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Robots for industrial environments — Automatic end effector exchange systems — Vocabulary

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National foreword

This British Standard is the UK implementation of ISO 11593:2022. Together with ISO 11593:2022, it supersedes ISO 11593:1996 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee AMT/10, Robotics.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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INTERNATIONAL STANDARD

ISO 11593

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Robots for industrial environments — Automatic end effector exchange systems — Vocabulary

Robots manipulateurs industriels — Systèmes de changement automatique de terminal — Vocabulaire

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 299, *Robotics*.

This second edition cancels and replaces the first edition (ISO 11593:1996), which has been technically revised.

The main changes are as follows:

— references, terminology and drawings have been updated;

— the Scope and the Introduction have been updated;

— reference documents have been moved from the Normative references clause to the Bibliography;

— the document has been restructured and Annex A has been removed.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

This document is one of a family of standards dealing with the requirements of components of robot systems for industrial environments.

This document contains the vocabulary for end-effector exchange systems. This document does not contain any details for the development and design of these systems.

For the terms related to coupling and releasing forces (see 3.4), all permissible maximum values for the load characteristics are valid for the sum of both static and dynamic loads and all load characteristics are stated for the reference plane.

For the terms related to magazine interfaces of the tool-mounted part (see 3.7), the performance criteria should be used in the same sense as those used in the terms related to the external shape and main dimensions of the exchange system (see 3.2). The defined coordinate system is still valid even if the direction of insert movement into the magazine is different from the coupling direction at the exchange of the tool. They differ in their value and their direction as well as in the force of coupling work which is required to assemble or release the tool part from the robot part of the interface.

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INTERNATIONAL STANDARD ISO 11593:2022

Robots for industrial environments — Automatic end effector exchange systems — Vocabulary

1 Scope

This document defines terms relevant to automatic end-effector exchange systems used as a part of robot systems in accordance with ISO 10218-2.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1 General terms and definitions

3.1.1
automatic end-effector exchange system
coupling device between the mechanical interface and the end-effector enabling automatic exchange of end-effectors, made up of a *robot-mounted part* (3.1.2) and one or more *tool-mounted parts* (3.1.3)

Note 1 to entry: Also referred to as tool changer, quick-change device, automatic tool changer, robotic tool changer or robot coupler.

3.1.2
robot-mounted part
part of an *automatic end-effector exchange system* (3.1.1) that is attached to the mechanical interface of a manipulator

Note 1 to entry: Also referred to as master or robot side.

3.1.3
tool-mounted part
part of an *automatic end-effector exchange system* (3.1.1) that is attached to the end-effector

Note 1 to entry: Also referred to as slave or tool side.

3.1.4
couple, verb
join the *robot-mounted part* (3.1.2) to the *tool-mounted part* (3.1.3)

3.1.5
uncouple, verb
release the *tool-mounted part* (3.1.3) from the *robot-mounted part* (3.1.2)

3.1.6
lock, verb
actuate the locking elements to secure the *tool-mounted part* (3.1.3) to the *robot-mounted part* (3.1.2)

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