

**Guidance on the Periodic Testing
of Transportable Gas Cylinders
used in Fire Fighting Systems**

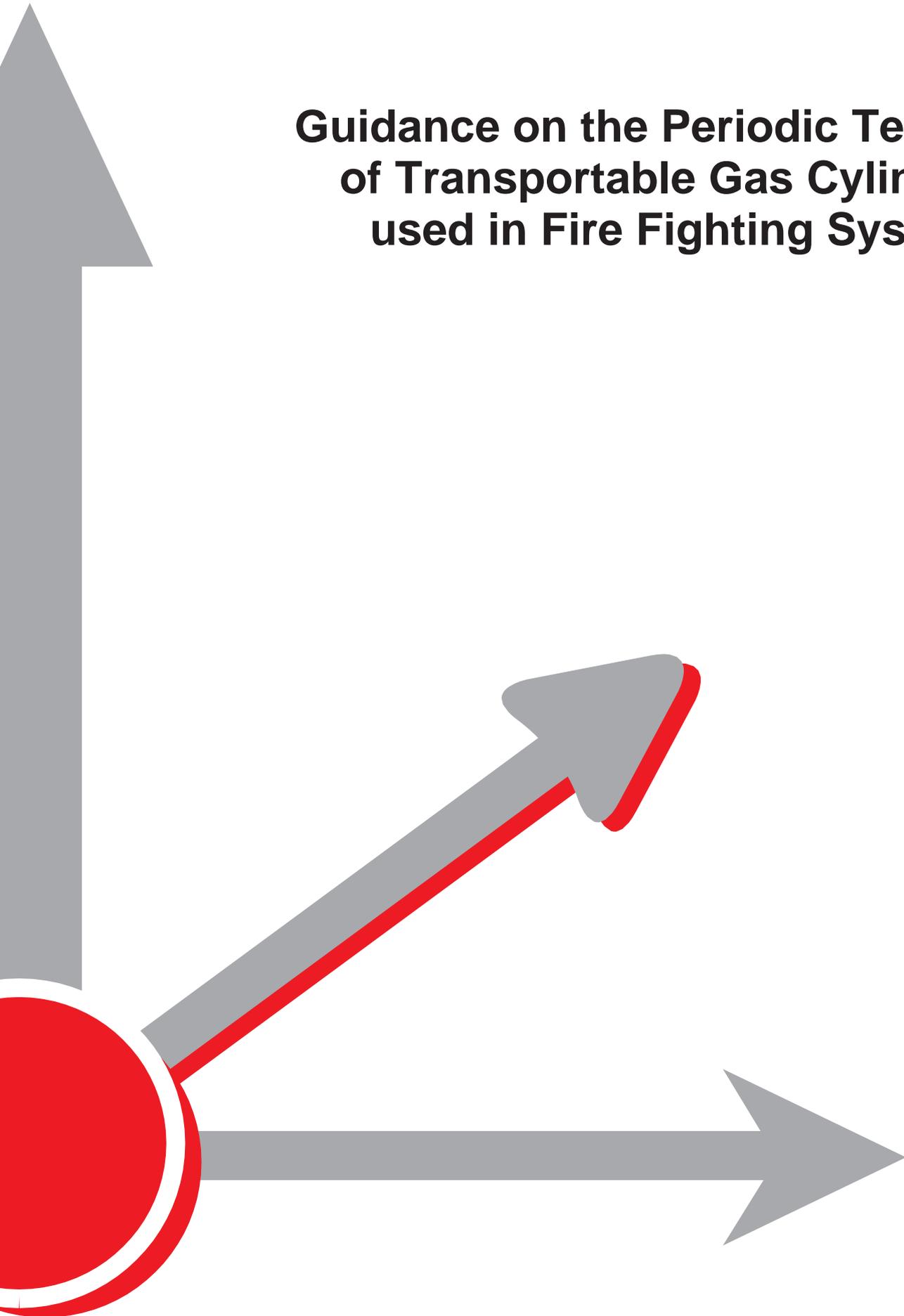


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Foreword

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Changes revision table			
Date	Rev #	Paragraph / Page	Change
June 2020	V1.0	-	First release

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Note: The English version of this document is the approved Euralarm reference document.

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Euralarm • Gubelstrasse 11 • CH-6300 Zug • Switzerland

E: secretariat@euralarm.org

W: www.euralarm.org

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Euralarm Guidance for the Fire Protection Industry

1. Background

Euralarm is aware that there are some areas involved in the performance of hydrostatic testing that can lead to serious safety issues. Transportable cylinders under the TPED and ADR are required to go through periodic testing for re-certification. This paper addresses the issues related to the importance of procedures related to periodic testing and subsequent refilling the cylinders.

2. Scope

This document is designed to provide guidance on the important aspects relating to the Periodic Inspection of cylinders used in fixed gaseous fire extinguishing systems and specifically in respect to hydrostatic testing. It is not intended to prescribe the full processes involved in the testing or the physical handling of the cylinders, but to identify some critical areas that are often not fully understood.

3. Periodic testing

EN 1968:2002, applicable to seamless steel gas cylinders, EN 1802:2002, applicable to seamless aluminium alloy gas cylinders, EN 1803:2002, applicable to welded carbon steel gas cylinders, state, in clause 3, that:

- Provided the cylinder has been subjected to normal conditions of use and has not been subjected to abusive and abnormal conditions rendering the cylinders unsafe, there is no general requirement for the user to return and gas cylinder before the contents have been used even though the test interval may have lapsed. However it is recommended that cylinders are retested within a period not exceeding twice the time interval.
- In the case of cylinders used for emergency purposes (e.g. fire extinguishers, breathing apparatus), it is the responsibility of the person in possession (owner or user) to submit it for periodic inspection within the interval specified in Annex B.

4. Moisture control

It is vitally important that once hydrostatic testing has been carried out, the cylinders are thoroughly dried prior to refilling. Failure to ensure that cylinders are thoroughly dried can result in stress corrosion cracking. A moisture content of maximum 12 PPM, and/ or a dew-point 20°C under the cylinder temperature marking (whatever is driest) will render moisture related corrosion impossible. A moisture content within the relevant part of EN 15004 may under no circumstances be exceeded.

The gas filling process must be controlled used to ensure the dryness of the gas and where applicable such as in the case of Inert Gas, mixtures are to be certified by GC analysis after filling, to secure correct gas composition.

5. Reuse of cylinder valves

For safety reasons cylinder valves should not be reused after removal from cylinders unless the following conditions are met:

- The valve has been refurbished in accordance with the manufacturer's recommendations.
- The connection thread to the cylinder and discharge hose are inspected to ensure they are within tolerance and undamaged.

Note : Cylinder valves using a taper thread form to marry to the cylinder are often found to be out of the tolerance after a single fitment and removal.

6. Recertification of cylinders

After the re-certification the cylinder shall be stamped with a new date, and marked with the “Notified Body Logo” XXXX YYYY-ZZ (4 digits “x” indicating the notified body number, 4 digits “y” indicating actual test year-2 digits “z” indicating the next periodic test. The actual Notified Bodies responsible for the re-certification can be found at the NANDO website:

http://ec.europa.eu/growth/tools-databases/nando/index.cfm?fuseaction=directive.notifiedbody&dir_id=141121.

The Notified Body is only involved in with the internal inspection, hydrostatic testing and immediate drying of the cylinder after testing.

7. Check list

The following check list covers the important steps to ensure that the safety of cylinder is maintained during periodic inspection processes and during the filling afterwards.

- a) As an absolute minimum always ensure that all relevant standards are followed, and their requirements are integrated in the processes, instructions and procedures covering this type of work.
- b) Only companies certificated to carry out testing are used.
- c) Do not re-use valves with tapered thread.
- d) Excessive use of PTFE must strictly be avoided. Do not exceed the specification of ISO 13341.
- e) Water used for hydraulic testing shall be maintained free of Chlorides, Ammonia and other contaminants with corrosive properties.
- f) Water must be removed prior to refilling and it must be established that a correct level of dryness exists prior to refilling.
- g) Where applicable GC sampling is carried out to ensure that the correct mix of Inert gas blends has been achieved after filling

8. References

- [SAFE USE OF GAS CYLINDERS , HEALTH AND SAFETY EXECUTIVE](#)
- [ADR 2019, UNECE](#)

Publication date: June 2020



Euralarm
Gubelstrasse 22
CH-6301 Zug (Switzerland)

Swiss Commercial Registration No: CHE-222.522.503

E secretariat@euralarm.org
W www.euralarm.org