PD ISO/TS 17519:2019

BSI Standards Publication

Gas cylinders — Refillable permanently mounted composite tubes for transportation

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National foreword

This Published Document is the UK implementation of ISO/TS 17519:2019.

The UK participation in its preparation was entrusted to Technical Committee PVE/3/3, Transportable Gas Containers - Cylinder Design, Construction and Testing at the Time of Manufacture.

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

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Published by BSI Standards Limited 2019

ISBN 978 0 539 04211 5

ICS 23.020.35

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

This Published Document was published under the authority of the Standards Policy and Strategy Committee on 30 June 2019.

Amendments/corrigenda issued since publication

Date	Text affected

PD ISO/TS 17519:2019

TECHNICAL SPECIFICATION

ISO/TS 17519

First edition
2019-06

Gas cylinders — Refillable permanently mounted composite tubes for transportation

Bouteilles à gaz — Tubes composites rechargeables montés de façon permanente pour le transport

Reference number
ISO/TS 17519:2019(E)

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Published in Switzerland

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 58, *Gas cylinders*, Subcommittee SC 3, *Cylinder design*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document provides a specification for the design, manufacture and initial inspection and testing of composite tubes permanently mounted in a transport frame for worldwide usage. Current standards, such as ISO 11515 and ISO 11119, do not address the interaction between the tubes and the transport frame.

This document aims to eliminate existing concerns about duplicate inspection and restrictions because of the lack of International Standards and should not be construed as reflecting on the suitability of the practice of any nation or region.

This document has been written so that it is suitable to be referenced in the UN Model Regulations[6].

This document addresses tubes of larger volume than previous documents.

This document is not applicable to on-board fuel cylinders in natural gas vehicles.

Annexes B to F are informative. Annex A is normative.

Gas cylinders — Refillable permanently mounted composite tubes for transportation

1 Scope

This document specifies the minimum requirements for the material, design construction and workmanship, manufacturing processes, examination and testing at time of manufacture of an assembly of permanently mounted composite tube(s) in a frame with associated components.

Tubes covered by the requirements of this document are:

a) of composite construction, permanently mounted in a transport frame and suitable for specified service conditions, designated as:

   1) Type 3 — a fully wrapped tube with a seamless metallic liner and composite reinforcement on both the cylindrical part and the dome ends; or

   2) Type 4 — a fully wrapped tube with a non-load sharing liner and composite reinforcement on both the cylindrical part and the dome ends.

b) with water capacities from 450 l up to and including 10 000 l;

c) containing compressed gases but excluding:

   1) liquefied gases,

   2) dissolved gases, and

   3) gases and gas mixtures which are classified for transport as toxic or oxidizing;

d) with working pressure up to 1 000 bar.

This document does not address tubes with working pressure times water capacity (p × V) more than 3 000 000 bar·l.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 306, *Plastics — Thermoplastic materials — Determination of Vicat softening temperature (VST)*

ISO 527-2, *Plastics — Determination of tensile properties — Part 2: Test conditions for moulding and extrusion plastics*

ISO 1496-3:1995, *Series 1 freight containers — Specification and testing — Part 3: Tank containers for liquids, gases and pressurized dry bulk*

ISO 2808, *Paints and varnishes — Determination of film thickness*

ISO 4624, *Paints and varnishes — Pull-off test for adhesion*

ISO 7866:2012, *Gas cylinders — Refillable seamless aluminium alloy gas cylinders — Design, construction and testing*

ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests*