AS 3986—1991
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Australian Standard®

Manipulating industrial robots—Coordinate systems and motions

This Australian Standard was prepared by Committee IT/6, Information Processing Systems for Industrial Automation. It was approved on behalf of the Council of Standards Australia on 16 August 1991 and published on 15 November 1991.

The following interests are represented on Committee IT/6:

Australian Electrical and Electronic Manufacturers Association
Australian Information Industry Association
Australian Robot Association
Confederation of Australian Industry
Department of Technical and Further Education N.S.W.
Division of Manufacturing Technology, CSIRO
University of Melbourne

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PREFACE

This Standard was prepared by the Standards Australia Committee on Information Processing Systems for Industrial Automation. It is identical with and has been reproduced from ISO 9787:1990 *Manipulating industrial robots—Coordinate systems and motions.*

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(i) *Terminology* The words 'Australian Standard' should replace the words 'International Standard' wherever they appear.

(ii) *References* The references to International Standards should be replaced by references to Australian Standards as follows:

Reference to International Standard		*Australian Standard*	
ISO		AS	
TR 8373	Manipulating industrial robots—Vocabulary	3877	Manipulating industrial robots—Vocabulary

Manipulating industrial robots—Coordinate systems and motions

1 Scope

This International Standard defines and specifies three robot coordinate systems; it also gives the axis nomenclature. It is intended to aid in robot alignment, testing, and programming.

This International Standard applies to all manipulating industrial robots as defined in ISO/TR 8373.

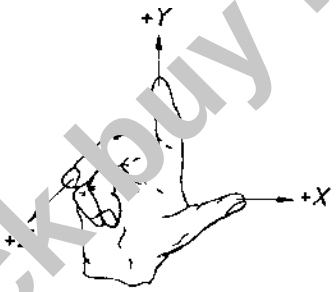

Figure 1 — Right-hand coordinate system

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO/TR 8373:1988, *Manipulating industrial robots — Vocabulary.*

3 Definitions

For the purposes of this International Standard, the definitions given in ISO/TR 8373 apply.

4 Defined coordinate systems

All coordinate systems described in this International Standard are defined by the right-hand rule as shown in figure 1.

A, B and C define rotary motions about axes respectively parallel to X, Y and Z.

Positive A, B and C are in the directions to advance right-hand screws in the positive X, Y and Z directions respectively (see figure 2).

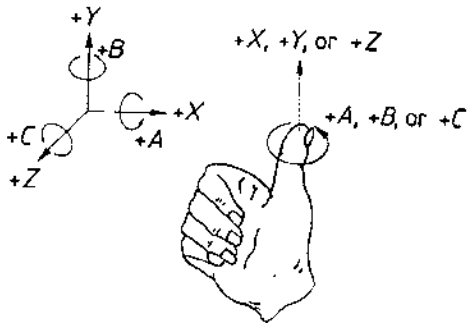

Figure 2 — Rotary motions

The three coordinate systems described are the World, Base, and Mechanical Interface, each referring to the plane in which the X - Y axes lie (e.g. the X - Y axes of the base coordinate system lie in the plane of the base mounting surface). The Z axis is