TÜVRheinland®
DIN CERTCO
Genau. Richtig.

Certification Scheme

Radiators and convectors

according to

DIN EN 442

(Edition: July 2015)

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Foreword

DIN CERTCO was founded in 1972 by DIN Deutsches Institut für Normung e. V., is now part of the TÜV Rheinland Group and is the certification body for issuing DIN marks and other certification marks for products, persons, services as well as companies based on DIN standards and similar specifications. Due to its independence, neutrality, competence and many years of experience, DIN CERTCO enjoys a high reputation both at home and abroad.

In order to prove the functionality of the system and our competence as a certification body, we have been accredited, certified or recognised by independent domestic and foreign bodies in both the voluntary and legally regulated areas. Our accreditations.

In conjunction with the General Terms and Conditions of DIN CERTCO, this certification scheme forms the basis for suppliers of radiators and convectors to mark their products with the certification mark “DIN-Geprüft”. In this way they document that their products fulfil all the requirements of the European Standard DIN EN 442.

The certification mark “DIN-Geprüft“ gives consumer confidence, in that an independent, neutral and competent body has carefully examined and assessed the product on the basis of the test criteria. Third-party monitoring, also during the on-going production process, further ensures that the quality of the product is maintained. In this way, the customer receives an added value, which he can take into consideration in deciding on his purchase.

Radiators and convectors shall receive the certification mark “DIN-Geprüft” on meeting the requirements listed under clause 3 according to the procedure described in this certification scheme.

All certificate holders can be viewed on the daily up-dated homepage of DIN CERTCO (www.dincertco.de) where also a data sheet with the thermal output of the certified radiators and convectors is available.

Start of validity

This certification scheme comes into effect on 2015-07-01. All DIN-certified radiators and convectors must show compliance with the new testing and certification requirements by 2015-12-31.

Amendments

This certification scheme differs from the certification scheme “Radiators and convectors” (2008-08) as follows:

a) The certification scheme was harmonized with EU-Directive No. 305/2011.
b) The declaration of standard low temperature thermal output at ΔT 30 K was added.
c) New definition for calculation of exponent, water content and dry weight for the not tested models of a model range
d) Editorial changes

Remark

The German version of this certification scheme shall be taken as authoritative. No guarantee can be given to the English translation.

1 Scope

This certification scheme covers radiators and convectors (hereinafter referred to as "heating appliances") to be installed in central heating systems in residential buildings, fed with water or steam, at temperatures below 120°C, supplied by a remote heat source. These are:

- Steel radiators (radiators manufactured from steel sheet or coil)
- Cast-iron radiators
- Cast aluminum radiators
- Extruded aluminum radiators
- Tubular radiators
- Finned tube convectors

This certification scheme does not apply to fan assisted radiators and convectors and independent heating appliances. It does also not apply to components e.g. valves, monitoring devices for flor rate etc.

The present certification scheme specifies requirements for the product as well as for its testing, surveillance and certification.

2 Requirements and testing foundations

The following referenced documents form the basis for testing and certification. For dated references, only the edition citied applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

DIN EN 442-1	Radiators and convectors - Part 1: Technical specifications and requirements
DIN EN 442-2	Radiators and convectors - Part 2: Test methods and rating
DIN EN ISO 2409	Paints and varnishes - Cross-cut test
DIN ISO 2768-1	General tolerances; tolerances for linear and angular dimensions without individual tolerance indications
DIN 4703-1	Heating appliances - Part 1: Dimensions of sectional radiators
DIN 4703-3	Heating appliances - Part 3: Conversion of the standard thermal output
DIN EN 10131	Cold-rolled uncoated low carbon and high yield strength steel flat products for cold forming - Tolerances on dimensions and shape
DIN EN 13501-1	Fire classification of construction products and building elements - Part 1: Classification using test data from fire reaction to fire tests
DIN 55900-1	Coatings for radiators - Part 1: Terms, requirements and tests for primers and industrially applied priming coats
DIN 55900-2	Coatings for radiators - Part 2: Terms, requirements and tests for finishing paints and industrially applied finishing coats

- This certification scheme
- The General Terms and Conditions of DIN CERTCO
- The respective schedule of fees of DIN CERTCO

3 Requirements for the product

3.1 Limit deviations (dimensions and tolerances)

The dimensions specified in the design drawings shall be complied with, taking into account the given dimensional tolerances. In addition to the requirements of DIN EN 442-2, table 3, for the respective heating appliance shall not be exceeded. Requirements for the material specifications and wall thickness of wet heating surfaces are defined in DIN EN 442-1, clause 4.1.

3.2 Materials

The materials used for the manufacturing of radiators and convectors shall comply with DIN EN 442-1, clause 4.2.

3.3 Reaction to fire

Heating appliances are considered to be reaction to fire Class A1[1] without testing, provided that they are not coated and, if coated, the coating does not exceeds 1,0 mm of thickness and 1,0 kg/m^2 of mass per unit area[2].

If the coating exceeds 1,0 mm of thickness or 1,0 kg/m^2 of mass per unit area, or for heating appliances made of others materials not covered by the decision cited in footnote 2, the appliances shall be tested and classified according to EN 13501-1 and the standards referred therein, and the resulting class declared.

Only one model is to be tested to assess the reaction to fire of a type

3.4 Release of dangerous substances

The surface treatments shall not contain any chemical substances the use of which is not allowed in building products. The release of dangerous substances shall comply with the relevant EEC directives (also in conjunction with EU No. 1907/2006 (REACH)).

3.5 Leak tightness and compressive strength pressure

The specifications of the clauses 4.5 and 4.7 of DIN EN 442-1 apply. The maximum operating pressure shall be given in the technical documentation of the manufacturer. If the same type of heating appliances is produced for different operating pressures, the radiators and convectors for higher operating pressures shall be clearly marked (e. g. by a stick-on label) with the numerical value of the respective operating pressure.

3.6 Surface defects

The heating appliance shall be free from burrs likely to cause personal injury, according to DIN EN 442-1, clause 4.8.

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[1] See Decision 1996/603/EC as amended by Decision 2000/605/EC (OJEU 19-10-1996 N. 267)

[2] See Decision 2000/147/EC for non-substantial components. (OJEU 23-02-2000 N. 50)

3.7 Rated thermal outputs

When required radiators and convectors covered by this standard shall be tested for thermal outputs according to DIN EN 442-1, clause 5.8 and declared as thermal outputs values [W].

The standard thermal output and the thermal output under different operating conditions shall be determined according to DIN EN 442-2.

3.8 Thermal output in different operating conditions

When required the thermal output in different operating conditions of the radiators and convectors covered by this standard shall be determined according to Annex C and Annex D of DIN EN 442-2:2014 and declared as characteristic equation and relevant exponent *n*.

3.9 Durability

The protection against corrosion required in DIN EN 442-1, clause 4 may be ensured also by methods other than coating (e.g. galvanising, chromium plating, anodizing or by virtue of the basic material itself, e.g. high-grade steel, copper etc.).

When providing the protection against corrosion by coating the heating appliance, clause 5 of DIN EN 442-1 apply. The verification is to be provided by a manufacturer's declaration according to Annex D.

3.10 Surveillance by the manufacturer

The manufacturer shall have a quality management system. The verification is to be provided by a manufacturer's declaration according to Annex D.

3.11 Marking and catalogue data

3.11.1 Marking

Heating appliances and their packaging shall be marked (see also clause 6.3) well legibly and permanent with the following specifications:

- name of the manufacturer
- identification of the production site
- registration number (see clause 6.3)
- maximum operating pressure

3.11.2 Catalogue data / accompanying documents

In addition to the specifications given above, technical documents (in particular accompanying documents) shall include the following information:

- Reference to DIN EN 442-1
- Maximum operating pressure
- Standard thermal output
- Standard characteristic equation
- inlet water temperature (products with a protective case)
- Reaction to fire class

4 Testing

4.1 Types of testing

4.1.1 Initial type test

A successful initial type test, attested by a complete test report according to clause 4.4, is the precondition for issuing a certificate and granting the right to use the certification mark "DIN-Geprüft“.

The applicant engages informally a qualified testing laboratory for testing heating appliances, to carry out the initial type test. The complete production drawings shall be submitted to the testing laboratory at the same time.

Furthermore the applicant shall prove the operation of a reliable factory production control complying with clause 4.1.2.

The initial type test consists of a verification of compliance with the product specifications described in clause 3 and DIN EN 442-1 as well as the test to determine the standard thermal output in accordance with clauses 3.7 and 3.8. Furthermore, the applicant has to prove the testing laboratory that carried out the initial type test the execution of a reliable factory production control according to clause 5 by a manufacturer declaration according to Annex D.

If the initial type test has been failed, the elimination of the complained defects shall be proved by re-testing within 6 months. In case of exceeding this deadline, a new initial type test is to be engaged.

4.1.2 Control test (verification test)

A control test shall be carried out 12 months after the initial type test.

The control test consists of model tests and the examination of marking and catalogue data.

Its scope includes 1 heating appliance of each type and 3 heating appliances when testing type triangles. For families of n types, heating appliances of n/2 types (rounded off) shall be subjected to the verification test.

If the control test determines standard thermal outputs being more than 4 % below the value measured in the catalogue, or if dimensional deviations are detected that exceeds those specified in DIN EN 442-2, table 3, clause 6.10.1 applies.

The testing laboratory informs the certificate holder of the result of the verification test and advises DIN CERTCO by way of current testing report as well as notices according to Annex C. The register numbers to which the verification test refers must be listed at least from the accompanying letter.

4.1.3 Maintenance test (renewal test)

Certified heating appliances shall be subjected to a maintenance test in order to confirm continuing compliance with the heating appliances that have been initially type tested.

Maintenance tests are carried out at intervals of 5 years beginning from the initial type test.
Concerning the nature and scope, the maintenance test corresponds to a verification test according to clause 4.1.2.

Necessary testing may also be carried out at regular intervals until the next maintenance test.

The testing laboratory informs the certificate holder of the result of the maintenance test and advises DIN CERTCO by way of current testing report as well as notices according to Annex C. The register numbers to which the maintenance test refers must be listed at least from the accompanying letter.

By a manufacturer declaration according to Annex D the execution of a reliable factory production control according to clause 5 has to be proved.

4.1.4 Supplementary test

A supplementary test serves to assess the influence of technical modifications on the thermal output of heating appliances already tested and certified.

The testing laboratory examines the effect of the modification on the thermal output, if necessary by testing one or more models.

The existing certification remains valid with the former values as long as the supplementary test establishes a deviation up to ±4 % (including) from the measured standard thermal output.

If the deviation comes within a range from < -4 % and -6 %, a re-certification shall be carried out with the values obtained by percentage conversion. In the case of a positive deviation between > 4 % and 6 %, the re-certification with converted values may omit at the request of the applicant. In this case the existing certification remains valid with the lower values.

If the deviation is more than 6 %, a re-test according to clause 4.1.2 or 4.1.3 as well as a re-certification shall be carried out.

The testing laboratory informs the certificate holder of the result of the supplementary test and advises DIN CERTCO by way of notice according to Annex E.

4.1.5 Special test

If the thermal output of heating appliances bearing the certification mark "DIN-Geprüft“ and a registration number is questioned, a special may be required.

In general, a special test shall be carried out in the way of model testing according to clause 4.3.2 of 2 models.

The order of the special test shall be placed with the testing laboratory that performed the initial type test of the heating appliance in question.

DIN CERTCO places the order for special test. The costs are to be met by the applicant of the especial test (complainant). These costs cover the fees of the testing laboratory, the fees for selecting and transporting the heating appliance concerned to the testing laboratory as well as the costs of the heating appliance itself.

If the special test identifies deviations of more than 4 % below the values determined in the initial type test, or dimensional tolerances exceeding those of DIN EN 442-2, table 3, the certificate holder concerned will be informed thereof by DIN CERTCO submitting the test report. The certificate holder is entitled for perusal of this process. Clause 6.10.1 applies.

4.2 Sampling

Together with the commission for testing, the client delivers to and collects from the testing laboratory the numbers of heating appliances required for testing according to DIN EN 442-2, clause 4.2, or as agreed between client and testing laboratory, free of fees.

Test samples for the initial type test have to be chosen and delivered by the manufacturer.

Samples for the verification and maintenance test shall be taken by the testing laboratory or authorized agent of the testing laboratory from the production line, or the store of the manufacturer or certificate holder, or purchased from commercial outlets.

Samples of heating appliances for a verification test shall be purchased by the testing laboratory or its authorized agent from commercial outlets.

In the case of heating appliances that are distributed via trade depots, the certificate holder shall advise the testing laboratory of at least 3 depots or dealers carrying the heating appliances. The certificate holder shall provide the testing laboratory with a slip entitling to take samples from these depots.

For heating appliances, distributed not via trade depots, authorized agent of the testing laboratory selects the heating appliances to be tested from the stock of the manufacturer or directly from the production line.

If manufacturer and certificate holder are not identical, the certificate holder shall ensure that the authorized agent of the testing laboratory has unrestricted access, in accordance with the provisions of this certification scheme, to the manufacturer's factory store and production site during working time.

Samples of heating appliances for special testing shall be purchased by the testing laboratory or its authorized agent from commercial outlets.

Heating appliances selected by the testing laboratory or its authorized agent are to be identified by permanent marking. The certificate holder arranges the transport of the heating appliances to the testing laboratory in agreement with it.

4.3 Testing for determination of the standard thermal output

4.3.1 General

The standard thermal output is to be determined in accordance with DIN EN 442-2 by a qualified testing laboratory.

If heating appliances are supplied optionally with or without enclosure, both design variants shall be tested. Each of them is regarded as separate type or family. In the case of deviations exceeding 4 %, these heating appliances are regarded as separate type or family.

If heating appliances are supplied optionally with or without integrated valve trim, or only with a side cover, at least 1 model of a type or family shall be subjected to a supplementary test. In the case of deviations exceeding 4 %, these heating appliances are regarded as separate type or family.

If the design of a heating appliance or its description in the manufacturer's documentation suggests that the heating appliance will be installed in a manner different from DIN EN 442-

2, clause 5.3.1, the thermal output shall be determined in this mode of installation. Alternatively, the standard thermal output determined in accordance with DIN EN 442-2 may be converted in accordance with DIN 4703-3 in the case of different temperature conditions and/or changed installation conditions.

4.3.2 Model test

The model test is a test on a heating appliance of specifies height, length and depth.

4.3.3 Type test

All heating appliances of the same design may be assigned to a type if it is expected that the thermal output constantly changes depending on geometrical differences of one characteristic dimension of the individual models.

Such characteristic dimensions may be, e. g.:

- height of the heating appliance, or
- division of adjoining elements of the heating appliance (sections, tubes), or
- number of equal elements of the heating appliance one behind the other (single panel, double panel), expressed by the overall depth, or
- the length, if ,contrary to the assumption according to DIN EN 442-2, clause 5.5.1.1, the thermal output does not change linear with the length. In the case of heating appliances with horizontal water flow and opposite bottom connections, e. g. bathroom radiators, vertical panel radiators, the models of the smallest and the largest length shall be tested as separate types.

A type test consists of tests on models selected in accordance with DIN EN 442-2, clause 4.2 and determination of the thermal output of all models of the type from the respective regression equation.

Intermediate values for the exponent, the water content and the dry weight of non-tested models of the type may be determined by linear interpolation between 2 values laying side by side.

Output values for heights between 2500 mm and 3000 mm may be extrapolated, provided that an adequate number of tests has been performed in accordance with DIN EN 442-2, clause 4.2.1.5.

Variations of a second characteristic dimension cause the assignment to a new type.

A type triangle – as a special kind of type – exists, if e. g. the height of the heating appliance varies with the height of convectors surfaces as second characteristic dimension.

In the case of type triangles, DIN EN 442-2, clause 4.2 applies both for the height of the heating appliance as well as the height of convector surfaces. Heating appliances that form the 3 sides of the type triangle above 300 mm height and 300 mm convector surfaces' height (or second characteristic dimension) are to be considered as a type. Heating appliances in the corners of type triangles shall always be tested.
If the range of heights or the range of the second characteristic dimension is below 300 mm, testing of 2 instead of 3 models is sufficient. Annex A.1 shows the selection of samples for this case by the way of 3 typical examples.

4.3.4 Family test

A family test is test of more than one types belonging to a family.

A family in the wider sense exists, if all models of the appropriate types are made of uniform basic elements (wet heating surface, convector surfaces), but no continuous connection between depth and thermal output is expected (see Annex A.2.1).

A family in the strict sense exists, if a continuous connection between thermal output and more than one characteristic dimension (primary, secondary, ... dimension) is expected (see Annex A.3.1). in this case, types of the smallest and the largest characteristic dimension (typical example: smallest and largest depth) as well as every second intermediate type shall be fully tested in accordance with clause 4.3.3.

The missing supporting values are obtained by regression via the secondary characteristic dimension. On this basis regression may be performed for each type via the primary characteristic dimension.

Annex A.2.2 and Annex A.3.2 show the selection of models to be tested by the way of typical examples.

The testing laboratory specifies, if necessary, the number of models to be tested additionally to permit a definite statement concerning the thermal output of all models.

4.4 Test report

The testing laboratory informs the applicant of the test result by way of a test report in duplicate.

The test report shall include at least the information required for testing laboratories in accordance with DIN EN ISO/IEC 17025, clause 5.10 and DIN EN 442-2, clause 6. It shall be drawn up according to DIN EN 442-2, Annex E.

The fully completed data sheet with dimensional plan according to Annex B shall accompany the test report.

5 Surveillance

Certificate holders shall continually monitor the fulfilment of all requirements of this certification scheme. To do so, it is necessary to implement, monitor and maintain an appropriate quality system being at least at the level of DIN EN ISO 9000 series. This system shall be suitable as evidence, that materials and production – not matter if manufactured by the certificate holder itself or purchased from suppliers – meet the specific requirements.

The compliance of the requirements according to DIN EN 442-1 has to be ensured by suitable measures and confirmed by a manufacturer declaration after Annex D (in the context of the initial type test and maintenance test).

6 Certification

6.1 Application for certification with the certification mark "DIN-Geprüft"

6.1.1 Application by the manufacturer

Applications for certification with the certification mark "DIN-Geprüft“ shall be submitted to DIN CERTCO in written (Application forms may be received at DIN CERTCO or its website.).

The application shall be accompanied by the following documents:

- the second copy of the test report according to clause 4.4 on an initial type test, which shall not be older than 3 months on receipt of the application,

- the second copy of the data sheet (see Annex B), containing on its reverse a DIN A4 formatted dimensional plan of the heating appliance that reveals all details relevant for the thermal output (Different examples of such plans are given in DIN EN 442-2, Annex G.),

- notice in accordance with Annex C on the examination for the content's correctness of catalogues and other publications containing information on the tested heating appliances. If these documents are not yet completed, an examination of the corresponding drafts is sufficient. The completed documents shall be examined by the testing laboratory in the course of the verification test.

6.1.2 Application by the supplier or importer

If the supplier or importer applies for a certificate for heating appliances that are already certified on behalf of the manufacturer, a re-test may be refrained.

The application shall be accompanied by the following documents:

- manufacturer's confirmation to the supplier/importer on the design identity of the heating appliances and on its agreement with issuing a certificate and granting the right to use the certification mark "DIN-Geprüft".

- a new copy of the data sheet (see Annex B),

- catalogues and/or other publications containing information on certified heating appliances. If these documents are not yet completed, corresponding drafts are sufficient.

6.1.3 Applications in the case of transfer of the production of certified heating appliances

If the production of already tested and certified heating appliance is transferred to another manufacturer, the latter shall apply for a new certificate.

A supplementary test in accordance with clause 4.1.4 shall be performed as well as an examination of catalogues and publications.

The application shall be accompanied by a test report of a qualified testing laboratory, confirming that the measured thermal output of a heating appliance from each type does not deviate by more than 4 % from the initially tested and certified values.

6.2 Conformity Assessment

On the basis of the documents submitted, DIN CERTCO conducts the conformity examination. To this end, an assessment is made with the aid of the examination report as to whether the product meets the requirements of the certification scheme and of the standard.

The applicant shall receive written notification from DIN CERTCO in the event of any possible deviations.

6.3 Certificate and the right to use the mark

After successful examination of the documents submitted, DIN CERTCO grants the right to use the certification mark "DIN-Geprüft“ in conjunction with the corresponding registration number by issuing the certificate.

Format of registration No.: **6R000**

Certified heating appliances may be marked with the certification mark "DIN-Geprüft“. In this case the heating appliances shall also be marked with the corresponding registration number.

The certificate holder may inform in all product information material (catalogues, supply documents, promotional material, internet, advertising etc) of the right to use the certification mark "DIN-Geprüft“in conjunction with the corresponding registration number.

Mark and registration number may only be used for the certified model or type. In product information material they may only be used with clear reference to the certified models or types.

In addition to this, the General Terms and Conditions of DIN CERTCO shall apply.

6.4 Publications

Certificate holders and certified products are published up-to-date by DIN CERTCO in the internet. Manufacturers, planers, installers, charging companies and consumers use this kind of search facility to inform themselves about certified products.

Beside contact data (telephone, telex, e-mail, website) of the certificate holders, also technical data of the certified heating appliance may be downloaded there in the form of data sheets in accordance with Annex B.

6.5 Changes

When making changes to a certified heating appliance, the quality system or the production process, the certificate holder is obliged to inform DIN CERTCO of the changes. It shall also arrange for a supplementary test according to clause 4.1.4 immediately.

6.6 Validity

The certificate is valid for 5 years, from the end of the month of the date of the test report.

The period of validity of certificates, issued on the basis of applications for clause 6.1.2 and 6.1.3, conforms to the period of validity of the original certificate.

6.7 Renewal of certificate

The certificate can be renewed for another 5 years by an application.

A notice according to Annex D has to be enclosed with the application to the testing laboratory which has carried out the maintenance test according to clause 4.1.3.

6.8 Expiry of certificate

The certificate expires for example if:

- The surveillance according to clause 6.10 is not performed punctually or completely,
- The certification mark "DIN-Geprüft" is misused by the certificate holder,
- if the thermal output decreases by more than 4 % or increases by more than 6 % due to changes to a certified model or type,
- when the production of the certified heating appliances is discontinued,
- in the case of transfer of the production of certified heating appliances to another manufacturer,
- in the event of infringement of the provisions of this certification scheme including breach of the general terms and conditions.

6.9 Alterations/Amendments

6.9.1 Alterations/Amendments to the Product

The certificate holder is obliged to notify DIN CERTCO of all alterations to the product without delay. The testing laboratory in conjunction with DIN CERTCO shall decide on the scope of an examination that shall be conducted according to clause 4.1.4 and whether it is a matter of a substantial alteration. The respective test report shall be forwarded to DIN CERTCO by the testing laboratory.

Should the testing laboratory determine a substantial alteration, the certificate with the corresponding registration number shall expire. For the modified product, a new application for initial certification authorising the use of the certification mark "DIN-Geprüft" or quality mark "DIN*plus*" may be submitted.

The certificate holder remains obliged to notify of any changes in the formal details (e.g. certificate holder or his address).

The certificate holder may apply to DIN CERTCO for an extension of the existing certificate for further design-types (sub-types) of the same type. It is for DIN CERTCO to decide whether these amendments require a complementary examination. The design-types shall be entered in the certificate for the already certified product and, provided that the conditions are fulfilled, shall be regarded as an integral part of same.

6.9.2 Alterations to the Basic Test Specifications

If the basic test specifications for the certification is modified, an application for the alteration of the certification shall be submitted within 6 months of receiving notification from DIN CERTCO and, as a rule, after 12 months, proof of conformity with the modified examination specifications shall be submitted in the form of a positive test report (see clause 4.1.4).

6.10 Product complaints

6.10.1 Detection of nonconformities

If nonconformities of certified heating appliances are detected in the course of third-party surveillance or a verification or maintenance test according to clause 4.1.2 or 4.1.3 by the testing laboratory or if DIN CERTCO is informed of nonconformities detected in the course of a special test according to clause 4.1.5, the certificate holder is required by DIN CERTCO in writing to eliminate the nonconformities and their causes and to prove this by submitting a test report about re-testing by a qualifiedtesting laboratory, within a maximum period of 3 months from the writing date.

If re-testing give cause for claims again, DIN CERTCO suspends the certificate and sets a deadline of 3 months from the writing date for proving the elimination of the nonconformities and their causes.

If the certificate holder fails to comply with this demand within the set period of time, or if it fails again to prove the elimination of the nonconformities, the license will be withdrawn.

During the period of suspension, the mark "DIN-Geprüft" and the corresponding registration number shall not be used.

6.10.2 Other complaints

In the case of complaints not being subject to clause 6.10.1 but affecting the thermal output of heating appliances, the procedures and deadlines specified in clause 6.10.1 apply.

If claims apply to technical documents, the publisher is required in writing to withdraw the objectionable documents within 10 working days, to confirm this to DIN CERTCO in writing, and to submit drafts of revised documents.

If it fails to do so, another deadline of 10 days is set under threat of withdrawing the right to use the mark. If the regulations are not met within this period, the licenses are suspended. The certificate holder is informed about the suspension and advised that the certificate expires if no revised documents are presented within 3 months from the writing date.

7 Surveillance by the Manufacturer

The manufacturer must ensure, by suitable quality management measures, that the product characteristics confirmed by the certification are maintained. This can be accomplished by means of an in-house factory production control (FPC) focussed on the product itself or on the production and, in addition, can be guaranteed within the framework of a quality management system (QM-System) in accordance with the standard DIN EN ISO 9001.

7.1 Factory Production Control (FPC)

Factory production control comprises the continual monitoring of the production process by the manufacturer, which guarantees the conformity of the products manufactured with the specified requirements.

The manufacturer hast to maintain a factory production control according to DIN EN 442-1, clause 6.3. It has to be proofed by a manufacturer`s declaration according to Annex D.

Appropriate records shall be submitted to DIN CERTCO or its authorised representative on request. These records must contain at least the following information:

- Designation of the test object
- Date of manufacture
- Date of examination
- Result of the examination and, if envisaged, comparison with the stipulated requirements
- Signature of the person responsible for the examination
- Date of the report

In the event of a negative test result, the manufacturer shall take all necessary steps to rectify the defect. Faulty products are to be marked and set apart. The test shall be repeated regularly to verify whether the defect has been rectified.

7.2 Quality Management System

DIN CERTCO recommends the installation and certification of a quality management system in conformity with the standard DIN EN ISO 9001.

8 Surveillance by DIN CERTCO

8.1 General Information

The constant surveillance of the certified product during the entire duration of the certification period is an integral component of the certification itself. On the basis of the documents submitted, DIN CERTCO conducts the conformity examination. The surveillance shall be performed at regular intervals of <enter interval>.

DIN CERTCO examines the conformity of the product with the requirements laid down in the certification scheme as well as, where applicable, within the framework of plant inspections, the effectiveness of the factory production control according to clause 7.1.

9 Testing laboratories

9.1 Preconditions for cooperation with qualified testing laboratories

Qualified testing laboratories are responsible for determining the standard thermal output of heating appliances. The following preconditions shall be met for the cooperation with qualified testing laboratories:

- Availability of test installations complying with DIN EN 442-2, clause 5.2.1 or 5.2.2, suitable measuring equipment for the test installation, an experienced test installation supervisor and qualified test personnel,

- Maintenance of an accreditation against DIN EN ISO/IEC 17025 for DIN EN 442-2 of a national accreditation body evaluated by EA (European Co-operation for Accreditation),

- Availability of a set of master radiators according to DIN EN 442-2, clause 5.2.3,
- Proof that repeatability and reproducibility of ± 1 % in accordance with DIN EN 442-2, clause 5.2.4 by using of master radiators or other radiators,
- Demonstration of test installation reproducibility by regular participation in the round-robin test.

Fulfilment of the requirements above is verified by an audit undertaken by 2 auditors appointed by DIN CERTCO. For this purpose, the specifications of DIN EN 45002 apply. The auditors draw up an audit report and submit it to DIN CERTCO.

9.2 Round Robin Test

Qualified testing laboratories, have proof that they have successfully passed every second year the round robin test according to EN 442-2 Annex J.

9.3 Application for collaboration

A testing laboratory seeking cooperation shall, besides the participation in the round-robin test, satisfy all preconditions according to clause 9.1 and confirm this in the application to DIN CERTCO (Application forms may be received from DIN CERTCO or downloaded from its website). DIN CERTCO arranges for the audit and, in the case of a positive result, admits the testing laboratory to the round-robin test. If the reproducibility is demonstrated, DIN CERTCO grants the cooperation.

The cooperation is rejected if the preconditions are not met. Objections are handled in accordance with the procedure specified in DIN EN 45002.

The costs for the application procedure shall be paid by the applying testing laboratory.

Annex A Selection of models of type triangles and families to be tested

Annex A.1 Selection of models of type triangles to be tested

Height of convector surfaces in mm →	70	140	210	280	350	420	490	560	630	700	770	840	910	980	1050
1050															
980															
910															
840															
770															
700															
630															
560															
490															
420															
350															
280				**X**											
210			O	O											
140		O	O	O											
70	**X**	O	O	**X**											

O not to be tested
X to be tested

Height in mm →

Height of convector surfaces in mm →	70	140	210	280	350	420	490	560	630	700	770	840	910	980	1050
1050															
980															
910															
840															
770															
700															
630															
560								**X**	O	**X**					
490							O	O	O	O					
420						O	O	O	O	O					
350					**X**	O	O	**X**	O	**X**					
280				O	O	O	O	O	O	O					
210			O	O	O	O	O	O	O	O					
140		O	O	O	O	O	O	O	O	O					
70	**X**	O	O	O	**X**	O	O	**X**	O	**X**					

O not to be tested
X to be tested

Height in mm →

Height of convector surfaces in mm →	70	140	210	280	350	420	490	560	630	700	770	840	910	980	1050
1050															**X**
980														O	O
910													O	O	O
840												O	O	O	O
770											O	O	O	O	O
700										**X**	O	O	O	O	**X**
630									O	O	O	O	O	O	O
560								O	O	O	O	O	O	O	O
490							O	O	O	O	O	O	O	O	O
420						O	O	O	O	O	O	O	O	O	O
350					**X**	O	O	O	O	**X**	O	O	O	O	**X**
280				O	O	O	O	O	O	O	O	O	O	O	O
210			O	O	O	O	O	O	O	O	O	O	O	O	O
140		O	O	O	O	O	O	O	O	O	O	O	O	O	O
70	**X**	O	O	O	**X**	O	O	O	O	**X**	O	O	O	O	**X**

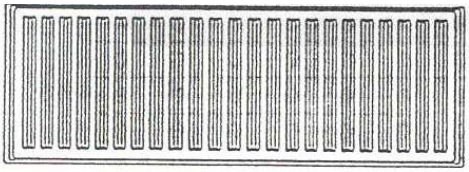
Height in mm →

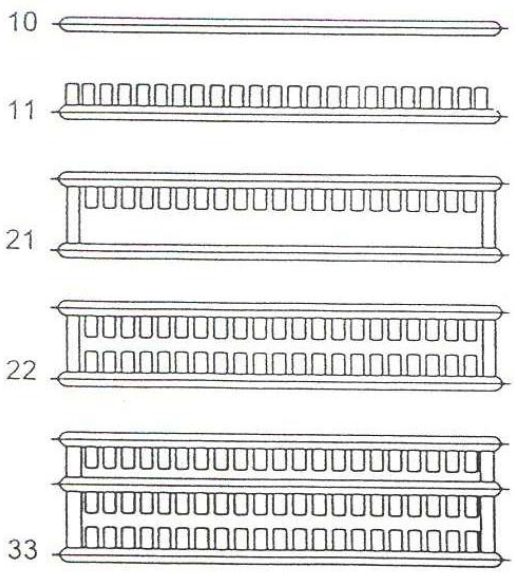
O not to be tested
X to be tested

Annex A.2 Families in the wider sense

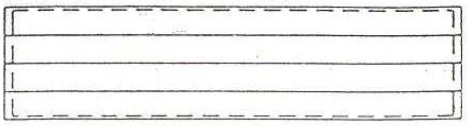
Annex A.2.1 Typical examples

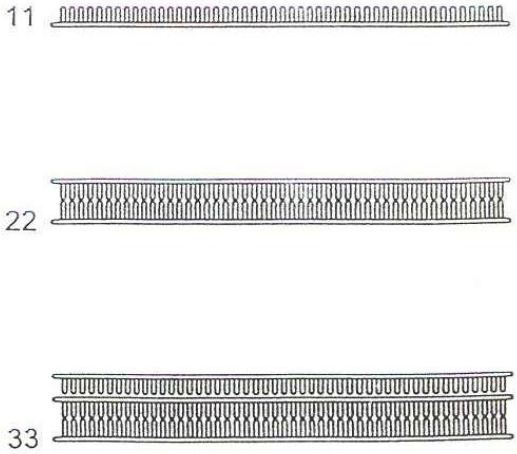
Panel radiators





Heating panel





Annex A.2.2 Selection of models to be tested

Panel radiators:

depth (sec. char. dimension) in mm ↑								
44	**X**	O	O	O	**X**	O	O	**X**
33	**X**	O	O	O	**X**	O	O	**X**
22	**X**	O	O	O	**X**	O	O	**X**
11	**X**	O	O	O	**X**	O	O	**X**
	300	400	500	600	700	800	900	1000

Height (prim. char. dimension) in mm →

O not to be tested
X to be tested

Heating panel:

Depth (sec. char. dimension) in mm →								
55	**X**	O	O	O	**X**	O	O	**X**
44	**X**	O	O	O	**X**	O	O	**X**
33	**X**	O	O	O	**X**	O	O	**X**
22	**X**	O	O	O	**X**	O	O	**X**
11	**X**	O	O	O	**X**	O	O	**X**
	350	420	490	560	630	700	770	840

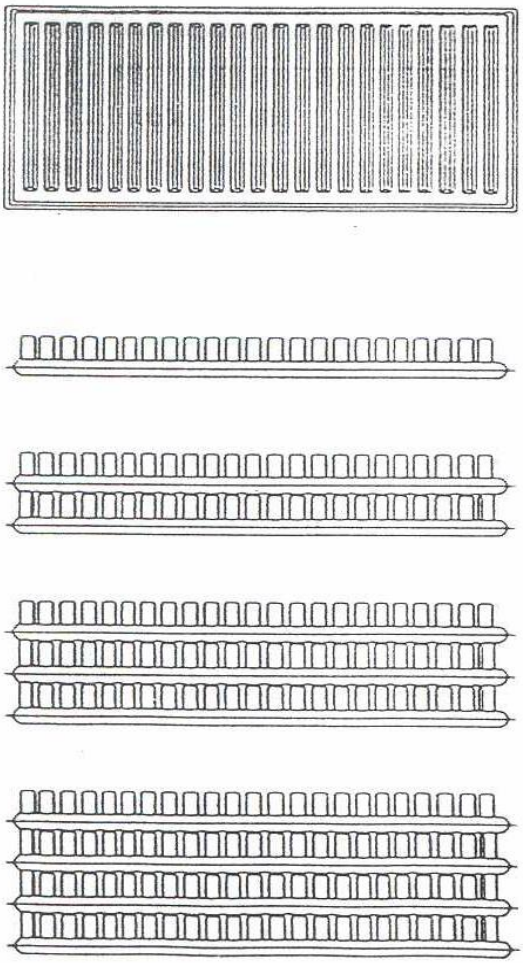
Height (prim. char. dimension) in mm →

O not to be tested
X to be tested

Annex A.3 Families in the strict sense

Annex A.3.1 Typical examples

Panel radiators



11

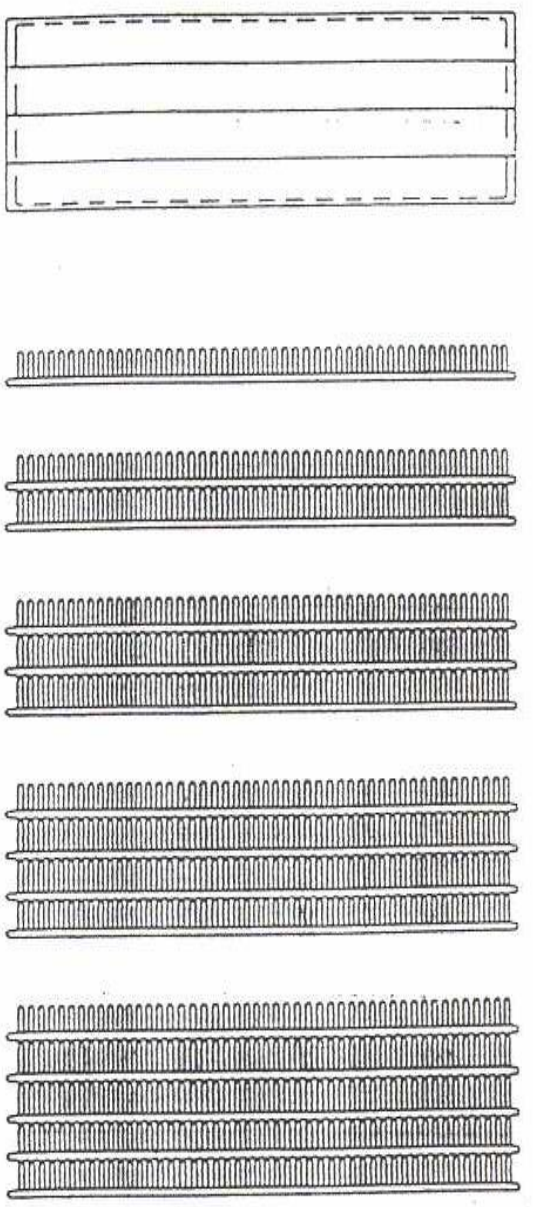
22

33

44

55

Heating panels



Annex A.3.2 Selection of models to be tested

Panel radiators:

Depth (sec. char. dimension) in mm ↑								
44	**X**	O	O	O	**X**	O	O	**X**
33	**X**	O	O	O	**X**	O	O	**X**
22	O	O	O	O	O	O	O	O
11	**X**	O	O	O	**X**	O	O	**X**
	300	400	500	600	700	800	900	1000

height (prim. char. dimension) in mm →

O not to be tested
X to be tested

Heating panel:

Depth (sec. char. dimension) in mm →								
55	**X**	O	O	O	**X**	O	O	**X**
44	O	O	O	O	O	O	O	O
33	**X**	O	O	O	**X**	O	O	**X**
22	O	O	O	O	O	O	O	O
11	**X**	O	O	O	**X**	O	O	**X**
	350	420	490	560	630	700	770	840

height (prim. char. dimension) in mm →

O not to be tested
X to be tested

Annex B Data sheet

D A T A S H E E T

Reg.-Nr.
(filled in by DIN CERTCO)

Certificate holder .....
. .....
. .....

Production site .....
. .....
. .....

Designation of the model (type) .....

Type of heating appliance: ☐ panel radiator ☐ section radiator ☐ bath radiator ☐ heating panel ☐ convector ☐ other

Design and construction of the heating appliance is in compliance in all respects with following data and the dimensional plan on page 2 of this data sheet. The plan includes all dimensions required for clear identification of the heating appliance.

material: ..... coating: .....
....

construction: ☐ with ☐ without installed valve trim (double ticking possible)

The thermal outputs given below apply for the following kinds of connection:

☐ same side, inlet at top, outlet at bottom ☐ opposite site, inlet at top, outlet at bottom
☐ opposite bottom connections ☐ .....

Water circulation arrangements: .....
. .....

characteristic data for the type tested:

maximum operating pressure: ..... bar

designation Design variant/ subtype	Height (nominal dimension h_1) in mm	Depth in mm	Exponent n [1)]	Water content [1)] in l/m or l/element	Dry weight [1)] in kg/m or kg/element	Thermal output 50 K [2)] in W/m or W/element	Thermal output 30 K [2)] in W/m or W/element

[1)] measurement results (intermediate results by linear interpolation)
[2)] by test report according to DIN EN 442-2, clause 5.5

The dimensional plan (page 2 of this data sheet) contains all data and nominal dimensions relevant for the thermal output of the heating appliance. The dimensions measured on the tested heating appliance of this model/type and the tolerances given in the production drawings submitted to the testing laboratory are within the dimensional tolerances according DIN EN 442-2, table 3. The tolerances given for output-relevant plate thickness (e. g. convector surfaces) comply with DIN EN 10131.

The following test reports are the basis for the determination of the thermal output and the exponents:

Test report Nr.: ..... of .....
....

Place and date

stamp and signature of testing laboratory

Annex C Checklist for approving the conformity of the catalogue data content and other literature according to clause 3.11.2 of the certification scheme DIN-Geprüft "Radiators and convectors"

DIN CERTCO Gesellschaft für
Konformitätsbewertung mbH
Alboinstraße 56
D-12103 Berlin

Applicant's business address	
Production site (if deviant)	
Type of literature or catalogue	
Date of issue	

	Data completed? yes	no
Identification code of the heating appliance The data shall refer to the identification code of the model or of the type of heating appliance. This identification code shall be the same as that used for marking the packaging of the heating appliances (see clause 8 of DIN EN 442-2).	☐	☐
Thermal output For all the models in a type, the standard thermal output (ΔT = 30 K and ΔT = 50 K) and the exponent of the excess temperature shall be indicated. The thermal output at other excess temperatures desumed from the regression equation of the type may be additionally indicated. If the outputs have been obtained in the standard installation conditions, this shall be indicated. If the outputs have been obtained in non-standard installation conditions, the relevant conditions shall be indicated in the test report (see clause 6.2 of DIN EN 442-2). If, besides standard conditions, the outputs have been obtained in other conditions, the standard thermal output shall be referred to the standard conditions only.	☐	☐
Dimensions for Radiators The following nominal dimensions shall be given:		
depth:	☐	☐
height:	☐	☐
length:	☐	☐
size, type and position of connections:	☐	☐
dry weight:	☐	☐
water content:	☐	☐
For sectional radiators the dimensions shall define the section.	☐	☐
For modular radiators the dimensions shall define the module.	☐	☐
Dimensions for Convectors The following nominal dimensions shall be given:		
length:	☐	☐
size, type and position of connections:	☐	☐
height of the convective chimney:	☐	☐
dry weight:	☐	☐
water content:	☐	☐

	Data completed?	
	yes	no
Maximum operating pressure The manufacturer shall state the maximum operating pressure to which the heating appliance may be subjected.	☐	☐
Maximum operating pressure The manufacturer shall state the maximum water temperature at which the heating appliance may be operated.	☐	☐
Catalogue reference data All catalogue and any other literature relevant to the heating appliance shall contain the following reference data:		
Number of other identification code:	☐	☐
Date of issue or equivalent code	☐	☐
CE marking In addition, the CE marking shall appear on the accompanying commercial documentation (catalogue or other literature relevant to the heating appliance) and shall be accompanied, in addition to the information above, with:		
Reference to the standard EN 442-1:	☐	☐
The last two digits of the year in which the CE marking was affixed:	☐	☐
The model number of the heating appliance:	☐	☐
The following information related to the characteristics of Table ZA.1:	☐	☐
maximum operating pressure (bar):	☐	☐
standard thermal output:	☐	☐
standard characteristic equation:	☐	☐
inlet water temperature (products with a protective case only):	☐	☐
reaction to fire class, if other than Class A1 without testing:	☐	☐

All data in the tested catalogues and any other literature relevant to the heating appliance are correct and unambiguous regarding the standard requirements. In that, there are no contradictions to the data in the accompanying test reports.

Place and Date stamp and signature of testing laboratory

Annex D Manufacturer's declaration

Attestation of the operation of a factory production control and the use of a harmless lacquer

☐ For the initial type test according to 4.1.1
☐ For the maintenance test according to clause 4.1.3

of the certification scheme "Radiators and convectors"

DIN CERTCO
Alboinstraße 56
D-12103 Berlin

Applicant's business address

Production site (if deviant)

Basis: DIN EN 442-1 Technical specifications and requirements

Registration number:	Model designation:
.....	.....
.....	.....
.....	.....
.....	.....
.....	.....
.....	.....

All actions have been taken in the framework of the factory production control in order to ensure that all requirements of DIN EN 442-1 are fulfilled.

The lacquer does not contain any chemical agent that shall not be used in construction products[3].

Place and date

Stamp and signature of the manufacturer

[3] According to the revised directive 76/769/EEC

Annex E Notification of a supplementary test

Notification

of a supplementary test according to clause 4.1.4
of the certification scheme "Radiators and convectors"

DIN CERTCO
Alboinstraße 56
D-12103 Berlin

Applicant's business address

Production site (if deviant)

Basis of testing: DIN EN 442-1 Technical specifications and requirements
DIN EN 442-2 Test methods and rating

The supplementary test covered following models/types:

Registration number:	Model designation:
.....	.....
.....	.....
.....	.....
.....	.....
.....	.....

Description of technical changes to heating appliances:

.....
.....
.....

Detected dimensional deviations from the data specified in the data sheet that was submitted with the initial application for certification are within the dimensional tolerances according to DIN EN 442-2, table 3.

A new data sheet with the according changes is enclosed to this.

The standard thermal output determined in the supplementary test does not deviate by more than 4 % from those measured in the initial type test.

Place and date

Stamp and signature of the testing laboratory