Coordinate Metrology Society
Coordinate Metrology Systems Conference 2015
Hollywood, Florida | July 20-24, 2015

CMS-2015-001

The Effect of Threaded Targets on Measurement Uncertainty

AUTHORS
Robert Elliott

ORGANIZATION
Lockheed Martin

Published by the Coordinate Metrology Society. Reference number CMS-2015-001.
Copyright remains with the author(s). Redistribution requires permission.

Robert Elliott

Lockheed Martin

408-756-4074

The study of measurement uncertainty is of utmost importance to anyone in the field of metrology. Often the focus in the area of uncertainty is the metrology instruments used and the targets used are overlooked. This paper will study the repeatability of threaded targets in holes and the error resulting from repeatedly threading target nests into holes.

The error will be quantified by threading a lot of male threaded targets into mating female bushings and measuring them with a CMM arm. The targets will be removed and reinstalled into the same holes and re-measured. The nests will also be removed and installed in random bushings to measure any random error. This process will be repeated for several different shank diameters.

The goal if this experiment and resulting paper is to quantify the error resulting from removing and replacing threaded target nests.