

AR 5
July 2025

Approval requirement 5

Copper tubes



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Progress**

Foreword

This approval requirement (AR) is approved by the Board of Experts (BoE) GASTEC QA, in which relevant parties in the field of gas related products are represented. This Board of Experts supervises the certification activities and where necessary require the GASTEC QA approval requirement to be revised. All references to Board of Experts in this GASTEC QA approval requirement pertain to the above-mentioned Board of Experts.

This AR will be used by Kiwa Nederland BV in conjunction with the GASTEC QA general requirements and the KIWA regulations for certification.

In this AR is established which requirements a product and the requestor/ certificate holder of the GASTEC QA product certificate should meet and the matter to which Kiwa evaluates this.

Kiwa has a method which is established in the certification procedure for the execution of:

- The investigation for provisioning and maintaining a GASTEC QA product certificate based on this AR.
- The periodic evaluations of the certified products for the purpose of maintaining a provided GASTEC QA product certificate based on this AR.

Approved by the Board of Experts: 04/07/2025

Accepted by Kiwa Nederland B.V.: 11/07/2025

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

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1 Introduction

1.1 General

This GASTEC QA approval requirement (AR) in combination with the GASTEC QA general requirements, is applied by Kiwa as the basis for the issuing and maintaining the GASTEC QA product certificate for copper tubes.

With this product certificate, the certificate holder can demonstrate to his or her customers that an expert independent organization monitors the production process of the certificate holder, the quality of the product and the related quality assurance.

Next to the requirements established in this AR and the general requirements, Kiwa has additional requirements in the sense of general procedural requirements for certification, as laid down in the internal certification procedures.

This GASTEC QA approval requirement replaces the version of September 2019.

List of changes:

- These approval requirements have been fully reviewed textually.
- The requirements for resistance to high temperatures has been removed.
- Change of several paragraph numbers.
- Update of list of referenced documents.

The product requirements have not changed.

1.2 Scope

This approval requirement specifies the requirements for copper tubes. The intended use is transport for 2nd and 3rd family gases in accordance with EN 437 with a maximum operating pressure of 1 bar.

The copper tube can be supplied with or without an external covering for protection of the tube surface and/or as thermal insulation finish coat.

2 Definitions

In this approval requirement, the following terms and definitions are applicable:

Board of Experts (BoE): The Board of Experts GASTEC QA.

Maximum operating pressure (MOP): Maximum pressure that a component is capable of withstanding continuously in service under normal operating conditions.

See also the definitions mentioned in the GASTEC QA general requirements.

3 Material and product requirements

This chapter contains the material and product requirements that the raw materials, materials and products used shall meet.

3.1 General

The copper tubes shall comply with the requirements specified in EN 1057: 2006 + A1: 2010.

3.2 Wall thickness

Contrary to EN 1057, the nominal wall thickness of the copper tube shall be according to table 1.

Nominal outside diameter d (mm)	Nominal wall thickness e (mm)					
	1.0	1.1	1.2	1.5	2	2.5
10	X					
12	X					
15	X					
18	X					
22	X	X	X	X		
28	X*		X	X		
35			X	X		
42			X	X		
54			X	X	X	
64					X	
76,1					X	
88,9					X	
108						X

Table 1

** This diameter and wall thickness only allowed to be used after consulting the relevant guidelines based on the point of installation (before and after the gas meter).*

3.3 Requirements for copper tubes with external covering

For copper tubes with external covering, the external covering shall comply with the requirements specified in evaluation guideline BRL-K761.

4 Marking

4.1 Marking

In addition to article 12 of EN 1057 the copper tube shall be durably marked with:

- GASTEC QA, GASTEC QA punch mark or logo;
- Type of covering (if applicable)

5 Quality system requirements

The requirements for the quality system are described in the GASTEC QA general requirements. An important part of this are the requirements for drawing up a risk analysis (e.g., an FMEA) of the product design and the production process in accordance with chapters 3.1.1.1 and 3.1.2.1. This risk analysis shall be available for inspection by Kiwa.

6 Summary of tests

This chapter contains a summary of tests to be carried out during:

- The initial product assessment;
- The periodic product verification;

6.1 Evaluation matrix copper tubes

Description of requirement	Clause EN 1057	Test within the scope of		
		Initial product assessment	Product verification	Frequency
Composition	7.1	X	X	1x/ year
Mechanical properties	7.2	X	X	1x/ year
Dimensions and tolerances	7.3	X	X	1x/ year
Freedom from defects	7.4	X	X	1x/ year
Surface quality	7.5	X	X	1x/ year
Bending	7.6	X	X	1x/ year
Drift expanding	7.7	X	X	1x/ year
Flanging	7.8	X	X	1x/ year
Additional GASTEC QA requirements				
Wall thickness	3.2	X	X	1x/ year
Marking	4.1	X	X	1x/ year

6.2 Evaluation matrix for external covering of copper tubes

Description of requirement	Clause BRL K761	Test within the scope of		
		Initial product assessment	Product verification	Frequency
Material	2.3.2.1	X	X	once a year
Appearance	2.3.2.2	X	X	once a year
Fit	2.3.2.3	X	X	once a year
Thickness	2.3.2.4	X	X	once a year
Vulnerability	2.3.2.5	X		
Processability	2.3.2.6	X		
Thermal insulation	2.3.2.7	Optional		
Marking	2.3.3	X	X	once a year
Additional requirements for PVC Covering				
Aging	3.2.1	X		
Loss of plasticizer	3.2.2	X	X	once a year
Cold bend test	3.2.3	X	X	once a year
Additional requirements for PE Covering				
Melt flow index after ageing	4.2.1	X	X	once a year
Elongation at break	4.2.2	X	X	once a year
Cold bend test	4.2.3	X	X	once a year
Additional requirements for covering made from hard polyurethane foam surrounded by another cover of non-plasticized PVC				
Dimensional stability of the PU-foam	5.2.1	X	X	Once a year

7 List of referenced documents and source

7.1 Standards / normative documents

All normative references in this approval requirement refer to the editions of the standards as mentioned in the list below.

EN 1057: 2006 + A1: 2010	Copper and copper alloys – seamless, round copper tubes for water and gas in sanitary and heating application
BRL K761	Copper tubes provided with an external covering

7.2 Source of informative documents

EN 437: 2021	Test gases- test pressure – appliance categories
General requirements GASTEC QA	