SLOVENSKI STANDARD
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Vzdrģevanje - Terminologija s področja vzdrģevanja

Maintenance - Maintenance terminology

Begriffe der Instandhaltung

Maintenance - Terminologie de la maintenance

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English Version

Maintenance - Maintenance terminology

Maintenance - Terminologie de la maintenance

Begriffe der Instandhaltung

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 319.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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Foreword

This document (prEN 13306:2008) has been prepared by Technical Committee CEN/TC 319 “Maintenance”, the secretariat of which is held by UNI.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 13306:2001.

This document is the first revision of this standard.

Annex F provides details of significant technical changes between this European Standard and the previous edition: EN 13306:2001.

Introduction

The purpose of this European standard is to define the generic terms used for all types of maintenance and maintenance management irrespective of the type of item considered. Maintenance of software only is not covered in this standard.

It is the responsibility of any maintenance management to define its maintenance strategy according to the following main objectives :

— to ensure the availability of the item to function as required, often at optimum costs;

— to consider the safety and any other mandatory requirements associated with the item for both maintenance and other personnel, and, where necessary:

  — to consider any impact on the environment;

— to uphold the durability of the item and/or the quality of the product or service provided considering costs where necessary.

As a part of the requirement of TC 319 it was necessary to produce a comprehensive structured generic maintenance vocabulary standard containing the main terms and their definitions.

Maintenance provides an essential contribution to the dependability of an item. Correct and formal definitions are required which will give the user of associated maintenance standards a fuller understanding of the maintenance terms used. These terms may be of particular importance in the formulation of maintenance contracts.

The terms contained in this standard indicate that maintenance is not confined to the technical actions alone but includes other activities such as planning, documentation handling, etc..

The standard IEC 60050 (191) has been used as a basis for the preparation of this standard but some terms have been modified. Not all terms specified in IEC 60050 (191) are included in this European standard.

1 Scope

This European Standard specifies generic terms and definitions for the technical, administrative and managerial areas of maintenance. It may not be applicable to terms which are used for the maintenance of software only.

2 Fundamental terms and definitions

2.1 Maintenance

The combination of all technical, administrative and managerial actions during the life cycle of an item intended to retain it in, or restore it to, a state in which it can perform the required function.

NOTE See also the definitions of improvement and modification.

2.2 Maintenance Management

All activities of the management that determine the maintenance objectives, strategies, and responsibilities and implementation of them by such means as maintenance planning, maintenance control, and the improvement of maintenance activities and economics.

2.3 Maintenance objectives

Targets assigned and accepted for the maintenance activities.

NOTE These targets may include for example availability, cost reduction, product quality, environment preservation, safety, asset value preservation.

2.4 Maintenance strategy

The management method used in order to achieve the maintenance objectives.

NOTE Examples could be outsourcing of maintenance, allocation of resources, etc.

2.5 Maintenance plan

A structured and documented set of tasks that include the activities, procedures, resources and the time scale required to carry out maintenance.

2.6 Required function

A function or a combination of functions of an item which are considered necessary to provide a given service.

NOTE 1 To provide a given service may also include asset value preservation.

NOTE 2 The given service may be expressed or implied and may in some cases be below the original design specifications.

2.7 Dependability

The ability to perform as and when required.

NOTE 1 Dependability characteristics include availability and its inherent or external influencing factors, such as: reliability, fault-tolerance, recoverability, integrity, security, maintainability, durability, and maintenance support.

NOTE 2 Dependability may be used descriptively as an umbrella term for the time-related quality characteristics of a product or service, and it may also be expressed as a grade, degree, confidence or probability of fulfilling a defined set of those characteristics.

NOTE 3 Specifications for these characteristics typically include: the functions the product is required to perform; the time for which that performance is to be sustained; and the conditions of use, storage and maintenance. It may also identify requirements for safety, efficiency and economy throughout the life cycle.

2.8 Maintenance supportability

The ability of a maintenance organization to have the correct maintenance support at the necessary place to perform the required maintenance activity at a given instant of time or when required.

2.9 Operation

Combination of all technical , administrative and managerial actions, other than maintenance actions, that is resulting in the item being in use

NOTE Maintenance actions are not part of operation even if operators carry out some maintenance actions.

3 Item related terms

3.1 Item

Any part, component, device, subsystem, functional unit, equipment or system that can be individually described and considered.

NOTE 1 A number of items e.g. a population of items, or a sample, may itself be considered as an item.

NOTE 2 An item may consist of hardware, software or both and may also, in particular cases, include people.

3.2 Asset (physical)

A formally accountable item.

3.3 Repairable item

Any item which may be restored under given conditions, and after a failure to a state in which it can perform a required function.

NOTE The given conditions may be economical, ecological, technical and/or others.

3.4 Consumable item

Any item or material which is expendable, may be regularly replaced and generally is not item specific.

NOTE Generally, consumable items are relatively low cost compared to the item itself.

3.5 Spare part

An item intended to replace a corresponding item in order to retain the original required function of the item.

NOTE 1 The original item may be subsequently repaired.

NOTE 2 An item that is dedicated and/or exchangeable for a specific item is often referred to as replacement item.

3.6 Insurance spare part

Replacement item which is not normally needed during useful life of the item but whose unavailability would involve an unacceptable downtime due to its provisioning.

NOTE If the replacement item is expensive then for accountancy purposes such a part may be considered as a fixed asset.

3.7 Indenture level

The level of sub-division within a system hierarchy.

NOTE 1 Examples of indenture levels are: system, subsystem and component.

NOTE 2 From the maintenance perspective, the indenture level depends on the complexity of the item's construction, the accessibility to sub-items, skill level of maintenance personnel, test equipment facilities, safety considerations, etc..

3.8 Software

Programs, procedures, rules, documentation and data of an information processing system.

NOTE 1 Software is an intellectual creation that is independent of the medium upon which it is recorded.

NOTE 2 A software item is always a subsystem of a larger system which incorporates hardware devices to execute programs and to store and transmit data.

3.9 Firmware

Software in a read-only memory that can be executed but not modified by the system user.

NOTE The software concerned is not intended to be modified by the user, as it requires the hardware device containing it to be changed or re-programmed.

4 Properties of items

4.1 Availability

The ability to be in a state to perform as required, under given conditions, at a given instant or over a given time interval.

NOTE 1 The “given conditions” include the provision of necessary external resources.

NOTE 2 This ability depends on the combined aspects of the reliability, the maintainability and the maintenance support.

NOTE 3 Required external resources, other than maintenance resources, do not affect the availability of the item although the item may not be available from the user’s viewpoint.

NOTE 4 Unavailability may be due to reasons other than failures or preventive maintenance and may include the external disable state.

NOTE 5 Availability may be quantified using appropriate measures or indicators and is then referred to as availability performance.

NOTE 6 Availability performance is related to both up and down times.

4.2 Reliability

The ability of an item to perform a required function under given conditions for a given time interval.

NOTE 1 The term «reliability» is also used as a measure of reliability performance and may also be defined as a probability.

NOTE 2 It is usually assumed that the item is in a state to performed as required at the beginning of the time interval.

NOTE 3 Reliability may be quantified using appropriate measures or indicators and is then referred to as reliability performance.

NOTE 4 Reliability performance is only related to up time.

4.3 Intrinsic (inherent) Reliability

The reliability of an item determined by design and manufacture.

4.4 Maintainability

The ability of an item under given conditions of use, to be retained in, or restored to, a state in which it can perform a required function, when maintenance is performed under given conditions and using stated procedures and resources.

NOTE Maintainability may be quantified using appropriate measures or indicators and is then referred to as maintainability performance.

4.5 Intrinsic (inherent) Maintainability

The maintainability of an item determined by the original design.

4.6 Conformity

The fulfilment by a product, process or service of specifications.

4.7 Durability

The ability of an item to perform a required function under given conditions of use and maintenance, until a limiting state is reached.

NOTE A limiting state of an item is characterized by the end of the useful life.

4.8 Redundancy

In an item, the existence of more than one mean at a given instant of time for performing a required function.

4.9 Active redundancy

That redundancy wherein all means for performing a required function are intended to operate simultaneously.

4.10 Standby redundancy

That redundancy wherein a part of the means for performing a required function is intended to operate, while the remaining part(s) of the means are inoperative until needed.

NOTE Standby redundancy is often referred to as passive redundancy.

4.11 Useful life

That time interval from a given instant until the instant when a limiting state is reached.

NOTE The limiting state may be a function of failure intensity, maintenance support requirement, physical condition, economics, age, obsolescenceor other relevant factors.