BS EN 16753:2016

BSI Standards Publication

Gas cylinders — Periodic inspection and testing, in situ (without dismantling) of refillable seamless steel tubes of water capacity between 150 l and 3 000 l, used for compressed gases

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National foreword

This British Standard is the UK implementation of EN 16753:2016.

The UK participation in its preparation was entrusted to Technical Committee PVE/3/7, Gas containers - Gas cylinder (receptacle) operations.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Published by BSI Standards Limited 2016

ISBN 978 0 580 84076 0

ICS 23.020.30

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 June 2016.

Amendments/corrigenda issued since publication

Date	Text affected

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 16753

June 2016

ICS 23.020.30

English Version

Gas cylinders - Periodic inspection and testing, in situ (without dismantling) of refillable seamless steel tubes of water capacity between 150 l and 3 000 l, used for compressed gases

Bouteilles à gaz - Contrôles et essais périodiques sur site (sans démontage) des tubes en acier sans soudure rechargeables d'une contenance en eau de 150 l à 3 000 l, utilisés pour les gaz comprimés

Gasflaschen - Wiederkehrende Inspektion und Prüfung, im Einbauzustand (ohne Demontage), von wiederbefüllbaren nahtlosen Großflaschen aus Stahl mit einem Fassungsraum zwischen 150 l und 3 000 l für verdichtete Gase

This European Standard was approved by CEN on 15 April 2016.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Ref. No. EN 16753:2016 E

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European foreword

This document (EN 16753:2016) has been prepared by Technical Committee CEN/TC 23 "Transportable gas cylinders", the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2016, and conflicting national standards shall be withdrawn at the latest by December 2016.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

A number of seamless steel pressure vessels designed and manufactured in a similar way as tubes, as referred to in ADR are used for applications other than the transport of gases, e.g. Ice Breaking Emergency Evacuation Vessels (IBEEV), Diving Support Vessels (DSV), power generation, hospitals, advanced research applications and marine installations such as heave compensation systems on semi-submersible drilling rigs, etc.

This European Standard is applicable only to seamless steel pressure vessels installed in locations where attempting any removal from their containing superstructure would be hazardous or difficult or where the downtime required to remove the tube would hinder a continuous operation of a plant or service.

This European Standard provides information and procedures for the periodic inspection and testing of such refillable seamless steel vessels (tubes). Many of these vessels installed in various installations are certified by the manufacturer to meet the requirements of EN ISO 11120 and are designed to store compressed and liquefied gases. Other design standards are also in use.

An example of a similar approach to that adopted in this standard is that for compressed natural gas (CNG) cylinders installed on-board automobile vehicles which is described in ISO 19078.

This standard is intended to be used under a variety of regulatory regimes. In case of conflict, the applicable regulation takes precedence.

1 Scope

This European Standard specifies requirements for using a combination of appropriate *in situ* (without dismantling), non-destructive examination (NDE) techniques, for example visual examination, acoustic emission testing [AT] and ultrasonic testing [UT] when periodically inspecting and testing seamless steel pressure vessels (tubes) with a water capacity between 150 l and 3 000 l, used for compressed and liquefied gases for a further period of service.

This European Standard is applicable only to pressure vessels (tubes) installed in locations where attempting any removal from their containing superstructure would be hazardous, or where the downtime required to remove them would hinder a continuous operation of a plant or service.

This European Standard does not apply to pressure receptacles used for the transport of gases as described under the TPED.

This European Standard only applies to pressure vessel (tube) assemblies where the designs permit all necessary inspections stipulated.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1968:2002, *Transportable gas cylinders — Periodic inspection and testing of seamless steel gas cylinders*

EN ISO 9712, *Non-destructive testing — Qualification and certification of NDT personnel (ISO 9712)*

EN ISO 13769, *Gas cylinders — Stamp marking (ISO 13769)*

EN ISO 16148, *Gas cylinders — Refillable seamless steel gas cylinders and tubes — Acoustic emission examination (AT) and follow-up ultrasonic examination (UT) for periodic inspection and testing (ISO 16148)*

EN ISO 25760, *Gas cylinders — Operational procedures for the safe removal of valves from gas cylinders (ISO 25760)*

ISO 6406:2005, *Gas cylinders — Seamless steel gas cylinders — Periodic inspection and testing*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
acoustic emission (AE) activity
number of bursts (or events if the appropriate conditions are fulfilled) detected during a test or part test

3.2
flow noise
acoustic emission events caused by the action of pressurizing the vessel and not by any structural flaws within it

Note 1 to entry: This can be reduced by slowing the fill rate and/or filtering out such emissions electronically within the AE recording equipment.