

AR 136

January 2024

# Approval requirement 136

Plastics piping systems for the supply of gaseous fuels -  
Polyethylene (PE): Valves



Trust  
Quality  
Progress

# Foreword

This GASTEC QA approval requirement has been approved by the Board of Experts product certification 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 GASTEC QA approval requirement will be used by Kiwa Nederland BV in conjunction with the GASTEC QA general requirements and the KIWA regulations for product certification.

Approved by Board of Experts: January 25<sup>th</sup>, 2024.

Accepted by Kiwa Nederland B.V.: January 26<sup>th</sup>, 2024.

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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 Nederland B.V. 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 include all relevant requirements, which are adhered by Kiwa as the basis for the issue and maintenance of a GASTEC QA certificate for polyethylene valves for plastic piping systems for the supply of gaseous fuels.

This GASTEC QA approval requirements replaces the GASTEC QA approval requirements 136, polyethylene valves for plastic piping systems for the supply of gaseous fuels, dated February 2019.

List of changes:

- Textual updates have been made.
- Specification of the scope in line with EN 1555-4

The product requirements have not been changed.

## 1.2 Scope

This approval requirement specifies the requirements for polyethylene (PE) valves intended for use in plastic piping systems for the supply of gaseous fuels of the 2<sup>nd</sup> and 3<sup>rd</sup> family according to EN 437 with a maximum operating pressure (MOP) up to and including 10 bar and an operating temperature of 20 °C as reference temperature.

## 2 Definitions

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

**Board of Experts:** 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.

**Operating temperature:** Temperature or temperature range for which the product is designed to operate.

# 3 Product requirements

## 3.1 General

The product shall comply with the requirements as specified in EN 1555-4: "Plastics piping systems for the supply of gaseous fuels – Polyethylene (PE) – Part 4: Valves".

In addition to these requirements the below mentioned requirements shall be met.

## 3.2 Elastomers

Contrary to EN 1555-4 subclause 5.2.3, elastomeric sealing components shall conform to the requirements of EN 682, type GAL or GBL.

## 3.3 Mechanical fittings

In addition to EN 1555-4 subclause 6.3.3, the valves may be provided with mechanical fittings as described in GASTEC QA approval requirement 70.

## 4 Marking and instructions

### 4.1 Marking

Additional to the marking as required according to EN 1555-4, clause 12, the valves shall be durably marked with the GASTEC QA word mark or logo.

### 4.2 Instructions

Additional to EN 1555-4, clause 11, the supplier shall provide instructions in the Dutch language and shall contain information about:

- The use and installation of the product.
- The conditions under which it shall be used.
- How it can be determined if the product is correctly installed.
- The way the product shall be stored.

## 5 Quality system requirements

The supplier shall make a risk assessment of the product and production process according to chapter 3.1.1.1 and 3.1.2.1 of the GASTEC QA general requirements. The risk assessments shall be available to Kiwa for review.



## 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 Test matrix

Description of requirement	Clause (EN 1555-4)	Test within the scope of		
		Initial product assessment	Product verification	
			verification	Frequency
<b>Material</b>	5 (including all sub clauses)	X		
Elastomers	AR 136: 3.2	X		
<b>General Characteristics</b>				
Appearance	6.1	X	X	1x/ 2 years
Colour	6.2	X	X	1x/ 2 years
Design – General	6.3.1	X		
Design – Valve body	6.3.2	X		
Design – Valve ends	6.3.3 + AR 136: 3.3			
Design – Operating device	6.3.4	X		
Design – Seals	6.3.5	X		
<b>Geometrical Characteristics</b>				
General	7.1	X	X	1x/ 2 years
Measurement of dimensions	7.2	X	X	1x/ 2 years
Dimensions of spigot ends	7.3	X	X	1x/ 2 years
Dimensions of electro fusion sockets	7.4	X	X	1x/ 2 years
Dimensions of the operating device	7.5	X	X	1x/ 2 years

<b>Mechanical Characteristics</b>				
General	8.1	X		
Hydrostatic strength – 20°C, 100h	8.2	X		
Hydrostatic strength – 80°C, 165h	8.2	X		
Hydrostatic strength – 80°C, 1000h	8.2	X	X	1x/ 2 years
Resistance to slow crack growth (SHT) – PE 100 RC	8.2	X	X	1x/ 2 years
Leak tightness of seat and packing – 25 mbar	8.2	X		
Leak tightness of seat and packing – 1.5 MOP	8.2	X		
Operating torque	8.2	X		
Stop resistance	8.2	X	X	1x/ 2 years
Actuation mechanism resistance	8.2	X	X	1x/ 2 years
Resistance to bending between supports	8.2	X	X	1x/ 2 years
Thermal cycling resistance – DN > 63 mm	8.2	X	X	1x/ 2 years
Leak tightness under bending with thermal cycling - DN ≤ 63 mm	8.2	X	X	1x/ 2 years
Leak tightness under tensile loading	8.2	X	X	1x/ 2 years
Leak tightness under and after bending the operating mechanism	8.2	X		
Impact loading resistance	8.2	X	X	1x/ 2 years
Multiple test 1. Resistance to long-term internal pressure 2.&3. Leak tightness of seat(s) and packing 4. Operating torque 5. Impact loading resistance	8.2	X		
Pressure drop	8.2.2	X		
<b>Physical Characteristics</b>				
Oxidation induction time (OIT)	9.2	X		
Melt mass-flow rate (MFR)	9.2	X		
<b>Performance requirements</b>				
Fitness for purpose	10 + AR 136: 3.3	X		
Technical documentation	11 + AR 136: 4.2	X		
<b>Marking &amp; instructions</b>				
Marking	12 + AR 136: 4.1	X	X	1x/ 2 years
Instructions	4.2	X		
<b>Delivery conditions</b>				
Delivery conditions	13	X		

# 7 Source reference

## 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 1555-4: 2021

Plastic piping systems for the supply of gaseous fuels  
– Polyethylene (PE) – part 4: valves

## 7.2 Standards / informative documents

EN 437: 2021

Test gases- test pressure – appliance categories

EN 682: 2002 + A1: 2005

Elastomeric seals - Materials requirements for seals  
used in pipes and fittings carrying gas and  
hydrocarbon fluids

General requirements GASTEC QA