



SLOVENSKI STANDARD
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Nadomešča:

SIST-TP CEN/TR 15628:2007

Vzdrževanje - Kvalificiranje vzdrževalcev

Maintenance - Qualification of maintenance personnel

Instandhaltung - Qualifikation des Instandhaltungspersonals

Maintenance - Qualification du personnel de la maintenance

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ICS:

03.100.30 Vodenje ljudi

Management of human
resources

SIST EN 15628:2014

en,fr,de

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EUROPEAN STANDARD

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English Version

Maintenance - Qualification of maintenance personnel

Maintenance - Qualification du personnel de la
maintenance

Instandhaltung - Qualifikation des Instandhaltungspersonals

This European Standard was approved by CEN on 18 July 2014.

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

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Foreword

This document (EN 15628:2014) 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of an identical text or by endorsement, at the latest by February 2015, and conflicting national standards shall be withdrawn at the latest by February 2015.

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.

This document supersedes CEN/TR 15628:2007.

This document includes the following significant technical changes with respect to CEN/TR 15628:2007:

- substantial improvement;
- revision of the structure to orient the document to the tasks rather than to the knowledge;
- full consideration of the recommendation included in the European Qualification Framework (*Recommendation of the European Parliament and of the Council of 23 April 2008 on the establishment of the European Qualifications Framework for lifelong learning*) [4].

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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

Due to the growing extent and the increasing complexity of maintenance in the European industry, very diverse occupational profiles have evolved for maintenance personnel in the different member states. This European Standard specifies requirements such as competences, essential knowledge as well as basic and target qualifications. These requirements are recommended to obtain a specific qualification and to ensure highly qualified professional personnel at the different functions and/or positions in maintenance.

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1 Scope

This European Standard specifies the qualification of the personnel with regard to the tasks to be performed in the context of the maintenance of plant, infrastructure and production systems.

In this European Standard, maintenance of plants and buildings is included in terms of technical aspects of services.

This European Standard guides to define the knowledge, skills and competencies required for the qualification of maintenance personnel.

This European Standard covers the following professional persons in the maintenance organization:

- Maintenance Technician Specialist;
- Maintenance Supervisor and Maintenance Engineer;
- Maintenance Manager (Responsible of Maintenance Function or Service).

This European Standard does not specify the verification criteria nor the specialized training of the personnel, which is related to the specific commodity sector.

NOTE Specialization and profession are the subject of the training carried out in the relevant sector.

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2 Normative references (standards.iteh.ai)

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 13306:2010, *Maintenance — Maintenance terminology*

EN ISO 9000:2005, *Quality management systems — Fundamentals and vocabulary (ISO 9000:2005)*

EN ISO 14001:2004, *Environmental management systems — Requirements with guidance for use (ISO 14001:2004)*

IEC 60050-191:1990¹⁾, *International Electrotechnical Vocabulary — Chapter 191: Dependability and quality of service*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 13306:2010, EN ISO 9000:2005, EN ISO 14001:2004 and IEC 60050-191:1990, and the following apply.

3.1

competence

proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development

1) IEC 60050-191:1990 is impacted by the stand-alone amendments IEC 60050-191:1990-am1:1999 and IEC 60050-191:1990-am1:2002.

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Note 1 to entry: Competence is described in terms of responsibility and autonomy.

[SOURCE: EU Recommendation 2008/C 111/01 [4], Annex A, (i), modified — The present Note 1 to entry was a sentence that completed the original definition.]

3.2**knowledge**

outcome of the assimilation of information through learning

Note 1 to entry: Knowledge is the body of facts, principles, theories and practices that is related to a field of work or study.

[SOURCE: EU Recommendation 2008/C 111/01 [4], Annex A, (g), modified — The present Note 1 to entry was a sentence that completed the original definition.]

3.3**level of qualification**

classification of qualifications according to different professional persons: Maintenance Technician Specialist, Maintenance Supervisor and/or Maintenance Engineer, Maintenance Manager (Responsible for Maintenance Function or Service)

3.4**procedure**

document and instructions which indicate standardized practices, operational instructions and technical rules referred to the involved competence

3.5**qualification**

formal outcome of an assessment and validation process which is obtained when a competent body determines that an individual has achieved learning outcomes to given standards

[SOURCE: EU Recommendation 2008/C 111/01 [4], Annex A, (a)]

Note 1 to entry: The types of qualification, subject of this European Standard and outlined below, are consistent with the European Qualifications Framework for lifelong learning (EQF) [4]. Specifically, the maintenance personnel has adequate competences, skills and knowledge to operate safely, properly, effectively and efficiently, as described in Clause 4.

3.6**skills**

ability to apply knowledge and use know-how to complete tasks and solve problems

Note 1 to entry: Skills are described as cognitive (involving the use of logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments).

[SOURCE: EU Recommendation 2008/C 111/01 [4], Annex A, (h), modified — The present Note 1 to entry was a sentence that completed the original definition.]

4 Competences

NOTE The competences are not listed in a prioritized importance.

4.1 Competences of a Maintenance Technician Specialist

Based on the maintenance objectives, the competences of the maintenance technician specialist consists in the independent execution of maintenance tasks, including the following key competences:

- A.1: to perform or ensure the safe execution of the maintenance plans according to business strategies;
- A.2: to act promptly in case of failure or malfunction, ensuring the effectiveness of the restoration;
- A.3: to perform or ensure the proper execution according to rules and procedures relating to safety, health and environmental protection;
- A.4: to ensure the availability of materials, tools and equipment necessary for the execution of maintenance tasks;
- A.5: to coordinate and / or supervise on-site maintenance tasks;
- A.6: to ensure the quality of the maintenance tasks;
- A.7: to use and ensure the use of the ICT (Information and communication technology) systems.

The professional person ensures compliance with the relevant laws, ordinances, directives, operational instructions and the commonly accepted good practices.

An example of a Maintenance Technician Specialist tasks can be found in Annex A, stipulated by the respective member states.

NOTE Tentatively, this professional person can refer to the EQF levels 4 or 5.

4.2 Competences of a Maintenance Supervisor and Maintenance Engineer

With the Maintenance Supervisor or Maintenance Engineer there are specific roles which can be executed exclusively or in a joint responsibility.

The Maintenance Supervisor or Maintenance Engineer coordinates the maintenance tasks according to the annual budget, related maintenance plans and unplanned maintenance tasks. Furthermore, the Maintenance Supervisor or Maintenance Engineer contributes to ensure the required plant availability/plant performance (measured by key performance indicators), based on the company's or department's technical objectives of availability and quality, including the following key competences:

- B.1: to ensure the implementation of maintenance strategies and policies;
- B.2: to plan the maintenance tasks within his area of responsibility, defining and organizing the necessary resources;
- B.3: to organize, manage and develop the maintenance resources: personnel, materials and equipment;
- B.4: to ensure compliance with regulations and procedures related to safety, health and environment;
- B.5: to ensure technical and economic efficiency and effectiveness of maintenance tasks based on current state of technology;
- B.6: to participate in the technical aspects of contracts and procurement process and manage the performance of the contractors;
- B.7: to communicate to all necessary partners such as staff, contractors, customers and suppliers.

The Maintenance Engineer works with or supports the Maintenance Manager on the definition of maintenance plans and the identification of the required resources for the execution, the control and the analysis of budget variances. Furthermore, the Maintenance Engineer recommends improvement projects related to availability, reliability, maintainability and safety of assets, including the following key competences.

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- B.8: to use their technical/engineering knowledge and the organizational tools to improve maintenance tasks and plant efficiency in terms of availability and reliability;
- B.9: to fulfil organizational and economical obligations in the field of his undertaken tasks.

Both professionals ensure compliance with the relevant laws, ordinances, directives, operational instructions and the current state of technology.

A detailed description of a Maintenance Supervisor's and Maintenance Engineer's tasks can be found in Annex B, stipulated by the respective member states.

NOTE Tentatively, this professional person can refer to the EQF levels 5 or 6.

4.3 Competences of a Maintenance Manager

Based on the company's objectives, particularly those relating to availability and quality, the Maintenance Manager is responsible for ensuring the required plant availability/plant performance (based on key performance indicators), including the following key competences with the ability:

- C.1: to define and develop maintenance policies according to company strategies;
- C.2: to define processes and tools to support maintenance tasks;
- C.3: to define, manage and develop the organizational model of maintenance;
- C.4: to ensure the levels of availability, reliability, maintainability, supportability, safety and quality required for the entire useful life of assets;
- C.5: to ensure appropriate management and continuous improvement of maintenance;
- C.6: to ensure and control the compliance with maintenance and company budget, the respect of the planned maintenance tasks and the proper condition of assets;
- C.7: to define strategies, policies and criteria for performance management of contractors and for the definition of maintenance materials requirements.

The professional person ensures compliance with the relevant laws, ordinances, directives, operational instructions and the current state of technology.

A detailed description of a maintenance Manager's tasks can be found in Annex C, stipulated by the respective member states.

NOTE Tentatively, this professional person can refer to the EQF levels 6 or 7.

5 Required minimum skills and essential knowledge (profile)

NOTE The competences are not listed in a prioritized importance.

5.1 Required minimum skills and essential knowledge for a Maintenance Technician Specialist

The competences listed under 5.1 result in the minimum required skills and essential knowledge given in Table 1.

Table 1 — Competences, skills and knowledge for a Maintenance Technician Specialist

	Competences	Minimum skills	Essential knowledge
A.1	To perform or ensure the safe execution of the maintenance plans according to business strategies	<ul style="list-style-type: none"> a) To perform planned task according to the maintenance plans; b) To perform the inspection tasks in order to highlight and prevent the item degradation; c) To identify and propose actions or projects to improve reliability, availability and maintainability of assets; d) To take care, within the limits of his responsibility, organization and discipline of operating personnel; e) To use the machines, equipment and tools necessary for the execution of maintenance tasks; f) To comply with the required procedures, standards and operational methods of work; g) To apply the diagnostic techniques (failure analysis and troubleshooting techniques) and the on condition maintenance. 	<ul style="list-style-type: none"> a) Maintenance plans, standards and operational methods of work; b) Technical documentation and maintenance manuals; c) Procedures; d) Business job descriptions and roles; e) Risk assessment tools/methodologies; f) Principles and techniques distinctive of the individual profession; g) Principles, logic and parameters of operation and utilization of asset and item; h) Maintenance objectives.
A.2	To act promptly in case of failure or malfunction, ensuring the effectiveness of the restoration	<ul style="list-style-type: none"> a) To interpret the first signs of failures and use fault diagnosis methods; b) To detect promptly the failure causes and determine appropriate corrective actions; c) To work according to quality and safety principles; d) To perform restoration tasks in accordance 	<ul style="list-style-type: none"> a) Standards and operational methods of work; b) Technical documentation and maintenance manuals; c) Procedures; d) Business job descriptions and roles; e) Risk assessment tools/methodologies; f) Processes and work cycles; g) Principles and techniques distinctive of the profession; h) Principles, logic and parameters of

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	Competences	Minimum skills	Essential knowledge
		<p>with the required methodologies and standard works;</p> <p>e) To take care and coordinate, within the limits of his responsibility, the execution of repair and restoration tasks.</p>	<p>operation and utilization of asset and item;</p> <p>i) Fault diagnosis methods.</p>
A.3	To perform or ensure the proper execution according to rules and procedures relating to safety, health and environmental protection	<p>a) To use the required individual and collective protective equipment;</p> <p>b) To comply with the objectives and directives of the "management system":</p> <ol style="list-style-type: none"> 1) of quality, 2) of safety and workers' health, 3) of environment; <p>c) To observe laws, procedures and business rules;</p> <p>d) To take care and/or comply with the organization of the workplace protection;</p> <p>e) To use the machines, equipment and instruments required by laws and European regulations.</p>	<p>a) Legislation and technical standards;</p> <p>b) Procedures;</p> <p>c) Being aware of the effects of choices and actions on safety, health and environment;</p> <p>d) Safety and health management system;</p> <p>e) Quality management system;</p> <p>f) Environmental management system.</p>
A.4	To ensure the availability of materials, tools and equipment necessary for the execution of maintenance tasks	<p>a) To define the needs of technical materials related to maintenance plans;</p> <p>b) To ensure the availability of materials and equipment required for corrective maintenance in accordance with corporate procedures;</p> <p>c) To perform the preparation and regulation of machines, instrumentation and equipment necessary for the work.</p>	<p>a) Materials management techniques and methods;</p> <p>b) Regulatory and procedural constraints related to the management of maintenance equipment and tools.</p>