

BRL-K772/04
2014-09-08

Evaluation Guideline

for the Kiwa product certificate for Ductile cast
iron pipes and fittings for the transport of drinking
water



Preface

This evaluation guideline has been accepted by the Kiwa Board of Experts Watercycle (CWK), in which all relevant parties in the field of ductile cast iron pipes and fittings for the transport of drinking water are represented. The Board of Experts also supervises the certification activities and where necessary requires the evaluation guideline to be revised. All references to Board of Experts in this evaluation guideline pertain to the above mentioned Board of Experts.

This evaluation guideline will be used by Kiwa in conjunction with the Kiwa Regulations for Product Certification.

This evaluation guideline is to be reassessed by the Board of Experts at least every 5 years and within 5 years after the validation of this BRL.

In the previous version of this BRL (BRL-K772/03), contains references to applications for both drinking water (NEN-EN 545) and waste water (NEN-EN 598). In this version of the BRL, only applications for drinking water are described. The waste water applications are now described in BRL-K14027.

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The use of this evaluation guideline by third parties, for any purpose whatsoever, is only allowed after a written agreement is made with Kiwa to this end.

Validation

This evaluation guideline has been validated by Kiwa on 8 September 2014.

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1 Introduction

1.1 General

This evaluation guideline includes all relevant requirements which are adhered to by Kiwa as the basis for the issue and maintenance of a product certificate for ductile cast iron pipes and fittings for the transport of drinking water.

This guideline replaces the evaluation guideline BRL-K772/03, dated 1 October 2005. The quality declarations issued and based on that guideline will lose their validity within two years after the validation date of this evaluation guideline.

For the performance of its certification work, Kiwa is bound to the requirements as included in NEN-EN-ISO/IEC 17065 "Conformity assessment - Requirements for bodies certifying products, processes and services".

1.2 Field of application / scope

The products are intended to be used as a piping system for the transport of drinking water, with a nominal diameter of DN 40 up to and including DN 2000, at a maximum water pressure of 1 MPa and a water temperature of 30 °C.

1.3 Acceptance of test reports provided by the supplier

If the supplier provides reports from test institutions or laboratories to prove that the products meet the requirements of this evaluation guideline, the supplier shall prove that these reports have been drawn up by an institution that complies with the applicable accreditation standards, namely:

- NEN-EN-ISO/IEC 17020 for inspection bodies;
- NEN-EN-ISO/IEC 17021 for certification bodies certifying systems;
- NEN-EN-ISO/IEC 17024 for certification bodies certifying persons;
- NEN-EN-ISO/IEC 17025 for laboratories;
- NEN-EN-ISO/IEC 17065 for certification bodies certifying products.

Remark:

This requirement is considered to be fulfilled when a certificate of accreditation can be shown, issued either by the Board of Accreditation (RvA) or by one of the institutions with which an agreement of mutual acceptance has been concluded by the RvA. The accreditation shall refer to the examinations as required in this evaluation guideline. When no certificate of accreditation can be shown, Kiwa shall verify whether the accreditation standard is fulfilled.

1.4 Quality declaration

The quality declaration to be issued by Kiwa is described as a Kiwa product certificate. A model of the certificate to be issued on the basis of this evaluation guideline has been included for information as an annex.

2 Terms and definitions

2.1 Definitions

In this evaluation guideline, the following terms and definitions apply:

- **Evaluation Guideline (BRL):** the agreements made within the Board of Experts on the subject of certification.
- **Board of Experts:** the Board of Experts “Water Cycle” (CWK).
- **Supplier:** the party that is responsible for ensuring that the products meet and continue to meet the requirements on which the certification is based.
- **IQC scheme (IQCS):** a description of the quality inspections carried out by the supplier as part of his quality system.
- **Product requirements:** requirements made specific by means of measures or figures, focussing on (identifiable) characteristics of products and containing a limiting value to be achieved, which can be calculated or measured in an unequivocal manner.
- **Pre-certification tests:** tests in order to ascertain that all the requirements recorded in the evaluation guideline are met.
- **Inspection tests:** tests carried out after the certificate has been granted in order to ascertain whether the certified products continue to meet the requirements recorded in the evaluation guideline.
- **Product certificate:** a document in which Kiwa declares that a product may, on delivery, be deemed to comply with the product specification recorded in the product certificate.
- **Drinking water:** Water intended or partly intended for drinking, cooking or food preparation or other domestic purposes, with the exception of hot tap water, and which is made available by pipelines to consumers or other customers; (source: Drinking Water Act).

3 Procedure for granting a product certificate

3.1 Pre-certification tests

The pre-certification tests to be performed are based on the (product) requirements as contained in this evaluation guideline, including the test methods, and comprises the following:

- type testing to determine whether the products comply with the product and/or functional requirements;
- production process assessment;
- assessment of the quality system and the IQC-scheme;
- assessment on the presence and functioning of the remaining procedures.

3.2 Granting the product certificate

After finishing the pre-certification tests, the results are presented to the Decision maker (see 8.2) deciding on granting the certificate. This person evaluates the results and decides whether the certificate can be granted or if additional data and/or tests are necessary.

4 Requirements

4.1 General

This chapter contains the requirements that ductile cast iron pipes and fittings for the transport of drinking water have to fulfil.

4.2 Public law requirements

To prevent harmful effects on the quality of drinking water, the following government imposed provisions apply.

Products and materials which (may) come into contact with drinking water or warm tap water, shall not release substances in quantities which can be harmful to the health of the consumer, or negatively affect the quality of the drinking water. Therefore, the products or materials shall meet toxicological, microbiological and organoleptic requirements as laid down in the currently applicable "Ministerial Regulation materials and chemicals drinking water and warm tap water supply", (published in the Government Gazette). Consequently, the procedure for obtaining a recognised quality declaration, as specified in the currently effective Regulation, has to be concluded with positive results.

Products and materials with a quality declaration¹, e.g. issued by a foreign certification institute, are allowed to be used in the Netherlands, provided that the Minister has declared this quality declaration equivalent to the quality declaration as meant in the Regulation.

4.3 Private law requirements

The requirements of the product and assessment methods are specified in:

Number	Title
NEN-EN 545	Ductile iron pipes, fittings, accessories and their joints for water pipelines – requirements and test methods

4.4 Additional product requirements

In addition to requirements mentioned in 4.3, the following applies:

4.4.1 Flanges

In addition to paragraph 4.1.3.3 of EN 545, non-standard flanges are permitted if the necessary appropriate pipes and cover plates are made available for the type testing.

4.4.2 Rubber sealing and flange gaskets

Notwithstanding paragraph 4.1.3.1 of EN 545, rubber gaskets must comply with BRL-K17504.

4.4.3 Surface coatings

Internal

- Coating System
The coating system must meet the requirements of BRL-K759. In addition, the application of the coating must be carried out according to BRL-K746.
- Cement Mortar
In addition to EN 545, section 4.5.3 BRL-K778 applies.

¹ A quality declaration issued by an independent certification institute in another member state of the European Community or another state party to the agreement to the European Economic Area, is equivalent to a recognized quality declaration, to the extent that, to the judgment of the Minister of the first mentioned quality declaration, is fulfilled the at least equivalent requirements as meant in the Regulation materials and chemicals drinking water- and warm tap water supply.

External

If the outside of the pipes and fittings are equipped with a passive protective layer, this must, in addition to article 5.4.1 of EN 545, comply with:

- BRL-K753: External polyurethane coatings on ductile iron pipes for underground installation;
- BRL-K757: External PE coating on ductile iron pipes.

4.4.4 Protection

For the purpose of hygienic work, products, smaller than DN 700, must be shielded from the environment when supplied from the factory, in such a way that the surfaces that come into contact with drinking water do not get contaminated.

5 Marking

5.1 General

The products shall be marked with following indelible marks and indications according to article 4.7.1 of EN 545.

The following marks shall be casted or stamped into the products:

- name or logo of the manufacturer;
- data or code indicating the date of production;
- material;
- DN;
- PN for flanges and flange parts.

The following marks may be marked with different methods:

- reference to EN 545;
- pressure class for centrifugally cast pipes.

5.2 Certification mark

After concluding a Kiwa certification agreement, the certified products shall be indelible marked with the certification mark: "KIWA ".

6 Requirements in respect of the quality system

This chapter contains the requirements which have to be met by the supplier's quality system.

6.1 Manager of the quality system

Within the supplier's organizational structure, an employee who will be in charge of managing the supplier's quality system must have been appointed.

6.2 Internal quality control/quality plan

The supplier shall have an internal quality control scheme (IQC scheme) which is applied by him.

The following must be demonstrably recorded in this IQC scheme:

- which aspects are checked by the supplier;
- according to what methods such inspections are carried out;
- how often these inspections are carried out;
- in what way the inspection results are recorded and kept.

This IQC scheme should at least be an equivalent derivative of the model IQC scheme as shown in the Annex.

6.3 Procedures and working instructions

The supplier shall be able to submit the following:

- procedures for:
 - dealing with products showing deviations;
 - corrective actions to be taken if non-conformities are found;
 - dealing with complaints about products and/or services delivered;
- the working instructions and inspection forms used.

7 Summary of tests and inspections

This chapter contains a summary of the following tests and inspections to be carried out in the event of certification:

- pre-certification tests;
- inspection test;
- inspection of the quality system of the supplier.

7.1 Test matrix

Description of requirements	Article BRL or standard	Tests within the scope of	
		Pre-certification	Inspection by Kiwa after granting of certificate ^{a,b)}
	BRL-K772		
Public law requirements			
Demands to prevent harmful effects on the quality of drinking water	4.2	X	X
Private law requirements			
Flanges	4.4.1	X	X
Rubber sealing and flange gaskets	4.4.2	X	X
Surface coatings <ul style="list-style-type: none"> ○ Inside ○ outside 	4.4.3		
Marking			
General	5.1	X	X
Certification mark	5.2	X	X
	NEN-EN 545		
Types of joints and interconnection	4.1	X	X
Pressure class	4.2	X	X
Dimensional requirements	4.3	X	X
Material characteristics	4.4	X	X
Coatings and linings for pipes	4.5	X	X
Coatings for fittings and accessories	4.6	X	X
Marking of pipes and fittings	4.7	X	X
Leak tightness	4.8	X	X
Restrained flexible joints	5.2		
○ general (angular deflection)	5.2.1	X	X
○ annulus	5.2.2	X	X
Flanged joints as cast, screwed, welded and adjustable	5.4	X	X
Pipe saddles	5.5	X	X
Compressive strength of the cement mortar lining	7.1	X	X
Leak tightness of flexible joints	7.2	X	X
Leak tightness of flexible joints to positive internal pressure	7.2.2	X	X
Leak tightness of flexible joints to negative internal pressure	7.2.3	X	X
Leak tightness of flexible push-in joints to positive external pressure	7.2.4	X	X
Leak tightness of flexible joints to dynamic internal pressure	7.2.5	X	
Leak tightness and mechanical resistance of flanged joints	7.3	X	X
Leak tightness and mechanical resistance of pipe saddles	7.4	X	X

^{a)} In case the product or production process changes significantly, it must be determined whether the performance requirements are still met.

- b) All product characteristics that can be determined within the visiting time (maximum 1 day) are determined by the inspector or by the supplier in the presence of the inspector. In case this is not possible, an agreement will be made between the certification body and the supplier about how the inspection will take place. The frequency of inspection visits is defined in chapter 8.6 of this evaluation guideline.

7.2 Inspection of the quality system of the supplier

The quality system of the supplier will be checked by Kiwa on the basis of the IQC scheme. The inspection contains at least those aspects mentioned in the Kiwa Regulations for Product Certification.

8 Agreements on the implementation of certification

8.1 General

Beside the requirements included in these evaluation guidelines, the general rules for certification as included in the Kiwa Regulations for Product Certification also apply. These rules are in particular:

- the general rules for conducting the pre-certification tests, in particular:
 - the way suppliers are to be informed about how an application is being handled;
 - how the test are conducted;
 - the decision to be taken as a result of the pre-certification tests.
- the general rules for conducting inspections and the aspects to be audited,
- the measures to be taken by Kiwa in case of Non-Conformities,
- the measures taken by Kiwa in case of improper use of Certificates, Certification Marks, Pictograms and Logos,
- terms for termination of the certificate,
- the possibility to lodge an appeal against decisions of measures taken by Kiwa.

8.2 Certification staff

The staff involved in the certification may be sub-divided into:

- certification experts: they are in charge of carrying out the pre-certification tests and assessing the inspectors' reports;
- inspectors: they are in charge of carrying out external inspections at the supplier's works;
- decision-makers: they are in charge of taking decisions in connection with the pre-certification tests carried out, continuing the certification in connection with the inspections carried out and taking decisions on the need to take corrective actions.

8.2.1 Qualification requirements

The qualification requirements consist of:

- qualification requirements for personnel of a certification body which satisfies the requirements EN 45011, performing certification activities
- qualification requirements for personnel of a certification body performing certification activities set by the Board of Experts for the subject matter of this evaluation guideline

Education and experience of the concerning certification personnel shall be recorded demonstrably.

EN45011	Certification Expert	Inspector	Decision maker
Education - general	<ul style="list-style-type: none"> • Technical higher-level professional education • Internal training certification and Kiwa policy • Training auditing 	<ul style="list-style-type: none"> • Intermediate-level professional education • Internal training certification and Kiwa policy • Training auditing 	<ul style="list-style-type: none"> • Higher level professional education • Internal training certification and Kiwa policy • Training auditing
Education - specific	<ul style="list-style-type: none"> • for BRL relevant technical education • specific studies and training (know-how and skills) 	<ul style="list-style-type: none"> • for BRL relevant technical education • specific studies and training (know-how and skills) 	<ul style="list-style-type: none"> • not applicable unless specific requirements have been specified by the BoE

EN45011	Certification Expert	Inspector	Decision maker
Experience - general	<ul style="list-style-type: none"> 1 year of relevant work experience with at least 4 pre certification tests of which one carried out independent under supervision. 	<ul style="list-style-type: none"> 1 year of relevant work experience with at least 4 inspections of which one carried out independent under supervision 	<ul style="list-style-type: none"> 4 year of relevant work experience with at least 1 year in certification
Experience - specific	<ul style="list-style-type: none"> Detailed knowledge of the BRL and 2 certification tests carried out on the basis of the BRL or one related. 	<ul style="list-style-type: none"> Detailed knowledge of the BRL and 2 inspections carried out on the basis of the BRL or one related. 	<ul style="list-style-type: none"> general knowledge of the BRL

8.2.2 Qualification

The qualification of the Certification staff shall be demonstrated by means of assessing the education and experience to the requirements mentioned before. In case staff is to be qualified on the basis of deflecting criteria, written records shall be kept.

The authority to qualify staff is dedicated to:

- decision makers: qualification of certification experts and inspectors,
- Management of Kiwa: qualification of decision makers.

8.3 Report pre-certification tests

The certification body records the results of the pre-certification tests in a report.

This report shall comply with the following requirements:

- completeness: the report provides a verdict about all requirements included in the evaluation guideline;
- traceability: the findings on which the verdicts have been based shall be recorded and traceable;
- basis for decision: the decision maker shall be able to base his decision on the findings included in the report.

8.4 Decision for granting the certificate

The decision for granting the certificate shall be made by a qualified Decision maker which has not been involved in the pre-certification tests. The decision shall be recorded in a traceable manner.

8.5 Layout of quality declaration

The product certificate shall be in accordance with the model included in the Annex.

8.6 Nature and frequency of third party audits

The certification body shall carry out surveillance audits on site at the supplier at regular intervals to check whether the supplier complies with his obligations. The Board of Experts decides on the frequency of audits.

At the time this BRL entered into force, the frequency of audits amounts 2 audit(s) on site per year for suppliers with a quality management system in accordance with ISO 9001 for their production, which has been certified by an acknowledged body (in accordance with ISO/IEC 17021) and where the IQC scheme forms an integral part of the quality management system. In case the supplier is not in possession of any product certificate (issued by Kiwa or any other accredited certification body), the frequency is increased to 3 visits for the duration of one year.

Inspections shall at least refer to:

- The suppliers IQC-scheme and the results obtained from inspections carried out by the supplier,
- The correct way of marking of certified products
- Complying with required procedures.

The results of each inspection shall be traceable recorded in a report.

8.7 Interpretation of requirements

The Board of Experts may record the interpretation of requirements of this evaluation guideline in one separate interpretation document.

9 Titles of standards

9.1 Public law rules

“Staatscourant” (Dutch Government Gazette) “Regeling Materialen en Chemicaliën drink- en warm tapwatervoorziening” (Regulation on materials and chemicals drinking water and warm tap water supply)
from 18 July 2011, no. 11911

9.2 Standards / normative documents

Number	Title
BRL-K746	Coatings systems application for drinking water applications
BRL-K753	External Polyurethane Coatings on ductile iron pipes for underground installation
BRL-K757	External PE coating on ductile iron pipes
BRL-K759	Coating systems for drinking water application
BRL-K778	Internal cement mortar lining of underground laying pipes
BRL-K17504	Certification of vulcanised rubber products for cold and hot drinking water applications
NEN-EN 545	Ductile iron pipes, fittings, accessories and their joints for water pipelines – Requirements and test methods
NEN-EN ISO/IEC 17020	Conformity assessment - General criteria for the operation of various types of bodies performing inspection
NEN-EN ISO/IEC 17021	Conformity assessment - Requirements for bodies providing audit and certification of management systems
NEN-EN ISO/IEC 17024	Conformity assessment - General requirements for bodies operating certification of persons
NEN-EN ISO/IEC 17025	General requirements for the competence of testing and calibration laboratories
NEN-EN ISO/IEC 17065	Conformity assessment - Requirements for bodies certifying products, processes and services
NEN-EN-ISO 45011	General requirements for bodies operating product certification systems

I Model certificate (informative)

Certificate

Product certificate
KXXXXXX/OX

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Partner for progress

Issued
Replaces
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Product

STATEMENT BY KIWA
With this product certificate, issued in accordance with the Kiwa Regulations for Product Certification, Kiwa declares that legitimate confidence exists that the products supplied by

Name supplier
complying with the technical specifications as laid down in this product certificate and marked with the certification mark indicated in this product certificate under marking, on delivery may be relied upon to comply with Kiwa evaluation guideline BRL-K number "Titels" + datum bindend validated.


Luc Leroy
Kiwa

Publication of the certificate is allowed.
Advice: consult www.kiwa.nl in order to ensure that this certificate is still valid.

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Certification process consists of initial and regular inspection of:

- quality system
- product

II Model IQC-scheme (informative)

Inspection subjects	Inspection aspects	Inspection method	Inspection frequency	Inspection registration
Raw materials or materials supplied: - recipe sheets - incoming goods inspection raw materials				
Production process, production equipment, plant: - procedures - working instructions - equipment - release of product				
Finished-products				
Measuring and testing equipment - measuring equipment - calibration				
Logistics - internal transport - storage - preservation - packaging - identification				

