



BSI Standards Publication

Unfired pressure vessels

Part 5: Inspection and testing

TRACKED CHANGES


This is a preview of "BS EN 13445-5:2021 -...". [Click here to purchase the full version from the ANSI store.](#)


IMPORTANT — PLEASE NOTE

This is a tracked changes copy and uses the following colour coding:

Text example 1 — indicates added text (in green)

~~Text example 2~~ — indicates removed text (in red)

 — indicates added graphic figure or table

 — indicates removed graphic figure or table

About Tracked Changes

This document is a PDF containing a Tracked Changes version of BS EN 13445-5, which compares BS EN 13445-5:2021 with BS EN 13445-5:2014+A1:2018.

The original version of BS EN 13445-5:2021, appended at the end of this document, should be considered the version of record for this publication.

© The British Standards Institution 2021
Published by BSI Standards Limited 2021

ISBN 978 0 539 17950 7

Amendments/corrigenda issued since publication

Date	Text affected
------	---------------

National foreword

This British Standard is the UK implementation of ~~EN 13445-5:2014+A1:2018~~ EN 13445-5:2021. It supersedes ~~BS EN 13445-5:2014~~ ~~BS EN 13445-5:2014+A1:2018~~, which is withdrawn.

~~The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to CEN text carry the number of the CEN amendment. For example, text altered by CEN amendment A1 is indicated by A1.~~

The UK participation in its preparation was entrusted to Technical Committee PVE/1, Pressure Vessels.

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

Contractual and legal considerations

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

~~This publication has been prepared in good faith, however no representation, warranty, assurance or undertaking (express or implied) is or will be made, and no responsibility or liability is or will be accepted by BSI in relation to the adequacy, accuracy, completeness or reasonableness of this publication. All and any such responsibility and liability is expressly disclaimed to the full extent permitted by the law.~~

~~This publication is provided as is, and is to be used at the recipient's own risk.~~

~~The recipient is advised to consider seeking professional guidance with respect to its use of this publication.~~

~~This publication is not intended to constitute a contract. Users are responsible for its correct application.~~

~~This publication has been prepared under a mandate given to the European Standards Organizations by the European Commission and the European Free Trade Association and is intended to support essential requirements of the EU legislation detailed in the European foreword. Annex ZA/ZZ describes how the publication relates to the legislation.~~

~~For the Great Britain market (England, Scotland and Wales), if the UK Government has designated this publication for conformity with UKCA marking legislation and has not amended the essential requirements of that legislation, Annex ZA/ZZ and any references to EU law in the publication should be read in accordance with the designation as applying to UK legislation in the same way as to EU law. Further information on designated standards can be found at www.bsigroup.com/standardsandregulation.~~

~~For the Northern Ireland market, UK law will continue to implement relevant EU law subject to periodic confirmation. References to EU legislation are therefore still valid.~~

This is a preview of "BS EN 13445-5:2021 -...". Click here to purchase the full version from the ANSI store.

More information on legislation can be found at www.gov.uk.

© The British Standards Institution ~~2018~~2021
Published by BSI Standards Limited ~~2018~~2021

ISBN ~~978-0-580-97957-6~~ 978 0 539 04741 7

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 September 2014~~ 31 May 2021.

Amendments/corrigenda issued since publication

Date	Text affected
30 September 2015	Corrected version issued by CEN, see EN foreword for details
30 September 2016	Corrected version issued by CEN, see EN foreword for details
28 February 2018	Corrected version issued by CEN, see EN foreword for details
30 September 2018	Corrected version issued by CEN and implementation of CEN amendment A1:2018

This is a preview of "BS EN 13445-5:2021 -...". Click here to purchase the full version from the ANSI store.

NORME EUROPEENNE

EUROPÄISCHE NORM

September 2014 May 2021

ICS 23.020.30

Supersedes EN 13445-5:2009 EN 13445-5:2014

English Version

Unfired pressure vessels - Part 5: Inspection and testing

Réipients sous pression non soumis à la flamme -
Partie 5: Inspection et contrôle

Unbefeuerte Druckbehälter - Teil 5: Inspektion und
Prüfung

This European Standard was approved by CEN on ~~19 August 2014~~ 24 February 2021.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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, ~~Republic of North Macedonia~~, Romania, ~~Serbia~~, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

CEN-CENELEC Management Centre: ~~Avenue Marnix 17~~ Rue de la Science 23, B-1000 1040 Brussels

This is a preview of "BS EN 13445-5:2021 -...". [Click here to purchase the full version from the ANSI store.](#)

Contents

Page

1	Scope	1
2	Normative references	1
3	Terms and definitions.....	2
4	Performance of inspection and testing.....	4
4.1	General	4
4.2	Inspection.....	4
4.3	Non-destructive testing (NDT).....	4
5	Technical documents	4
5.1	General	4
5.2	Information to be contained in the technical documents.....	4
5.2.1	General	4
5.2.2	General description of the pressure vessel.....	4
5.2.3	Design and construction drawings.....	5
5.2.4	Descriptions and explanations necessary for an understanding of the drawings and diagrams and the operation of the pressure vessel	5
5.2.5	Results of design calculations and examinations carried out.....	5
5.2.6	Test reports	7
5.2.7	Technical/manufacturing schedule.....	7
5.3	Design review	8
5.3.1	General	8
5.3.2	Design review	8
6	Inspection and testing during fabrication.....	8
6.1	General	8
6.2	Manufacturing procedures and construction drawings.....	9
6.3	Material traceability.....	9
6.3.1	General	9
6.3.2	Special Conditions - Material marking.....	9
6.4	Preparation for manufacturing processes	9
6.4.1	General	9
6.4.2	Joint preparation testing	9
6.4.3	Inspection of vessel supports.....	9
6.4.4	Inspection associated with forming.....	10
6.4.5	Testing of areas subject to significant through thickness tensile stress.....	10
6.5	Welding	10
6.5.1	General	10
6.5.2	Verification of welder and welding operator qualification and procedures qualification	10
6.5.3	Inspection of repairs	10
6.6	Non-destructive testing of welded joints.....	11
6.6.1	Extent of non-destructive testing	11
6.6.2	Determination of extent of non-destructive testing	14
6.6.3	Performing non-destructive testing	25
6.6.4	Description and acceptance level of imperfections	26
6.6.5	Stage of performance	26
6.6.6	Procedure for non-destructive retesting.....	26
6.6.7	Non-destructive testing documentation	26
6.7	Destructive testing	27
6.7.1	Extent of destructive testing.....	27
6.7.2	Schedule for destructive testing	27