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Second edition
2010-12-15

Industrial automation systems and integration — Parts library —

Part 42: Description methodology: Methodology for structuring parts families

Systèmes d'automatisation industrielle et intégration — Bibliothèque de composants —

Partie 42: Méthodologie descriptive: Méthodologie appliquée à la structuration des familles de pièces

Reference number
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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 13584-42 was prepared by Technical Committee ISO/TC 184, *Automation systems and integration*, Subcommittee SC 4, *Industrial data*.

This second edition of ISO 13584-42 constitutes a technical revision of ISO 13584-42:1998, which is provisionally retained in order to support continued use and maintenance of implementations based on it and to satisfy the normative references of other parts of ISO 13584. This second edition of ISO 13584-42 also incorporates the Technical Corrigendum ISO 13584-42:1998/Cor.1:2003.

ISO 13584 consists of the following parts, under the general title *Industrial automation systems and integration — Parts library:*

— *Part 1: Overview and fundamental principles*

— *Part 20: Logical resource: Logical model of expressions*

— *Part 24: Logical resource: Logical model of supplier library*

— *Part 25: Logical resource: Logical model of supplier library with aggregate values and explicit content*

— *Part 26: Logical resource: Information supplier identification*

— *Part 31: Implementation resources: Geometric programming interface*

— *Part 32: Implementation resources: OntoML: Product ontology markup language*

— *Part 35: Implementation resources: Spreadsheet interface for parts library* [Technical Specification]

— *Part 42: Description methodology: Methodology for structuring parts families*

— *Part 101: Geometrical view exchange protocol by parametric program*

— *Part 102: View exchange protocol by ISO 10303 conforming specification*

— *Part 501: Reference dictionary for measuring instruments — Registration procedure*

— *Part 511: Mechanical systems and components for general use — Reference dictionary for fasteners*

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The structure of ISO 13584 is described in ISO 13584-1. The numbering of the parts of ISO 13584 reflects its structure:

— *Parts 10 to 19 specify the conceptual descriptions;*

— *Parts 20 to 29 specify the logical resources;*

— *Parts 30 to 39 specify the implementation resources;*

— *Parts 40 to 49 specify the description methodology;*

— *Parts 100 to 199 specify the view exchange protocols;*

— *Parts 500 to 599 specify the reference dictionaries.*

A complete list of parts of ISO 13584 is available from the following URL:

http://www.tc184-sc4.org/Titles/PLIB_Titles.htm

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Introduction

ISO 13584 is a collection of International Standards for the computer-interpretable representation and exchange of parts library data. The objective is to provide a neutral mechanism capable of transferring parts library data, independent of any application that is using a parts library data system. The nature of this description makes it suitable not only for the exchange of files containing parts, but also as a basis for implementing and sharing databases of parts library data.

ISO 13584 is organized as a series of parts, each published separately. The parts of ISO 13854 fall into one of the following series: conceptual descriptions, logical resources, implementation resources, description methodology, view exchange protocol, and reference dictionaries. The series are described in ISO 13584-1. This part of ISO 13584 is a part of the description methodology series.

This part of ISO 13584 provides rules and guidelines for standardization committees and for other information suppliers to create product ontologies. These product ontologies consist of hierarchies of characterization classes of parts built according to a common methodology intended to enable multi-supplier consistency. These rules pertain to the following: the method for grouping parts into characterization classes of parts to form a hierarchy; the method for associating part properties to characterization classes of parts, the dictionary elements that describe the classes and properties of parts.

This part of ISO 13584 refers as a normative reference to the data model that specifies the exchange of dictionary data. This EXPRESS specification was developed as a common model for ISO 13584 and IEC 61360, and is intended to be published as IEC 61360-2. For convenience, this common model is provided in this part of ISO 13584 as an informative annex that duplicates the normative content of IEC 61360-2. This part of ISO 13584 also provides the mapping of the concepts described here onto the common model. To understand Annex F, which contains a description of this model, knowledge of the EXPRESS language is required. The EXPRESS language is defined in ISO 10303-11:1994. No particular knowledge is required to understand the normative clauses of this part of ISO 13584.

This second edition of this part of ISO 13854 introduces the following modelling capabilities:

— the capability to model constraints on properties by restricting their domain of values;

— the capability to model and distinguish characterization classes and categorization classes;

— the capability to model aggregation and composition using a single resource mechanism;

— the capability to describe strings that carry external references;

— the capability to connect classes that belong to different class hierarchies.

This second edition of this part of ISO 13584 has removed the following:

— the capability to specialize item classes as feature classes, component classes or material classes.

NOTE The following changes ensure that a dictionary conforming with the first edition of this part of ISO 13584 conforms to this edition: (1) replace **feature_class**, **component_class** and **material_class** by **item_class** throughout the reference dictionary; (2) add to each new **item_class** class the **instance_sharable** attribute, the value of which being true for **component_class** and **material_class**, and false for **feature_class**; (3) add the places of a number of additional attributes.

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