BRL-K773

Date 2018-08-13

concept design

Evaluation Guideline

for the Kiwa product certificate for Ductile cast-iron fittings for piping systems of PVC-U, PVC-O or PE 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 iron fittings for piping systems of PVC-U, PVC-O or PE 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 Certification.

Kiwa Nederland B.V.
Sir Winston Churchilllaan 273
Postbus 70
2280 AB RIJSWIJK
The Netherlands

Tel. +31 88 998 44 00
Fax +31 88 998 44 20
info@kiwa.nl
www.kiwa.nl

Binding declaration
This evaluation guideline has been declared binding by Kiwa on Date

4780.60822

Contents

1 Introduction

1.1 General

This evaluation guideline includes all relevant requirements which are employed by Kiwa when dealing with applications for the issue and maintenance of a product certificate of ductile cast-iron fittings for piping systems of PVC-U, PVC-O or PE for the transport of drinking water.

Type fitting	Kiwa BRL	EN Norm
PVC-U	BRL-K17301	EN 12842
PE	BRL-K17105	EN 12842
PVC-O	BRL-K17301	ISO 16422

This guideline replaces the evaluation guideline BRL-K773/02, dated 8 September 2014. The quality declarations issued and based on that guideline will lose their validity at least 2 years after validation of this BRL.

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 part of a piping system for drinking water transport with a nominal diameter of DN 40 up to and including DN 700, at a maximum water pressure of 1 MPa and a water temperature of 25°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 17021-1 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 Annex.

2 Terms and definitions

2.1 Definitions

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

- **Board of Experts**: the Board of Experts Watercycle (CWK).
- **Certification mark**: a protected trademark of which the authorization of the use is granted by Kiwa, to the supplier whose products can be considered to comply on delivery with the applicable requirements and possibly with quality information on the application of the product is added by a specially designed label which is based on the result , as stated in the report issued by Kiwa on the inspection of the prototype
- **Drinking water:** water intended or partly intended for drinking, cooking or food preparation or other domestic purposes, but does not include hot water, and is made available by pipeline to consumers or other customers.
- **Drinking water installation:** an installation direct or in-direct connected to the public drinking water distribution network of a drinking water company (source Dutch drinking water act);
- **Evaluation Guideline (BRL)**: the agreements made within the Board of Experts on the subject of certification.
- **Installation:** configuration consisting the pipe work, fittings and appliances;
- **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.
- **IQC scheme (IQCS):** a description of the quality inspections carried out by the supplier as part of his quality system.
- **Initial investigation**: tests in order to ascertain that all the requirements recorded in the evaluation guideline are met.
- **Private Label Certificate:** A certificate that only pertains to products that are also included in the certificate of a supplier that has been certified by Kiwa, the only difference being that the products and product information of the private label holder bear a brand name that belongs to the private label holder.
- **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.
- **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.
- **Supplier**: the party that is responsible for ensuring that the products meet and continue to meet the requirements on which the certification is based.

3 Procedure for granting a product certificate

3.1 Initial investigation

The initial investigation 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 initial investigation, the results are presented to the Decision maker (see 8.4) 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 iron fittings for piping systems of PVC-U, PVC-O or PE for the transport of drinking water have to fulfil, as well as the testing methods to establish that the requirements are met.

4.2 Regulatory requirements

4.2.1 Requirements to avoid deterioration of the quality of drinking water

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 declaration[1], 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 Product requirements

4.3.1 Product

The requirements of the product are specified in undermentioned standards, with the exception of the aspects where requirements are specified in chapter 4.3.2 .

Nummer	Titel
NEN-EN 12842	Ductile iron fittings for PVC-U or PE piping systems – Requirements and test methods

4.3.2 Additional requirements

In addition to the requirements mentioned under 4.3.1 the following applies:

4.3.2.1 Hygienic treatment of products in contact with drinking water

The supplier must have a procedure in place that protects the products in such way, that the hygiene is ensured during storage and transport.
In addition, the supplier shall inform the customer about the handling of products delivered under the certificate, which come into contact with drinking water and warm tap water, from arriving at the construction site through to the realization and commissioning. The primary reason for providing this the information is to contribute to the awareness of the importance of hygienic work as a ‘prevention measure’.

[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.

4.3.2.2 Flanges

In addition to paragraph 4.1.4.2 of NEN-EN 12842, non-standard flanges are permitted if the necessary appropriate pipes and cover plates are made available for the type testing.

4.3.2.3 Rubber sealing and flange gaskets

Notwithstanding paragraph 4.1.4.1 of NEN-EN 12842 rubber gaskets shall comply with BRL-K17504.

4.3.2.4 Surface coatings

Internal

- Coating System

  The coating system shall meet the requirements of BRL-K759 "Coatingsystems for drinking water installations".

  Note:
  If the used coating is included in a Kiwa product certificate, in accordance with BRL-K759, this condition shall be deemed met.

External

If the outside of the pipes and fittings is equipped with a protective layer, this shall, in addition to article 4.4.1 of NEN-EN 12842, comply with:

- BRL-K757: External PE coatings on ductile iron pipes.

5 Marking

5.1 General

Each product shall be marked with the following:

- Article 4.5 of EN 12842.

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.

5.2 Certification mark

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

The Kiwa Water 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.

6.4 Other requirements

The supplier shall be able to submit the following:

- the organisation's organogram;
- qualification requirements of the personnel concerned.

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:

- **initial investigation:** tests in order to ascertain that all the requirements recorded in the evaluation guideline are met;
- **inspection test:** 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;
- **inspection of the quality system of the supplier:** monitoring compliance of the IQC scheme and procedures.

7.1 Test matrix

Description of requirements	Article no. of BRL	Tests within the scope of:	
		Pre-certification	Inspection by Kiwa after granting of certificate[a), b)]
	BRL-K773		
Regulatory requirements			
Requirements to avoid deterioration of the quality of drinking water	4.2.1	X	X
Product requirements	4.3		
Flanges	4.3.2.2	X	X
Rubber sealing and flange gaskets	4.3.2.3	X	X
Surface coatings ○ internal ○ external	4.3.2.4	X	X
Marking	5		
○ General	5.1	X	X
○ Certification mark	5.2	X	X
	EN 12842		
Types of joints and interconnection	4.1.4	X	X
Dimensional requirements	4.2	X	X
Material characteristics	4.3	X	X
Coatings	4.4	X	X
Marking of pipes and fittings	4.5	X	X
Leak tightness	4.6	X	X
Long term hydrostatic strength test (PE-pipes)	5.3.1	X	X
Pull out test at 25˚C	5.3.2	X	X
Long term hydrostatic strength test (PVC-U pipes)	5.3.3	X	
Flanged joints	5.4	X	X
Works leak tightness test	6.3		X
Leak tightness of joints to internal hydrostatic pressure	7.1	X	X

Description of requirements	Article no. of BRL	Tests within the scope of:	
		Pre-certification	Inspection by Kiwa after granting of certificate[a), b)]
Leak tightness of joints to negative internal pressure	7.2	X	
Leak tightness of joints to dynamic internal pressure	7.3	X	
Long term hydrostatic strength test for joints of fittings for PE pipes	7.2	X	
Pull out test at 25ºC for restrained joints for PE pipes	7.5	X	
Long term hydrostatic strength test for joints of fittings for PVC-U pipes	7.6	X	
Dimensions of sockets for push-in flexible joints	8	X	X

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

b) During the inspection tests, the inspector verifies the products on basis of a selection from the above mentioned product requirements. 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 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 assessor (**CAS**): in charge of carrying out the pre-certification tests and assessing the inspectors' reports;
- Site assessor (**SAS**): in charge of carrying out external inspections at the supplier's works;
- Decision maker (**DM**): 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 ISO / IEC 17065, 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.

Basic requirements	**Evaluation criteria**
Knowledge of company processes Requirements for conducting professional audits on products, processes, services, installations, design and management systems.	*Relevant experience: in the field* **SAS, CAS** : 1 year **DM**: 5 years inclusive 1 year with respect to certification Relevant technical knowledge and experience on the level of: **SAS**: High school **CAS, DM** : Bachelor

Basic requirements	Evaluation criteria
Competence for execution of site assessments. Adequate communication skills (e.g. reports, presentation skills and interviewing technique).	**SAS**: Kiwa Audit training or similar and 4 site assessments including 1 autonomic under review.
Execution of initial examination	**CAS**: 3 initial audits under review.
Conducting review	**CAS**: conducting 3 reviews

Technical competences	Evaluation Criteria
Education	**General**: Education in one of the following technical areas: • Civil Enginereing; • Enginering.
Testing skills	**General:** • 1 week laboratory training (general and scheme specific) including measuring techniques and performing tests under supervision ; • Conducting tests (per scheme).
Experience - specific	**CAS** • 2 complete applications (excluding the initial assessment of the production site) under the direction of the **CAS** • 1 complete application self-reliant (to be evaluated by **PM**) • 2 initial assessments of the production site under the direction of the **PM** **SAS** • 1 inspection visits conducted self-reliant (witnessed by **PM**)
Skills in performing witnessing	**PM** Internal training witness testing

Legenda:
- Certification assessor (**CAS**)
- Decision maker (**DM**)
- Product manager (**PM**)
- Site assessor (**SAS**)

8.2.2 Qualification

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

The authority to qualify staff rests with the:
- PM: qualification of CAS and SAS;
- management of the certification body: qualification of DM.

8.3 Report initial investigation

The certification body records the results of the initial investigation 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 DM 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 1 year.

The audit program on site shall cover at least:
- the product requirements;
- the production process;
- the suppliers IQC scheme and the results obtained from inspections carried out by the supplier;
- the correct way of marking certified products;
- compliance with required procedures;
- handling complaints about products delivered.

The results of each audit shall be recorded by Kiwa in a traceable manner in a report.

8.7 Report to the Board of Experts

De certification body shall report annually about the performed certification activities. In this report the following aspects are included:
- mutations in number of issued certificates (granted/withdrawn);
- number of executed audits in relation to the required minimum;
- results of the inspections;
- required measures for established Non-Conformities;
- received complaints about certified products.

8.8 Non conformities

When the certification requirements are not met, measures are taken by Kiwa in accordance with the sanctions policy as writen in the Kiwa Regulation for Certification.
The Sanctions Policy is available page on the Kiwa website.

8.9 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

BJZ2011048144 29 juni 2011	Regeling van de Staatssecretaris van Infrastructuur en Milieu[1]

9.2 Standards / normative documents

Number	Title	Version*
BRL-K746	Applying coating systems for drinking water applications	
BRL-K753	External Polyurethane coatings on ductile iron pipes for underground installation	
BRL-K759	Coating systems for drinking water applications	
BRL-K767	External coating for metal pipes	
BRL-K17504	Certification of vulcanized rubber products for cold and hot drinking water applications	
EN 12842	Ductile iron fittings for PVC-U or PE piping systems – Requirements and test methods	
ISO 16422	Pipes and joints made of oriented unplasticized poly(vinylchloride)(PVC-O) for the conveyance of water under pressure - Specifications	
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	

[1] Valid from 1 July 2017

I Model certificate (example)

CERTIFICATE

Product certificate
KXXXXXX/0X

kiwa

Issued

Replaces

Page *1 of 1*

Name product

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

Name customer

as specified in this product certificate and marked with the Kiwa®-mark in the manner as indicated in this product certificate may, on delivery, be relied upon to comply with Kiwa evaluation guideline

BRL-xxxx "xxxxxxxxxxxxxxxxxxxxxxxxxx" dated [dd-mm-yyyy]

inclusive amendment sheet dated dd-mm-yyyy.

Luc Leroy
Kiwa

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

Kiwa Nederland B.V.
Sir Winston Churchilllaan 273
P.O.Box 70
2280 AB RIJSWIJK
The Netherlands
Tel. +31 88 998 44 00
Fax +31 88 998 44 20
info@kiwa.nl
www.kiwa.nl

Company
Name customer
Address customer

Phone number
Fax number
www.
Email

Certification process consists of initial and regular assessment of:
- **quality system**
- **product**

140410

II Model IQC-scheme (example)

Inspection subjects	Inspection aspects	Inspection method	Inspection frequency	Inspection registration
Raw materials or materials supplied: • 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				