

Guide for procurement of power station equipment —

Part 4: Boiler auxiliaries —

Section 6: Flue gas desulfurization (De-SO_x) plant

The European Standard EN 45510-4-6:1999 has the status of a
British Standard

ICS 27.060.30

NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW

BSI
Documents



Document Sharing Hub

National foreword

This British Standard is the English language version of EN 45510-4-6:1999.
The UK participation in its preparation was entrusted to Technical Committee E/-20, Power engineering steering committee, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or by using the “Find” facility of the BSI Standards Electronic Catalogue.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 16, an inside back cover and a back cover.

The BSI copyright notice displayed throughout this document indicates when the document was last issued.

This British Standard, having been prepared under the direction of the Engineering Sector Committee, was published under the authority of the Standards Committee and comes into effect on 15 September 1999

© BSI 09-1999

ISBN 0 580 32491 5

Amendments issued since publication

Amd. No.	Date	Comments

English version

Guide for procurement of power station equipment —
Part 4: Boiler auxiliaries —
Section 6: Flue gas desulfurization (De-SO_x) plant

Guide pour l'acquisition d'équipements destinés aux
centrales de production d'électricité —
Partie 4: Auxiliaires de chaudière —
Section 6: Installation de désulfuration des fumées
(DeSO_x)

Leitfaden für die Beschaffung von Ausrüstungen für
Kraftwerke — Teil 4: Nebenanlagen —
Hauptabschnitt 6: Rauchgasentschwefelungsanlage
(DeSO_x)

This European Standard was approved by CEN/CENELEC on 1 April 1999.

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.

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/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 and national electrotechnical committees, respectively, of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

CEN Central Secretariat
rue de Stassart, 36 B-1050 Brussels

CENELEC

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

Foreword

This European Standard has been prepared by Technical Committee CEN/CLC JTFPE, Joint Task Force Power Engineering, the Secretariat of which is held by BSI.

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 October 1999, and conflicting national standards shall be withdrawn at the latest by October 1999.

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

*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 control gear

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 desulfurization (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 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**.*

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.*

Contents

	Page	Page
Foreword	2	
1 Scope	4	
2 Normative references	4	
3 Definitions	4	
3.1 Organizational terms	4	
3.2 Technical terms	5	
3.3 General terms	5	
4 Brief overall project description	6	
4.1 Role and organization of purchaser	6	
4.2 Site location	6	
4.3 Equipment task	6	
4.4 Equipment to be purchased	6	
4.5 Control and instrumentation	6	
4.6 Electrical supplies and other services	7	
4.7 Other interfaces	7	
4.8 Project programme	7	
4.9 Equipment identification systems	7	
5 Extent of supply	7	
6 Terminal points	8	
7 Operational requirements	8	
7.1 Operating environment	8	
7.2 Manning levels	8	
7.3 Normal operation	8	
7.4 Operating hours	8	
7.5 Start-up and shut-down	8	
7.6 Abnormal conditions	8	
7.7 Further operational requirements	9	
8 Life expectancy	9	
8.1 Design life	9	
8.2 Components requiring periodic maintenance	9	
9 Performance requirements	9	
9.1 Duty	9	
9.2 Performance	10	
9.3 Equipment margins	10	
9.4 Availability	10	
9.5 Levels of component redundancy	10	
9.6 Further performance requirements	10	
10 Design and fabrication	10	
10.1 Specific equipment features	10	
		10.2 Design justification 11
		10.3 Material selection 11
		10.4 Safety 11
		10.5 Interchangeability 12
		10.6 Fabrication methods 12
		11 Maintenance requirements 12
		11.1 Planned maintenance 12
		11.2 Personnel safety 12
		11.3 Requirements for access 12
		11.4 Lifting requirements 12
		11.5 Special tools 12
		11.6 Test equipment 12
		11.7 Spare parts strategy 12
		11.8 Special precautions 12
		12 Technical documentation requirements 13
		12.1 Tender documentation 13
		12.2 Contract documentation 13
		13 Applicable legislation, regulations, standards and further requirements 13
		13.1 Legislation and regulations 13
		13.2 Standards 13
		13.3 Further requirements 13
		14 Evaluation criteria 13
		14.1 General 13
		14.2 Technical criteria 13
		15 Quality measures 14
		15.1 General 14
		15.2 Approvals procedure 14
		15.3 Inspection requirements 14
		15.4 Non-conformity 14
		16 Site factors 14
		16.1 Access 14
		16.2 Facilities 14
		16.3 Site specific requirements 15
		17 Verification of specified performance 15
		17.1 General 15
		17.2 Works tests 15
		17.3 Tests during installation and commissioning 15
		17.4 Technical conditions for trial run 15
		17.5 Functional and performance tests 15
		Annex A (informative) Bibliography 16

1 Scope

*This standard gives guidance on writing the technical **specification** for the procurement of processes and equipment for the removal of sulfur oxides from the **flue gas** of steam generating plant 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:

- wet, semi-dry and dry systems;
- systems to meet specific **flue gas** discharge requirements, for example sulfur content, dust content and temperature;
- systems with and without marketable **by-products**;
- systems to meet specified **waste product** discharge limits;
- systems to meet limited choice of absorbent type and limitation of water consumption.

*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 particularly the boiler plant;
- 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.

*EN ISO 9001, Quality systems — Model for quality assurance in design, development, production, installation and servicing.
(ISO 9001:1994)*

*EN ISO 9002, Quality systems — Model for quality assurance in production, installation and servicing.
(ISO 9002:1994)*

IEC 60050 (191), International electrotechnical vocabulary.

3 Definitions

For the purposes of this guide, the following definitions apply:

3.1 organizational terms

3.1.1

purchaser

*recipient of a product and/or a service provided by a **supplier***

3.1.2

supplier

*person or organization that provides a product and/or a service to the **purchaser***

3.1.3

specification

*document stating technical requirements of the **purchaser**. It may form part of an **enquiry** issued by a **purchaser***

3.1.4

enquiry

*invitation to **tender** issued by a **purchaser**. It will normally include a **specification** together with the necessary contractual and commercial conditions*

3.1.5

tender

*offer made by a **tenderer** in response to an **enquiry***

3.1.6

tenderer

*person or organization submitting a **tender** for the **equipment** in response to the **enquiry***

3.1.7

site

*place to which the **equipment** is to be delivered or where work is to be done by the **supplier**, together with so much of the area surrounding as the **supplier** may, with the consent of the **purchaser**, use for the purposes of the contract*

NOTE Further definitions of useful organizational terms may be found in EN ISO 8402 (see annex A).

