

Svenska Elektriska Kommissionen, SEK

Fastställt	Utgåva	Sida	Ingår i
2002-11-06	1	1 (1+31)	SEK Område 2

© Copyright SEK. Reproduction in any form without permission is prohibited.

Vägledning vid upphandling av kraftverksutrustning – Del 2-5: Elutrustning – Motorer

*Guide for procurement of power station equipment –
Del 2-5: Electrical equipment –
Motors*

Som svensk standard gäller europastandarden EN 45510-2-5:2002. Den svenska standarden innehåller den officiella engelska språkversionen av EN 45510-2-5:2002.

Nationellt förord

Standarden skall användas tillsammans med tidigare utgiven svensk standard SS-EN 45510-1.

ICS 27.100; 29.160.30

Denna standard är fastställd av Svenska Elektriska Kommissionen, SEK, som också kan lämna upplysningar om **sakinnehållet** i standarden.
Postadress: SEK, Box 1284, 164 29 KISTA
Telefon: 08 - 444 14 00. Telefax: 08 - 444 14 30
E-post: sek@sekom.se. Internet: www.sekom.se

English version

**Guide for procurement of power station equipment
Part 2-5: Electrical equipment -
Motors**

Guide pour l'acquisition d'équipements
destinés aux centrales de production
d'électricité
Partie 2-5: Equipements électriques -
Moteurs

Leitfaden für die Beschaffung von
Ausrüstungen für Kraftwerke
Teil 2-5: Elektrische Ausrüstung -
Motoren

This European Standard was approved by CEN and CENELEC on 2001-03-06.

CEN and 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 CENELEC Central Secretariat or to any CEN or CENELEC 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 or CENELEC member into its own language and notified to the CENELEC Central Secretariat has the same status as the official versions.

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

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.



CEN Management Centre:
rue de Stassart, 36 B-1050 Brussels

CENELEC Central Secretariat:
rue de Stassart, 35 B-1050 Brussels

Contents

Foreword	4
1 Scope	6
2 Normative references	6
3 Definitions	7
3.1 Organisational terms	7
3.2 Technical terms	8
3.3 General terms	8
4 Brief overall project description	9
4.1 Role and organisation of purchaser	9
4.2 Site location	9
4.3 Equipment task	10
4.4 Equipment to be purchased	10
4.5 Control and instrumentation	10
4.6 Electrical supplies and other services	10
4.7 Other interfaces	11
4.8 Project programme	11
4.9 Equipment identification systems	11
5 Extent of supply	11
6 Terminal points	12
7 Operational requirements	13
7.1 Operating environment	13
7.2 Manning levels	13
7.3 Normal operation	13
7.4 Operating hours	13
7.5 Start-up and shut-down	13
7.6 Abnormal conditions	13
7.7 Further operational requirements	14
8 Life expectancy	14
8.1 Design life	14
8.2 Components requiring periodic maintenance	14
9 Performance requirements	14
9.1 Duty	14
9.2 Performance	15
9.3 Equipment margins	16
9.4 Availability	16
9.5 Levels of component redundancy	17
9.6 Further performance requirements	17
10 Design and fabrication	17
10.1 Specific equipment features	17
10.2 Design justification	21
10.3 Material selection	21
10.4 Safety	21
10.5 Interchangeability	22
10.6 Fabrication methods	22

11	Maintenance requirements	22
11.1	Planned maintenance	22
11.2	Personnel safety.....	22
11.3	Requirements for access	23
11.4	Lifting requirements.....	23
11.5	Special tools.....	23
11.6	Test equipment	23
11.7	Spare parts strategy	23
11.8	Special precautions	24
12	Technical documentation requirements	24
12.1	Tender documentation.....	24
12.2	Contract documentation	24
13	Applicable legislation, regulations, standards and further requirements	24
13.1	Legislation and regulations.....	24
13.2	Standards	25
13.3	Further requirements	25
14	Evaluation criteria	25
14.1	General	25
14.2	Technical criteria.....	25
15	Quality measures	26
15.1	General	26
15.2	Approvals procedure	26
15.3	Inspection requirements.....	26
15.4	Non-conformity	26
16	Site factors	27
16.1	Access	27
16.2	Facilities	27
16.3	Site specific requirements	27
17	Verification of specified performance	28
17.1	General	28
17.2	Works tests.....	28
17.3	Tests during installation and commissioning.....	28
17.4	Technical conditions for trial run.....	28
17.5	Functional and performance tests	29
Annex A	(informative) Bibliography.....	30

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.

The text of the draft was submitted to the formal vote and was approved by CEN and CENELEC as EN 45510-2-5 on 2001-03-06.

The following dates were fixed:

- *latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement* (dop) 2003-03-01
- *latest date by which the national standards conflicting with the EN have to be withdrawn* (dow) 2004-04-01

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

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 convertors
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_x) 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_x) 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 45510-1 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**.*

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 motors 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.*

This Guide covers motors within installations primarily concerned with the generation of electrical power. However, as a complete electrical drive system is not defined in this Guide, attention is drawn to the possible additional electrical and mechanical stresses to which the motor may be subjected e.g. by a static AC converter/inverter. Reference should be made to IEC 60034-17.

*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 45510-2-7	Guide for procurement of power station equipment – Part 2-7: Electrical equipment - Switchgear and controlgear
EN 45510-2-9 ¹⁾	Guide for procurement of power station equipment – Part 2-9: Electrical equipment - Cabling systems

¹⁾ In preparation.