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SINGAPORE STANDARD

Robots and robotic devices – Coordinate systems and motion nomenclatures

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This Singapore Standard was approved by the Manufacturing Standards Committee on behalf of the Singapore Standards Council on 7 December 2017.

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The Working Group on Safety Requirements for Industrial Robots, appointed by the Technical Committee to assist in the preparation of this standard, comprises the following experts who contribute in their *individual capacity*:

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The organisations in which the experts of the Working Group are involved are:

ABB Pte Ltd
Ministry of Manpower
National University of Singapore
OMRON Electronics Pte Ltd
Singapore Industrial Automation Association
Singapore Institute of Manufacturing Technology
Singapore University of Technology and Design
Temasek Polytechnic
Universal Robots Pte Ltd
Yaskawa Electric (Singapore) Pte Ltd
Zacobria Pte Ltd

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National Foreword

This Singapore Standard was prepared by the Working Group on Safety Requirements for Industrial Robots appointed by the Technical Committee on Automation, Robotics and Precision Engineering under the direction of the Manufacturing Standards Committee.

This standard is identical with ISO 9787:2013, published by the International Organization for Standardization.

Where appropriate, the words 'International Standard' shall be read as 'Singapore Standard'.

Attention is also 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.

NOTE

1. *Singapore Standards (SSs) and Technical References (TRs) are reviewed periodically to keep abreast of technical changes, technological developments and industry practices. The changes are documented through the issue of either amendments or revisions.*

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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.

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

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

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 structure

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*