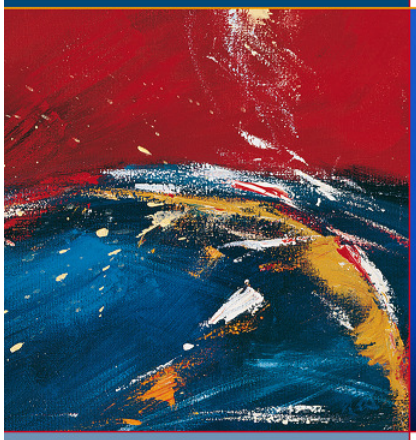
BRL-K639/03
01-02-2012

Evaluation guideline

for the Kiwa product certificate for
Fittings with compression ends for use with copper tubes



Preface

This evaluation guideline has been accepted by the board of experts CWK of Kiwa, in which the parties concerned in the sector Drinkingwater appliances are being represented. This 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 regulation details the method employed by Kiwa for conducting the necessary investigations prior to issuing the product certificate and the method of external control.

This evaluation guideline is to be assessed by the Board of Experts at least every 5 years, but at the latests before 1st of February 2017.

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Validation
This evaluation guideline has been validated by Kiwa on 1st of February 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 fittings with compression ends for use with copper tubes.

This evaluation guideline replaces BRL–K639/02 dated 29th of June 2001.

For the performance of its certification work, Kiwa is bound to the requirements as included in the clause 4.6 “conditions and procedures for granting, maintaining, extending, suspending and withdrawing certification” of EN45011.

1.2 Field of application / scope

The fittings with compression ends are being used to connect copper pipes, according to the Kiwa evaluation guideline BRL-K760, in tap water and gas installations and in heating installations.
The tightening is achieved by a compression or cutting ring or forming of the tube at its end, without making use of soldering material or screw thread on the copper tube.
The fittings can also be applied underground in areas where no pollution of the soil has been found.

For the application in tap-water installations a maximum working pressure of 1000 kPa and a maximum water temperature of 90°C is applicable.

Remark
This evaluation guideline in principle is **not** applicable for compression fittings in combination with annealed copper pipes.
Compression fittings in combination with annealed copper pipes in some cases will require an internal support. After mounting the presence of this internal support cannot be determined which hinders any inspection on the aspect of workmanship.
In case the manufacturer decides to deliver its fittings for the use in combination with different kinds of copper tubes (including annealed copper tubes), then all fittings shall be delivered with an internal support. At the same time the use of compression fittings in combination with hard copper tube hair cracks can appear in case of forming the tube's end.

1.3 Acceptance of test reports provided by the supplier

When by the manufacturer reports from test Institutions or laboratories are produced in order to demonstrate that the product meets the requirements of this evaluation guideline, the institute or laboratory shall meet one of the applicable accreditation norms, being;

- NEN-EN-ISO/IEC 17025 for laboratories;
- NEN-EN–ISO/IEC 17020 for inspection bodies;
- NEN-EN 45011 for certification bodies certifying products;

This requirement is being considered to be fulfilled when a certificate of accreditation can be shown, either issued by the Board of Accreditation (RvA) or one of the institutions with which the RvA an agreement of mutual acceptance has been concluded.
The accreditation shall refer to the examination as required in this BRL. When no certificate of accreditation can be shown, Kiwa will verify whether the accreditation norm is fulfilled or conduct the determined examination once more themselves or subcontract it to a third party.

1.4 Quality declaration

The quality declarations to be issued based on this Kiwa guideline are described as Kiwa product certificates.
A model of this quality declaration has been included as an Annex in this BRL.

2 Terms and definitions

In this evaluation guideline the following terms and definitions are applicable:

Evaluation Guideline: the agreements made within the Board of Experts on the subject of certification.

Board of Experts: The Board of Experts ”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: 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, focusing on (identifiable) characteristics of products and containing a limiting value to be achieved, which limiting value 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.

> **Remark**
> The test matrix contains a summary showing what tests Kiwa will carry out in the pre-certification stage and in the event of inspections as well as showing the frequency with which the inspection tests will be carried out.

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.

Tap water (origin NEN 1006): water intended for drinking, cooking, food preparation or other domestic purposes.

3 Procedure for obtaining the quality declaration

3.1 Pre certification tests

The pre certification-tests to be performed are based on the (product) requirements as included in this evaluation guideline including the test methods and depending on the nature of the product to be certified, contain the following:

- Type testing to determine whether the products comply with the product- and/or functional requirements;
- Assessment of the Production Process;
- Assessment of the quality system and the IQC-scheme,
- Examination on the availability and functioning of the remaining procedures.

3.2 Granting the quality declaration

After finishing the pre-certification tests the results are presented to the person deciding on granting of certificate. This person evaluates the results and decides whether the certificate can be granted or additional data and/or tests are necessary.

4 Requirements and test methods

4.1 General

This chapter contains the requirements the fittings with compression ends for use with copper tubes have to fulfil. These requirements are part of the technical specification of the products, as stated in the certificate.

4.2 Product requirements

The requirements the product shall meet and the respective test methods have been laid down in the following standard:

EN 1254-2	Copper and copper alloys - Plumbing fittings - Part 2: Fittings with compression ends for the use with copper tubes	February 1998
EN 1254-4	Copper and copper alloys - Plumbing fittings - Part 4: Fittings combining other end connections with capillary or compression ends	March 1998
EN 1254-4/C1	Copper and copper alloys - Plumbing fittings - Part 4: Fittings combining other end connections with capillary or compression ends	August 1999

4.3 Additional product requirements

In addition to the requirements mentioned at 4.2 the following is applicable:

4.3.1 Requirements to avoid deterioration of the quality of the 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 the toxicological, microbiological and organoleptic requirements as laid down in the valid “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 valid Regulation, has to be concluded with positive results.

Products and materials with a quality declaration∗, 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.

4.3.1.1 Protection layers

In addition to what has been mentioned in EN 1254-2, article 4.4.7, metallic anticorrosive protection layers shall also fulfil the requirements of EN 248.

4.3.1.2 Corrosion resistance

Materials shall not lead to electrochemical corrosion (contact corrosion).

∗ A quality declaration issued by an independent certification institute in another member state of the European Community than the Netherlands 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 Adapter fitting

In addition to what is mentioned in EN 1254-2, article 3.4 applicable to adaptor fittings in which compression end is combined with a soldering end, the entrance of the soldering end shall be rounded with a radius of 0.5 ± 0.3 mm, or bevelled over 0.5 ± 0.3 mm under an angle of 45°.

4.3.3 Nominal diameters

Other than stated in EN 1254-2, table 2, this evaluation guideline is only applicable for the following nominal diameters:

DN 10 - DN 12 - DN 15 - DN 18 - DN 22 - DN 28 - DN 35 - DN 42 - DN 54 - DN 64 - DN 76.1 – DN 88.9 - DN 108 - DN 133

Remark
Mentioned above nominal diameters are generally used in the Netherlands and included as such in the Kiwa evaluation guideline BRL-K760.

4.3.4 Width across flats

In addition to what is mentioned in EN 1254-2, article 4.4.5, the width across flats preferably shall be according to ISO 272.

If the width across flats exceed 46 mm, the key flats may be octagonal.
The height of the key flats must be at least equal to the values mentioned in Table 1.

Table 1 - Minimum height key flat

width across flats mm		height of the key flat
more than	up to and including	mm
	22	4
22	27	5
27	32	6
32	41	7
41	50	8
50	75	9
75		10

4.3.5 Reducers

For reducers the transition between the nominal diameters shall be gradually, with a maximum angle of 60° between the bevel and the centre line of the fitting.

4.3.6 Angles

In addition to EN 1254-2, article 4.3.3, the angle between the axis of the bore of the taper end and that of the straight ends of the T-piece, as well as the angle between the axis of both bores of an elbow or a long radius elbow, shall be 90°.
For elbows a version with an angle of 45° between the axis of the bores is also possible.

4.3.7 Water tightness

The test according EN 1254-2, article 4.6.1 "Leak tightness under internal hydrostatic pressure" shall be executed with an internal water pressure of 1600 kPa.

4.3.8 Resistance to pull-out

Compression fittings shall be resistant to pull-out. When examined according to EN 1254-2, article 4.6.2 "Resistance to pull-out" and article 4.6.3 "Leak tightness under internal hydrostatic pressure whilst subjected to bending" undergoing 5 minutes an internal air pressure of up to 300 kPa.
The fittings shall not leak.

4.3.9 Resistance against water with a temperature of 90°C

Compression fittings shall be resistant against water with a temperature of 90°C. This shall be determined according to article 6.1. During this examination the fittings shall not leak or be damaged.

4.3.10 Airtightness

Compression fittings shall be airtight against an internal pressure up to 300 kPa at temperatures between -20°C and +150°C. This shall be determined according to article 6.2. During the examination the fittings shall not leak.

4.3.11 Resistance against torsion

Compression fittings mounted to a copper tube shall withstand a torque perpendicular to the centre line of the tube. The torque as mentioned in Table 2 shall be applied at room temperature.
The resistance against torsion shall be tested according to article 6.3. During this test leakage may not occur, nor the tube may turn in the fitting.

Table 2 - Torque's

external diameter copper tube in mm	10	12	15	18	22	28	35	42	>42
torque in Nm	10	12	15	18	22	28	35	42	50

4.3.12 Strength

Compression fittings shall withstand forces which may occur by fastening the swivel nut. This shall be determined according to article 5.4. Before and after this test the fittings shall be watertight if tested according to EN 1254-2 with a water pressure of 1600 kPa and an air pressure of 300 kPa.
The fittings shall not be damaged.

4.3.13 *Durability*

Compression fittings after repeatedly assembling shall remain watertight and fit to be used for its purpose. This shall be determined according to article 6.5.

4.3.14 *Water tightness of the joints under fluctuating temperatures*

The joints of the compression fittings shall be watertight under fluctuating temperatures. When tested according to article 6.6 against a water pressure of 1600 kPa and an air pressure of 300 kPa, when tested according to EN 1254-2, article 5.4. the fittings shall not be damaged.

5 Marking

5.1 Certification mark

After concluding a Kiwa certification agreement the products shall be marked, in addition to the marking requirements mentioned in EN 1254-2, article 7, shall be indelibly marked with the certification mark **KIWA** or the minimized mark “KK” in a rectangle.

6 Test methods

6.1 Determination resistance against water with a temperature of 90°C

6.1.1 Test installation

For testing the resistance against water with a temperature of 90°C, a test sample shall be included in an installation in which this sample, immersed in water of 90 ± 3°C, can be put under a pressure of 1600 kPa by supplying water (pressure).

6.1.2 Test samples

For the test three samples are needed assembled according to EN 1254-2, article 5.2 and figure 5.
The compression fittings shall be assembled according to the manufacturer's instructions.

6.1.3 Procedure

a. place the test pieces in the installation and fill them with water,
b. gradually increase the pressure to a pressure of 1600 kPa and maintain this pressure,
c. immerse the test pieces for 168 ± 1 hour in water with a temperature of 90°C,
d. determine the water tightness according to EN 1254-2, article 5.4 with a pressure of 1600 kPa.

6.2 Determination of the airtightness

6.2.1 Test installation

For the determination of the airtightness, the test pieces shall be installed in a test installation, conform EN 1254-2, figure 5, in which the pressure can be obtained by supplying air.
The air pressure shall be measured with a precision manometer according to NEN 927.
The test pieces shall be immersed in liquids with the adequate temperature and suitable for its purpose.

6.2.2 Test samples

For the test three samples are needed assembled according to EN 1254-2, article 5.2 and figure 5.
The compression fittings shall be assembled according to the manufacturer's instructions.

6.2.3 Procedure

a. apply to the test pieces an air pressure of 300 ± 10 kPa and maintain this pressure.
b. immerse the test pieces in water with room temperature for a period of 900 ± 30 s.
c. keep the test pieces for a period of 6 hours at a temperature of 150 ± 3°C,
d. immerse the test pieces in a liquid with temperature of 150 ± 3°C for a period of 900 ± 30 s.
e. keep the test pieces for a period of 6 hrs. ± 30 min. at a temperature of -20 ± 3°C,
f. immerse the test pieces in a liquid with temperature of -20 ± 3°C for a period of 900 ± 30 s.

6.3 Determination resistance against torsion

6.3.1 Test installation

For the determination of the resistance against torsion, the test pieces shall be installed in a test installation, in which to the fittings, to be immersed in water with room temperature the pressure, torsion can be applied and an internal pressure can be obtained by supplying air.
The air pressure shall be measured with a precision manometer according to NEN 927.
The test pieces shall be assembled according to figure 1.

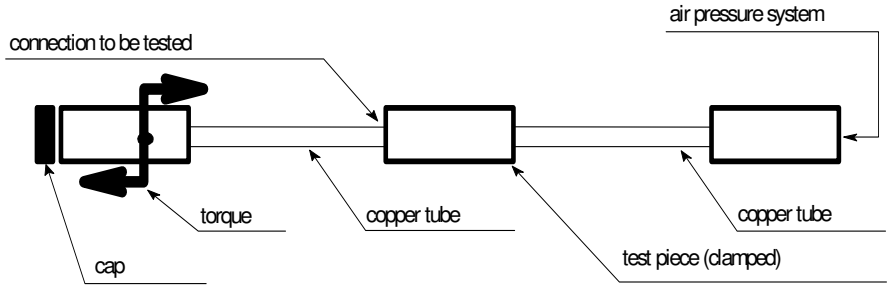

Figure 1

6.3.2 Test samples

For the determination of the resistance against torsion the test pieces are needed which have already been tested to EN 1254-2, article 5.4 and 5.5.

6.3.3 Procedure

a. fix a straight coupling into the test installation.
b. Apply a torque perpendicular to the centre line of the tube up to the values shown in table 2, gradually and maintain this torque.
c. Apply an air pressure of 300 ± 10 kPa and maintain this pressure.
d. Immerse the test pieces for a period of 900 ± 30 seconds and check whether the fitting under test shows any leakage.

6.4 Determination of the strength

6.4.1 Test installation

For the determination of the strength, the test pieces shall be installed in a test installation, conform EN 1254-2 article 5.4.1, in which the strength can be determined at ambient temperature by fastening the nut.

6.4.2 Test samples

For the determination of strength 3 test pieces are needed which were already tested on water tightness (EN 1254-2, article 5.4).

6.4.3 Procedure

a. determine the water tightness according to EN 1254-2, article 5.4;
b. fasten the nuts for another 180°;
c. determine the water tightness again according to a.

6.5 Determination of durability

6.5.1 Test installation

For the determination of the durability, the test pieces shall be installed in a test installation, in which the torque needed to fasten the nuts can be measured and in which the tightness at ambient temperature can be measured.

6.5.2 Test samples

Three fittings already tested to article 6.2.

6.5.3 Procedure

a. determine the force needed to mount the fittings conform the instructions of the manufacturer.
b. dismount the connection.
c. mount the fitting once again with the force as determined at point a.
d. repeat point b. and c. 25 times.

e. determine the water tightness again according to 6.2.3. point a and b.

6.6 Determination of water tightness of the joints under fluctuating temperatures

6.6.1 Test installation

For this test an installation is needed as shown in Figure 2, as well as facilities for alternate pumping of cold and hot water under pressure through the test pipe system.

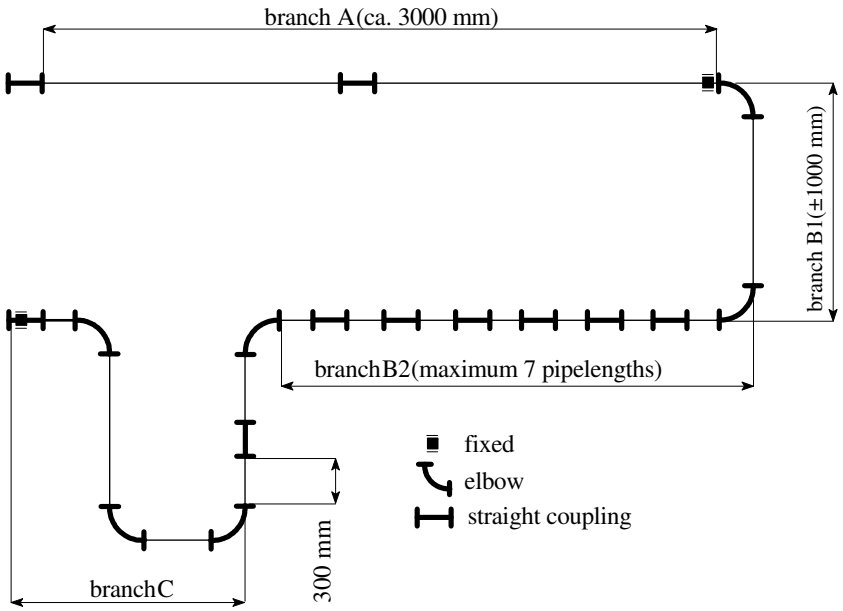

Figure 2

6.6.2 Test setup

In branch A the pipe section shall be pre-tensioned with an axial wall stress of 2N/mm² over a length of 3000 mm and anchored. Branch B shall be free to expand and to contract. Branch B2 shall consist at least of 2 pipe lengths and a maximum of 7 pipe lengths. The bends in branch C shall be elbow fittings.

6.6.3 Test conditions

- temperature cold water: 20 ± 5°C,
- temperature hot water: 93 ± 2°C,
- test pressure: (1000 ± 50) kPa,
- flow rate: such that the measured temperature drop between the inlet and outlet of the test arrangement does not exceed 5°C.

6.6.4 Procedure

Carry out in a continuous process 5000 cycles, in which 1 cycle contains flowing the system with cold water for 15 ± 1 minutes followed by flowing with hot water for the same period.

7 Quality system requirements

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 must have been appointed who is in charge of managing the supplier's quality system.

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 have been demonstrably recorded in this IQC scheme:

- what aspects are checked by the producer;
- 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 included in the addendum.

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 EN1254	Tests within the scope of		
		Pre-certification	Supervision by Kiwa after granting of certificate[1)]	
			inspection[2)]	frequency (no./year)
Product requirements				
Requirements EN1254-2	4.2	X	X	2
Dimensions and tolerances	4.3	X	X	2
Design and manufacture	4.4	X	X	2
Production test requirements	4.5	X	X	2
Type test requirements	4.6	X	X	2
Marking	7	X	X	2
Requirements EN1254-4				
Screwed union connections	4.2	X	X	2
Thread dimensions	4.3	X	X	2
Tightening systems	4.4	X	X	2
Minimum wall thickness	4.5	X	X	2
Minimum bore for unequal-ended fittings	4.6	X	X	2
Minimum outside diameter of sealing face	4.7	X	X	2
Flange-type fitting	4.8	X	X	2
Requirements EN1254-4 C/1		X	X	2

Description of requirement	Article BRL	Tests within the scope of		
		Pre-certification	Supervision by Kiwa after granting of certificate[1)]	
			inspection[2)]	frequency (no./year)
Additional product requirements				
Toxicological requirements	4.3.1	X	X	1
Chemical and mechanical requirements		X	X	1
Adapter fitting	4.3.2	X	X	2

Description of requirement	Article BRL	Tests within the scope of		
		Pre-certification	Supervision by Kiwa after granting of certificate[1)]	
			inspection[2)]	frequency (no./year)
Nominal diameters	4.3.3	X	X	2
Width across flats	4.3.4	X	X	2
Reducers	4.3.5	X	X	2
Angles	4.3.6	X	X	2
Water tightness	4.3.7	X	X	2
Resistance to pull-out	4.3.8	X	X	2
Resistance against water with a temperature of 90°C	4.3.9	X	X	2
Airtightness	4.3.10	X	X	2
Resistance against torsion	4.3.11	X	X	2
Strength	4.3.12	X	X	2
Durability	4.3.13	X	X	2
Water tightness of the joints under fluctuating temperatures	4.3.14	X	X	2
Certification mark				
Certification mark	5.1	X	X	2

[1)] In case of significant changes of the product or production process, compliance of the product to the performance requirements shall be determined

[2)] 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
Education - general	• Technical higher-level professional education • Internal training certification and Kiwa policy • Training auditing	• Intermediate-level professional education • Internal training certification and Kiwa policy • Training auditing	• Higher level professional education • Internal training certification and Kiwa policy • Training auditing
Education - specific	• for BRL relevant technical education • specific studies and training (know-how and skills)	• for BRL relevant technical education • specific studies and training (know-how and skills)	• not applicable unless specific requirements have been specified by the BoE
Experience - general	• 1 year of relevant work experience with at least 4 pre certification tests of which one carried out independent under supervision.	• 1 year of relevant work experience with at least 4 inspections of which one carried out independent under supervision	• 4 year of relevant work experience with at least 1 year in certification

EN45011	Certification Expert	Inspector	Decision maker
Experience - specific	• Detailed knowledge of the BRL and 4 certification tests carried out on the basis of the BRL or one related.	• Detailed knowledge of the BRL and 4 inspections carried out on the basis of the BRL or one related.	• general knowledge of the BRL

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 be 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 Bibliography

Number	Title
EN 1254-2 February 1998	Copper and copper alloys - Plumbing fittings - Part 2: Fittings with compression ends for the use with copper tubes
EN 1254-4 March 1998	Copper and copper alloys – Plumbing fittings – Part 4: Fittings combining other end connections with capillary or compression ends
EN 1254-4 C/1 August 1991	Copper and copper alloys – Plumbing fittings – Part 4: Fittings combining other end connections with capillary or compression ends
ISO 272	Fasteners; Hexagon products, widths across flats, second edition
ISO 1338	Cast copper alloys
ISO 6957	Copper alloys - Ammonia test for stress corrosion resistance
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 45011	General requirements for the competence of testing and calibration laboratories
EN 248	Sanitary tapware - General specification for electrodeposited coatings of Ni-Cr
NEN 1006	General requirements for water supply installations
BRL-K 760	Copper pipes for transport of hot and cold drinking water

I Model certificate

Certificate

Product certificate
KXXXXXX/0X

kiwa
Partner for progress

Issued

Replaces

Page 1 of 2

Name 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 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"", dated 20xx-xx-xx.

Bouke Meekma
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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Supplier

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

II Model IQC-scheme

Subjects	Aspects	Method	Frequency	Registration
Raw materials or materials supplied: • Recipe sheets • Incoming inspection raw materials	material dimensions appearance supplier			
Production process, production equipment, material: • procedures • work instructions • equipment • release of product • machining • assembly	temperature material composition appearance holes and cavities in cast capillary hole shape screw thread correct parts watertightness			
Finished-products • marking • surface	finish (smooth) correctness (version and place) carbon			
Measuring and testing equipment • measuring equipment • calibration	certificates (internal/external) Validity Inspection registration			
Logistics	damages packaging stack height traceability			