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Precision Balls

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ABSTRACT

Precision Balls

A new understanding of a very old phenomenon, is adding new accuracy to the calibration of Coordinate Measuring Machines. A new and much more sensitive Ball Bar length calibration machine is now in use at the U.S. National Institute of Standards and Technology, and it has uncovered an unexpected phenomenon. It has long been known that the fixed distance between the point center of one very accurate sphere to the point center of another sphere, that are separated by a long rigid bar is a very accurately fixed value. If the quality and common diameter of the two spheres are good enough this distance can be determined to fractions of one part per million.

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