



**International  
Standard**

**ISO 11565**

**Road vehicles — Spark-plugs — Test  
methods and requirements**

*Véhicules routiers — Bougies d'allumage — Méthodes d'essai et  
exigences*

**Third edition  
2024-06**

iTeh Standards  
(<https://standards.iteh.ai>)  
Document Preview

[ISO 11565:2024](https://standards.iteh.ai/catalog/standards/iso/5c3768ea-42fb-4187-93c2-ae7626cdf296/iso-11565-2024)

<https://standards.iteh.ai/catalog/standards/iso/5c3768ea-42fb-4187-93c2-ae7626cdf296/iso-11565-2024>

iTeh Standards  
(<https://standards.iteh.ai>)  
Document Preview

[ISO 11565:2024](https://standards.iteh.ai/catalog/standards/iso/5c3768ea-42fb-4187-93c2-ae7626cdf296/iso-11565-2024)

<https://standards.iteh.ai/catalog/standards/iso/5c3768ea-42fb-4187-93c2-ae7626cdf296/iso-11565-2024>



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2024

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

Page

<b>Foreword</b> .....	<b>iv</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
<b>4 Test methods and requirements</b> .....	<b>1</b>
4.1 General.....	1
4.2 General characteristics.....	2
4.2.1 Test.....	2
4.2.2 Requirements.....	2
4.3 Dimensions.....	2
4.3.1 Test.....	2
4.3.2 Requirement.....	3
4.4 Mechanical performance.....	3
4.4.1 Mechanical strength of the shell.....	3
4.4.2 Tear-off resistance of the high voltage terminal.....	3
4.4.3 Bending resistance.....	3
4.4.4 Vibration resistance.....	4
4.5 Gas tightness.....	4
4.5.1 General.....	4
4.5.2 Test.....	4
4.5.3 Requirement.....	6
4.6 Thermal shock, thermal resistance.....	6
4.6.1 General.....	6
4.6.2 Test.....	6
4.6.3 Requirement.....	6
4.7 Electrical performance.....	7
4.7.1 Resistance of the incorporated element for electromagnetic interference (EMI) suppression.....	7
4.7.2 Withstand voltage of the insulator.....	7
4.8 Loading life of the incorporated resistor.....	8
4.8.1 General.....	8
4.8.2 Test.....	8
4.8.3 Requirement.....	8
<b>Annex A (informative) Test device to test the bending resistance of the insulator</b> .....	<b>10</b>
<b>Bibliography</b> .....	<b>11</b>

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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 document 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](http://www.iso.org/directives)).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at [www.iso.org/patents](http://www.iso.org/patents). ISO shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 32, *Electrical and electronic components and general system aspects*.

This third edition cancels and replaces the second edition (ISO 11565:2006), which has been technically revised. It also incorporates the Technical Corrigendum ISO 11565:2006/Cor. 1:2007.

The main changes are as follows:

- the test procedures have been divided into spark plugs for natural aspirated engines and boosted engines;
- the test sequences have been modified.

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](http://www.iso.org/members.html).

# Road vehicles — Spark-plugs — Test methods and requirements

## 1 Scope

This document specifies the test methods and requirements for the mechanical and electrical performance of spark-plugs for use with spark ignition engines.

## 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 6518-1, *Road vehicles — Ignition systems — Part 1: Vocabulary*

ISO 28741, *Road vehicles — Spark-plugs and their cylinder head housings — Basic characteristics and dimensions*

IEC 60068-2-6, *Environmental Testing — Part 2-6: Tests — Test Fc: Vibration (sinusoidal)*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 6518-1 apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

## 4 Test methods and requirements

### 4.1 General

The tests shall be carried out at an ambient temperature of  $(20 \pm 15)$  °C and a relative humidity of  $(65 \pm 20)$  % unless otherwise specified.

For each test sample in [Table 1](#), the test sequence is indicated by "X" from top to bottom.

Each test sequence shall be started with unused samples.

“Type A” refers to normally aspirated engines and “Type B” refers to boosted engines.

Which type (A or B) to be applied for each test shall be agreed between the customer and the supplier.

Table 1 — Test sequences

Characteristic to be checked	In accordance with sub-clause	Test sample					
		A	B	C	D	E	F
General characteristics (visual examination)	<a href="#">4.2</a>	X	X	X	X	X	X
Dimensions	<a href="#">4.3</a>	X	X	X	X	X	X
Resistance of the incorporated element for electromagnetic interference (EMI) suppression	<a href="#">4.7.1</a>	-	-	-	-	-	X
Loading life of the incorporated resistor	<a href="#">4.8</a>	-	-	-	-	-	X
Mechanical strength of the shell	<a href="#">4.4.1</a>	X	-	-	-	-	-
Tear off resistance of the high voltage terminal	<a href="#">4.4.2</a>	-	X	-	-	-	-
Bending resistance	<a href="#">4.4.3</a>	-	-	X	-	-	-
Gas tightness	<a href="#">4.5</a>	-	-	-	X	-	-
Withstand voltage of the insulator	<a href="#">4.7.2</a>	-	-	-	X	-	-
Vibration resistance	<a href="#">4.4.4</a>	-	-	-	X	-	-
Gas tightness	<a href="#">4.5</a>	-	-	-	X	-	-
Withstand voltage of the insulator	<a href="#">4.7.2</a>	-	-	-	X	-	-
Thermal shock, thermal resistance	<a href="#">4.6</a>	-	-	-	-	X	-
General characteristics (visual examination)	<a href="#">4.2</a>	-	X	X	X	X	-

## 4.2 General characteristics

### 4.2.1 Test

Check the characteristics specified in [4.2.2](#) by visual examination. Carry out the visual examination using the naked eye, at normal strength of vision and normal colour perception, at the most favourable viewing distance and with suitable illumination.

The user shall be able to identify the item and verify its appearance, workmanship and finish against the relevant specification based on a visual examination.

<https://standards.iteh.ai/catalog/standards/iso/5c3768ea-42fb-4187-93c2-ae7626cdf296/iso-11565-2024>

### 4.2.2 Requirements

**4.2.2.1** The external gasket, if any, shall conform to ISO 28741 for the relevant spark plug.

**4.2.2.2** The scavenging area shall be clean and without any foreign body.

**4.2.2.3** The electrodes shall be fixed in position.

**4.2.2.4** The shell shall be properly fixed to the insulator. There shall be no visible sign of corrosion. The thread shall be free from burrs or damage.

**4.2.2.5** The insulator shall be smooth and uniform without abnormal appearance. The insulator shall not show chips, cracks or signs of shock damage.

**4.2.2.6** The marking shall be as specified between customer and supplier.

## 4.3 Dimensions

### 4.3.1 Test

The dimensions shall be checked in accordance with ISO 28741, using random samples.