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Industrial automation systems and integration – Parts library – Part 42: Description methodology: Methodology for structuring part families

Industriautomation – Artikelbibliotek – Del 42: Beskrivningsmetodologi: Strukturering av artikelfamiljer

The International Standard ISO 13584-42:1998 has the status of a Swedish Standard. The International Standard was endorsed as SS-ISO 13584-42 in 1998-08-21 and is now published in an English language version that supersedes the endorsement notice.

Swedish Standards corresponding to documents referred to in this Standard are listed in ”Catalogue of Swedish Standards”, issued by SIS. The Catalogue lists, with reference number and year of Swedish approval, International and European Standards approved as Swedish Standards as well as other Swedish Standards.

Den internationella standarden ISO 13584-42: 1998 gäller som svensk standard. Den internationella standarden ikraftsattes 1998-08-21 som SS-ISO 13584-42 och utges nu i engelsk språkversion. Detta dokument ersätter det tidigare utgivna ikraftsättningsdokumentet.

Motsvarigheten och aktualiteten i svensk standard till de publikationer som omnämns i denna standard framgår av ”Katalog över svensk standard”, som ges ut av SIS. I katalogen redovisas internationella och europeiska standarder som fastställts som svenska standarder och övriga gällande svenska standarder.

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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 organisations, 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 standardisation.

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

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 10: Conceptual description: Conceptual model of parts library*

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

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

— *Part 26: Logical resource: Supplier identification*

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

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

— *Part 101: View exchange protocol: Geometric view exchange protocol by parametric program*

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

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 50 to 59 specify the conformance testing,

— Parts 100 to 199 specify the view exchange protocol,

— Parts 500 to 599 specify the standardised content.

Should further parts of ISO 13584 be published, they will follow the same numbering pattern.

Annexes A, B and C form an integral part of this part of ISO 13584. Annexes D, E, G and H are for information only.

Introduction

ISO 13584 is an International Standard for the computer-interpretable representation and exchange of part 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 13854 is organised 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, conformance testing, view exchange protocol, and standardised content. The series are described in ISO 13584-1. This part of ISO 13584 is a member of the description methodology series.

This part of ISO 13584 provides rules and guidelines for library data suppliers to create hierarchies of families of parts according to a common methodology intended to enable multi-supplier consistency. These rules pertain to the following: the method for grouping parts into families of parts to form a hierarchy; the dictionary elements that describe the families 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. It 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.

Industrial automation systems and integration — Parts library — Part 42: Description methodology: Methodology for structuring part families

1 Scope

This part of ISO 13584 specifies the principles that shall be used for defining families of parts and properties of parts to fully characterize parts and associated properties.

The rules and guidelines provided in this part of ISO 13584 are mandatory for the standardisation committees responsible for creating standardised identification hierarchies.

The use of these rules by suppliers and users is recommended as a methodology for building their own hierarchies.

The following are within the scope of this part of ISO 13584:

— the rule to group parts into generic families of parts and simple families of parts;

— the rules for the choice of the appropriate properties that shall be associated with the families of parts;

— the attributes that shall be provided by library data suppliers to describe the families and properties of parts.

— the specifications of those attributes in the EXPRESS information model that provide for the exchange of such dictionary data.

NOTE 1 The EXPRESS information model for the exchange of dictionary data is defined in IEC 61360-2.

NOTE 2 The content of this EXPRESS information model is in the informative Annex D of this part of ISO 13584 that duplicates the normative content of IEC 61360-3.

The following are outside the scope of this part of ISO 13584:

— libraries of assembled parts with aggregate structure (Level 3 libraries);

— the description of the parts themselves;

— the descriptions of the functional models that may refer to some family of parts;

— the description of tables, program libraries and documents that may refer to some family of parts;

— the description of the systems intended to manage parts libraries; and

— the EXPRESS resource constructs for references between libraries.

NOTE The EXPRESS resource constructs for tables, programs libraries, documents and for references between libraries are defined in ISO 13584-24.

The structure of the information and the methodology defined in this part of ISO 13584 enable the following:

— integration in the same data repository of different parts libraries originating from different library data suppliers with an uniform access mechanism provided by a dictionary;

— integration in the same data repository of different definitions of materials originating from different suppliers with an uniform access mechanism provided by a dictionary;

— referencing another supplier library assumed to be available on the receiving system;

— referencing a standardised identification hierarchy when such a hierarchy exists;

— definition by an end-user of a local classification or search hierarchy, and the mapping of these hierarchies onto the supplier libraries available on its system.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 13584. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 13584 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 31-0:1992, *Quantities and units — Part 0: General principles.*

ISO 4217, *Codes for the representation of names of currencies and funds.*

ISO 6093:1985, *Information processing — Representation of numerical values in character strings for information interchange.*

ISO 8601:1988, *Data elements and interchange formats — Information interchange — Representations of dates and times.*

ISO/IEC 8824-1:1995, *Information technology — Abstract Syntax Notation One (ASN.1): Specification of basic notation*.

ISO 8879-1:1987, *Information processing — 8-bit single-byte coded graphic character sets — Part 1: Latin alphabet No. 1.*

ISO 8879:1986, *Information processing — Text and office systems — Standard Generalized Markup Language (SGML).*

ISO 9735:1988, *Electronic data interchange for administration, commerce and transport (EDIFACT) — Application level syntax rules.*

ISO 10303-1:1994, *Industrial automation systems and integration — Product data representation and exchange — Part 1: Overview and fundamental principles.*

ISO 10303-11:1994, *Industrial automation systems and integration — Product data representation and exchange — Part 11: Description methods: The EXPRESS language reference manual.*

ISO 10303-21:1994, *Industrial automation systems and integration — Product data representation and exchange — Part 21: Implementation methods: Clear text encoding of the exchange structure.*

ISO 10303-41:1994, *Industrial automation systems and integration — Product data representation and exchange — Part 41: Integrated generic resources: Fundamentals of product description and support.*

ISO 10303-42:1994, *Industrial automation systems and integration — Product data representation and exchange — Part 42: Integrated generic resources: Geometric and topological representation.*

ISO 12083:1992, *Information and documentation — Electronic manuscript preparation and markup.*

ISO/IEC 11179-3:1994, *Information technology — Specification and standardization of data elements — Basic attributes of data elements.*

ISO 13584-10:—[1], *Industrial automation systems and integration — Parts library — Part 10: Conceptual model.*

International Classification of Standards (ICS), 1993.

IEC 61360-1:1995, *Standard data element types with associated classification scheme for electric components — Part 1: Definitions — Principles and methods.*

IEC 61360-2:—[1], *Standard data element types with associated classification scheme for electric components — Part 2: EXPRESS Dictionary Schema.*

IEC 61360-3:1995, *Standard data element types with associated classification scheme for electric components — Part 3: Maintenance and validation procedures.*

IEC 61360-4:1997, *Standard data element types with associated classification scheme for electric components — Part 4: IEC reference collection of standard data element types, component classes and terms.*

1 To be published