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**Geometrical product specifications (GPS)
— Acceptance and reverification tests for
coordinate measuring systems (CMS) —
Part 5: Coordinate measuring machines
(CMMs) using single and multiple stylus
contacting probing systems using dis-
crete point and/or scanning measuring
mode**

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Foreword

This Japanese Industrial Standard has been revised by the Minister of Economy, Trade and Industry based on the provision of Article 14, paragraph (1) of the Industrial Standardization Act applied *mutatis mutandis* pursuant to the provision of Article 16 of the said Act in response to a proposal for revision of Japanese Industrial Standard with a draft being attached, submitted by Japanese Standards Association (JSA), an accredited standards development organization. This edition replaces the previous edition (**JIS B 7440-5** : 2013), which has been technically revised, and **JIS B 7440-4** : 2003, which has been withdrawn.

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JIS B 7440 series consists of the following 9 parts under the general title *Geometrical product specifications (GPS) — Acceptance and verification tests for coordinate measuring systems (CMS)*:

JIS B 7440-1 *Vocabulary*

JIS B 7440-2 *CMMs used for measuring linear dimensions*

JIS B 7440-3 *CMMs with the axis of a rotary table as the fourth axis*

JIS B 7440-5 *Coordinate measuring machines (CMMs) using single and multiple stylus contacting probing systems using discrete point and/or scanning measuring mode*

JIS B 7440-6 *Estimation of errors in computing Gaussian associated features*

JIS B 7440-7 *CMMs equipped with imaging probing systems*

JIS B 7440-8 *CMMs with optical distance sensors*

JIS B 7440-9 *CMMs with multiple probing systems*

JIS B 7440-12 *Articulated arm coordinate measuring machines (CMM)*

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Geometrical product specifications (GPS) — Acceptance and reverification tests for coordinate measuring systems (CMS) — Part 5 : Coordinate measuring machines (CMMs) using single and multiple stylus contacting probing systems using discrete point and/or scanning measuring mode

Introduction

This Japanese Industrial Standard has been prepared based on **ISO 10360-5 : 2020**, Edition 3, with some modifications of the technical contents.

The dotted underlines indicate changes from the corresponding International Standard. A list of modifications with the explanations is given in Annex JA.

For more detailed information on the relation of this Standard to other standards and the GPS matrix model, see Annex G.

1 Scope

This Standard specifies acceptance and periodic reverification tests of performance of coordinate measuring machines (CMMs) with contacting probing systems and is only applicable to CMMs using :

- any type of contacting probing system; and
- spherical or hemispherical stylus tip(s).

NOTE 1 CMM probing performance tests are specified by the maximum permissible errors (MPEs), due to the impracticality of isolating the performance of the probing system from that of the CMM, even on a small artefact such as a test sphere.

This Standard applies to manual and automated CMMs supplied with any of the following :

- single-stylus probing system;
- multi-stylus probing systems with fixed multiple styli attached to a single probe (e.g. star stylus);
- multiple probing systems such as those with a stylus for each of their probes;
- systems with articulating probing systems;
- stylus and probe changing systems;
- manual (non-driven) and automated CMMs;
- installations including a scanning probe, capable of being used in a scanning mode.

This Standard is not applicable to non-contacting probing systems, which require