

AN AMERICAN NATIONAL STANDARD

Axes of Rotation

Methods for Specifying and Testing

ANSI/ASME B89.3.4M - 1985

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FOREWORD

(This Foreword is not a part of ANSI/ASME B89.3.4M-1985)

The testing of axes of rotation is at least as old as machine tools since most forms of machine tools incorporate such an axis. One of the more widely distributed European works on testing machine tools¹ devotes considerable attention to the problems encountered. Consideration of principles, equipment, and methods were included in the work.

Other European work² was carried forward and was published, in part, in 1959. As a result, a variety of terms came into use throughout the world to describe and explain the various phenomena found during testing and subsequent use of machine tool spindles.

In the United States, work published in 1967³ represented a new viewpoint both in definitions and methods of testing. This work also underscored the lack of standardization of the entire subject of rotational axes.

When the American National Standards Subcommittee B89.3, Geometry, was formed in February 1963, axes of rotation were not initially considered as a separate topic. This Standard, which was initiated by J. K. Emery in August 1968 as a part of the Geometry Subcommittee work, is the result of recognizing the need for uniform technology and methods of testing for axes of rotation.

The goal in preparing the present Standard has been to produce a comprehensive document for the description, specification, and testing of axes of rotation. Because this is both a new and a comprehensive Standard, extensive advisory material has been provided in the Appendices as an aid to the user. It is recommended that this material be studied before putting the Standard to use. While the examples of the Appendices involve machine tools and measuring machines, the terminology and the underlying concepts are applicable to any situation in which the performance of a rotary axis is of concern.

This Standard was adopted as an American National Standard by the American National Standards Institute (ANSI) on May 17, 1985.

¹Schlesinger, G., Testing Machine Tools, Machinery Publishing Co.

²Plusty, J., System and Methods of Testing Machine Tools, Microtechnic, 13, 162 (1959)

³Bryan, J. B., Clouser, R. W., and Holland, E., Spindle Accuracy, *American Machinist*, Dec. 4, 1967