BS EN 60695-10-2:2014



BSI Standards Publication

Fire hazard testing

Part 10-2: Abnormal heat — Ball pressure test method

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National foreword

This British Standard is the UK implementation of EN 60695-10-2:2014. It is identical to IEC 60695-10-2:2014. It supersedes BS EN 60695-10-2:2003 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee GEL/89, Fire hazard testing.

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.

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Published by BSI Standards Limited 2014

ISBN 978 0 580 72008 6
ICS 13.220.40; 29.020

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 June 2014.

Amendments/corrigenda issued since publication

Date	Text affected

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60695-10-2

June 2014

ICS 13.220.40; 29.020

Supersedes EN 60695-10-2:2003

English Version

Fire hazard testing - Part 10-2: Abnormal heat - Ball pressure test method (IEC 60695-10-2:2014)

Essais relatifs aux risques du feu - Partie 10-2: Chaleurs anormales - Essai à la bille (CEI 60695-10-2:2014)

Prüfungen zur Beurteilung der Brandgefahr - Teil 10-2: Unübliche Wärme - Kugeldruckprüfung (IEC 60695-10-2:2014)

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
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Foreword

The text of document 89/1203/FDIS, future edition 3 of IEC 60695-10-2, prepared by IEC/TC 89 "Fire hazard testing" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60695-10-2:2014.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2014-12-26
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2017-03-26

This document supersedes EN 60695-10-2:2003.

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

This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

Endorsement notice

The text of the International Standard IEC 60695-10-2:2014 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60695-1-10	NOTE	Harmonized as EN 60695-1-10.
IEC 60695-1-11	NOTE	Harmonized as EN 60695-1-11.
IEC 60695-4:2012	NOTE	Harmonized as EN 60695-4:2012 (not modified)
IEC 60695-10-3	NOTE	Harmonized as EN 60695-10-3.
ISO 306	NOTE	Harmonized as EN ISO 306.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu

Publication	Year	Title	EN/HD	Year
IEC 60216-4-1	-	Electrical insulating materials - Thermal endurance properties - Part 4-1: Ageing ovens - Single-chamber ovens	EN 60216-4-1	-
ISO 13943	2008	Fire safety - Vocabulary	EN ISO 13943	2010
ISO 3290-1	-	Rolling bearings - Balls - Part 1: Steel balls	-	-
IEC Guide 104	-	The preparation of safety publications and the use of basic safety publications and group safety publications	-	-
ISO/IEC Guide 51	-	Safety aspects - Guidelines for their inclusion in standards	-	-
ISO 293	-	Plastics - Compression moulding of test specimens of thermoplastic materials	EN ISO 293	-
ISO 294	Series	Plastics - Injection moulding of test specimens of thermoplastic materials	EN ISO 294	Series
ISO 295	-	Plastics - Compression moulding of test specimens of thermosetting materials	EN ISO 295	-

CONTENTS

INTRODUCTION 5
1 Scope 6
2 Normative references 6
3 Terms and definitions 7
4 General description of the test method 7
5 Apparatus 7
5.1 Loading device 7
5.2 Test specimen support 8
5.3 Heating oven 8
5.4 Optical measuring instrument 9
5.5 Temperature measuring equipment 9
6 Test specimens 9
6.1 End product test method 9
6.2 Material Test method 9
6.2.1 Test specimen preparation 9
6.2.2 Test specimen dimensions 9
7 Conditioning 9
8 Test procedure 10
8.1 Selection of the test temperature 10
8.1.1 Method A – End product test method 10
8.1.2 Method B – Material performance test method 10
8.2 Heating oven and test apparatus setup 11
8.3 Test setup 11
8.4 Test specimen post conditioning 11
8.5 Measurements 12
9 Evaluation of test results 12
10 Information to be given in the relevant product standard 13
11 Test Report 13
Annex A (informative) Correlation between the ball pressure test and the Vicat test of ISO 306 14
Annex B (informative) Depth indentation method 15
Bibliography 16

Figure 1 – Loading device (example) 8
Figure 2 – Measurement of dimension d (example) 12

Table 1 – Suggested initial test temperatures 10

INTRODUCTION

In the design of any electrotechnical product, the risk of abnormal heat and the potential hazards associated with abnormal heat need to be considered. In this respect the objective of component, circuit, and product design, as well as the choice of materials, is to reduce to acceptable levels the potential risks during normal operating conditions, reasonable foreseeable abnormal use, malfunction and/or failure. IEC/TC 89 has developed IEC 60695-1-10, together with its companion, IEC 60695-1-11, to provide guidance on how this is to be accomplished.

The primary aims of IEC 60695-1-10 and IEC 60695-1-11 are to provide guidance on how:

a) to prevent ignition caused by an electrically energized component part, and
b) to confine any resulting fire within the bounds of the enclosure of the electrotechnical product in the event of ignition.

Secondary aims of IEC 60695-1-10 and IEC 60695-1-11 include the minimization of any flame spread beyond the product's enclosure and the minimization of the harmful effects of fire effluents such as heat, smoke, toxicity and/or corrosivity.

Fires involving electrotechnical products can also be initiated from external non-electrical sources. Considerations of this nature should be dealt with in the overall fire hazard assessment.

This part of IEC 60695 describes a test method where the softening and accelerated material flow under load of a polymeric material is evaluated using a weighted ball-bearing in a heating oven. It should be used to measure, describe, and rank a property of a material in response to elevated temperatures under controlled laboratory conditions. This may be useful for the evaluation of materials for use in products that may be exposed to excess thermal stress. It should also be used for the evaluation of materials used in end products. It should not be used to solely describe or appraise the fire hazard or fire risk of materials, products, or assemblies under actual abnormal conditions. However, results of this test method may be used as elements of a fire hazard assessment which takes into account all of the factors pertinent to a particular end use.

This International Standard may involve hazardous materials, operations, and equipment. It does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

FIRE HAZARD TESTING –

Part 10-2: Abnormal heat – Ball pressure test method

1 Scope

This part of IEC 60695 specifies the ball pressure test as a method for evaluating the softening temperature and accelerated material flow under load of polymeric materials and parts of end products in their ability to resist abnormal heat. It is applicable to the materials used in electrotechnical equipment, subassemblies and components, and to solid electrical insulating materials except ceramics.

NOTE The Ball Pressure test method is not appropriate for certain elastomers, foamed materials, and other materials that tend to be soft at room temperature. Product Committees are encouraged to evaluate these materials using other methods such as IEC 60695-10-3.

This basic safety publication is intended for use by technical committees in the preparation of standards in accordance with the principles laid down in IEC Guide 104 and ISO/IEC Guide 51.

One of the responsibilities of a technical committee is, wherever applicable, to make use of basic safety publications in the preparation of its publications. The requirements, test methods or test conditions of this basic safety publication will not apply unless specifically referred to or included in the relevant publications.

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.

IEC 60216-4-1, *Electrical insulating materials – Thermal endurance properties – Part 4-1: Ageing ovens – Single-chamber ovens*

ISO/IEC 13943:2008, *Fire safety – Vocabulary*

ISO 3290-1, *Rolling bearings – Balls – Part 1: Steel balls*

IEC Guide 104, *The preparation of safety publications and the use of basic safety publications and group safety publications*

ISO/IEC Guide 51, *Safety aspects – Guidelines for inclusion in standards*

ISO 293, *Plastics – Compression moulding of test specimens of thermoplastic materials*

ISO 294 (All Parts), *Plastics – Injection moulding of test specimens of thermoplastic materials*

ISO 295, *Plastics – Compression moulding of test specimens of thermosetting materials*