

INTERNATIONAL
STANDARD

ISO
9946

Second edition
1999-04-01

**Manipulating industrial robots —
Presentation of characteristics**

Robots manipulateurs industriels — Présentation des caractéristiques

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Reference number
ISO 9946:1999(E)

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International Organization for Standardization
Case postale 56 • CH-1211 Genève 20 • Switzerland
Internet iso@iso.ch

Printed in Switzerland

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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.

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.

International Standard ISO 9946 was prepared by Technical Committee ISO/TC 184, *Industrial automation systems and integration*, Subcommittee SC 2, *Robots for manufacturing environment*.

This second edition cancels and replaces the first edition (ISO 9946:1991) of which it constitutes a technical revision.

Annexes A and B of this International Standard are for information only.

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Introduction

ISO 9946 is part of a series of International Standards dealing with manipulating industrial robots. Other International Standards cover such topics as safety, performance criteria and related testing methods, coordinate systems, terminology, and mechanical interfaces. It is noted that these standards are interrelated and also related to other International Standards.

The number of manipulating industrial robots used in a manufacturing environment is constantly increasing and this has underlined the need for a standard format for the specification and presentation of robot characteristics.

The objective of ISO 9946 is to assist users and manufacturers in the understanding and comparison of various types of robots.

ISO 11593:1996 contains a vocabulary and a format for the presentation of automatic end effector exchange systems characteristics.

Annex A of this International Standard provides a recommended format for the presentation of robot specification.

Annex B provides a description of the symbols of performance criteria.

NOTE For the purposes of this International Standard, the term "robot" means "manipulating industrial robot".

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Manipulating industrial robots — Presentation of characteristics

1 Scope

This International Standard specifies how characteristics of robots shall be presented by the manufacturer.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were 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 editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 8373:1994, *Manipulating industrial robots — Vocabulary*.

ISO 9283:1998, *Manipulating industrial robots — Performance criteria and related test methods*.

ISO 9409-1:1996, *Manipulating industrial robots — Mechanical interfaces — Part 1: Plates (form A)*.

ISO 9787:—¹⁾, *Manipulating industrial robots — Coordinate systems and motion nomenclatures*.

ISO 10218:1992, *Manipulating industrial robots — Safety*.

3 Definitions

For the purposes of this International Standard, the definitions given in ISO 8373 and the following definition apply.

3.1

centre of the working space (C_w)

is the position of the wrist reference point when each active joint in the arm is in the middle position of its moving range

4 Units

Unless otherwise stated, all dimensions are as follows:

- length in millimetres (mm);
- angle in radians (rad) or degrees (°);
- time in seconds (s);
- mass in kilograms (kg);
- force in newtons (N);
- velocity in metres per second (m/s), radians per second (rad/s) or degrees per second (°/s).

1) This International Standard is subject to revision and the year of publication will be inserted at a later stage.