

BRL-K773

Datum 2019-04-01

Evaluation Guideline

for the Kiwa product certificate for
Ductile iron fittings for piping systems of PVC-U, PVC-O or
PE for the transport of drinking water



**Trust
Quality
Progress**

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.

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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.

Binding declaration

This evaluation guideline has been declared binding by Kiwa on 1 April 2019.

Contents

1	Introduction	4
1.1	General	4
1.2	Field of application / scope	4
1.3	Acceptance of test reports provided by the supplier	4
1.4	Quality declaration	4
2	Terms and definitions	5
2.1	Definitions	5
3	Procedure for granting a product certificate	6
3.1	Initial investigation	6
3.2	Granting the product certificate	6
4	Requirements	7
4.1	General	7
4.2	Regulatory requirements	7
4.3	Product requirements	7
5	Marking	9
5.1	General	9
5.2	Certification mark	9
6	Requirements in respect of the quality system	10
6.1	Manager of the quality system	10
6.2	Internal quality control/quality plan	10
6.3	Procedures and working instructions	10
6.4	Other requirements	10
7	Summary of tests and inspections	11
7.1	Test matrix	11
7.2	Inspection of the quality system of the supplier	12
8	Agreements on the implementation of certification	13
8.1	General	13
8.2	Certification staff	13
8.3	Report initial investigation	14
8.4	Decision for granting the certificate	15
8.5	Layout of quality declaration	15

8.6	Nature and frequency of third party audits	15
8.7	Report to the Board of Experts	15
8.8	Non conformities	15
8.9	Interpretation of requirements	15
9	Titles of standards	16
9.1	Public law rules	16
9.2	Standards / normative documents	16
I	Model certificate (example)	17
II	Model IQC-scheme (example)	18

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 certificate of ductile 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	NEN-EN 12842
PE	BRL-K17105	NEN-EN 12842
PVC-O	BRL-K17301	NEN-ISO 16422

This guideline replaces the evaluation guideline BRL-K773/02, dated 08 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.

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 recognized 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 Product requirements

4.3.1 *Product*

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

Number	Title
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 in 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 must comply with BRL-K17504.

4.3.2.4 Surface protection coatings

Internal

The coating system must meet the requirements of BRL-K759 "Coating systems for drinking water installations".

Note:

If a coating is applied that is included in a Kiwa product certificate according to BRL-K759, this condition is deemed to be met.

External

If the outside of the pipes and fittings are equipped with a protective layer, this must, in addition to article 4.4.1 of NEN-EN 12842, comply with BRL-K767: "External lining for metal pipes".

5 Marking

5.1 General

The products shall be marked with following indelible marks and indications:

- a) Reference to NEN-EN 12842;
- b) name or logo of the manufacturer;
- c) data or code indicating the date of production;
- d) material;
- e) DN;
- f) PN for flanges and flange parts;
- g) "PVC" and/or "PE".

Markings b up to and including f shall be cast or stamped. Markings a and g can be applied in any way, such as painted on the castings or attached on the packaging.

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.

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 requirement	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 protection coatings <ul style="list-style-type: none"> ○ Inside ○ Outside 	4.3.2.4	X	X
Marking	5		
General	5.1	X	X
Certification mark	5.2	X	X
	NEN-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	
Pull out test at 25°C	5.3.2	X	

Description of requirement	Article no. of BRL	Tests within the scope of:	
		Pre-certification	Inspection by Kiwa after granting of certificate a,b)
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
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 25°C 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 Article 6 of this BRL.

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.	<i>Relevant experience: in the field</i> 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: <ul style="list-style-type: none"> • Civil Engineering; • Engineering.
Testing skills	General: <ul style="list-style-type: none"> • 1 week laboratory training (general and scheme specific) including measuring techniques and performing tests under supervision ; • Conducting tests (per scheme).
Experience - specific	CAS <ul style="list-style-type: none"> • 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) • 1 initial assessment of the production site self-reliant (witnessed by PM) SAS <ul style="list-style-type: none"> • 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 one 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

The 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 written 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 Milieu¹

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-K759	Coating systems for drinking water application
BRL-K767	External lining for metal pipes
BRL-K17504	Certification of vulcanised rubber products for cold and hot drinking water applications
NEN-EN 12842	Ductile iron fittings for PVC-U or PE piping systems – Requirements and test methods
NEN-ISO 16422	Pipes and joints made of oriented unplasticized poly(vinyl chloride) (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

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 "xxxxxxxxxxxxxxxxxxxxxxxx" dated [dd-mm-yyyy]

inclusive amendment sheet dated dd-mm-yyyy.

Name Director
Kiwa

Publication of this certificate is allowed.

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

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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: <ul style="list-style-type: none"> • incoming goods inspection raw materials • incoming goods inspection semi-finished products 				
Production process, production equipment, plant: <ul style="list-style-type: none"> • procedures • working instructions • equipment • material • surface 				
Finished-products <ul style="list-style-type: none"> • closing • water-tightness 				
Measuring and testing equipment <ul style="list-style-type: none"> • measuring equipment • calibration 				
Logistics <ul style="list-style-type: none"> • marking • traceability • protections 				