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SINGAPORE STANDARD

Robots and robotic devices – Coordinate systems and motion nomenclatures

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Robots and robotic devices – Coordinate systems and motion nomenclatures

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National Foreword

This Singapore Standard was prepared by the Working Group on Robotics Terminology set up by the Technical Committee on Robotics and Automation under the purview of the Manufacturing Standards Committee.

This standard is an identical adoption of ISO 9787:2013, “Robots and robotic devices – Coordinate systems and motion nomenclatures”, published by the International Organization for Standardization.

Attention is drawn to the possibility that some of the elements of this Singapore Standard may be the subject of patent rights. Enterprise Singapore shall not be held responsible for identifying any or all of such patent rights.

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Robots et composants robotiques — Systèmes de coordonnées et nomenclatures de mouvements

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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ISO 9787 was prepared by Technical Committee ISO/TC 184, *Automation systems and integration*, Subcommittee SC 2, *Robots and robotic devices*.

This third edition of ISO 9787 cancels and replaces the second edition (ISO 9787:1999), which has been technically revised. In particular, the scope has been expanded to include robots operating in both industrial and non-industrial environments.

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Introduction

This International Standard is one of a series of International Standards dealing with robots and robotic devices, which cover topics including vocabulary, safety, presentation of characteristics, performance criteria and related test methods, and mechanical interfaces. The series of International Standards dealing with robots and robotic devices are interrelated and are related to other International Standards.

Annex A provides examples of applications for different mechanical structures.

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INTERNATIONAL STANDARD **ISO 9787:2013(E)**

Robots and robotic devices — Coordinate systems and motion nomenclatures

1 Scope

This International Standard defines and specifies robot coordinate systems. It also provides nomenclature, including notations, for the basic robot motions. It is intended to aid in robot alignment, testing, and programming.

This International Standard applies to all robots and robotic devices as defined in ISO 8373.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 8373:2012, *Robots and robotic devices — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 8373 and the following apply.

3.1
configuration
set of all joint values that completely determines the shape of the robot at any time

[SOURCE: ISO 8373:2012, 3.5]

3.2
base mounting surface
connection surface between the arm and its supporting structure

[SOURCE: ISO 8373:2012, 3.9]

3.3
mobile platform
assembly of all components of the mobile robot which enables locomotion

[SOURCE: ISO 8373:2012, 3.18, modified — Notes 1 and 2 have been removed.]

3.4
world coordinate system
stationary coordinate system referenced to earth, which is independent of the robot motion

[SOURCE: ISO 8373:2012, 4.7.1]

3.5
base coordinate system
coordinate system referenced to the base mounting surface

[SOURCE: ISO 8373:2012, 4.7.2]

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