Irish Standard
I.S. EN 17339:2020

Transportable gas cylinders - Fully wrapped carbon composite cylinders and tubes for hydrogen

I.S. EN 17339:2020

Incorporating amendments/corrigenda/National Annexes issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

This document is based on:	*Published:*
EN 17339:2020	2020-06-24

This document was published under the authority of the NSAI and comes into effect on:	ICS number:
2020-07-13	23.020.35
	NOTE: If blank see CEN/CENELEC cover page

NSAI	T +353 1 807 3800	Sales:
1 Swift Square,	F +353 1 807 3838	T +353 1 857 6730
Northwood, Santry	E standards@nsai.ie	F +353 1 857 6729
Dublin 9	W NSAI.ie	W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

National Foreword

I.S. EN 17339:2020 is the adopted Irish version of the European Document EN 17339:2020, Transportable gas cylinders - Fully wrapped carbon composite cylinders and tubes for hydrogen

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

For relationships with other publications refer to the NSAI web store.

Compliance with this document does not of itself confer immunity from legal obligations.

In line with international standards practice the decimal point is shown as a comma (,) throughout this document.

This page is intentionally left blank

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 17339

June 2020

ICS 23.020.35

English Version

Transportable gas cylinders - Fully wrapped carbon composite cylinders and tubes for hydrogen

Bouteilles à gaz transportables - Bouteilles et tubes entièrement bobinées en matériaux composites carbones pour l'hydrogène

Ortsbewegliche Gasflaschen - Vollumwickelte Flaschen und Großflaschen aus Kohlenstoff-Verbundwerkstoffen für Wasserstoff

This European Standard was approved by CEN on 10 May 2020.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN 17339:2020 E

Contents

Page

European foreword

This document (EN 17339:2020) 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 2020, and conflicting national standards shall be withdrawn at the latest by December 2020.

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

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

This document has been submitted for reference in:

— the RID; and

— the technical annexes of the ADR.

NOTE These regulations take precedence over any clause of this document. It is emphasised that RID/ADR are being revised regularly at intervals of two years which may lead to temporary non-compliances with the clauses of this document.

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

Introduction

The purpose of this document is to provide a specification for the design, manufacture, inspection and testing of refillable, transportable carbon fully wrapped composite cylinders and tubes filled with hydrogen and protected in a frame such as a bundle or a trailer.

The specifications given are based on knowledge of, and experience with, materials, design requirements, manufacturing processes and control during manufacture of cylinders and tubes in common use in the countries of the CEN members.

For gas cylinders covered by RID/ADR, the maximum service pressure (maximum developed pressure at 65 °C) should not exceed the test pressure. Consequently the safety factor applies to the test pressure since, whatever the gas, the maximum developed pressure (p_{max}) is, in any case, lower than or equal to the test pressure.

This document only covers compressed hydrogen (dedicated service), therefore, the safety factor is applied to the maximum developed pressure at 65 °C (p_{max}), which is the maximum accepted temperature by transport regulations.

1 Scope

This document specifies minimum requirements for the materials, design, construction, prototype testing and routine manufacturing inspections of composite gas cylinders and tubes for compressed hydrogen.

NOTE 1 Unless specified in the text, for the purposes of this document, the word “cylinder” includes tubes.

This document applies only to fully wrapped composite cylinders with carbon fibres intended to be permanently mounted in a frame (e.g. bundle or trailer) with a test pressure of not less than 300 bar, with:

— non-metallic liners or seamless metallic liners;

— a maximum water capacity of 3 000 l;

— a maximum working pressure of 1 000 bar;

— the product of working pressure times water capacity (p × V) not exceeding 1 000 000 bar.l.

NOTE 2 A glass fibre protective layer is sometimes applied to the external surface of the cylinder.

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.

EN 13807, *Transportable gas cylinders - Battery vehicles and multiple-element gas containers (MEGCs) - Design, manufacture, identification and testing*

EN ISO 75-1, *Plastics - Determination of temperature of deflection under load - Part 1: General test method (ISO 75-1)*

EN ISO 75-3, *Plastics - Determination of temperature of deflection under load - Part 3: High-strength thermosetting laminates (ISO 75-3)*

EN ISO 527-1, *Plastics - Determination of tensile properties - Part 1: General principles (ISO 527-1)*

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

EN ISO 1133-1, *Plastics - Determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics - Part 1: Standard method (ISO 1133-1)*

EN ISO 1183 (all parts), *Plastics - Methods for determining the density of non-cellular plastics*

EN ISO 1628-3, *Plastics - Determination of the viscosity of polymers in dilute solution using capillary viscometers - Part 3: Polyethylenes and polypropylenes (ISO 1628-3)*

EN ISO 2884-1, *Paints and varnishes - Determination of viscosity using rotary viscometers - Part 1: Cone-and-plate viscometer operated at a high rate of shear (ISO 2884-1)*