

**BRL K646/03**

01-02-2012

# Evaluation Guideline

for the Kiwa product certificate for  
controllable backflow protection devices,  
family B, type A



**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 Onderwerp 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 BRL must be re-evaluated at least every 5 years by the Board of Experts CWK, but no later than 1 February 2017.

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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 declared binding by Kiwa on February 1, 2012

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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 certificate for products used for controllable backflow protection devices, family B - type A.

This guideline replaces the evaluation guideline BRL-K646/02, dated 2004-01-09.

For the performance of its certification work, Kiwa is bound to the requirements as included in NEN-EN 45011 and which are laid down in the chapter "Agreements on the implementation of certification".

## 1.2 Field of application / scope

The products are intended to be used in drinking water installations with an operating pressure of at most 1MPa (10 bar) and a water temperature of at most 65°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 17025 for laboratories;
- NEN-EN 45011 for certification bodies certifying products.

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

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

- **Board of Experts:** the Board of Experts Watercycle (CWK).
- **Evaluation Guideline (BRL):** the agreements made within the Board of Experts on the subject of certification.
- **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.

### Note

The test matrix summarizes which tests will be carried out by Kiwa during pre-certification and during inspections and with what frequency the audit will be carried out.

- **IQC scheme (IQCS):** a description of the quality inspections carried out by the supplier as part of his quality system.
- **Pre-certification tests:** tests in order to ascertain that all the requirements recorded in the evaluation guideline are met.
- **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 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. 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 controllable backflow protection devices, family B – type A have to fulfil.

These requirements will be part of the technical specification of the product, which will be included in the product certificate.

## 4.2 Materials

### 4.2.1 Requirements to avoid deterioration of the quality of drinking water

The requirements in this chapter are 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 declaration<sup>1</sup>, 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 and test requirements

The requirements of the product and the test requirements are specified in:

Number	Title	Issue date
NEN-EN 12729	Devices to prevent pollution by backflow of potable water – Controllable backflow preventer with reduced pressure zone - Family B - Type A	December 2002

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<sup>1</sup> 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.



#### 4.4 Additional specifications

In addition to these requirements:

Number	Title	Issue date
NEN-EN 12729	Devices to prevent pollution by backflow of potable water – Controllable backflow preventer with reduced pressure zone – Family B - Type A	December 2002

Article	Description	Nominal Connection size
Article 7	Chemical characteristics	All
Article 9.5.2	Endurance	DN 6
Article 9.5.3.2	Bending strength	DN 6
Article 9.7.2	Verification of the pressure loss as a function of the flow rate	DN 6
Article 9.7.7.1	Verification of the intermediate zone pressure for a given relief flow under reverse feed	DN 6

The following applies:

##### 4.4.1 Chemical and mechanical requirements

###### 4.4.1.1 Materials for bodies

- NEN-EN 1503-1 Materials for bodies – Part 1: Steels
- NEN-EN 1503-3 Materials for bodies – Part 1: Cast irons
- NEN-EN 1503-4 Materials for bodies – Part 1: Copper alloys

###### 4.4.1.2 Copper and copper alloys

- NEN-EN 1982 Copper and copper alloys – Ingots and castings
- NEN-EN 12163 Copper and copper alloys – Rod for general purposes
- NEN-EN 12164 Copper and copper alloys – Rod for free machining purposes
- NEN-EN 12420 Copper and copper alloys – Forgings

###### 4.4.1.3 Grey cast iron

Grey cast iron shall meet at least EN-GJL 250, according to EN 1561

###### 4.4.1.4 Nodular cast iron

Nodular cast iron; Nodular cast iron shall be EN-GJS 400-18; EN-GJS 500-7 or EN-GJS 600-3, according to EN 1563.

###### 4.4.1.5 Stainless steel

Stainless steel shall contain a minimum of 13% of chromium, according to EN 10088-1.

###### 4.4.1.6 Rubber for elastic sealing components

Rubber shall meet the requirements of BRL-K2013 concerning influence on the drinking water and the physical and mechanical properties.  
Natural rubber (NR) and isoprene rubber (IR) is not acceptable.

###### 4.4.1.7 Other materials

If materials other than those shown are used, they shall be of at least an equivalent specification.

#### 4.4.2 Corrosion resistance

The involved materials, which come in contact with drinking water, shall be corrosion-resistant or covered by a protective coating. They may not give rise to mutual corrosion.

##### 4.4.2.1 Corrosion resistant coatings

For corrosion resistant coatings, which come into contact with drinking water, an ATA1 shall be issued. Further the protective coatings shall not contain Polycyclic Aromatic Hydrocarbon (PAH)<sup>2</sup>

The applied corrosion resistant coatings and paint systems shall meet, on the relevant aspects, the Kiwa evaluation guideline BRL-K759, "Coatingsystems for drinking water installations".

**Remark:**

If coating is applied which is inserted in a Kiwa certification agreement, according to BRL-K759, it is assumed that this requirement is met.

The application of corrosion resistant coatings in contact with drinking water shall meet, on the hereafter-mentioned aspects, the Kiwa evaluation guideline BRL-K746, "Coatingsystems for drinking water applications"

- Clause 2.3.2; Surface
- Clause 2.3.6; Removing blasting material
- Clause 2.5.2; Appearance
- Clause 2.5.6; Resistance against penetration.

**Remark:**

If the coating process that is applied is inserted in a Kiwa certification agreement, according to BRL-K746, it is assumed that this requirement is met.

#### 4.4.3 Test taps

##### 4.4.3.1 Sealing

When tested in accordance to EN 1488, article 6.3.2, the test tap must be watertight.

##### 4.4.3.2 Closing

When tested in accordance to EN 1488, article 6.3.1, the test tap shall close with an applied moment, which shall not exceed the values in Table 1.

**Table 1: Opening and closing moments**

Connection thread	1/8	1/4	1/2
Nominal connection dimensions	DN 8	DN 10	DN 15
Moment	10 ± 1 Nm	10 ± 1 Nm	10 ± 1 Nm

##### 4.4.3.3 Sustainability

After testing according to EN 1488, article 9.2.3, the test valve shall close in accordance to 4.4.3.2, provided that the opening and closing moment shall be selected from Table 1.

<sup>1</sup> ATA = Assessment on Toxicological Aspects to be issued by Kiwa.

<sup>2</sup> As of 1 July 1997 the use of PAK in coating is no longer permitted. This is laid down in the AMVB: "PAH coating", Dangerous Substances Environment Act.

#### **4.4.4 Additional requirements DN 6**

##### **4.4.4.1 Volume flow for sustainability test DN 6**

When tested in accordance to EN 12729, article 9.5.2, the volume flow shall be at least 240 l/h.

##### **4.4.4.2 Bending moment DN 6**

When tested in accordance to EN 12729, article 9.5.3, the bending moment shall be at least 20 Nm

##### **4.4.4.3 Volume flow DN 6**

When tested in accordance to EN 12729, article 9.7.2, the volume flow at a pressure loss of 100kPa (1 bar) shall be 320 l/h.

##### **4.4.4.4 Discharge capacity DN 6**

When tested in accordance to EN 12729, article 9.7.7, the discharge volume flow shall be at least 310 l/h.

## 5 Test methods


No additional test methods are defined for this product.

# 6 Marking

## 6.1 General

Each product shall be marked with indelible and clear marks and indications according to EN 13729, article 11.

## 6.2 Certification mark

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

# 7 Requirements in respect of the quality system

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

## 7.1 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.

## 7.2 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.

## 7.3 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.

## 8 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 as to toxicological requirements and product requirements;
- Inspection of the quality system.

The frequency with which Kiwa will carry out inspection tests is also stated in the summary.

### 8.1 Test matrix

Description of requirement	Article BRL	Tests within the scope of		
		Pre-certification	Supervision by Kiwa after granting of certificate <sup>1)</sup> inspection <sup>2)</sup>	frequency (no./year)
<b>Material requirements</b>				
<b>Error! Reference source not found.</b>	<b>Error! Reference source not found.</b>	X	X	2 <sup>1</sup>
Chemical and mechanical requirements	4.4.1	X	X	2
<b>Design and execution</b>				
Corrosion resistance	4.4.2	X		1
<b>Functional requirements</b>				
Test taps	4.4.3			
Sealing	4.4.3.1	X	X	1
Closing	4.4.3.2	X	X	1
Sustainability	4.4.3.3	X		
Additional requirements DN 6	4.4.4			
Volume flow for sustainability DN 6	4.4.4.1	X		
Bending moment DN 6	4.4.4.2	X		
Volume flow DN 6	4.4.4.3	X		
Discharge capability DN 6	4.4.4.4	X	X	1
<b>Marking</b>				
<b>Error! Reference source not found.</b>	6.1			
<b>Error! Reference source not found.</b>	6.2			
<b>EN 12729</b>				
Denomination	4	X	X	1
Designation	5	X	X	1
Materials	7.1	X	X	2

<sup>1</sup> Administratieve toetsing

Description of requirement	Article BRL	Tests within the scope of		
		Pre-certification	Supervision by Kiwa after granting of certificate <sup>1)</sup> inspection <sup>2)</sup>	frequency (no./year)
Nature of materials	7.2	X	X	1
Design	8.1	X		
Relief valve	8.2	X		
Dimensional Characteristics	9.4	X	X	1
Mechanical resistance of the body under pressure	9.5.1	X	X	1
Endurance	9.5.2	X		
Bending strenght – Tightness of the body	9.5.3	X		
Tightness characteristics	9.6	X		
Hydraulic characteristics	9.7	X		
Marking and technical documents	11	X	X	1
Presentation at delivery	12	X	X	1

<sup>1)</sup> In case of significant changes of the product or production process, compliance of the product to the performance requirements shall be determined

<sup>2)</sup> Inspections as indicated are to be conducted by the inspector or by the manufacturer, whether or not in presence of the inspector.

## 8.2 Inspection of the quality system

The quality system 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.



# 9 Agreements on the implementation of certification

## 9.1 General

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

These rules are in particular

- The general rules for conducting the pre-certification tests, to be distinguished in:
  - the way suppliers are to be informed about 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 directions for conducting inspections and the aspects to be audited,
- The measurements to be taken by Kiwa in case of Non Conformities,
- Measurements 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 measurements taken by Kiwa.

## 9.2 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.

### 9.2.1 Qualification requirements

The following qualification requirements have been set by the Board of Experts for the subject matter of this Evaluation Guideline:

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

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

The level of education and the experience of the certification staff involved should be demonstrably recorded.

### 9.2.2 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.

### 9.3 Report Pre certification tests

Kiwa records the results of the pre certification tests in a report. This report shall comply with the following requirements:

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

### 9.4 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 traceable.

### 9.5 Lay out of quality declaration

The product certificate shall conform the model included as an annex

### 9.6 Nature and frequency of external inspections

The certification body shall carry out Audits at the supplier at regular intervals to check whether the supplier complies with his obligations. About the frequency of inspections the Board of Experts decides.

At the time this Evaluation Guideline took effect, the frequency was set at number of 2 inspection visits per 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.


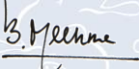
### **9.7 Interpretation of requirements**

The Board of Experts may record the interpretation of requirements of these evaluation guidelines in one separate interpretation document.

## 10 Titles of standards

Number	Title	Version*
BRL-K746	Coatingsystems for drinking water applications	
BRL-K759	Coatingsystems for drinking water installations	
BRL-K775	Ductile cast iron couplings for ducts of ductile cast iron, cast iron, steel, PVC-U, PE or asbestos cement.	
BRL-K2013	Rubber rings and flange gaskets for connections in drinking water and waste water pipes	
EN 1488	Building valves – Expansion groups – Tests and requirements	
EN 1503-1	Materials for bodies – Part 1: Steels	
EN 1503-3	Materials for bodies – Part 1: Cast irons	
EN 1503-4	Materials for bodies – Part 1: Copper alloys	
EN 1561	Founding - Grey cast irons	
EN 1563	Founding - Spheroidal graphite cast irons	
EN 1982	Copper and copper alloys – Ingots and castings	
EN 10088-1	Stainless steels - Part 1: List of stainless steels	
EN 12163	Copper and copper alloys – Rod for general purposes	
EN 12164	Copper and copper alloys – Rod for free machining purposes	
EN 12420	Copper and copper alloys – Forgings	
EN 12792	Devices to prevent pollution by backflow of potable water – Controllable backflow preventer with reduced pressure zone – Family B – Type A	
Publication 92-04	Guideline regarding the quality of materials and chemicals for the drinking water supply	

# I Model certificate (informative)

<b>Certificate</b>	Product certificate <b>KXXXXXXX/OX</b>	 Partner for progress
	Issued	
	Replaces	
	Page 1 of 2	
	<b>Product</b>	
	<b>STATEMENT BY KIWA</b> 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 <b>Name supplier</b> complying with the technical specifications as laid down in this product certificate and marked with the Kiwa®-mark in the manner as indicated in this product certificate, on delivery, may be relied upon to comply with Kiwa evaluation guideline BRL-K <sup>000</sup> , dated 20xx-xx-xx.	
	 Bouke Meekma Kiwa	
	Publication of the certificate is allowed. Advice: consult <a href="http://www.kiwa.nl">www.kiwa.nl</a> in order to ensure that this certificate is still valid.	
	Supplier	
	<p>Kiwa Nederland B.V. Sir W. Churchill-laan 273 Postbus 70 2280 AB RIJSWIJK The Netherlands Tel. +31 70 414 44 00 Fax +31 70 414 44 20 E-mail <a href="mailto:info@kiwa.nl">info@kiwa.nl</a> <a href="http://www.kiwa.nl">www.kiwa.nl</a></p> <p>140410</p>	<p>Certification process consists of initial and regular inspection of:</p> <ul style="list-style-type: none"><li>• quality system</li><li>• product</li></ul>

## 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				