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# Understanding BS 1363 Amendment No.4



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## Introduction

A new Amendment applying to several parts of the BS 1363 standard was published on 31st May 2012. This standard defines safety requirements for plugs and sockets in the UK and is the basis for national standards for plugs and sockets in many countries of the world.

In this whitepaper we will outline the changes to the Standard, to enable manufacturers to:

- Consider the new requirements during the design phase of new products
- Review their existing products in the light of the changes, and where necessary revise their designs
- Anticipate and prepare for testing existing products that may comply, but need formal recognition of this with some extra assessment.

## How has the change come about and why?

The committee responsible for developing BS 1363 standards is PEL 23. It includes representatives from various stakeholder groups including manufacturers' trade associations and testing authorities. It receives inputs and requests for improvements, additions and other changes directly and via the members on behalf of stakeholders.

These changes are a direct result of those inputs and requests.

## How are Intertek involved?

As an active member of the PEL 23 committee, we work to help improve the Standard, based on our experiences from testing and certifying plugs and sockets.

As a major approval authority for plugs and other wiring accessory products, we are frequently involved with considering innovative designs of products from imaginative clients. Innovations can be intended to enhance products in a number of ways, including: aesthetics, safety, functionality and efficient use of scarce materials.

When such innovations can be of wide benefit, Intertek can present papers to the committee for discussion and possible input for future revisions of the standards.

Inevitably, not all of the suggestions for change submitted to the committee prior to the issue of Amendment No.4 could be included in it, due to the need to “draw a line” and publish important changes without further delay and for further investigations required for some suggestions. However, these suggestions will be considered for future revisions to the standards.

Intertek would be pleased to accept and discuss any comment from clients relating to BS 1363 (and other wiring accessory standards). We cannot guarantee all suggestions will lead to changes in standards but we can ensure that good suggestions for improvements are given consideration.

## **Implications for ASTA Licence holders**

Intertek will be working with ASTA Licence holders to upgrade the product certification before the previous version is withdrawn and with the minimum of additional testing and cost.

## **The Significant Change**

The most significant change for plugs in the new Standard is the addition of an overload test for plugs. This stringent new test is intended to ensure that if a plug is overloaded it should not fail in a manner to present a risk of electrocution or fire. An example of an overload situation is an extension lead having several high current appliances connected, hence exceeding the 13 Ampere rating of the plug.

This test is to address concerns following incidents of plugs melting when overloaded giving rise to a risk of electric shock

## **Smaller Changes**

Other Amendment No.4 changes include:

- General minor clarifications and corrections to previous versions.
- Updating of cross referenced standards for flexible cords, ball pressure test, glow wire test, impulse voltage test.
- Plugs with incorporated switches are now included. Previously these were outside of the scope hence were typically assessed to another standard such as BS 5733. This change should bring a more consistent evaluation of such products.

- Plugs can be fitted with larger cords for lower current ratings. This allows manufacturers to use cords with mechanical advantages for lower power applications.
- Plating of plug pins is now included. Plating of plug pins has been common practice for many years, although strictly not permitted by previous versions of BS 1363. This change is to recognise the practice and provide minimum requirements for the plating.
- Accessibility of live parts when plugs are engaged in socket-outlets and after removal of removable fuse carriers is now addressed. Some designs of plug have allowed access to live parts if the fuse carrier has not been fitted.
- Requirements for socket-outlets with stepped or curved engagement surfaces are now included. This should significantly assist with the evaluation of products with non-flat engagement surfaces and give greater consistency.
- A new test is included to confirm that 2-pin plugs cannot enter a BS 1363-2 socket-outlet. This is intended to deter the unsafe practice of engaging a plug with a socket which has not been designed to accept it.
- Temperature rise testing of portable socket-outlets incorporating more than 4 outlets has been changed to reduce the number of test plugs required to 4. This should be of benefit to testing laboratories and likely to be a more representative test.

### Specific implications for fused plugs (BS 1363-1: 1995)

Clause	Changes	Consequence of change for products already complying with Amendment No.3
Foreword Scope 4 19	Introduction of BS EN 50525 standards to replace BS 6500 after 31 <sup>st</sup> December 2012	Manufacturers of non-rewirable plugs should ask for evidence of compliance with BS EN 50525 from suppliers of flexible cords. No retesting of approved plugs/cords is likely to be required.
Scope 3.32 12.18 17 18	Plugs containing switches are now within the scope	Any plugs with switches must now be tested to this standard (previously it is likely they were assessed to BS 5733). This should be done immediately to demonstrate compliance with plug & socket Safety Regulations.

Clause	Changes	Consequence of change for products already complying with Amendment No.3
5 Table 1	Changes to schedule of tests to include new requirements.	All plugs to be tested for overload. Additional testing required for any of the following: Plugs incorporating switches Plugs with plated pins
7 Table 2	Plugs may have a rated current lower than the maximum for a given cord size.	No consequence.
8	Clarifications and improvements to text.	No retesting required except for impulse test due to changes to Annex F.
8.1.5	Minimum contact gap for plugs with switches	Only applies to plugs with switches.
9.1	Removal of detachable fuse carriers must not give access to live parts	Compliance of plugs with detachable fuse carriers should be confirmed. If fuse carrier is completely between plug pins then compliance can be confirmed by inspection.
12.9	Plugs with nickel plated pins now included and requirements introduced to confirm plating satisfactory	All plugs with nickel plated pins will need testing to confirm compliance.
19.1	Clarification and correction of references to BS 6500 Tables	Rewirable plugs should be checked with 2 core 0.5mm cord as given in BS 6500 Table 26 (probably already confirmed during Amendment No.3 compliance testing).
22.2.1	Ball pressure test now in accordance with BS EN 60695-10-2	New testing should be to the harmonised standard but plugs tested to Amendment No.3 do not need to be retested.
23.2	Glow wire test now in accordance with BS EN 60695-2-11	New testing should be to the harmonised standard but plugs tested to Amendment No.3 do not need to be retested.
26	Overload tests introduced to reduce risk of hazardous failure if plugs subjected to overload	All plugs to be tested to confirm compliance with this new requirement.
Annex B	Corrections made	No consequence
Annex F	Impulse test reference standard changed to BS EN 61180-1.	Confirmation of application of impulse voltage for Amendment No.3 compliance

Clause	Changes	Consequence of change for products already complying with Amendment No.3
	Clarification of application of impulse voltage.	testing should be reviewed to confirm requirements of Amendment No. 4 also fulfilled. In case of doubt the test should be repeated.
Annex G	Informative Annex added to cross refer between BS 6500 and BS EN 50525 series.	No consequence.
Figure 4b	Dimensions corrected	Plugs with castellated ISODs should have compliance confirmed (no issues expected as the error corrected was quite obvious and evaluation likely to have been to the <i>intended</i> dimension)

### Specific Implications for socket-outlets (BS 1363-2:1995)

Clause	Changes	Consequence of change for products already complying with Amendment No.3
Foreword Scope 4 19	Introduction of BS EN 50525 standards to replace BS 6500 after 31 <sup>st</sup> December 2012	Manufacturers of non-rewirable portable socket-outlets should ask for evidence of compliance with BS EN 50525 from suppliers of flexible cords. No retesting of approved sockets/cords is likely to be required.
5 Table 1	Correction of Annex for tracking test	No consequence
8	Clarifications and improvements to text.	No retesting required except for impulse test due to changes to Annex F.
13.1	Revised wording to better cover sockets with stepped and/or curved engagement surfaces	Socket-outlets with flat engagement surfaces are not affected. Socket-outlets with stepped or curved engagement surfaces should be checked for compliance.
13.5.1 13.6.1	Clarification that shutters must not affect test results.	In case of doubt, retesting may be required.
13.7	New requirement that shutter must not open when 2-pin plug applied	Testing of 13.7.2 required.

Clause	Changes	Consequence of change for products already complying with Amendment No.3
16.1.3	Change of test arrangement for portable socket-outlets having more than 4 outlets	Temperature rise tests of clause 16 should be repeated on portable socket-outlets having more than 4 outlets.
16.1.4	New requirement for sockets with more than one terminal for line and/or neutral connections	Additional test required for sockets with more than one terminal for line and/or neutral connections
22.2.1	Ball pressure test now in accordance with BS EN 60695-10-2	New testing should be to the harmonised standard but sockets tested to Amendment No.3 do not need to be retested.
23.2	Glow wire test now in accordance with BS EN 60695-2-11	New testing should be to the harmonised standard but sockets tested to Amendment No.3 do not need to be retested.
Annex B	Corrections made	No consequence
Annex F	Impulse test reference standard changed to BS EN 61180-1. Clarification of application of impulse voltage.	Confirmation of application of impulse voltage for Amendment No.3 compliance testing should be reviewed to confirm requirements of Amendment No. 4 also fulfilled. In case of doubt the test should be repeated.
Annex H	Informative Annex added to cross refer between BS 6500 and BS EN 50525 series.	No consequence.

### Specific Implications for fused connection units (BS 1363-4: 1995)

Clause	Changes	Consequence of change for products already complying with Amendment No.3
Foreword Scope 4 19	Introduction of BS EN 50525 standards to replace BS 6500 after 31 <sup>st</sup> December 2012	No retesting is likely to be required.
5 Table 1	Correction of Annex for tracking test	No consequence
5 Table 1 13.8	Addition of clause 13.8 in sequence 1	New requirement for FCUs with indicator lamps
8	Clarifications and improvements to text.	No retesting required except for impulse test due to changes to Annex F.
11.2	New requirement: separate terminals required for supply and load terminals.	Inspection required to confirm compliance.
22.2.1	Ball pressure test now in accordance with BS EN 60695-10-2	New testing should be to the harmonised standard but FCUs tested to Amendment No.3 do not need to be retested.
23.2	Glow wire test now in accordance with BS EN 60695-2-11	New testing should be to the harmonised standard but FCUs tested to Amendment No.3 do not need to be retested.
Annex B	Corrections made	No consequence
15.2 Annex F	Impulse test reference standard changed to BS EN 61180-1. Clarification of application of impulse voltage.	Confirmation of application of impulse voltage for Amendment No.3 compliance testing should be reviewed to confirm requirements of Amendment No. 4 also fulfilled. In case of doubt the test should be repeated.
Annex G	Informative Annex added to cross refer between BS 6500 and BS EN 50525 series.	No consequence.

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*For more information on specific testing and certification information visit our website at [www.intertek.com](http://www.intertek.com).*

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