satisfy this need, we developed an apparatus and a high-precision technique for performing such measurements using a commercial fiber-optic-based position sensor. We describe the measurement process and its verification using a copper sample. We also present data for two materials which we characterized for potential NASA use.

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