

## **Guide for procurement of power station equipment - Part 2-6: Electrical equipment - Generators**

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Part 2-6: Electrical equipment - Generators

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 45510-2-6:2000 sisaldab Euroopa standardi EN 45510-2-6:2000 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 12.09.2000 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 45510-2-6:2000 consists of the English text of the European standard EN 45510-2-6:2000.</p> <p>This document is endorsed on 12.09.2000 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p><b>Käsitlusala:</b></p> <p>This standard gives guidance on writing the technical specification for the procurement of turbine-driven generators and their auxiliaries for use in electricity generating stations (power stations).</p>	<p><b>Scope:</b></p> <p>This standard gives guidance on writing the technical specification for the procurement of turbine-driven generators and their auxiliaries for use in electricity generating stations (power stations).</p>
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**Võtmesõnad:**

**English version**

**Guide for procurement of power station equipment  
Part 2-6: Electrical equipment – Generators**

Guide pour l'acquisition d'équipements destinés aux centrales de production d'électricité – Partie 2-6: Equipements électriques – Alternateurs

Leitfaden für die Beschaffung von Ausrüstungen für Kraftwerke – Teil 2-6: Elektrische Ausrüstung – Generatoren

This European Standard was approved by CEN/CENELEC on 2000-02-01.

CEN/CENELEC 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 Central Secretariat or to any CEN/CENELEC member.

The European Standards exist in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN/CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN/CENELEC members are the national standards bodies of Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.



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## Foreword

*This standard takes the form of a recommendation and is therefore entitled a "Guide".*

*This Guide for procurement has been prepared by the CEN/CENELEC Joint Task Force Power Engineering (JTFPE) of which the secretariat is held by the British Standards Institution.*

*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 September 2000, and conflicting national standards shall be withdrawn at the latest by September 2000*

*Annexes designated "informative" are given for information only. In this standard, annexes A, B and C are informative.*

*This Guide for procurement has been prepared under mandates given to CEN and CENELEC by the European Commission and the European Free Trade Association.*

*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, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.*

*This Guide for procurement is a part of a series of Guides mandated to cover the procurement of power station plant and equipment in conformity with European Procurement Directives. The Guides are:*

*EN 45510: Guide for procurement of power station equipment*

*Part 1: Common clauses*

*Part 2-1: Electrical equipment - Power transformers  
Part 2-2: Electrical equipment - Uninterruptible power supplies  
Part 2-3: Electrical equipment - Stationary batteries and chargers  
Part 2-4: Electrical equipment - High power static converters  
Part 2-5: Electrical equipment - Motors  
Part 2-6: Electrical equipment - Generators  
Part 2-7: Electrical equipment - Switchgear and controlgear  
Part 2-8: Electrical equipment - Power cables  
Part 2-9: Electrical equipment - Cabling systems*

*Part 3-1: Boilers - Water tube boilers  
Part 3-2: Boilers - Shell boilers  
Part 3-3: Boilers - Boilers with fluidized bed firing*

*Part 4-1: Boiler auxiliaries - Equipment for reduction of dust emissions  
Part 4-2: Boiler auxiliaries - Gas-air, steam-air and gas-gas heaters  
Part 4-3: Boiler auxiliaries - Draught plant  
Part 4-4: Boiler auxiliaries - Fuel preparation equipment  
Part 4-5: Boiler auxiliaries - Coal handling and bulk storage plant  
Part 4-6: Boiler auxiliaries - Flue gas desulphurization ( De-SO<sub>x</sub> ) plant  
Part 4-7: Boiler auxiliaries - Ash handling plant  
Part 4-8: Boiler auxiliaries - Dust handling plant  
Part 4-9: Boiler auxiliaries - Sootblowers  
Part 4-10: Boiler auxiliaries - Flue gas denitrification (De-NO<sub>x</sub> ) plant*

*Part 5-1: Turbines - Steam turbines*  
*Part 5-2: Turbines - Gas turbines*  
*Part 5-3: Turbines - Wind turbines*  
*Part 5-4: Turbines - Hydraulic turbines, storage pumps and pump-turbines*

*Part 6-1: Turbine auxiliaries - Deaerators*  
*Part 6-2: Turbine auxiliaries - Feedwater heaters*  
*Part 6-3: Turbine auxiliaries - Condenser plant*  
*Part 6-4: Turbine auxiliaries - Pumps*  
*Part 6-5: Turbine auxiliaries - Dry cooling systems*  
*Part 6-6: Turbine auxiliaries - Wet and wet/dry cooling towers*  
*Part 6-7: Turbine auxiliaries - Moisture separator reheaters*  
*Part 6-8: Turbine auxiliaries - Cranes*  
*Part 6-9: Turbine auxiliaries - Cooling water systems*

*Part 7-1: Pipework and valves - High pressure piping systems*  
*Part 7-2: Pipework and valves - Boiler and high pressure piping valves*

*Part 8-1: Control and instrumentation*

EN 45510 Part 1 contains those clauses common to all the above Guides giving the provisions of a non **equipment** specific nature for use in the procurement of power station plant. EN 45510 is the responsibility of JTFPE. The so called "common clauses", as appropriate, also appear in italics in the documents specific to particular **equipment**.

Where paragraphs of "common clauses" are omitted, each paragraph omitted is indicated by the symbol \*\*\*\*\*.

In this Guide, words in bold type indicate that they have the meaning given in the definitions, clause 3.

In this Guide, words and sentences not in italics are specific to this Guide and refer to the particular **equipment** covered.



## 1 Scope

This standard gives guidance on writing the technical **specification** for the procurement of turbine-driven generators and their auxiliaries for use in electricity generating stations (power stations). This Guide for procurement is not applicable to **equipment** for use in the nuclear reactor plant area of nuclear power stations. Other possible applications of such **equipment** have not been considered in the preparation of this Guide.

The generators may be air, hydrogen, or liquid-cooled. The excitation system may be of the static or rotating rectifier type fed by a static or rotating power supply.

The **equipment** covered by this Guide is defined by its function rather than design type. Therefore, the guidance to the **specification** is stated in performance terms rather than being specified by a detailed description of the **equipment** to be supplied.

This Guide indicates to potential **purchasers** how their **specification** should be prepared so that:

- the **equipment** type and capacity interfaces correctly with other elements of the systems;
- predicted performance is achieved;
- ancillary **equipment** is properly sized;
- **reliability, availability** and safety requirements are achieved;
- proper consideration is given to the evaluation process and the quality measures to be applied.

This Guide does not determine the type of **specification** (e.g. detailed, performance, functional) or the extent of supply for any given contract which is normally decided on the basis of the **purchaser's** project strategy. It does not cover:

- any commercial, contractual or legal issues which are normally in separate parts of an **enquiry**;
- any allocation of responsibilities which are determined by the contract.

This Guide does not prescribe the arrangement of the documents in the **enquiry**.

NOTE: As a comprehensive European environmental policy is still under preparation, this Guide does not address the environmental implications of the **equipment**.

## 2 Normative references

This Guide for Procurement incorporates by dated or undated reference, provisions from other publications. These normative references are cited in 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 Guide only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

### European Standards

EN ISO 9001	Quality systems - Model for quality assurance in design, development, production, installation and servicing
EN ISO 9002	Quality systems - Model for quality assurance in production, installation and servicing
EN 60034-1	Rotating electrical machinery - Part 1 : Rating and performances
EN 60034-3	Rotating electrical machinery - Part 3: Specific requirements for turbine-type synchronous machines.