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Technical product documentation — Handling of computer-based technical information —

Part 4:

Document management and retrieval systems

*Documentation technique de produits — Gestion des informations
techniques assistée par ordinateur —*

Partie 4: Gestion de documents et systèmes de recherche documentaire



Reference number
ISO 11442-4:1993(E)

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 11442-4 was prepared by Technical Committee ISO/TC 10, *Technical drawings, product definition and related documentation*.

ISO 11442 consists of the following parts, under the general title *Technical product documentation — Handling of computer-based technical information*:

- Part 1: *Security requirements*
- Part 2: *Original documentation*
- Part 3: *Phases in the product design process*
- Part 4: *Document management and retrieval systems*

Annex A of this part of ISO 11442 is for information only.

Technical product documentation — Handling of computer-based technical information —

Part 4:

Document management and retrieval systems

1 Scope

This part of ISO 11442 gives the basic prerequisites for the efficient handling of documents and activities in the different phases of design work.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 11442. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 11442 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 10209-1:1992, *Technical product documentation — Vocabulary — Part 1: Terms relating to technical drawings: general and types of drawings*.

ISO/TR 10623:1991, *Technical product documentation — Requirements for computer-aided design and draughting — Vocabulary*.

3 Definitions

For the purposes of this part of ISO 11442, the definitions given in ISO 10209-1 apply. Further terminology is given in ISO/TR 10623.

4 Identification and classification criteria

Criteria for the identification and classification of technical documentation are divided into two groups:

administrative criteria and technical criteria. This provides the basis for efficient management of documents and activities in the different phases of design work.

- In the development phase: retrieval of filed documents within relevant areas of activity, materials, processes, etc.
- In the approval phase: retrieval according to type of documents, product area, etc.
- In the distribution phase: proper distribution of documents within certain subject areas.
- In the storage phase: retrieval of stored documents produced within a specific time, concerning a specific area of activity, etc.
- In the revision phase: possibilities for a general revision of all documents concerned with a certain field of interest without the need to penetrate each individual document. The classification criteria also constitute the basis for efficient implementation of the phasing-out routines.

For further information on the different phases in design work, see ISO 11442-3.

4.1 Administrative criteria, document management

The technical documentation of design activities requires an administrative content, providing a means of control for all documents, paper-based or computer-based. Administrative data are data needed for efficient administration and storage of the documents and data transfer to other parties.

This administrative content may be divided into three separate groups as described in annex A, viz. primary data, status data and subscription data.

4.1.1 Primary data

Primary data constitute the compulsory identification of a document. This identification consists of the identification number of the document (drawing number), the object name, the edition and any information necessary for commencing a revision procedure. In addition, it may be necessary to identify the type and size of document, document medium, storage place and language version.

4.1.1.1 Identification number, for example drawing number

In connection with the computerization of design activities, the drawing number file is often included. In order not to complicate such a computerization, a consecutive numbering method should be used. The number may be alphanumeric. If the number has any classification meaning, this system should be abandoned. This type of information should be stated separately.

The drawing number file shall include all documents identified with drawing numbers, as well as those manually produced.

4.1.1.2 Identification text, for example title or description

The identification text is normally a supplement to the identification number and is of particular importance for manually produced drawings. If the identification text is to be used for retrieval, a standardized system of nomenclature shall be applied.

4.1.1.3 Revision data

Revision data are those which administratively indicate and control the revision activities for each document. Examples of such data are:

- a) revision order:
 - 1) name (person responsible),
 - 2) date,
 - 3) number (registration number);
- b) request for the original document to be revised:
 - 1) name (person carrying out the revision),
 - 2) date;
- c) revision date:

- 1) name (person approving release of revised document),

- 2) date,

- 3) number (index);

- d) issue of revised document:

- 1) date,

- 2) issue number (index).

4.1.1.4 Type of document

Type of document is a general classification of document contents with regard to application. It may be used for retrieval purposes. Examples of types of document are: assembly drawing, item list, wiring diagram, geometric model. Here, the advantages of reference to physical models should be considered.

4.1.1.5 Size of document

Information on document size is used in manual storage routines as well as in machine copying routines.

4.1.1.6 Document medium

With regard to reproduction, the medium of the document to be reproduced should be stated.

4.1.1.7 Storage place

For retrieval purposes, it must be known whether the documents are computer- or paper-based. Examples of storage places are: filing offices, electronic storage area.

4.1.1.8 Language version

A technical document may exist in different language versions with the same principal identification. Therefore available language versions should be listed.

4.1.2 Status data

Status data are additional data needed for efficient use of a document.

4.1.2.1 Document status

A document, in its lifetime, will pass through different stages of use. These stages may be represented, for example, by

- reservation of identification number;
- preliminary issue (for restricted use only);
- final issue;

— withdrawal.

These data are normally only valid for the final document, but in particular cases they can also be used for a document in its early development stages.

NOTE 1 The indications given on a particular document depend on the release procedure which is established by the company.

4.1.2.2 Issue and withdrawal approval

The person responsible for approval in the phases given in ISO 11442-3, and the date of approval shall be stated. For information on different levels of authorization, see ISO 11442-1.

4.1.3 Subscription data

Subscription data are the data required for the distribution of document copies in different media.

For copy distribution, information is needed regarding the name and address of each subscriber, the extent and period of information subscribed, the medium and the number of copies. These data may be stated in a Document Issuing List (DIL), see ISO 11442-3. This list should also contain the primary data and status data of the original document.

4.2 Technical criteria: classification and retrieval systems

The technical part of the document, optionally together with a geometrical representation, describes and defines the product concerned in its finished state. This document part can be used as a basis for the document classification, enabling efficient retrieval.

For retrieval of design objects with one or several characteristics in common, a classification of the objects is needed. In practice, this is achieved by classification of the technical contents of the document. This classification may be general or specific.

4.2.1 General classification

General classification shall group design objects with regard to their function, shape, material, dimensions, etc. By consistent application of a general classification, the design work and the preparatory work in production are facilitated. Functional grouping, for example for a car, may be as follows: engine, transmission, body, chassis, etc. Classification by shape may include: round, hexagonal, flat, etc. A complete classification will include both principal criteria (such as product group) and criteria for relevant details.

4.2.2 Specific classification

Specific classification will group the design objects into classes of characteristics or properties relevant to the users in question. The users may be responsible for both maintenance and application of the classification.

Typical specific retrieval criteria are characteristics for, for example, processing, purchasing, marketing, quality, economy etc.

In principle, the specific classification facilitates company-specific applications.

5 Retrieval

The general retrieval criteria are established centrally, while the specific criteria may be left to the user group in question. The retrieval criteria may be shown on the document itself or listed in separate files.

A retrieval system can be bought, but may need to be adapted to the organization or even developed and tailored by the organization itself.

Retrieval of earlier designs and their repeated use, in full or in part, offer several advantages, e.g. shorter lead time. This is also true for re-use of earlier process preparation work and other specific information.

5.1 "Turnkey" systems

Turnkey systems, which are data-processing systems that are ready to use when installed, have been developed by computer software suppliers for both classification and retrieval of data. In general such systems must be adapted to the specific needs of the company. Most turnkey systems are intended for only one type of classification code. This may be hierarchically arranged (see figure 1), such as decimal classification, or property oriented (see figure 2).

A hierarchically-constructed code is advantageous in that it is often known at an early stage and is applied e.g. for the company parts standard. A disadvantage is that the entire code must be always stated. A code based on characteristics allows a selective search for the desired properties. However, such a code may require a great number of characters. Often the two types of classification codes are combined.

5.2 Company-developed systems

If a turnkey system requires extensive adaption to the needs of the company, a system developed and tailored within the organization itself may prove better.

In such work, existing code systems as well as new ones may be used.

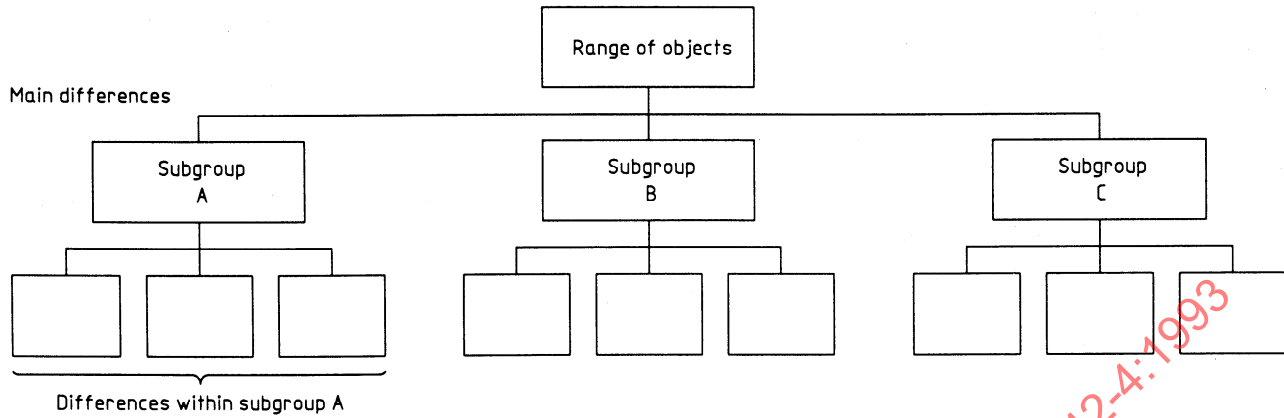


Figure 1 — Example of hierarchical classification code

Property class		Group								
Number	Description	A	B	C	D	E	F	G	H	I
1	Outside shape	shape 1	shape 2	shape 3						
2	Inside shape	none	shape 1							
3	Number of holes	0	1 - 2	3 - 4	5 - 8					
4	Location of holes	axial (ax)	radial (rad)	ax and rad						
5	Flat surfaces	outside	inside							
6	.									
7	.									
.										
.										

Figure 2 — Example of property-oriented classification code