BRITISH STANDARD

BS EN 45510-7-1:2000

Guide for procurement of power station equipment —

Part 7-1: Pipework and valves — High pressure piping systems

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National foreword

This British Standard is the English language version of EN 45510-7-1:1999.

The UK participation in its preparation was entrusted to Technical Committee E/-/20, Power engineering steering systems, 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.

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 26, an inside back cover and a back cover.

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Guide for procurement of power station equipment - Part 7-1: Pipework and valves - High pressure piping systems

Guide pour l'acquisition d'équipements destinés aux centrales de production d'électricité - Partie 7-1: Tuyauteries et robinets -Tuyauteries haute pression

Leitfaden für die Beschaffung von Ausrüstungen für Kraftwerke - Teil 7-1: Rohrleitungen und Armaturen - Hochdruckrohrleitungen

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

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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 April 2000, and conflicting national standards shall be withdrawn at the latest by April 2000.

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 European Standard has been prepared by Technical Committee ", the Secretariat of which is held by BSI.

This document is currently submitted to the Formal Vote.

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

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 converters

Part 2-5: Electrical equipment - Motors

Part 2-6: Electrical equipment - Generators

Part 2-7: Electrical equipment - Switchgears 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 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

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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 plants. 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 minor changes have been made to sentences in the "common clauses" these are marked by a vertical line in the left margin.

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.

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1 Scope

*This standard gives guidance on writing the technical **specification** for the procurement of* **high pressure piping systems** *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:

- Live steam lines
- Hot reheat lines
- Cold reheat lines
- Feedwater lines
- Spray water lines for HP and RH-attemperators and steam-bypass-systems
- Pump minimum flow and balancing leak off lines
- Auxiliary steam supply lines
- Condensate lines
- Safety valve discharge pipelines
- Bled steam pipelines
- Steam and water drains, vents and warming lines

*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 **purchaser**s 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 the **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.

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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 - Chapter 191: Dependability and quality of service*

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 Bibliography).*

3.2 Technical terms

3.2.1 high pressure piping system: System of pipes, valves, etc. conveying steam and water to and from a boiler, turbine etc. and to points of discharge.

3.2.2 terminal conditions: Conditions imposed on the plant at the terminal points of the piping system. These may typically comprise:

- feedwater condition

- main steam conditions, cold and hot reheat steam conditions

3.2.3 design conditions: Values of conditions used in design calculations such as the design pressure and temperature for a defined piping section.

3.2.4 medium conditions: Conditions which define the thermodynamic and chemical state of the medium

3.2.5 running hours: Number of hours during which the plant has been in operation.

3.3 General terms

3.3.1 equipment: *Plant, component, system and/or associated service to be provided in response to the* ***enquiry****.*

3.3.2 conformity: *Fulfilment of specified requirements by a product, process or service.*

3.3.3 performance: *Obligations verified by specified tests.*

3.3.4 operating period: *Time between planned outages or maintenance periods, during which the* ***equipment*** *is in operation and/or does not restrict operational requirements of the power stations.*

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