

Maintenance process and associated indicators

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 17007:2017 sisaldab Euroopa standardi EN 17007:2017 ingliskeelset teksti.	This Estonian standard EVS-EN 17007:2017 consists of the English text of the European standard EN 17007:2017.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 18.10.2017.	Date of Availability of the European standard is 18.10.2017.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 03.080.10

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:
Koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

English Version

Maintenance process and associated indicators

Processus maintenance et indicateurs associés

Instandhaltungsprozess und verbundene
Leistungskennzahlen

This European Standard was approved by CEN on 14 August 2017.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

European foreword.....	3
Introduction	4
1 Scope.....	5
2 Normative references.....	5
3 Terms and definitions	5
4 Abbreviated terms and notations	8
5 Principles of maintenance process breakdown.....	9
5.1 Process families	9
5.2 Breakdown into levels.....	10
5.3 Use of the Maintenance process breakdown.....	12
6 Breakdown of the maintenance process and process profiles	13
6.1 Maintenance process	13
6.2 MAN process: Manage maintenance.....	15
6.3 PRV process: Prevent undesirable events by avoiding failures and faults	19
6.3.1 General.....	19
6.3.2 PRV.1 – Characterize the undesirable events	19
6.3.3 PRV.2 – Use and update the Maintenance Plans	21
6.4 COR process: Restore the items to their required state	23
6.4.1 General.....	23
6.4.2 COR.1 – Classify the actual events	24
6.4.3 COR.2 – Diagnose the state of the items in question.....	24
6.5 ACT process: Act preventively and/or correctively on the items to maintain.....	27
6.5.1 General.....	27
6.5.2 ACT.1 – Rank the events.....	28
6.5.3 ACT.2 – Prepare for the maintenance tasks.....	29
6.5.4 ACT.3 – Set in order the tasks	30
6.5.5 ACT.4 – Schedule the tasks.....	31
6.5.6 ACT.5 – Start the scheduled tasks.....	32
6.5.7 ACT.6 – Perform the maintenance tasks.....	33
6.5.8 ACT.7 – Finalise the maintenance tasks	34
6.6 IMP process: Improve the items	36
6.7 HSE process: Ensure personal health and safety to individuals and preserve environment in maintenance	39
6.8 BUD process: Budget maintenance of items.....	42
6.9 DOC process: Deliver the operational documentation	45
6.10 DTA process: Manage data.....	48
6.11 IST process: Provide the needed infrastructures.....	52
6.12 MRG process: Deliver maintenance requirements during items design and modification	55
6.13 OPT process: Improve the results.....	58
6.14 RES process: Provide internal human resources.....	61
6.15 SER process: Provide external maintenance services	64
6.16 SPP process: Deliver spare parts.....	67
6.17 TOL process: Deliver the tools, support equipment and information system	72
Bibliography.....	75

European foreword

This document (EN 17007:2017) 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 April 2018 and conflicting national standards shall be withdrawn at the latest by April 2018.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

According to EN ISO 9001, maintenance is a process since it consists of organized, coordinated tasks using resources and performed by various stakeholders to obtain a given result.

Terminology standard EN 13306 defines it as 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.”

It seemed appropriate to formalize the maintenance process through a breakdown into processes that provides the following advantages:

- it makes it possible to clearly indicate the activities to be carried out with a relevant level of detail;
- it indicates the inputs/outputs of each sub-process and defines all the links that join them together and allow the realization of the overall process;
- it provides the ability to define indicators for measuring the realization of each process and monitoring its effectiveness.

The aim of this document is to allow an understanding of the actions and interactions between maintenance processes. It provides maintenance managers with a management tool by giving them a way to compare their organization to the generic representation described and to detect insufficient actions, unassigned responsibilities and/or poorly established links. It gives information to define indicators, dedicated to specific processes, allowing the creation of scorecards that are appropriate for monitoring activities and measuring performance.

1 Scope

This European Standard provides a generic description of the maintenance process. It specifies the characteristics of all the processes, parts of maintenance process, and establishes a maintenance model to give guidelines for defining indicators.

This European Standard is applicable to all organizations (company, institution, agency, etc.) in charge of maintaining physical assets. Therefore, it has been established without a particular organization in mind and does not aim to propose one. This description could be adapted based on the type and size of organization chosen to perform the maintenance, the complexity of the systems maintained and the scope of the external contracted services.

The purpose of the breakdown into processes and the representation of their inter-relationships¹⁾ is to help maintenance personnel, and particularly management at different levels, to:

- clearly identify the actions to be taken in order to meet the overall objectives set by Management in terms of maintenance;
- delegate responsibilities that ensure the realization of the actions with the required performance levels;
- for each process, clearly determine:
 - a) the necessary inputs and their origin;
 - b) the required results and their intended uses;
- monitor and quantitatively assess the performance obtained at various levels of the breakdown into processes;
- improve the collection and the distribution of data.

This standard does not cover software maintenance itself, but applies to items containing software.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 13306, *Maintenance - Maintenance terminology*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 13306 as well as the following terms and definitions apply.

3.1

activity

set of tasks organized within a process

1) Relationships between several elements or members of the same unit or group.