SLOVENSKI STANDARD
SIST EN 13460:2004

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Maintenance - Documents for maintenance

Maintenance - Documents for maintenance

Instandhaltung - Dokumente für die Instandhaltung

Maintenance - Documents pour la maintenance

Ta slovenski standard je istoveten z: **EN 13460:2002**

ICS:

01.110	Tehniļna dokumentacija za izdelke	Technical product documentation
03.080.10	Industrijske storitve	Industrial services

SIST EN 13460:2004 **en**

EUROPEAN STANDARD

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English version

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Maintenance - Documents pour la maintenance

Instandhaltung - Dokumente für die Instandhaltung

This European Standard was approved by CEN on 25 February 2002.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Contents

Foreword

This document EN 13460:2002 has been prepared by Technical Committee CEN/TC 319, “Maintenance”, the secretariat of which is held by UNI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2002, and conflicting national standards shall be withdrawn at the latest by November 2002.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

The annexes A, B and C are informative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

Maintenance, as any other function in business, requires a suitable information flow between the different points of its internal organization and with the rest of the functional and organizational units of the business, in order to fulfil its objectives of reaching an acceptable performance.

For the purpose of this European Standard, it is necessary to consider that the different companies organize their functions and divisions according to their specific needs (traditions, market, means, human resources, etc.). Therefore, the organization of the information varies from one business to another. For that reason, this European Standard has been divided into the normative part and informative annexes.

The normative part concerns the first part of the life cycle of the asset to be maintained, namely the preparatory phase. When an asset is acquired, the acquirer requires certain documentation to maintain and operate the equipment properly. That appropriate documentation has to be provided by the supplier of the item.

The normative part of this European Standard describes the list of required essential documents for maintenance and gives information on possible contents of each document mentioned in clause 5. In order to make the standard flexible to the specific needs of user/supplier of the asset, the list of information items given for each document may be adapted to specific requirements by agreement between user and supplier. This European Standard takes into consideration agreements between parties which affect documentation in such a way that any document may be deleted or replaced totally or partially as agreed in the contract according to ENV 13269:2001.

The informative annexes A, B and C concern the operational phase (see 3.6) of the life cycle of the asset to be maintained.

The informative annexes, in addition to the normative text, develop the documentation for maintenance having regard to the maintenance function as a part of the quality system of the company. That is, not only the documentation of information which is necessary to manage the maintenance is suggested, but also the documentation to accomplish, at the same time, the quality assurance requirements for maintenance operations.

1 Scope

This European Standard specifies general guidelines for:

— the technical documentation to be supplied with an item, at the latest before it is ready to be put into service, in order to support its maintenance, see clause 5;

— the documentation of information to be established within the operational phase of an item, in order to support the maintenance requirements, see annex A.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 13306:2001, *Maintenance — Terminology.*

ENV 13269, *Maintenance — Guideline on preparation of maintenance contracts.*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 13306, together with the following apply.

3.1
assets register
item (see 3.4) basic information, related to technical, contractual, administrative, locational and operational aspects, in order to define it within the company

NOTE This information comes either from the preparatory or the operational phase (see 3.7 and 3.6).

3.2
document
specific form containing information

3.3
documentation
information given in a specific form

3.4
item
any part, component, device, subsystem, functional unit, equipment or system that can be individually considered (see EN 13306:2001, 3.1)

3.5
maintenance workflow
set of sequenced steps to be followed, in order to accomplish a maintenance operation, from the first preparatory activities, such as study and defining policies, to the analysis once the work is finished and action to be taken to improve future similar cases

(see Figure C.1)

3.6
operational phase
period of time beginning when the item is put into service and ending with the disposal of the item

3.7
preparatory phase
period in the item life time corresponding to the conception, designing, manufacturing, assembly and commissioning of the item

3.8
work order (W.O.)
document containing all the information related to a maintenance operation and the reference links to other documents necessary to carry out the maintenance work

4 Documentation

4.1 The concept of document

The document is the physical support of the information in a specific form. This may take the form of a paper sheet, the screen of a video monitor of a computer system, an electronic board, a blackboard, etc., and the figures, type, size and distribution on the available surface may vary without affecting the main purpose of the information system. It is absolutely important to ensure that the necessary set of information items is available at the right point, to the appropriate person, in the necessary time, whatever the means the company is using.

Due to these reasons, the information items have been described in detail and grouped in information structures of higher level. These structures will constitute the content of a specific document, once it has been displayed in a certain way, in a specific form.

This European Standard deals with the kind of documents and their specific content in detail. However, it does not standardize the physical aspect either of the documents or of their contents. Therefore, for the purpose of this standard, the structures of information items are called documents, although they are, in fact, the information contents of those documents.

4.2 Normative documentation for maintenance

This European Standard lists and defines the whole set of documents and information items to be considered in the acquisition of any installation, equipment, system or subsystem in order to make it possible to organize its maintenance. When the asset is ordered from the supplier, those documents and information will have the consideration of an implicit or explicit part of the order. The supplier only shall issue those documents that are related to the service or function which are expected to be covered by the supplied asset and are under the responsibility of the supplier. These are declared indirectly in the features contracted between the supplier and the user of the asset.

NOTE 1 Not all the documents listed in clause 5 have to be present in the document set supplied with the physical item. For instance, “lubrication map” has no meaning related to a lubrication-free equipment. An other example: the supplier of the civil engineering work, in the erection of an industrial plant, normally has nothing to do with the "logic diagram".

In any case, the supplier may provide more documents than listed in this standard, as additional information or by agreement with the client.

In order to define the above mentioned documentation accurately, clause 5 gives a table containing the documentation profile. The table is structured in four columns.

The column “Document name” contains the title given to each particular document.

The column “Document description” contains a brief explanation of each document content, as a definition of it.

The column “Information items” contains the minimum set of elements of information to be included in each document. If each document is considered as a data structure in a database, the information items will be the different fields.

NOTE 2 There is no requirement specified for the size of each information item, nor for the type of its literary content (alphabetical, numerical, alphanumerically, etc.). This means that the information should meet the detailed needs of each user or supplier (for instance, it is not possible to standardize the codification, the units of capacity, the type of supplies required, etc.).

In particular cases, some of the information items listed for a document should not be used because of their lack of relevance or the nature of the asset to which it is related. In those cases, the corresponding information item should be completed with the expression "not relevant" or "not applicable", whichever is more suitable.

The supplier and purchaser of an item may define, if required in the purchase agreement, the complete list of detailed information items, as well as the presentation format and media.

5 Documents from the preparatory phase

	Document name	Document description	Information items
5.1	**Technical data**	Manufacturer's specification of the item.	Manufacturer Date of manufacture Model/type/serial number Size Weight Capacity Power and service requirements Other: referring physical nature, assembly details and operation data.
5.2	**Operation manual**	Technical instructions to reach a proper item function performance according to its technical specifications and safety conditions.	Model/type Manual date (edition) Technical details of the item Functional description of the item Procedures for: — commissioning / starting-up; — warming-up; — steady operation; — controlled shutdown Operation limitations/Precautions Laws and regulations to be abided to.
5.3	**Maintenance manual**	Technical instructions intended to preserve an item in, or restore it to, a state in which it can perform a required function.	Model/type Manual date (edition) Technical details of the item Preventive maintenance operations/actions: — inspections; — calibration/adjustment; — parts replacements; — lubrication Procedures for: — troubleshooting; — dismantling/assembly; — repair; — adjustment Cause and effect diagrams Special tools required Spare parts recommendations Safety requirements (signals, dressing, power source control,...)
5.4	**Components list**	Comprenhensive list of items which constitute part of another one.	Upper level item (heading) (Model/type/serial number) Item number Item description Item quantity.

	Document name	Document description	Information items
5.5	**Arrangements**	Drawing showing replacement components layout for an item.	Drawing code and identification Date (issue/revision) Dimensions Equipment components location and identification Necessary space for disassembly and maintenance Relevant information about connection details When necessary: lifting lugs, inspection hatches, ladders,....
5.6	**Detail**	Drawing with part list to ensure dismantling, repair and assembly of items.	Code identifying the item which is detailed Assembly drawing showing parts positions Identification of each part of the drawing: — part number; — description; — number of units. Any other relevant information for assembly and disassembly operations.
5.7	**Lubrication map**	Drawing showing position of each item lubrication point, with lubrication data and specifications.	Map code and identification Date (issue/revision) Item identification (code and name) Lubrication point position (drawing) Lubrication point identification Lubrication point description Lubricant specifications Routing, when necessary.
5.8	**Single line diagram**	Overall power distribution diagram: — electrical; — pneumatic; — hydraulic. This kind of diagram includes switchboard circuits.	Diagram code and identification Date (issue/revision) Power distribution units (generators, transformers, switch gears, rectifiers,..) End consumers (for high voltage switchgears only) Earthing lines for systems, equipment and cables (general earthing principles will be included).
5.9	**Logic diagram**	System control diagram to clarify the overall system logic.	Diagram code and identification Date (issue/revision) Logic functions (symbols, internetworking and control flow) Modes of operation (e.g. starting, shutdown, alarm, trip functions).
5.10	**Circuit diagram**	Overall feeder and control circuits diagram.	Diagram code and identification Date (issue/revision) All internal connections for control, alarms, protection, interlocks, trip functions, monitoring, ... Settings of timers, thermal overload and protection relays Wire and cable numbers Terminal numbers Component list for in line, control and protection systems Switch gear/board location code Consumer/supplier location code Termination details and type of external signal (fire and gas trip signal,...) Power and current rating Reference drawings.