



TÜVRheinland®

DIN CERTCO

Genau. Richtig.



# Certification Scheme

## Water-based surface-embedded heating and cooling systems

in accordance with

**DIN EN 1264**

(Version: October 2021)

## 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](#).

Alongside DIN CERTCO's general terms and conditions, this certification scheme forms the basis for providers of water-based surface-embedded heating and cooling systems to be able to mark their products "DIN-Geprüft". By doing so, they demonstrate that their products meet all requirements of the European standard DIN EN 1264.

The "DIN-Geprüft" certification mark creates customer confidence: they can rest assured that an independent, neutral and specialist institution has carefully investigated and reviewed all the inspection criteria. All of which provides customers with added value that will help them decide which products to purchase.

Water-based surface-embedded heating and cooling systems receive "DIN-Geprüft" certification if they fulfil the requirements set out in section 3, in accordance with the process described in this certification scheme.

All certificate holders can be viewed on the DIN CERTCO homepage ([www.dincertco.de](http://www.dincertco.de)), which is updated on a daily basis.

## Start of validity

This certification scheme is valid from 2021-10-01. All DIN-certified heating and cooling systems, must demonstrate conformity with the new testing and certification basis at the latest by the time the certificates are renewed. Optionally, this can also be done before.

## Amendments

This certification scheme differs from the certification scheme "Water-based surface-embedded heating and cooling systems" (2009-11) as follows:

- a) scope of application specified
- b) Definition of integrated heating and cooling systems specified
- c) Types of integrated heating and cooling systems expanded
- d) section "Thermal conductivity of materials, effective thermal resistance of carpets" deleted
- e) conditions for renewal of certificates amended
- f) proof of compliance with the requirements for the heating cables used
- g) data sheet according to Annex A revised
- h) editorial changes

## Previous editions

- Certification scheme "Water-based underfloor heating systems" (2004-11), German only
- Certification scheme "Water-based surface-embedded heating and cooling systems" (2009-01)
- Certification scheme "Water-based surface-embedded heating and cooling systems" (2009-11)

## Remark

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

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## 1 Area of application

This certification scheme applies to water-based surface-embedded heating and cooling systems in floors, ceilings and walls in accordance with DIN EN 1264 and contains in conjunction with the testing basis set out below all requirements for the award of the "DIN-Geprüft" certification mark.

It covers the design, construction and operation of systems in accordance with DIN EN 1264-3 and DIN EN 1264-4 for types A, B, C, D, H, I and J. However, this certification scheme does not apply to types E, F and G in accordance with the DIN EN ISO 11855 series of standards.

The thermal output or cooling capacity is always determined in accordance with DIN EN 1264-2/-5 if the heating and cooling systems are surface-embedded in floors, ceilings and walls (that is, systems embedded within the original ceiling, floor or wall by plastering, bonding or screwing in place for instance).

Suspended ceilings, whether covered or uncovered (including open-cell ceilings, ridged ceilings, metal coffered ceilings and also suspended systems), do not fall within the scope of DIN EN 1264. The heating output of these systems can be determined and certified in accordance with DIN EN 14037 and DIN EN 14240.

This certification scheme establishes requirements that need to be met by the product itself, as well as requirements relating to the associated inspection and certification.

## 2 Basis for inspection and certification

The currently valid versions of the following documents form the basis for inspection and certification:

DIN EN 1264-1	Water-based surface-embedded heating and cooling systems – Part 1: Definitions and symbols
DIN EN 1264-2	Water-based surface-embedded heating and cooling systems – Part 2: Floor heating: Test procedure for determining heating output using calculation methods and experimental methods
DIN EN 1264-3	Water-based surface-embedded heating and cooling systems – Part 3: Design
DIN EN 1264-4	Water-based surface-embedded heating and cooling systems – Part 4: Installation
DIN EN 1264-5	Water-based surface-embedded heating and cooling systems – Part 5: Heating and cooling systems in floors, ceilings and walls – determination of heating output and cooling output

- this certification scheme
- the respective schedule of fees of DIN CERTCO
- the general terms and conditions of DIN CERTCO
- the Testing- Registration- and Certification Regulations of DIN CERTCO

### 3 Product requirements

#### 3.1 Types of integrated heating and cooling systems

Integrated heating and cooling systems are classified into types A to J based on their design. The types are listed in Table 1. Examples of systems are given in DIN EN 1264-1 section A.2.

**Table 1 Types of integrated heating and cooling systems**

Type	System
A	Systems with pipes integrated into the heat conducting layer
B	Systems with pipes integrated with thermal conduction devices in the insulation layer
C	Systems with pipes integrated into the compensation layer
D	Systems with duct plates
E	Systems with pipes integrated into the load-bearing substrate (TABS - thermoactive component systems)
F	Systems with capillary tubes in a layer under the load-bearing substrate (TABS - thermoactive component systems)
G	Systems in wooden structures
H <sup>a</sup>	Systems with pipes integrated in grooves on the upper side of the thermally conductive layer
I <sup>a</sup>	Systems with pipes in profiles integrated into the heat conducting layer
J <sup>a</sup>	Systems with pipes integrated into the heat-conducting layer without insulation
<sup>a</sup>	This system is also typically used for renovations.

#### 3.2 Pipes used

In addition to the pipes specified in DIN EN 1264-4, all pipes that meet the requirements specified in the DIN CERTCO certification program "Plastic piping systems for hot water underfloor heating and radiator connection" can be used as pipes (heating pipes as a system consisting of oxygen-tight pipes in accordance with DIN 4726 and connectors) for the heating/cooling system. The certification scheme can be accessed from DIN CERTCO's website ([www.dincertco.de/4726](http://www.dincertco.de/4726)).

The appropriate DIN certification for plastic piping systems is recommended. Proof for all pipes used is provided by presentation of a valid certificate.

#### 3.3 Specific heating or cooling output of the system

The specific heating and cooling output of the system, which depends on the maximum or minimum water temperature, must be determined and presented in the form of characteristic curves and limiting curves.

For all systems that do not meet the criteria of Table 2 for the selection of the simplified calculation method, the heat output is determined experimentally in accordance with DIN EN 1264-2 section 9 (does not apply to types E and F).

**Table 2 Criteria for the selection of the simplified calculation method**

Type	Picture	Boundary conditions	Method according to DIN EN 1264-2
A, C, H, I, J	A.2	$T \geq 0,050 \text{ m}$ $s_u \geq 0,01 \text{ m}$ $0,008 \text{ m} \leq D \leq 0,03 \text{ m}$ $su/\lambda_e \geq 0,01$	6.2
B	A.3	$0,05 \text{ m} \leq T \leq 0,45 \text{ m}$ $0,014 \text{ m} \leq D \leq 0,022 \text{ m}$ $0,01 \text{ m} \leq su/\lambda_e \leq 0,18$	6.3
D	A.4		6.4

### 3.4 Demonstration surface

Using the demonstration surface specified under section 5 of DIN EN 1264-2, it must be proved that the system design corresponds to the test parameters on which the calculational test is based.

### 3.5 Technical documentation

The technical documentation must contain detailed information about the design and operation of the heating/cooling system, in accordance with E DIN 1264-4 (where applicable).

In addition, it must also include the following information as a minimum:

- Name of the system provider (certificate holder)
- Reference to the standard DIN EN 1264
- Specific standard heating output and heating limits or the standard cooling output of the system depending on the resistance of the surface covering
- Equations for the performance characteristic curves and the corresponding performance diagrams
- "DIN-Geprüft" mark with the associated registration number

For cooling systems, the documentation must also include assurance from the system provider that the output complies with DIN EN 1264-3 without falling below the dew point and that a dew point sensor with an associated control unit prevents the system falling below the dew point during operation.

The technical documentation also confirms the practical feasibility of the information through an assessment of the demonstration model.

## 4 Testing

### 4.1 General

DIN CERTCO uses its approved inspection laboratories to carry out the inspections required to evaluate and certify the products (see section 6).

## **4.2 Testing types**

### **4.2.1 Initial testing**

The initial testing carried out is type testing (design test, type examination) and/or type series testing and establishes whether the heating or cooling system complies with the requirements of section 3 of this certification scheme.

#### **4.2.1.1 Type testing**

Type testing determines the heating and cooling output dependent on the maximum or minimum water temperature, and verifies compliance with the requirements of section 3 of this certification scheme.

In the context of this certification, a type is a heating/cooling system with specific pipe pitch, pipe dimensions, pipe materials and system design, as well as the further construction parameters specified in DIN EN 1264-2 (see section 5.2 of this certification scheme).

The test laboratory produces test reports A and C on the test results, in accordance with section 4.5.

#### **4.2.1.2 Type series testing**

A type series is a specific heating/cooling system, where the pipe pitch and/or pipe covering vary (see section 5.2), but where the rest of the system design, the pipe diameter and the pipe materials are the same.

During type series testing, the influence of the pipe pitch and/or the pipe covering on the values to be tested is determined. For purely calculational testing, all test values are to be determined through type testing in accordance with section 3.2.

For the assessment of the demonstration surface in accordance with section 3.3, a surface with just one pipe pitch and/or pipe covering is required.

The test laboratory produces test reports B and C on the test results, in accordance with section 4.5.

### **4.2.2 Supplementary testing**

A supplementary test is carried out if additions, extensions or changes (see section 5.9) are made to a certified heating/cooling system, which affects its conformity with the underlying requirements (see characteristics relevant to certification under section 5.2).

The type and scope of the supplementary testing undertaken is determined on a case-by-case basis following consultation between DIN CERTCO and the test laboratory.

In consultation with the test laboratory, DIN CERTCO decides whether and to what extent type testing is to be carried out. The deviation from the values determined through type testing (performance and temperature difference) may be a maximum of  $\pm 4$  % (for all sub-types).

For a modified heating/cooling system with a greater deviation, a new certificate with a new registration number will be issued upon presentation of a report on the re-testing.



### 4.2.3 Award of inspection mark

The testing required in order to award an inspection mark is determined by whether any deviations from or additions to the basic design affect the product's compliance with the requirements of DIN EN 1264.

Testing relating to the award of an inspection mark is carried out only if:

- Full type testing has been carried out on a comparable product from the same type series and it was proven that this meets the requirements of the standard.
- The product being submitted for an inspection mark does not differ in principle from the tested model as regards the arrangement or composition of its functional components.

A product that successfully passes the inspection mark test and the inspection of documentation (see section 3.4) is deemed to conform to standards.

### 4.2.4 Special testing

A special test is carried out:

- If defects are identified
- At the instigation of DIN CERTCO if a valid reason is given
- At the written request of third parties if they hold a particular interest in the maintenance of an orderly market presence from a competitive or qualitative perspective.

The type and scope of special testing is determined in line with the particular requirement on a case-by-case basis following consultation between DIN CERTCO and the test laboratory.

If defects are found during a special test, the certificate holder must bear the costs of the special testing procedure.

If no defects are detected during special testing that has been carried out at the request of a third party, the costs will be charged to the third party in question.

## 4.3 Sampling

The samples and documents for initial testing are usually provided to the test laboratory by the manufacturer. The manufacturer bears the associated costs.

## 4.4 Test procedure

The testing of the heating or cooling system is carried out following the procedure specified in DIN EN 1264-2 and DIN 1264-5.

A thermal resistance value of  $R_{\lambda,B} = 0.75 \text{ m}^2\cdot\text{K}/\text{W}$  shall be used for the testing of surface-embedded heating and cooling systems which can also be attached to walls and ceilings without any direct insulation beneath the system.

Even if the manufacturer specifies that only a single covering is required for a floor, wall or ceiling system, the system's dependence on a covering resistance value of  $R_{\lambda,B}$  always has to be determined in order to obtain a certifiable test report. For the experimental method, this means that, alongside the measurement using  $R_{\lambda,B} = 0 \text{ m}^2\cdot\text{K}/\text{W}$ , a second measurement always has to be taken using a floor covering resistance value of  $R_{\lambda,B} = 0.15 \text{ m}^2\cdot\text{K}/\text{W}$ . If

applicable, a value of  $R_{\lambda,B} = 0 \text{ m}^2\cdot\text{K}/\text{W}$  can be applied to the covering stipulated by the manufacturer.

All certifiable systems need to be finished off with a screed, plaster, plasterboard or other covering over the elements.

#### 4.5 Test report

The test laboratory informs the client of the result of the tests by issuing a test report. The following test reports are available:

- Test report A "Type testing"
- Test report B "Type series testing"
- Test report C "Review of technical documentation"

Test report C documents the result of the review of the technical documentation and the client's catalogues and printed materials. Any defects are to be described in detail.

The original copy of the test report must be provided to DIN CERTCO and must generally have been issued within six months of the application being submitted (applicable to test reports A and B). In individual cases, however, older test reports can be recognised if the test laboratory confirms in writing the validity of the details in the test report.

The test report must comply with the requirements of DIN EN ISO/IEC 17025 and contain the following information as a minimum requirement:

- Name and address of the manufacturer
- Name and address of the applicant (if this differs from the manufacturer)
- System type name
- System description
- Information on the subject of the test
- Test and certification basis with issue date
- Type of testing (e.g. type testing, inspection mark testing, etc.)
- Test date
- Test results
- Test report issue date
- Name and signature of the person responsible for the test

A technical datasheet as specified in appendix A must be submitted with the test report.

## 5 Certification

Certification in the context of this certification scheme comprises the conformity evaluation of a heating or cooling system by DIN CERTCO based on test reports that have been issued by test laboratories recognised by DIN CERTCO. This involves confirming that the products to be certified conform to the requirements listed in section 3, as well as subsequent surveyed.

A certificate is issued to grant the right to use the "DIN-Geprüft" certification mark.

### 5.1 Application for certification

The applicant may be the manufacturer under section 4 of the German Product Liability Act (*ProdHaftG*) or a distributor with written consent from the certificate holder to market the product on its own authority under the terms of the German Product Liability Act.

The applicant must provide the following documents to DIN CERTCO:

- Original copy of the application for certification with a legally binding signature
- Up-to-date test report A and/or B on type/type series testing
- Up-to-date test report C on the technical documentation (this may be submitted up to six months after the certificate is issued)
- Technical datasheet in accordance with appendix A

If a distributor wishes to apply for an independent certificate for a product that has already been certified, the following documents must be submitted:

- Original copy of the application for certification with a legally binding signature
- Declaration of consent from the certificate holder for the applicant to use test reports A and/or B
- Up-to-date test report C on the technical documentation, including confirmation from the test laboratory that the system to be certified is identical to the type-tested product
- Technical datasheet in accordance with appendix A

Once the application has been received by DIN CERTCO, the applicant is sent a confirmation which includes a process number and information about the further procedural process. This also requests any application documents that may be missing.

The applicant also receives a temporary registration number for the product to be certified and an image file of the "DIN-Geprüft" inspection mark to be included in the technical documentation that must be submitted to the test laboratory for review and in order for test report C to be issued (a draft is permissible).

## 5.2 Classification of type series and sub-types

Heating and cooling systems that significantly differ from each other in characteristics relevant to certification are classed as a separate type series or models. Examples of characteristics relevant to certification are those that have a significant influence on safety, functioning or operation and that therefore require the product to be marketed under a different trade name.

Within this certification, a type series refers to heating/cooling systems with the same:

- Pipe dimensions
- Pipe material
- System design

A separate certificate is issued for each type series.

Sub-types are generally products identified as a particular model/type series that differ only in terms of size/performance, formal characteristics or characteristics that are not relevant to the certification process. This can be included on one certificate.

For heating and cooling systems, the pipe pitch and/or the height of the covering are defined as sub-types.

## 5.3 Conformity evaluation

DIN CERTCO carries out an evaluation of conformity based on the application documents that have been provided. In particular, the test report is used to evaluate whether the product meets the requirements of the certification scheme and the applicable standard.

DIN CERTCO informs the applicant in writing of any possible nonconformities.

#### 5.4 Certificate and rights to use the certificate

Once the testing and the conformity evaluation of the application documents have been completed successfully, DIN CERTCO issues the applicant with a certificate and awards the right to use the "DIN-Geprüft" inspection mark together with the associated registration number.



Registration number structure: **7F000-F/-D/-W**

Supplements:

- F : Use in floors
- D : Use in ceilings
- W : Use in walls

The mark and registration number may be used only for the particular type for which the certificate has been awarded and which corresponds to the type-tested product.

One registration number is issued for each type. Different models (sub-types) of a type are issued with the same registration number (see section 5.2).

The general terms and conditions of DIN CERTCO also apply.

#### 5.5 Publications

All certificate holders can be viewed under "Certificate Holder" on the DIN CERTCO homepage ([www.dincertco.de](http://www.dincertco.de)), which is updated on a daily basis. Manufacturers, users and consumers can use this research feature in order to learn more about certified products.

In addition to the contact details of the certificate holder (telephone, fax, e-mail, website), the technical data relating to the registered heating or cooling system may also be viewed and downloaded in the form of a technical datasheet as specified in appendix A.

#### 5.6 Validity of the certificate

The certificate remains valid for five years (the validity of distributor certificates is dependent on the validity of the manufacturer's certificate). The validity period is stated on the certificate. The right to use the quality mark expires at the end of this period.

#### 5.7 Renewal

If the certification needs to be extended following the final date stated on the certificate, a positive test report C must be submitted to DIN CERTCO in good time before the validity of the current certificate expires.

Proof of compliance with the requirements of the test and certification standards in line with section 2 is usually acquired during an inspection mark test as defined in section 4.2.3 and a review of the technical documentation as defined in section 3.4.

## 5.8 Certificate expiry

If a new test for compliance with the applicable standards in accordance with section 4 is not requested in good time prior to the end of the validity period, the authorisation to use the "DIN-Geprüft" inspection mark and associated registration number expires without this requiring express notification from DIN CERTCO.

Further examples of cases when the certificate may expire include:

- The "DIN-Geprüft" inspection mark is used improperly by the certificate holder
- The requirements arising from this certification scheme or its accompanying documentation are not met
- The certification fees due are not paid on time
- The conditions under which the certificate were issued no longer apply

## 5.9 Modifications/additions

### 5.9.1 Modifications/additions to the product

The certificate holder is obliged to inform DIN CERTCO immediately of all changes made to the product. In consultation with the test laboratory, DIN CERTCO will decide whether the change is significant and to what extent an inspection as specified in section 4 is to be carried out.

Significant changes occur, in particular, if the system design or the components are modified (see section 5.2).

In such cases, the certificate and the associated registration number expire. An application for initial certification and the right to use the "DIN-Geprüft" inspection mark can be made for the modified product subject to presentation of a new type test/type series test report.

The certificate holder is also obliged to provide information about all changes relating to formal information (e.g. relating to the certificate holder or its address).

The certificate holder can request that the existing certificate is extended by DIN CERTCO to include additional model categories (sub-types) of the same type.

In consultation with the test laboratory, DIN CERTCO decides whether supplementary testing is required in order to grant this extension. If the prerequisites are met, the models are included on the certificate for the product that has already been certified and form an integral part thereof.

### 5.9.2 Changes to the test standard

If there is a change to the basis upon which the certification testing was carried out, an application for amendment of the certification must be submitted within six months of notification of this change by DIN CERTCO. In general, proof of conformity with the amended test basis must be provided within twelve months by submitting a positive test report (see 4.2.2). This relates in particular to the characteristics relevant to certification as defined in section 5.2.

### 5.9.3 Change of manufacturer

If the production of a certified heating or cooling system is taken over by a different system provider, the new system provider must apply for its own certificate.

## 5.10 Product defects

If defects are identified in a product that has been certified once it is on the market, the certificate holder will receive a written notification from DIN CERTCO to rectify the defect.

DIN CERTCO will consult with the test laboratory to determine whether the defect in question is classified as a minor or major defect.

If defects are identified that have a direct or indirect effect on the safety or correct functioning of the product (major defects), the manufacturer must ensure that the product no longer displays the certification mark until the defect has been rectified.

The defects must also be rectified immediately for all products in stock or those already installed. The manufacturer must present a special test report (in accordance with section 4.2.3) to DIN CERTCO within three months as proof that the defect has been rectified and that the product in question once again meets the requirements that have been set.

If the defects do not affect the safety or correct functioning of the product (minor defects), the manufacturer must use suitable means to prove to DIN CERTCO within a three month period that the defects affecting the product in question have been rectified.

If the manufacturer fails to observe these deadlines, the certificate and the accompanying authorisation to use the "DIN-Geprüft" inspection mark will be revoked for both the manufacturer and the distributor.

If there are still grounds for complaint despite the above procedure being followed, DIN CERTCO will temporarily suspend the certificate and set a final deadline for the rectification of the defect. If the certificate holder fails to meet this deadline or does not meet it in good time, the certificate will be revoked. This also applies if the manufacturer fails to prove that the defect has been rectified.

## 6 Approval of test laboratories

DIN CERTCO uses its approved test laboratories for the testing under DIN EN 1264.

To receive approval as a test laboratory, the following requirements must be met:

- Written application to DIN CERTCO for approval as a test laboratory under DIN EN 1264 and regular participation in inter-laboratory tests
- Maintenance of an accreditation under DIN EN ISO/IEC 17025 for testing according to DIN EN 1264 from a national accreditation body that is evaluated by the European Co-operation for Accreditation (EA)
- A computer system with software for calculating the specific heating output (characteristic curves and limiting curves) in accordance with section 6 of DIN EN 1264-2.
- Availability of a test for the experimental procedure under sections 9 and 10 of DIN EN 1264-2
- Test laboratory equipped with a master sample 1 and 2 in accordance with section 11.2 of DIN EN 1264-2
- Proof of the repeatability of  $\pm 2\%$ , in accordance with section 11.3 of DIN EN 1264-2, of the specific standard heating output  $q_N$ , the standard temperature difference  $\Delta \vartheta_N$  and the characteristic curve rise  $K_H$  in application of master sample 1.

- Proof of the repeatability of  $\pm 1$  % in accordance with section 11.3 of DIN EN 1264-2
- Proof of the compliance of the software used with section 11.5 of DIN EN 1264-2

Appendix A

DATASHEET

Reg. No. <b>7F</b>
--------------------

(to be completed by DIN CERTCO)

**On the thermodynamic testing of surface-embedded heating and cooling systems according to DIN EN 1264:2021-08**

Certificate holder: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Product description: \_\_\_\_\_

Surface orientation:  Floor (F)       Wall (W)       Ceiling (D)  
 Application/operation:  Heating       Cooling  
 Laying system:  Type A       Type B       Type C       Type D  
                           Type G       Type H       Type I       Type J

System design:      The design of the heating/cooling system corresponds in full to the following specifications and the diagram on the final page of this data sheet

Covering(s)	Material: _____	Material: _____
	Height $s_u$ : _____ mm	Height $s_u$ : _____ mm
	Heat conductivity _____ W/(m·K)	Heat conductivity _____ W/(m·K)

Knobs: Vol.-Percentage \_\_\_\_\_ %  
 Heat conductivity \_\_\_\_\_ W/(m·K)

Piping system:	Material: _____	Reg. No. certificate _____
	Diameter: _____ mm	Wall thickness: _____ mm
	Heat conductivity _____ W/(m·K)	

Casing: Material: \_\_\_\_\_  
 Thickness: \_\_\_\_\_ mm  
 Heat conductivity \_\_\_\_\_ W/(m·K)

Heat conducting system: Material: \_\_\_\_\_  
 Thickness: \_\_\_\_\_ mm  
 Width: \_\_\_\_\_ mm  
 Heat conductivity \_\_\_\_\_ W/(m·K)

**Characteristic data for the tested model series**

**Table 1** Heating values for the covering  $s_u = xxx$  mm      Characteristic curve  $q = K_H \cdot \Delta \vartheta_H$

Pipe pitch $T$ in mm	Specific standard heat output $q_{H,N}$ in W/m <sup>2</sup>	Standard temp. difference $\Delta \vartheta_{H,N}$ in K	Characteristic curve rise $K_H$ in W/(m <sup>2</sup> ·K)	Test report A/B	
				No.	Date



**Appendix A**  
**DATASHEET**

<b>Reg. No.</b> <b>7F</b>
(to be completed by DIN CERTCO)

**Table 1**    Cooling values for the covering  $s_u = xxx$  mm    Characteristic curve  $q = K_C \cdot \Delta\vartheta_C$

Pipe pitch $T$ in mm	Specific standard cooling output $q_{C,N}$ in $W/m^2$	Standard temp. difference $\Delta\vartheta_{C,N}$ in K	Characteristic curve rise $K_H$ in $W/(m^2 \cdot K)$	Test report A/B	
				No.	Date
		8			
		8			
		8			
		8			
		8			
		8			

**System structure diagram:**

\_\_\_\_\_

Place and date

\_\_\_\_\_

Stamp and signature of the test laboratory