

Guide for procurement of power station equipment —

Part 4: Boiler auxiliaries — Section 7: Ash handling plant

The European Standard EN 45510-4-7:1999 has the status of a
British Standard

ICS 27.060.30; 27.100

NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW



Document Sharing Hub

National foreword

This British Standard is the English language version of EN 45510-4-7:1999.
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 17 and a back cover.

The BSI copyright notice displayed in 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

Amendments issued since publication

Amd. No.	Date	Comments

ISBN 0 580 32507 5

English version

Guide for procurement of power station equipment —
Part 4: Boiler auxiliaries —
Section 7: Ash handling plant

Guide pour l'acquisition d'équipements destinés aux
centrales de production d'électricité —
Partie 4: Auxiliaires de chaudière —
Section 7: Manutention des machefers

Leitfaden für die Beschaffung von Ausrüstungen für
Kraftwerke —
Teil 4: Nebenanlagen —
Hauptabschnitt 7: Aschetransportanlage

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 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN CENELEC

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

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

© 1999 CEN/CENELEC All rights of exploitation in any form and by any means reserved worldwide for CEN national Members and for CENELEC Members.

Ref. No. EN 45510-4-7:1999 E

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 desulphurisation (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.*

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

1 Scope

*This standard gives guidance on writing the technical **specification** for the procurement of **equipment** for ash handling associated with coal-fired 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 mechanical conveying systems which handle the **ash** mechanically. Among those are, for example:

- **submerged scraper conveyor**;
- **ram-type slag extractor**;
- belt conveyor;
- **drag-link conveyor**;
- **vibratory conveyor**;
- **screw conveyor**;
- **apron conveyor**;
- **bucket elevator**;
- **skip hoist**;
- vehicles.

Hydraulic conveying systems use water as conveying medium. These include, for example:

- **water-filled ash hopper**;
- **dry ash hopper**;
- **sluiceway**;
- **slurry pump** with pipeline;
- **ejector** with pipeline.

Generally a combination of the above systems is employed.

*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 such as the boiler and gas treatment 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***