

AR 11

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version

Approval requirement 11

Gas pressure regulators, gas leak protectors and
combination regulators



**Trust
Quality
Progress**

Foreword

This GASTEC QA approval requirement (Dutch version) 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 (Dutch version) will be used by Kiwa Nederland BV in conjunction with the GASTEC QA general requirements and the KIWA regulations for certification.

This approval requirement is a translation from the Dutch validated version and can only be used as a supporting document.

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1 Introduction

1.1 General

These GASTEC QA Approval Requirements in combination with GASTEC QA general requirements are used by Kiwa as the basis for the issue and maintenance of the GASTEC QA product certificate for gas pressure regulators, gas leak protectors and gas pressure regulators combined with gas leak protectors for domestic installations.

This GASTEC QA Approval requirements replace the GASTEC QA Approval Requirements 11 dated November 2013 and 88 dated November 2013.

List of changes:

- Update to the new format for GASTEC QA approval requirements
- These approval requirements have been fully reviewed textually.
- All general requirements have been deleted and included in the GASTEC QA general requirements document

The following changes apply:

| Section | Change |
|---------|---|
| 2 | Definitions deleted |
| 3.1.2 | Requirement added for determining life |
| 3.1.6.1 | Requirement added for construction |
| 4.1.1 | Stress corrosion to be determined based on ISO 6957 |

1.2 Scope

The products are intended to be used as gas pressure regulators, gas leak protectors and gas pressure regulators combined with gas leak protectors for domestic installations with a capacity up to 10 m³ and an inlet pressure (MOPu) up to 200 mbar at ambient temperatures comprised between -20°C and 50°C.

These Approval Requirements does not apply to gas pressure regulators with built-in safety against excessive outlet pressure.

2 Definitions

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

Board of Experts: The Board of Experts Gastec QA.

3 Product requirements

3.1 General

Gas pressure regulators, gas leak protector and gas pressure regulators combined with gas leak protectors for domestic installations must comply with the product requirements described by NEN 7239 "Gas pressure regulators, gas leak protectors and gas pressure regulators combined with gas leak protectors for domestic installations with a capacity up to 0 m³ and an inlet pressure (MOP_U) up to 200 mbar" with the following additions and deviations.

3.1.1 **Material characteristics (NEN 7239, 4.1)**

An insulation union coupling shall meet Approval Requirements 154.

3.1.2 **Durability (NEN 7239, 4.2)**

These requirements are met when complying with requirements of NEN 7239, 6.8. Contrary to NEN 7239, 8.8.1, the number of cycles shall be 40.000 at -20 °C and 40.000 at 50 °C.

3.1.3 **Corrosion resistance (NEN 7239, 4.3)**

The manufacturer shall declare in writing that all parts in contact with ambient air are made of corrosion-resistant material or are duly protected against corrosion

3.1.4 **Porosity (NEN 7239, 4.4)**

The manufacturer shall declare in writing that eventual porosity or cracks in gas-carrying parts of gas pressure regulators, gas leak protector and gas pressure regulators combined with gas leak protectors for domestic installations, may not lead to gas leaks or technical failures.

3.1.5 **Rubber parts (NEN 7239, 4.5)**

Rubber parts shall comply with the requirements described in EN 549, minimum class A2 or EN 682, type GBL or GAL. See NPR 7028 for the dimensions of rubber gaskets in gas meters and connections.

Note: The requirement for external density is described in section 6.3 of NEN 7239 and is not seen as a product requirement for rubber material.

3.1.6 **Requirements for the construction (NEN 7239, 5.1)**

3.1.6.1 *(NEN 7237, 5.1.1 up to and including 5.1.5)*

This requirement is met when the requirements of NEN 7239, paragraph 6.8 up to and including 6.12 are met.

3.1.7 **Adjustable packings**

Adjustable gaskets for connections between moving parts are not allowed.

3.1.8 **General connection possibilities (NEN 7239, 5.2.1)**

If an insulation union coupling is used to make a non-electric conduction, this insulation union coupling shall meet the requirements of Approval Requirements 154.

4 Test methods

4.1 General

Gas pressure regulators, gas leak protectors and gas pressure regulators combined with gas leak protectors for domestic installations must be tested according the test method described in NEN 7239 “as pressure regulators, gas leak protectors and gas pressure regulators combined with gas leak protectors for domestic installations with a capacity up to 10 m³ and an inlet pressure (MOP_u) up to 200 mbar” with the following additions and deviations.

4.1.1 *Stresscorrosion in copper alloys (NEN 7239, 8.10.1)*

Contrary to NEN 7239, the ammonia test according to ISO 6957 shall be carried out with a pH of 9.5 in order to determine the corrosion resistance of copper alloys.

5 Marking

5.1 Marking

Additionally, to the marking as described in NEN 7239 the gas pressure regulators, gas leak protectors and combination regulators shall be marked with:

- The GASTEC QA logo, word or trademark.
- Flow in m³/h natural gas

6 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.

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 (NEN 7239) | Test within the scope of | | |
|---|--------------------|----------------------------|--------------------------------------|-----------|
| | | Initial product assessment | Product verification Verification | Frequency |
| Material | | | | |
| Material characteristics | 4.1 (KE11 3.1.1) | X | | |
| Durability | 4.2 (KE11 3.1.2) | X | | |
| Corrosion resistance | 4.3 (KE11 3.1.3) | X | | |
| Porosity | 4.4 (KE11 3.1.4) | X | | |
| Rubber parts | 4.5 (KE11 3.1.5) | X | X | 1x / year |
| Requirements for the construction | | | | |
| Implementation | 5.1 (KE11 3.1.6) | X | | |
| Connection options | 5.2 | | | |
| General | 5.2.1 (KE11 3.1.7) | X | | |
| Threaded connection | 5.2.2 | X | X | 1x / year |
| Gas meter coupling | 5.2.3 | X | X | 1x / year |
| Flange connection | 5.2.4 | X | X | 1x / year |
| Functional operation | | | | |
| Mounting position | 6.2 | | | |
| Gas tightness | 6.3 | | | |
| External gas tightness | 6.3.1 | X | X | 1x / year |
| Internal gas tightness | 6.3.2 | X | X | 1x / year |
| Pressure control | 6.4 | | | |
| Control behavior with evenly changing flow rate | 6.4.1 | X | X | 1x / year |
| Control behavior with suddenly changing flow rate | 6.4.2 | | | |
| Closing pressure | 6.4.2.1 | X | X | 1x / year |
| Increasing flow | 6.4.2.2 | X | X | 1x / year |
| Gas leak protection | 6.5 | | | |
| Addressing pressure | 6.5.1 | X | X | 1x / year |
| Closed position | 6.5.2 | X | X | 1x / year |
| Breakdown pressure | 6.5.3 | X | X | 1x / year |
| Gas pressure loss | 6.5.4 | X | X | 1x / year |
| Silence and vibration | 6.6 (KE11 4.1.1) | X | X | 1x / year |
| Mechanical strength | 6.7 | | | |
| Resistance against bending and torsion | 6.7.1 | X | X | 1x / year |
| Resistance against high pressure | 6.7.2 | X | X | 1x / year |
| Durability | 6.8 | | | |
| Domestic gas pressure regulators and combined regulator | 6.8.1 | X | | |
| Gas leak protection | 6.8.2 | X | | |
| Resistance against the effects of gas | 6.9 | X | | |
| Resistance against chemical influences | 6.10 | X | | |
| Sustainability of marks | 6.11 | X | | |
| Resistance to moisture | 6.12 | X | | |
| Recognizability, assembly and operating instructions | 7 | | | |
| Marking | 7.1 (KE11 6.1) | X | X | 1x / year |
| Assembly and installation instructions | 7.2 | X | | |

8 List of referenced documents and source

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 437: 2003+A1: 2009 | Test gases- test pressure – appliance categories |
| EN 549:1995 | Rubber materials for seals and diaphragms for gas appliances and gas equipment |
| NEN 7239:2018 | Gas pressure regulators, gas leak protectors and gas pressure regulators combined with gas leak protectors for domestic installations with a capacity up to 10 m ³ and an inlet pressure (MOPu) up to 200 mbar |
| ISO 6957:1988 | Copper alloys – Ammonia test for stress corrosion resistance |