

RG 3

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Accreditation for In-Service Inspection of Transportable Pressure Receptacles (TPRs)

Draft for consultation

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Changes since last edition

Revised to reflect updates to reference documents.

1. Introduction

- 1.1 This publication has been produced by the United Kingdom Accreditation Service (UKAS) in conjunction with the UKAS Technical Advisory Committee for Engineering Inspection. It provides guidance to those requirements in ISO/IEC 17020 that need interpretation when applied by inspection bodies carrying out in-service inspection of TPRs. It does not cover all of the requirements of ISO/IEC 17020 and inspection bodies are reminded of the need to comply with all of the requirements in this publication. Cross-reference is made to relevant clauses of ISO/IEC 17020. In cases of difference of interpretation, ISO/IEC 17020 (as applied by UKAS in accordance with ILAC P15) is the authoritative publication and UKAS, through the nominated member of the technical staff will, in the first instance, adjudicate on unresolved matters. Appeals concerning interpretation will be considered in accordance with the UKAS Appeals Procedure. Other UKAS publications are referred to where relevant.
- 1.2 Accreditation against the requirements of ISO/IEC 17020 and this document is intended to give confidence in the services provided by test stations who perform in-service inspections of TPRs such as those required to comply with The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 as amended.

For the purposes of this publication the term '*inspection body*' shall be taken to mean an accredited inspection body. Other requirements may apply to inspection bodies approved under the Carriage Regulations.

2. Scope - Inspection Services Covered by RG 3

- 2.1 This publication covers the accreditation of in-service inspection at test stations (which may form part of a larger facility) that undertake the periodic inspection, testing and maintenance of TPRs, including dissolved acetylene containers.
- 2.2 This document also covers the examination of other items, for example, cylinder valves, level/contents gauges, fusible plugs, and permanently attached fittings where these are included in the TPR periodic inspection standard but not items such as regulators or other equipment downstream of the valve.
- 2.3 The services provided by an inspection body accredited under this publication shall include: -
- a) Verification that the TPR and, where appropriate, its fittings/accessories comply with the requirements of the standards (or where applicable Regulations, DfT Approved Specifications and industry codes) for re-testing and/or refurbishment or modification;
 - b) Provision of an effective service for the detection of potential and actual defects in TPRs and, where appropriate, their fittings/accessories;
 - c) Reporting to the user or owner as appropriate the condition of the equipment under examination and to specify any necessary corrective or reject action;
 - d) Permanently stamping / marking the TPR in accordance with the relevant requirements where appropriate.
- 2.4 This document is not applicable to the inspection of (i) modifications, (ii) major repairs to TPRs involving hot work, and reassessment of conformity where separate statutory assessment and appointment arrangements apply.

3. Personnel (ISO/IEC 17020 Clause 6.1)

- 3.1 The Inspection Body shall be able to demonstrate that it has identified the competencies required to undertake the range of inspection activities covered by its scope of accreditation and that it has processes in place to train, assess and monitor staff against those competencies. UKAS RG 0 publication provides a framework for a competence management system for inspection bodies. The qualification categories in Appendix 1 of this publication may also be used to develop competence criteria for inspection and supervision of the inspection of TPR equipment.
- 3.2 The inspection body shall ensure that it only permits staff to carry out inspections of TPRs covered by this publication if the inspections are within the designated competence of the staff and with appropriate supervision according to RG 0 and guidance is also given in Appendix 1 Table 1.
- 3.3 The Inspection Body shall have sufficient number of permanent management personnel with suitable experience in the design, manufacture, inspection, operation or maintenance of transportable pressure receptacles, and have the technical knowledge to make professional judgements on the range of technical related problems likely to arise from the accredited scope of inspection.
- 3.4 Such personnel shall be knowledgeable in the: -
- a) design standards for TPRs;
 - b) effects of operating conditions on the mechanical integrity of TPRs including interactions with contents;
 - c) relevant legislative requirements and associated codes of practice; and
 - d) inspection techniques for TPRs.

4. Training (BS EN ISO/IEC 17020 Clause 6.1.3)

- 4.1 The training provided by the inspection body for the personnel shall provide a working knowledge (relevant to the role) of the following:
- a) Statutory requirements and the requirements of relevant Standards or other relevant documents;
 - b) Requirements relating to the safety of the inspector and others during the performance of the examination and in particular safe practices applicable to TPRs and relevant pressure systems;
 - c) TPRs including maintenance, operation, significance of defects and acceptability standards;
 - d) Test and inspection equipment and its use.

5. Facilities and Equipment (ISO/IEC 17020 Clause 6.2)

- 5.1 The inspection body shall possess or have defined access to suitable inspection, measurement and test equipment with appropriate manufacturers' manuals or equivalent documents.
- 5.2 Inspection, measurement and test equipment shall comply with the requirements of the relevant inspection standard where this is specified. Equipment that is used for the determination of results which are critical to the outcome of the inspection shall also comply with the requirements of ISO/IEC 17020 and ILAC P15 in respect of suitability, identification, maintenance, calibration status and traceability of calibration to national standards.
- 5.3 In addition to the results of visual examinations, pressure test parameters, dimensional measurements and NDT results, if applicable, are considered critical.

6. Inspection Reports and Certificates (ISO/IEC 17020 Clause 7.4)

- 6.1 Inspection reports, certificates and/or TPR markings shall conform to the relevant statutory requirements and the requirements of the relevant inspection standard. Subject to the requirements of the Carriage Regulations computer reporting systems are permissible. Records and/or markings shall identify the examiner(s) who performed the inspection(s) and/or test(s).

References

This appendix is not exhaustive but lists some of the main legislation, standards, specifications and trade association codes pertinent to this document.

EU Directives and Agreements

2010/35/EU Transportable Pressure Equipment Directive (TPED)

ADR European Agreement concerning the International Carriage of Dangerous Goods by Road, as revised or re-issued from time to time

RID Regulations concerning the International Carriage of Dangerous Goods by Rail

UK Legislation

Statutory Instrument 2011 No. 1885 *The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment (Amendment) Regulations 2011*

Competence Standards and Documents

ISO/IEC 17020:2012 *Conformity assessment - Requirements for the Operation of Various Types of Bodies Performing Inspection*

ILAC P15:07/2016 *Application of ISO/IEC 17020 for the Accreditation of Inspection Bodies*

ILAC P10:01/2013 *ILAC Policy on Traceability of Measurement Results*

ILAC G27:06/2017 *Guidance on measurements performed as part of an inspection process*

ISO 9712 *Non-destructive testing - Qualification and certification of NDT personnel*

EA-4/15 G *Accreditation for Non-Destructive Testing*

Standards and Specifications

BS EN 1440 *Transportable refillable welded steel cylinders for liquefied petroleum gas (LPG). Periodic requalification*

BS EN 1968 *Transportable gas cylinders. Periodic inspection and testing of seamless steel gas cylinders*

BS EN 1802 *Transportable gas cylinders. Periodic inspection and testing of seamless aluminium alloy gas cylinders*

BS EN 1803 *Transportable gas cylinders. Periodic inspection and testing of welded carbon steel gas cylinders*

BS EN ISO 11623 *Transportable gas cylinders. Periodic inspection and testing of composite gas cylinders*

BS EN 12863 *Transportable gas cylinders. Periodic inspection and maintenance of dissolved acetylene cylinders*

ISO 22434 *Transportable gas cylinders. Inspection and maintenance of cylinder valves*

ISO 6406 *Periodic inspection and testing of seamless steel gas cylinders*

ISO 10461 *Seamless aluminium-alloy gas cylinders - Periodic inspection and testing*

ISO 10462 *Cylinders for dissolved acetylene - Periodic inspection and maintenance*

ISO 11623 *Transportable gas cylinders - Periodic inspection and testing of composite gas cylinders*

Trade Association Codes

British Compressed Gases Association GN 6 *Avoidance and detection of internal corrosion of gas cylinders*

British Compressed Gases Association GN 8 *Catalogue of BCGA Members' cylinder test marks*

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Appendix 1 - Qualification Categories

- Category 1** Chartered Engineer as defined by Engineering Council or a person holding an appropriate degree with relevant experience (or equivalent e.g. NVQ Level V Engineering Surveying) including at least three years' experience within an engineering discipline associated with the in-service inspection of TPRs.
- Category 2** Incorporated Engineer as defined by Engineering Council or a person holding an appropriate HNC (or equivalent e.g. NVQ Level IV Surveying Engineer) including at least five years' experience within a relevant engineering discipline of which at least one year shall have been spent working within an engineering discipline associated with the in-service inspection of TPRs.
- Category 3** Person employed prior to the date of application for accreditation in the inspection of TPRs with less than Incorporated Engineer qualification but meeting the criteria of Category 4 below.
- Category 4 (a)** Engineering Technician as defined by Engineering Council or a person holding an appropriate ONC (or equivalent) having a minimum of five years' experience within a relevant discipline of which at least one year shall have been spent working within an engineering discipline associated with the in-service inspection of TPRs or,
- Category 4 (b)** person trained* in a relevant engineering discipline with a recognised and documented engineering apprenticeship with a minimum of five years' experience within a relevant discipline of which at least one year shall have been spent working within an engineering discipline associated with the in-service inspection of TPRs.
- Category 5** Person employed prior to the date of application for accreditation in the inspection of TPRs with less than tradesman's apprenticeship but with a minimum of five years** spent working with or within an industry associated with TPRs and having a general knowledge of TPRs and their operating environment. Personnel shall be placed on appropriate training courses with appropriate documented tests in TPR inspection. The minimum age for this Category is twenty-one years.
- Category 6** Person with a minimum of five years spent working with or within an industry associated with TPRs and having a general knowledge of that area and its operating environment. Such employees shall have satisfactorily completed an appropriate training course with appropriate and documented tests in TPR inspection. Where the cylinder test procedure is organised on a routine, repetitive and well-monitored basis then the five-year experience requirement may not be necessary. The minimum age for persons in this category shall be eighteen years.

* Persons in Categories 4(b), 5 and 6 shall pass a qualifying test, established by the inspection body if necessary, associated with the particular inspection activities relating to TPRs which should cover relevant knowledge of the law, inspection standards, relevant codes of practice and inspection techniques.

**For some routine, well-monitored activities this period may not be necessary.

Table 1 - Personnel Requirements

Requirements for qualifications, supervision and constraints on activity for TPR in-service inspections

Qualification Category 6	A minimum of five years spent working with or within the industry associated with TPRs and having a general knowledge of the area and its operating environment. Employees shall have satisfactorily completed an appropriate training course with appropriate and documented tests in the area. Where the cylinder test procedure is organised on a routine, repetitive and well-monitored basis then the five years' experience requirement may not be necessary. The minimum age for persons in this category shall be eighteen years.
Supervision level C "Constant"	Direct daily contact with a supervisor, at the site of operation, having readily available authoritative technical support from personnel qualified to Category 1, 2, 3 or 4.
Constraint	Any activities other than the testing and inspection to identify defects within limits defined by the persons qualified to Category 1 or 2. Any decisions involving the interpretation of limits of acceptability or permitted repairs or modifications shall have the documented approval of an authorised person qualified to Category 1 or 2.