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Water-tube boilers and auxiliary installations - Part 17: Guideline for the involvement of an inspection body independent of the manufacturer

Wasserrohrkessel und Anlagenkomponenten - Teil 17: Leitfaden für die Einbeziehung einer herstellerunabhängigen Prüforganisation

Chaudières à tubes d'eau et installations auxiliaires - Partie 17 : Lignes directrices relatives à l'implication d'un organisme indépendant du fabricant

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English Version

Water-tube boilers and auxiliary installations - Part 17: Guideline for the involvement of an inspection body independent of the manufacturer

Chaudières à tubes d'eau et installations auxiliaires - Partie 17: Guide pour l'implication d'un organisme d'inspection indépendant du fabricant

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This draft Technical Report is submitted to CEN members for Vote. It has been drawn up by the Technical Committee CEN/TC 269.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (FprCEN/TR 12952-17:2024) has been prepared by Technical Committee CEN /TC 269, “Shell and water-tube boilers”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

EN 12952, *Water-tube boilers and auxiliary installations* consists of the following parts:

— *Part 1: General;*

— *Part 2: Materials for pressure parts of boilers and accessories;*

— *Part 3: Design and calculation for pressure parts of the boiler;*

— *Part 4: In-service boiler life expectancy calculations;*

— *Part 5: Workmanship and construction of pressure parts of the boiler;*

— *Part 6: Inspection during construction; documentation and marking of pressure parts of the boiler;*

— *Part 7: Requirements for equipment for the boiler;*

— *Part 8: Requirements for firing systems for liquid and gaseous fuels for the boiler;*

— *Part 9: Requirements for firing systems for pulverized solid fuels for the boiler;*

— *Part 10: Requirements for safeguards against excessive pressure;*

— *Part 11: Requirements for limiting devices of the boiler and accessories;*

— *Part 12: Requirements for boiler feedwater and boiler water quality;*

— *Part 13: Requirements for flue gas cleaning systems;*

— *Part 14: Requirements for flue gas DENOX-systems using liquefied pressurized ammonia and ammonia water solution;*

— *Part 15: Acceptance tests;*

— *Part 16: Requirements for grate and fluidized-bed firing systems for solid fuels for the boiler;*

— *Part 17: Guideline for the involvement of an inspection body independent of the manufacturer;*

— *Part 18: Operating instructions.*

Although these parts can be obtained separately, it should be recognized that the parts are inter-dependent. As such, the design and manufacture of water-tube boilers requires the application of more than one part in order for the requirements of the standard to be satisfactorily fulfilled.

1 Scope

This document gives guidance for the involvement of an inspection body independent of the manufacturer of shell boilers as defined in EN 12952-1.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

prEN 12952-1:2022, *Water-tube boilers and auxiliary installations — Part 1: General*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in prEN 12952-1:2022 apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp/

— IEC Electropedia: available at https://www.electropedia.org/

4 Guidance

4.1 General

The manufacturer ensures that this document, including inspection and testing activities, is fully applied. If a CE marking is sought, it is a requirement of Directive 2014/68/EU that (in many cases) there is a supplementary involvement of a responsible authority to ensure the requirements of Directive 2014/68/EU are met.

The kind and extent of responsible authority involvement in inspection and testing activities will depend upon the conformity assessment procedure chosen by the manufacturer. For each appropriate conformity assessment procedure the participation is described in this CEN technical report.

For the purpose of this document, a definition of Responsible Authorities is given in EN 12952-1:2022, 3.6.

The involvement of responsible authorities is recognized by this document as indicated below:

a) in connection with conformity assessment requirements;

b) arising from the complexity of the technical requirements.

4.2 Conformity assessment modules

Boilers are classified by category.

NOTE See the conformity assessment Table 5 of Directive 2014/68/EU Annex II.

Most likely, the categories III and IV apply to water tube boilers due to their size and operational parameters in common industrial applications.

Therefore the conformity assessment modules B (production type) + D or B (design type) + F or G or H1 are applicable. The following key requirements are assigned to those modules:

A	Made under the manufacturer's own responsibility
A1	The manufacturer's own responsibility but final assessment is monitored by the Notified Body.
B	The manufacturer establishes a EC Type Examination Certificate with the Notified Body.
B1	The manufacturer establishes a EC Design Examination Certificate with the Notified Body.
C1	Made to conform to a EC Type Examination Certificate with manufacture monitored by the Notified Body.
D	The manufacturer uses an approved Quality System and conforms to either a EC Design Examination or EC Type Examination Certificate.
D1	The manufacturer uses an approved Quality System, and manufactures without the use of a EC Design Examination or EC Type Examination Certificate.
E	The manufacturer uses an approved Quality System and conforms to a EC Type Examination Certificate.
E1	The manufacturer uses an approved Quality System, without a EC Type Examination Certificate.
F	Made to either a EC Type or Design Examination Certificate with each pressurized equipment being examined by the Notified Body.
G	The manufacturer selects the notified body. The Notified Body carries out the examinations on each pressurized equipment.
H	The manufacturer uses an approved Quality System for each pressurized equipment.
H1	The manufacturer uses an approved Quality System. The Notified Body issues a EC Design Examination Certificate and takes part in the final assessment of the pressurized equipment.

4.3 Technical complexity

Where the technical requirements are complex and no clearly defined procedure is given in this EN 12952, it is the convention within the boiler industry for the manufacturer to prepare procedures based on his own experience proposing how the design/manufacture proceed. In such cases the proposals are normally submitted to the RA for appraisal. Such appraisal will normally be completed at the initial design stage, but it is recognized that similar proposals can be needed to introduce design modifications and/or to accommodate concessions (deviations) during the manufacturing stage. These latter proposals also form part of the design/type appraisal procedure.

5 Conformity assessment activities

The extent of RA involvement will depend upon the conformity assessment procedure adopted by the manufacturer. The assumed involvement of the RA for each appropriate conformity assessment module, is shown in Annex B for category IV steam boilers. For category III steam boilers appropriate modules can be chosen. For the guidance of the manufacturer, examples for the following certificates are given in Clause Annex B: Manufacturer's Declaration of Conformity, Responsible Authority's Certificate of Conformity, EU-type examination certificate – production type, EU-type examination certificate – design type, Responsible Authority's Surveillance and Inspection Report.

It is to be noted that for the modules subject to the EU-type examination procedure (B (production type) + D and B (design type) + F), with the issue of the EU-type examination certificate, no further design

examination is required for the subsequently manufactured components. However, surveillance or inspection is required during the manufacturing stage as indicated in Annex B.

6 Subcontracting

An entity is responsible for the fabrication and installation processes, which can involve subcontracting to other fabricators and/or installers. In instances where the manufacturer produces equipment under a conformity assessment procedure requiring the involvement of a responsible authority, the authority is informed of any subcontracting plans. This allows the authority to monitor the subcontractor's activities.

Where the manufacturer (or competent entity) is producing the equipment under a conformity assessment procedure based on quality assurance, e.g. D, H, H1, the controls apply over subcontractors are described in his appropriate quality system.

7 EU-type examination – Modules B (production type) + D and B (design type) + F

7.1 General

The manufacturer submits an application for EU-type examination to the responsible authority and enclose the design and manufacturing schedules in accordance with 7.2. Additionally, a sample of the product is made available for examination.

The criteria for type approval is the edition of EN 12952-6 current on the date when the type approval was requested or when any subsequent modifications are proposed.

7.2 Information for the product type approval schedule

For each water-tube boiler component, the design and manufacturing schedule can contain exemplarily:

a) the name of the boiler component manufacturer;

b) technical documentation giving a general description of the type including:

   1) the boiler component, giving a clear understanding of its design basis including design calculations. A general arrangement drawing showing its parts, connection points, any safety accessories such as safety valves, pressure gauges, thermocouples;

   2) the design pressure and test pressure;

   3) the design temperature;

   4) the intended mode of operation;

   5) type and effects of heating systems;

   6) test reports;

c) the various materials selected:

   1) a description of materials for pressure loaded parts; material type and grade is in accordance with the requirements of EN 12952-2;

   2) a description of materials for non pressure loaded parts welded on to the component; material type is in accordance with the requirements of EN 12952-2;

   3) the welding consumables in the case of time-dependent design strength values;

d) information for the inspection of welds

   1) the weld locations, the weld preparations and, where applicable, the heat treatment requirements;

   2) the type and extent of destructive and non-destructive examination;

   3) additional tests, where considered necessary;

e) any pertinent details relative to boiler component design and data required in specific cases:

   1) the type of heat treatment and, where necessary, the type and extent of associated material tests;

   2) the construction sequence schedule if the testing is to be carried out in several steps;

   3) additional requirements specified by the purchaser (e.g. extra corrosion/erosion thickness allowance);

   4) a low water level for boilers with drums and low flow restrictions for once through boilers;

   5) any cyclic and dynamic loading;

   6) the location of any welds to be made on the construction site;

   7) the design calculation document provided by the manufacturer;

f) additional information for components calculated with time-dependent design strength values:

   1) the availability of access for the inspection from the inside and outside of components;

   2) the design of components with respect to the possibility of performing additional examinations during operation;

   3) the method of recording the operational history of the component with respect to pressure and temperature;

g) information on safety accessories, e.g. capacity and set pressure of safety valves;

h) information concerning regulatory requirements on the protection of working personnel.

7.3 Procedure for type examination – for the guidance of the manufacturer

7.3.1 Extent of examination by the Responsible Authority

The RA confirms that the product type has been designed and manufactured in conformity with EN 12952 (series).

7.3.2 Type examination certificate

The RA signifies, as a minimum, its approval by issuing type examination certificate to the manufacturer. See Figure A.1 for an example of such a certificate.

7.4 Manufacturing concessions

During the manufacturing stage there can be a need to accommodate manufacturing concessions (deviations). The acceptance of such deviations forms part of the type examination process and the type examination procedures are similarly applicable – see EN 12952-1:2016, Clause 7. The approval of any manufacturing concessions becomes an addendum to the type examination certificate and to be included in the manufacturer's data dossier.

8 Design and manufacturing schedule – Modules G and H1

8.1 General

The manufacturer submits an application for design appraisal to the RA and enclose the design and manufacturing schedule in accordance with 6.2.

During the manufacturing stage there can be a need to introduce design modifications and/or accommodate manufacturing concessions (deviations). The acceptance of such deviations forms part of the design appraisal process and the design appraisal procedures are similarly applicable – see prEN 12952-1:2023, Clause 7. The acceptance of any design modifications/manufacturing concessions becomes an addendum to the design appraisal documentation and be included in the manufacturer's data dossier.

NOTE With the RA agreement, water-tube boilers of identical design can be covered by one design and manufacturing schedule.

8.2 Information for the design and manufacturing schedule

For each water tube boiler, the design and manufacturing schedule can contain exemplarily:

a) the name or company's name of the boiler plant user;

b) the name and location of the installation;

c) the name of the boiler manufacturer;

d) a document and drawings describing:

   1) the water-tube boiler and the pressure parts that permit a clear understanding of the design of the boiler, its pressure parts and their connections. The general arrangement drawings show the arrangement of safety accessories, such as safety valves, pressure gauges, thermocouples;

   2) the design pressure and test pressure;

   3) the steam or hot water output capacity of the boiler;