

AR 15  
May 2024

# Approval requirement 15

Steel pipes for welding or threading



Trust  
Quality  
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:      Month date, year

Accepted by Kiwa Nederland B.V.:      Month date, year

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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

# Contents

	<b>Foreword</b>	<b>1</b>
	<b>Contents</b>	<b>2</b>
<b>1</b>	<b>Introduction</b>	<b>3</b>
1.1	General	3
1.2	Scope	3
<b>2</b>	<b>Definitions</b>	<b>4</b>
<b>3</b>	<b>Material and product requirements</b>	<b>5</b>
3.1	General	5
3.2	Wall thickness and threaded ends	5
<b>4</b>	<b>Performance requirements and test methods</b>	<b>6</b>
4.1	Resistance to high temperature	6
4.1.1	Test method	6
<b>5</b>	<b>Marking</b>	<b>7</b>
5.1	Marking	7
<b>6</b>	<b>Quality system requirements</b>	<b>8</b>
<b>7</b>	<b>Summary of tests</b>	<b>9</b>
7.1	Test matrix	9
<b>8</b>	<b>List of referenced documents</b>	<b>10</b>
8.1	Standards / normative documents	10
8.2	Source of informative documents	10

# 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 steel pipes for welding or threading.

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.
- Change of paragraphs
- List of definitions extended
- Update of list of referenced documents.

The product requirements have not changed.

## 1.2 Scope

This approval requirement specifies the requirements for steel pipes for welding and treading. The steel pipes are used for the transport of gaseous fuels in accordance with the 2<sup>nd</sup> and 3<sup>rd</sup> family as per EN 437. These pipes shall be manufactured by a seamless or longitudinally welded process provided with sockets, threaded ends or with plain ends.

## 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.

**Natural gas:** 2<sup>nd</sup> family gas in accordance with EN 437.

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

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## 3 Material and product requirements

This chapter contains the requirements for the properties of the raw materials, materials and semi-products used during the production of the products to be certified under this AR (e.g., support bushes).

### 3.1 General

The products shall comply with EN 10255 with the following addition.

### 3.2 Wall thickness and threaded ends

The pipes shall have a wall thickness as specified in EN 10255, table 2: heavy series H or medium series M.

The pipes shall have threaded ends in accordance with EN 10226-1 and the maximum allowed thread size is 2".

## 4 Performance requirements and test methods

In addition to the requirements of EN 10255, the products shall also comply with the following requirement.

### 4.1 Resistance to high temperature

The steel pipes (including protection/isolation) shall be resistant to a radiation heat of 10 kW/m<sup>2</sup> for 30 minutes. The leakage shall be ≤ 5 liters per hour after testing.

#### 4.1.1 Test method

The test shall be performed at a temperature of 20 ° ± 5 °C. The test samples shall be conditioned at least 24h before testing at a temperature of 20 ± 5 °C and a relative humidity of 60 ± 20 %.

The test is performed in a horizontally test equipment as shown in figure 1. The leakage shall be measured in accordance with Annex A of EN 1775:2007.

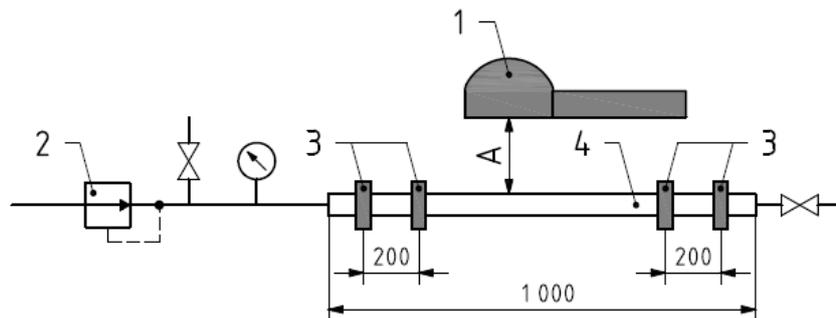


Figure 1

Legend:

1 heat cup

2 measuring system as described in appendix A of NEN-EN 1775:2007

3 mounting brackets

4 to be tested sample

A distance between heat cup and surface of the assembled component (for example the outside of a casing)

The test sample shall be mounted in the test equipment without stress or tension on the test sample, see figure 1.

Before the start of the high temperature test, the sample is tested on leakage at 200 mbar for 5 minutes. Record the leakage value (l/h).

Expose the test sample for 30 minutes to a heat radiation of 10 kW/m<sup>2</sup>. The distance between the heating cup and the sample shall be calculated with the data on the calibration file of the heating cup.

Determine the leakage after the high temperature test during 5 minutes at 200 mbar. Record the value (l/h).

# 5 Marking

## 5.1 Marking

The pipes shall be marked in accordance with EN 10255 with the following addition:

- GASTEC QA word mark, logo, or punch mark.

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## 6 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 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.

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# 7 Summary of tests

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

- The initial product assessment
- The periodic product verification

## 7.1 Test matrix

Description of requirement	Clause EN 10255	Test within the scope of		
		Initial product assessment	Product verification	
			Inspection	Frequency
Manufacturing process	6	X		
Delivery conditions	7	X		
Chemical composition	8.2	X	X	1x/ year
Appearance	8.3	X	X	1x/ year
Dimensions, masses, and tolerances	8.4	X	X	1x/ year
Leak tightness	8.5	X		
Dangerous substances	8.6	X		
Reaction to fire	8.7	X		
Tensile strength and elongation test	9.3	X	X	1x/year
Bending test	9.4	X		
Flattening test (deformability)	9.5	X		
Marking	10	X	X	1x/ year
<b>Additional GASTEC QA requirements:</b>				
General	3.1	X	X	1x/ year
Wall thickness and threaded ends	3.2	X	X	1x/ year
Resistance to high temperatures	4.1	X	X	1x/ year
Marking	5	X	X	1x/ year

Product verification tests will be assessed by the auditor at the manufacturer's location. The product verification tests depend on the options as specified in the EN 10255.

# 8 List of referenced documents

## 8.1 Standards / normative documents

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

EN 10255: 2004 + A1: 2007	Non-alloy steel tubes suitable for welding and threading – technical delivery conditions.
EN 10226-1: 2004	Pipe threads where pressure tight joints are male on the treads – Part 1 taper external threads and parallel internal threads.
EN 1775: 2007	Gas supply - Gas pipework for buildings - Maximum operating pressure less than or equal to 5 bar - Functional recommendations.

## 8.2 Source of informative documents

EN 437: 2021	Test gases- test pressure – appliance categories.
NEN 1078: 2024	Supply for gas with an operating pressure up to and including 500 mbar - Performance requirements - new estate.
General requirements GASTEC QA	