

Inspection Requirements for Non-Rewirable Plugs, Appliance Connectors and Cord Sets

This document defines the checks, controls, tests and verifications to be implemented by a manufacturer of ASTA Approved non-rewirable plugs, connectors and cord sets.

Scope:

This document is applicable to all manufacturers of the following non-rewirable products;

Plugs to ASTA Standards 115, 120, 121, 122, 126, 128 & 129, ASTA Standard 1363 Part 1, BS 546, BS1363: 1984, BS 1363 Part 1 1995 & BS 4573.

Appliance Connectors to BS 4491 Part 1, EN 60 320 Part 1, IEC 60320.

Plug Connectors to EN 60 320-2-1, IEC 60320-2-1.

Process Checks & Controls:

General:

- a) Each mould tool cavity shall be uniquely marked for identification purposes.
- b) Samples from each new or modified cavity shall be checked for compliance with the dimensional requirements of the appropriate product standard prior to being introduced into production. The manufacturer shall notify ASTA of any such introduction and shall also provide ASTA with a copy of the inspection results.
- c) Samples from each new or modified cavity shall be checked against the specifications and drawings which define the current version of the ASTA Approved product to ensure that they are identical in every way. The manufacturer shall notify ASTA of any differences or deviations from the Approved product specification and shall also provide ASTA with a copy of the inspection/assessment results.
- d) Samples from each new or modified cavity shall be forwarded to ASTA for acceptance prior to being introduced into production.

In-Process Inspections & Tests:

1. Each product or cord set shall be checked for satisfactory appearance. This shall include a check of correct moulding, clear image of manufacturer's name; trade mark and type reference; product standard number, ASTA Diamond Mark and 'Approved by ASTA.....' marking as appropriate.
2. Each product or cord set shall be checked for continuity and polarity.
3. Each product or cord set shall be subjected to the electrical tests defined in ASTA Guidance Document No. 7 'Electrical Testing of ASTA Approved Products'.
4. All welded non-rewirable products shall be subject to a 100% check to verify the effectiveness of the weld between the base and the cover by subjecting the cover to a

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pull of at least 60N with the base held in retention. The test shall not damage the product nor shall it cause the cover to become detached from the base.

When, in the opinion of ASTA, it is not practical to perform this check, samples of such products shall be selected at random, against a programme agreed with ASTA, for weld verification tests. In this case, manufactured products must be bonded until the welding process has been verified as being adequate. Where the weld test identifies a non-compliance in the welding process the bonded samples shall be subjected to a 100% test of weld integrity prior to release.

5. Samples which satisfactorily complete the routine tests shall be marked automatically to show the tests have been completed. It shall not be possible to so mark the products without completing the routine test programme.
6. Failure during any of the tests of 2, 3 and 4 above shall produce a warning to the operator. It shall not be possible to remove a faulty product or cord set from the test facility without rendering the product or cord set unfit for service or without the authority of the person or persons responsible for quality assurance. Such action shall not damage the interior of the plug or connector.

A record shall be kept of the number of samples rejected during the above tests. The records shall identify the reason for rejection and shall be retained for examination by ASTA during routine factory visits.

7. Each test set shall be checked and calibrated regularly and a record of these checks shall be kept. This shall include daily checks of each test set to show the correct operation by use of suitable test pieces to verify every possible failure mode that the test set is required to identify.
8. Products or cord sets passed by a test set must be bonded until the test set has been re-checked. Where the re-check identifies a test set malfunction the bonded samples shall be re-submitted to the tests prior to release. The bonding procedure will not apply if it can be shown to the satisfaction of ASTA, that a test set is automatically self checking and fail safe.
9. All products or cord sets shall be inspected to check:
 - i) that they carry the mark showing that all routine tests have been satisfactorily completed.
 - ii) that any user instructions are attached. Refer to ASTA Guidance Document No. 3 'Non-rewirable and Pre-wired Plugs & Cord Sets Intended for use in the U.K.'.

Note: For cord sets, where routine tests on the connector are performed concurrently with routine tests on the plug, it is not necessary to mark both the connector and the plug provided that either the connector or the plug is marked showing satisfactory completion of the tests.

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- iii) that the fuse fitted to the plug corresponds to the rating marked on the plug and that is the rating appropriate to the flexible cord fitted as defined within Table 2 of BS 1363: Part 1: 1995.
- iv) the fuse carrier or cover has been fitted.

Daily Checks:

Where normal tool control and inspection does not ensure compliance with the dimensional requirements of the appropriate product standard, a minimum of 10 samples of each product or cord set shall be selected at random from production samples at the start of and the end of each days production and checked for compliance with the following clauses of this ASTA Guidance Document and the appropriate product specification/s;

Visual Appearance.
Marking.
Dimensions. *
Creepage Distances and Clearances.

- * It is recommended that a calibrated Fig. 5. gauge conforming to the requirement of BS 1363 be used to verify pin dimensions and disposition in accordance with Clause 12.2 of BS1363

Ratification of Manufacturer's Procedures by ASTA

The manufacturer shall submit the following, prior to implementation of the production process, for ratification by ASTA;

Procedures and Work Instructions that meet the requirements of this Guidance Document.

Note: Where due to the innovative nature of the product some of the requirements of this document cannot be achieved, the manufacturer shall establish an alternative assessment method which is agreed and formally accepted by ASTA to demonstrate an equivalent level of assurance of conformity.

6 samples of the products concerned, 3 of which should be in a disassembled form.

Details of the plant, equipment and test units that are used for production, control or verification processes.

Important Notes

Any amendment to the procedures or processes must be advised to ASTA prior to implementation.

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Cord Sets**

All documents, procedures, instruction and data relating to the manufacture of ASTA Approved products shall form part of the manufacturer's registered quality system.

Further information relating to the contents of this document, or on any matter relating to the production, control and verification of products can be obtained directly from the ASTA Certification Services, at the address below.